Coachella Valley Integrated Regional Water Management Implementation Grant Proposal – Round 2

Submitted by Coachella Valley Water District

On behalf of the Regional Water Management Group and the Planning Partners

This *Coachella Valley IRWM Implementation Grant Proposal – Round 2* is being submitted to the California Department of Water Resources (DWR) for consideration of implementation grant funding through the IRWM Grant Program. The following checklist presents the required elements of a grant application funded by the IRWM Grant Program. The checklist consists of four sections or "tabs" as outlined in the *IRWM Grant Program Guidelines*. The *Coachella Valley IRWM Implementation Grant Proposal – Round 2* has been submitted electronically through the BMS/GRanTS and four hard copies have been delivered to DWR.

The *Coachella Valley IRWM Implementation Grant Proposal – Round 2*, comprised of this checklist and 13 attachments, will verify individual project eligibility, completeness, and readiness-to-proceed to implementation. The projects selected for this proposal were screened through the region's adopted prioritization process that identified five high-priority projects. These five projects were specifically selected by the Coachella Valley Regional Water Management Group (CVRWMG) and Planning Partners to meet the critical water resource issues and concerns of the Coachella Valley.

Grant Application Checklist

APPLICANT INFORMATION TAB		
APPLICANT INFORMATION		
✓	Organization Name	Coachella Valley Water District
✓	Tax ID	95-6000827
✓	Point of Contact	Patti Reyes
✓	Proposal Name	*Coachella Valley IRWM Implementation Grant Proposal – Round 2*
✓	Proposal Objective	The Coachella Valley IRWM Region is committed to implementing regional goals and objectives established in the IRWM Plan, including (1) optimizing water supply reliability, (2) protecting or improving water quality, and (3) ensuring cultural, social, and economic sustainability of water in the Coachella Valley. The five projects in this proposal will diversify water supply, improve water quality, and meet critical water and wastewater needs of disadvantaged communities (DACs) and tribes, three critical issues in the Coachella Valley. The *Coachella Valley Salt and Nutrient Management Program* will involve completion of a Salt and Nutrient Management Plan, which will facilitate current and future use of recycled water, an important component of the Region's strategy to manage groundwater overdraft via source substitution. The *Non-Potable Water Use Expansion Program* will connect local golf courses to non-potable water sources, thereby completing source substitution and helping to offset imported water demands. Both of these projects will help to meet IRWM objectives associated with local water supply provisions and managing overdraft. The *Groundwater Quality Protection Program – Sub-Area D-2* and the *San Antonio del Desierto DAC Sewer Extension Project* will provide wastewater infrastructure to disadvantaged communities (DACs) that have failing or inadequate wastewater

		disposal systems, thereby helping to protect groundwater quality and meet critical wastewater needs of DACs. The *Torres-Martinez Avenue 64 Water Supply Connection Project* will provide work for future connection of a tribal DAC to a municipal water supply system, which will help to provide a long-term solution to the water supply needs of a tribal community. This proposal includes a suite of projects identified by the CVRWMG and Planning Partners to best meet the current challenges of Coachella Valley. The complete proposal offers an integrated solution to the Valley's water supply and water quality needs.
BUDGET		
✓	Other Contribution	$0
✓	Local Contribution	$3,145,780
✓	Federal Contribution	$954,936
✓	In-kind Contribution	$199,959
✓	Amount Requested	$5,240,000
✓	Total Proposal Cost	$9,540,674
GEOGRAPHIC INFORMATION		
✓	Latitude	DD 33 MM 45 SS 19
✓	Longitude	DD -116 MM 19 SS 43
✓	Longitude/Latitude Clarification	http://itouchmap.com/latlong.html
✓	Location	Coachella Valley IRWM Region
✓	County	Imperial County Riverside County San Bernardino County San Diego County
✓	Groundwater Basin	Coachella Valley – Desert Hot Springs Coachella Valley – Indio Coachella Valley – Mission Creek
✓	Hydrologic Region	Colorado River
✓	Watershed	Whitewater River
LEGISLATIVE INFORMATION		
✓	State Assembly District	42, 56, 71
✓	State Senate District	18, 23, 31, 36, 37, 40
✓	U.S. Congressional District	36

APPLICANT INFORMATION AND QUESTIONS TAB		
✓	Q1. Proposal Description	The Coachella Valley IRWM Region is committed to implementing the regional goals and objectives established in the 2010 Coachella Valley IRWM Plan, including (1) optimizing water supply reliability, (2) protecting or improving water quality, (3) providing stewardship of water-related natural resources, (4) coordinating and integrating water resources management, and (5) ensuring cultural, social, and economic sustainability of water in the Coachella Valley. Implementation of the water resource projects identified in the IRWM Plan are now needed in order to fully realize the regional benefits offered by integrated planning. The five projects in this proposal will diversify water supply, improve water quality, and meet critical water and wastewater needs of disadvantaged communities (DACs) and tribes, three critical issues in the Coachella Valley. The *Coachella Valley IRWM Implementation Grant Proposal* provides authorization documentation, proof of formal adoption, work plans, budges, schedules, and other project details. Below is a listing of the five proposed projects. Please note that Projects 3, 4, and 5 will directly address critical water supply or water quality issues for DACs, and Project 5 will directly address the critical water supply needs of a Native American Tribal community. 1. *Non-Potable Water Use Expansion Program* – This program is a form of source substitution - the delivery of an alternate source of water to users who currently depend on groundwater pumping. The substitution of an alternate non-potable water source reduces groundwater extraction and allows the groundwater to remain in storage, thus reducing overdraft. It also matches source to use by providing untreated non-potable water for outdoor irrigation in lieu of higher quality groundwater. 2. *Coachella Valley Salt and Nutrient Management Program* – The Program will implement the analytical and planning tasks needed to develop a SNMP for the Coachella Valley Groundwater Basin that is compliant with the State's Recycled Water Policy. Compliance with this policy is necessary for continued approval of recycled water permits in the Basin. Therefore, developing the SNMP will enable continued use and expansion of the Valley's water recycling efforts, which are an important component of the Region's groundwater management strategy. 3. *Groundwater Quality Protection Program-Sub-Area D-2*– This project will extend municipal sewers to Sub-area D2 in Assessment District 12, thus eliminating the need for on-site septic systems that that overlie the Desert Hot Springs Subbasin. This project will eliminate 382 septic tanks that threaten contamination of groundwater supply, protect hot mineral water which is the economic basis of the community's spa industry and protect residents of a DAC from significant costs that would result if treatment of the potable water supply were necessary due to contamination. 4. *San Antonio del Desierto DAC Sewer Extension Project* – This project will provide sanitary sewer service to the residents of a mobile home park within a DAC. The mobile home park's current wastewater treatment and disposal system consists of wastewater lagoons that are located within close proximity

		to residents of the mobile home park. These lagoons currently present a public health and safety risk to residents, and must be replaced with a sanitary sewer system in order to obtain proper permitting for the park. Without permitting, the park could shut down, which would displace and disrupt the lives of approximately 400 community members consisting of low-income migrant farm workers. 5. *Torres-Martinez Avenue 64 Water Supply Connection Project* – This project will provide design and engineering necessary to ultimately connect a DAC tribal community to a municipal water system. This project is considered a critical need as the existing potable water system presents many health and safety risks to the tribal community. Therefore, this project will provide safe and reliable water and infrastructure conditions to a DAC tribal community.
✓	Q2. Project Director	Mr. Jim Barrett Acting General Manager Coachella Valley Water District P.O. Box 1058 Coachella, CA 92236 (760) 398-2661 jbarrett@cvwd.org
✓	Q3. Project Management	Ms. Patti Reyes Planning and Special Programs Manager Coachella Valley Water District P.O. Box 1058 Coachella, CA 92236 (760) 398-2661 preyes@cvwd.org
✓	Q4. Applicant Information	Coachella Valley Water District P.O. Box 1058 Coachella, CA 92236 (760) 398-2661
✓	Q5. Additional Information	The projects are located within the Colorado River Basin Funding Area.
✓	Q6. DAC Waiver Cost Share Request	A DAC cost share waiver is not being requested for this proposal.
✓	Q7. Responsible Regional Water Quality Control Board(s):	The Coachella Valley IRWM Region lies within the Colorado River Regional Water Quality Control Board (Region 7).
✓	Q8. Eligibility	This proposal meets the requirements of Proposition 84 regarding a minimum funding match of 25%. The projects within this proposal have a cumulative funding match of 45% of total project costs.
✓	Q9. Eligibility	Yes, the application represents a single application from an IRWM Region approved in the RAP. The Coachella Valley IRWM Region was approved in the 2009 RAP cycle.

✓	Q10. Eligibility	Yes, the Coachella Valley Water District (representing the CVRWMG) is a local public agency as defined in Appendix B of the Grant Guidelines.
✓	Q11. Eligibility	The urban water suppliers that will receive funding from the proposed grants include: Coachella Valley Water District and Mission Springs Water District. 1. Agency Name: Coachella Valley Water District • Contact Person: Patti Reyes • Contact Phone Number: (760) 398-2661 • Contact Email Address: preyes@cvwd.org 2. Agency Name: Mission Springs Water District • Contact Person: John Soulliere • Contact Phone Number: (760) 329-5169 • Contact Email Address: jsoulliere@mswd.org CVWD and MSWD have submitted self certification of compliance with CWC §525 et seq. and AB 1420.
✓	Q12. Eligibility	Yes, the Coachella Valley Water District and Mission Springs Water District have both submitted complete 2010 UWMPs to DWR. Those plans have been verified by DWR, because they are included on DWR's website of compiled 2010 UWMPs: http://www.water.ca.gov/urbanwatermanagement/2010uwmps/
✓	Q13. Eligibility	Yes, the Coachella Valley Water District and Mission Springs Water District have both submitted an AB1420 Self-Certification Statement - Table 1 & 2 to DWR, are currently implementing the BMPs consistent with AB 1420, and are eligible to receive water management grant or loan funds.
✓	Q14. Eligibility	None of the projects in this proposal will directly affect groundwater levels or quality.
✓	Q15. Eligibility	N/A
✓	Q16. Eligibility	Yes, the Coachella Valley IRWM Region receives imported water supplies through the State Water Project.
✓	Q17. Eligibility	Yes, the Coachella Valley IRWM Plan reduces dependence on future additional imported water supplies through water conservation, source substitution, and recycling.
✓	Q18. Eligibility	Yes, the Coachella Valley IRWM Plan Update (currently under development) will continue to reduce dependence on additional Delta water supplies.
✓	Q19. Eligibility	Yes, Coachella Valley Water District is an agricultural water supplier that will receive funding from the proposed grant. 1. Agency Name: Coachella Valley Water District • Contact Person: Patti Reyes • Contact Phone Number: (760) 398-2661 • Contact Email Address: preyes@cvwd.org
✓	Q20. Eligibility	Coachella Valley Water District (CVWD) is exempt from the Agricultural Water Management Plan requirement due to its status as a signatory to the Quantification Settlement Agreement (QSA), and because CVWD sends information regarding agricultural water management to the United States Bureau of Reclamation.

✓	Q21. Eligibility	There are no surface water diverters that will receive funding from the proposed grant.
✓	Q22. Eligibility	N/A
✓	Q23. Eligibility	CVWD and MSWD are both groundwater users that will receive funding from the proposed grant. 1. Agency Name: Coachella Valley Water District • Contact Person: Patti Reyes • Contact Phone Number: (760) 398-2661 • Contact Email Address: preyes@cvwd.org 2. Agency Name: Mission Springs Water District • Contact Person: John Soulliere • Contact Phone Number: (760) 329-5169 • Contact Email Address: jsoulliere@mswd.org
✓	Q24. Eligibility	CVWD and MSWD have both met the requirements of DWR's CASGEM Program. Both agencies have, on or before January 1, 2012, began reporting seasonal groundwater elevation measurements to DWR.
	PROJECTS TAB	
	1. PROJECT INFORMATION	
✓	Project Name	***Non-Potable Water Use Expansion Program***
✓	Implementing Organization	Coachella Valley Water District
✓	Secondary Implementing Organization	N/A
✓	Proposed Start Date	October 1, 2013
✓	Proposed End Date	June 30, 2017
✓	Scope of Work	Implement seven non-potable water connections, supply 8,050 AFY of non-potable water, and offset 8,050 AFY of groundwater pumping
✓	Project Description	The proposed *Non-Potable Water Use Expansion Program* is a form of source substitution - the delivery of an alternate source of water to users who currently depend on groundwater pumping. The substitution of an alternate water source reduces groundwater extraction and allows the groundwater to remain in storage, thus reducing overdraft. It also matches source to use by providing untreated Colorado River water (Canal water) and recycled water for outdoor irrigation in lieu of higher quality groundwater. Canal water and recycled water are significant existing local resources that are underutilized for agricultural and golf course irrigation. Backbone distribution systems exist to deliver non-potable water, but funding is needed to connect potential customers to existing non-potable water distribution systems and further reduce groundwater pumping.

		In the eastern portion of the Coachella Valley (generally east of Washington Street), the Coachella Canal (Canal) and its adjacent irrigation distribution system have delivered Canal water to the agricultural community since 1950. However, this system has not been fully utilized. In the western portion of the Coachella Valley, the backbone of the area's non-potable water system, the Mid-Valley Pipeline (MVP), was completed in 2008. It has the capacity to serve approximately 50 golf courses. There are over 110 golf courses in the Coachella Valley with access to non-potable water. CVWD has entered a standardized non-potable water use agreement with 43 of these golf courses that requires them to meet at least 80% of their demand with non-potable water. Of these 43 courses, 14 receive water from the MVP system and 29 receive water from the Canal distribution system. This project would fund the design and construction of three West Valley golf course connections (connections to the MVP), one improvement to a pump station, and four East Valley golf course connections (to the Canal system) that are more or less shovel ready.
✓	Project Objective	The purpose of this project is to reduce groundwater overdraft by providing non-potable water supply for irrigation in lieu of groundwater. The project objectives are to: 1) Reduce groundwater overdraft by providing non-potable water supplies to golf courses in lieu of groundwater pumping. 2) Match source to use by providing Canal water and recycled water for outdoor irrigation in lieu of higher quality groundwater, 3) Maximize use of local non-potable water resources.
1. PROJECT BENEFITS INFORMATION		
The Proposal Solicitation Package (page 14) says please do not enter any information into BMS/GRanTS for the Project Benefits Questions.		
1. BUDGET		
✓	Other Contribution	$0
✓	Local Contribution	$1,080,478
✓	Federal Contribution	$0
✓	In kind Contribution	$0
✓	Amount Requested	$2,000,000
✓	Total Project Cost	$3,080,478
1. GEOGRAPHIC INFORMATION		
✓	Latitude	DD 33 MM 42 SS 35
✓	Longitude	DD -116 MM 16 SS 16
✓	Location	Intersection of the Coachella Canal and the Colorado River Aqueduct
✓	County	Riverside County
✓	Groundwater Basin	Coachella Valley – Indio
✓	Hydrologic Region	Colorado River
✓	Watershed	Whitewater River

1. LEGISLATIVE INFORMATION		
✓	State Assembly District	42, 56
✓	State Senate District	37, 40
✓	U.S. Congressional District	36
2. PROJECT INFORMATION		
✓	Project Name	***Salt and Nutrient Management Program***
✓	Implementing Organization	Coachella Valley Water District
✓	Secondary Implementing Organization	Coachella Valley Regional Water Management Group
✓	Proposed Start Date	October 1, 2013
✓	Proposed End Date	December 31, 2015
✓	Scope of Work	Complete a Salt and Nutrient Management Plan that is compliant with the Recycled Water Policy.
✓	Project Description	The project will implement the analytical and planning tasks needed to develop a SNMP for the Coachella Valley Groundwater Basin that is compliant with the State's Recycled Water Policy. Key tasks include: 1. Establish a collaborative process of stakeholders interested in groundwater management. 2. Characterize the groundwater basins, including identifying the groundwater basins to be evaluated, collecting and reviewing existing groundwater data, documenting beneficial uses, characterizing groundwater quality, identifying constituents of concern, and establishing baseline conditions. 3. Identify salt/nutrient loading and trends by identifying sources, and then quantifying salt/nutrient source loads and developing a plan for data gaps. 4. Identify water management goals and potential strategies, which would entail developing a list of potential management strategies, evaluating the feasibility of those potential management strategies, and then conducting an assimilative capacity analysis. 5. Conduct anti-degradation process, which includes assessing load reduction and water quality improvements, and identifying preferred management strategies. 6. Finalize the SNMP, which includes developing an implementation plan, identifying metrics and developing a monitoring plan, developing data management, reporting, and audit processes, determining CEQA/NEPA compliance needs, and producing the SNMP document. Successful completion of the SNMP is necessary to ensure compliance with the Recycled Water Policy, which is necessary for continued approval of recycled water permits in the Basin. Therefore, developing the SNMP will enable continued use and expansion of the Valley's water recycling efforts, which are an important

		component of the Region's groundwater management strategy. This program allows the Region's water and wastewater agencies to better manage salts and nutrients in the groundwater basin to preserve the high quality groundwater supply used for potable purposes.
✓	Project Objective	The project objectives are to: 1) Establish a collaborative process of Coachella Valley stakeholders to address groundwater management. 2) Characterize groundwater basins, identify salt/nutrient loading and trends, and evaluate management strategies. 3) Develop SNMP that supports management of groundwater quality.
2. PROJECT BENEFITS INFORMATION		
The Proposal Solicitation Package (page 14) says please do not enter any information into BMS/GRanTS for the Project Benefits Questions.		
2. PROJECT BUDGET		
✓	Other Contribution	$0
✓	Local Contribution	$0
✓	Federal Contribution	$0
✓	In kind Contribution	$177,540
✓	Amount Requested	$500,000
✓	Total Project Cost	$677,540
2. GEOGRAPHIC INFORMATION		
✓	Latitude	DD 33 MM 45 SS 19
✓	Longitude	DD -116 MM 19 SS 43
✓	Location	Groundwater Basins within the Coachella Valley IRWM Region
✓	County	Imperial County Riverside County San Bernardino County San Diego County
✓	Groundwater Basin	Coachella Valley – Desert Hot Springs Coachella Valley – Indio Coachella Valley – Mission Creek
✓	Hydrologic Region	Colorado River
✓	Watershed	Whitewater River
2. LEGISLATIVE INFORMATION		
✓	State Assembly District	42, 56, 71
✓	State Senate District	18, 23, 31, 36, 37, 40
✓	U.S. Congressional District	36

3. PROJECT INFORMATION		
✓	Project Name	***Groundwater Quality Protection Program – Subarea D2***
✓	Implementing Organization	Mission Springs Water District
✓	Secondary Implementing Organization	N/A
✓	Proposed Start Date	October 1, 2013
✓	Proposed End Date	July 31, 2017
✓	Scope of Work	Remove 382 septic systems from service, and connect a portion of the Desert Hot Springs community to the MSWD sewer system.
✓	Project Description	The City of Desert Hot Springs, which is classified as a DAC, is located within the MSWD service area, which is located within the Colorado River Basin. This community overlays the Desert Hot Springs groundwater aquifer, groundwater basin containing hot mineral water. This water serves as the economic basis of the City of Desert Hot Springs, because it draws visitors to the City's numerous spa resorts and hotels. Portions of the City of Desert Hot Springs have septic tank densities that are 2.3 to 2.8 times higher than the density recommended by the RWQCB. As such, the high density of the septic systems potentially threaten the water quality of the local groundwater supply. These septic systems also potentially threaten the local economy, which is highly dependent on hot mineral water to support the spa and hotel industry. Assessment District 12 was approved by voters in 2004, providing approximately $28 million of matching funds that expires in 2014. This money was used to fund engineering design of a wastewater collection system that will abate approximately 6,000 on-site septic systems. Design of 10 sub-areas that make up the Assessment District is complete, and funds are now needed for construction. Environmental compliance documentation was completed in 1998 and re-certified in 2007. The project area, Subarea D2, consists of 582 parcels and 382 existing on-site septic systems that will be converted to sewers. Wastewater collected by the MSWD sewer system would be sent to the existing Horton Wastewater Treatment Plant (WWTP), where it would be beneficially reused via percolation. Project construction includes installing 18,555 lineal feet of 8-inch vitrified clay pipe (VCP) sewer, 15,281 lineal feet of 4-inch VCP sewer laterals, 70 manholes, and all appurtenances. Final design work for Subarea D2 was completed in 2010, and construction is currently ready to bid. As such, this project is at 100% completion of design.
✓	Project Objective	The project objectives are to: 1) Expand the wastewater collection system in Subarea D2 and connect 582 parcels (382 on-site septic systems) to the MSWD system. 2) Abate potential water quality threats associated with 382 on-site septic systems. 3) Protect the hot mineral water that is the basis of the spa economy for the City of Desert Hot Springs and the Coachella Valley. 4) Reduce the septic tank

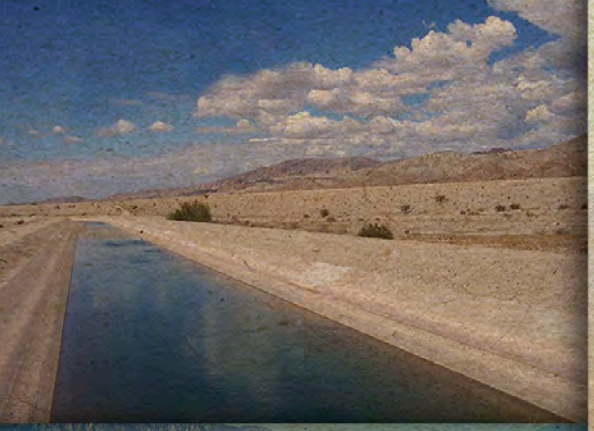
		density in Sub Area D2 to at or near the density recommended by the RWQCB.
3. PROJECT BENEFITS INFORMATION		
The Proposal Solicitation Package (page 14) says please do not enter any information into BMS/GRanTS for the Project Benefits Questions.		
3. PROJECT BUDGET		
✓	Other Contribution	$0
✓	Local Contribution	$1,980,952
✓	Federal Contribution	$0
✓	In kind Contribution	$0
✓	Amount Requested	$1,845,000
✓	Total Project Cost	$3,825,952
3. GEOGRAPHIC INFORMATION		
✓	Latitude	DD 33 MM 58 SS 36
✓	Longitude	DD -116 MM 30 SS 6
✓	Location	Subarea D2 within Assessment District 12 in Desert Hot Springs
✓	County	Riverside County
✓	Groundwater Basin	Coachella Valley – Desert Hot Springs Coachella Valley – Mission Creek
✓	Hydrologic Region	Colorado River
✓	Watershed	Whitewater River
3. LEGISLATIVE INFORMATION		
✓	State Assembly District	56
✓	State Senate District	23
✓	U.S. Congressional District	36
4. PROJECT INFORMATION		
✓	Project Name	***San Antonio del Desierto DAC Sewer Extension Project***
✓	Implementing Organization	Pueblo Unido Community Development Corporation (PUCDC
✓	Secondary Implementing Organization	N/A
✓	Proposed Start Date	October 1, 2013
✓	Proposed End Date	December 29, 2016
✓	Scope of Work	Connect 400 disadvantaged community members within a mobile home park to

		the CVWD municipal water system.
✓	Project Description	The San Antonio del Desierto (St. Anthony) Mobile Home Park is located in the eastern Coachella Valley in an unincorporated portion of Riverside County known as Mecca. This mobile home park is considered an economically disadvantaged community (DAC) per requirements established by DWR. The mobile home park is owned by the Pueblo Unido Community Development Corporation (PUCDC), which is in the process of acquiring legal permitting for the mobile home park in the form of a Conditional Use Permit (CUP) from the County of Riverside. One of the conditions of the CUP is that the mobile home park must convert to a sanitary wastewater system, as the mobile home park currently relies upon five (5) anaerobic wastewater treatment lagoons for wastewater treatment and disposal. Inadequate design of the lagoons, including lack of proper lining, location, and unstable dikes, make contamination from the lagoons a serious public health threat, and urge the need to provide a sanitary and reliable wastewater disposal and treatment system for residents of the mobile home park. Inadequate design of the lagoons provides concerns relating to the health and safety of mobile home park residents, and also presents water quality concerns within and surrounding the project area. The project area is underlain by a shallow groundwater aquifer with a high water table. As such, inadequate lagoon conditions pose a potential threat to groundwater quality within the surrounding area as wastewater and associated contaminants from the lagoons could potentially contaminate the groundwater due to the lack of an adequate barrier lining the lagoons. The project proposes the installation of a gravity sewer pipeline, lift station, and a sewer force main pipeline that would collect wastewater from the mobile home park. The project would provide sewer service to the residents and convey the wastewater to CVWD's Water Reclamation Plant No. 4.
✓	Project Objective	The project objectives are to: 1) provide sewer sanitary collection service. 2) abandon the existing wastewater lagoons, and 3) improve the quality of water services to the community
4. PROJECT BENEFITS INFORMATION		
The Proposal Solicitation Package (page 14) says please do not enter any information into BMS/GRanTS for the Project Benefits Questions.		
4. PROJECT BUDGET		
✓	Other Contribution	$0
✓	Local Contribution	$84,350
✓	Federal Contribution	$886,886
✓	In kind Contribution	$7,200
✓	Amount Requested	$740,000
✓	Total Project Cost	$1,718,436
4. GEOGRAPHIC INFORMATION		
✓	Latitude	DD 33 MM 33 SS 34
✓	Longitude	DD -116 MM 4 SS 38

✓	Location	Unincorporated community of Mecca, in Riverside County
✓	County	Riverside County
✓	Groundwater Basin	Coachella Valley – Indio
✓	Hydrologic Region	Colorado River
✓	Watershed	Whitewater River
4. LEGISLATIVE INFORMATION		
✓	State Assembly District	56
✓	State Senate District	40
✓	U.S. Congressional District	36
5. PROJECT INFORMATION		
✓	Project Name	***Torres-Martinez Avenue 64 Water Supply Connection Project***
✓	Implementing Organization	Torres-Martinez Desert Cahuilla Indians (DCI)
✓	Secondary Implementing Organization	N/A
✓	Proposed Start Date	October 1, 2013
✓	Proposed End Date	December 31, 2014
✓	Scope of Work	Connect a disadvantaged tribal community to the CVWD municipal water system to alleviate public health and safety concerns.
✓	Project Description	The project would provide funding to design and engineer the development of a new water supply for the Torres-Martinez Avenue 64 potable water system (PWS). This new supply source would be from the CVWD municipal water system through the construction of a water main from an existing CVWD water main to the Avenue 64 Subdivision. CVWD would own the primary water main extension and the master water meter that would be connected at two points to the existing Avenue 64 PWS. The Torres-Martinez Desert Cahuilla Indians (DCI) would own and maintain the onsite distribution system from the CVWD meter throughout the Avenue 64 Subdivision. The subdivision includes 33 single occupancy homes with a population estimate of 100 people and a church that is owned and operated by the Torres-Martinez DCI. The subdivision is a tribal disadvantaged community (DAC) located on Torres-Martinez tribal lands in the eastern Coachella Valley. The existing wells, pumping system, and storage tanks currently servicing the Avenue 64 PWS were evaluated through several studies and reported to be suffering from a lack of maintenance and upkeep, which impart several health and safety benefits to residents within the Avenue 64 Subdivision. The conclusions in the Preliminary Engineering Report (PER) conducted by Indian Health Services (IHS) for the Avenue 64 PWS determined that “upgrades to the existing system would be prohibitively expensive, or would only solve some of the system’s many

		existing issues. In addition, the existing water source for the Tribal system would be permanently disconnected from the (regional) distribution system" As such, the PER concludes that the most effective long-term solution to providing safe and reliable drinking water to the Avenue 64 Subdivision would be to connect the subdivision to the CVWD municipal system, as proposed in this project.
✓	Project Objective	The project objectives are to: Complete planning, design/engineering, and environmental tasks to prepare for construction of the CVWD-Avenue 64 Subdivision connection. This effort includes the biological and cultural/archaeological surveys/reports to satisfy NEPA/CEQA requirements, in order to be ready to proceed during the next round of funding from the USDA, USEPA, IRWM, and/or others.
5. PROJECT BENEFITS INFORMATION		
The Proposal Solicitation Package (page 14) says please do not enter any information into BMS/GRanTS for the Project Benefits Questions.		
5. PROJECT BUDGET		
✓	Other Contribution	$0
✓	Local Contribution	$0
✓	Federal Contribution	$68,050
✓	In kind Contribution	$15,219
✓	Amount Requested	$155,000
✓	Total Project Cost	$238,269
5. GEOGRAPHIC INFORMATION		
✓	Latitude	DD 33 MM 35 SS 4
✓	Longitude	DD -116 MM 13 SS 59
✓	Location	Between Avenue 62 and Avenue 64 along Monroe Street, Riverside County
✓	County	Riverside County
✓	Groundwater Basin	Coachella Valley – Indio
✓	Hydrologic Region	Colorado River
✓	Watershed	Whitewater River
5. LEGISLATIVE INFORMATION		
✓	State Assembly District	56
✓	State Senate District	40
✓	U.S. Congressional District	36
APPLICATION ATTACHMENTS TAB		
✓	Attachment 1: Authorization and Eligibility	Att1_IG2 _Eligible_1of1.pdf

	Documentation	
✓	Attachment 2: Adopted Plan and Proof of Formal Adoption	Att2_IG2 _Adopt_1of1.pdf
✓	Attachment 3: Work Plan	Att3_IG2_ WorkPlan_1of3.pdf Att3_IG2_ WorkPlan_2of3.pdf Att3_IG2_ WorkPlan_3of3.pdf
✓	Attachment 4: Budget	Att4_IG2_ Budget_1of1.pdf
✓	Attachment 5: Schedule	Att5_IG2 _Schedule_1of1.pdf
✓	Attachment 6: Monitoring, Assessment, and Performance Measures	Att6_IG2 _Measures_1of1.pdf
✓	Attachment 7: Technical Justification of Projects	Att7_IG2 _TechJust_1of1.pdf
✓	Attachment 8: Benefits and Cost Analysis	Att8_IG2 _BenCost_1of1.pdf
✓	Attachment 9: Program Preferences	Att9_IG2 _Preference_1of1.pdf
✓	Attachment 10: Disadvantaged Community Assistance	Att10_IG2 _DAC_1of1.pdf
✓	Attachment 11: AB 1420 and Water Meter Compliance Information	Att11_IG2 _SelfCert_1of1.pdf
✓	Attachment 12: Consent Form	Att12_IG2 _Consent_1of1.pdf
✓	Attachment 13: Delta Water	Att13_IG2 _Delta_1of1.pdf







Attachment 1

Authorization and Eligibility Requirements

Implementation Grant, Round 2

Coachella Valley IRWM
Implementation Grant Proposal

Attachment 1

Coachella Valley Integrated Regional Water Management Implementation Grant Proposal – Round 2

Authorization and Eligibility Documents

Attachment 1 consists of the following items:

- ✓ **Authorization and Eligibility Requirements**
  This attachment consists of authorizing documentation, eligible applicant documentation, Groundwater Management Plan (GWMP) compliance, Urban Water Management Plan (UWMP) compliance, AB 1420 and California Water Code §525 (water meter compliance), consent form for the IRWM Plan Update, consistency with the adopted IRWM Plan, and progress on meeting the current *IRWM Grant Program Guidelines*.
- ✓ **Resolution**
  Resolution 2013-14 authorizes the Coachella Valley Water District (CVWD) to submit this *Coachella Valley IRWM Implementation Grant Proposal – Round 2* and execute an agreement with the State of California for IRWM implementation activities. This resolution is provided as Appendix 1-1.
- ✓ **Memorandum of Understanding**
  The adopted *Memorandum of Understanding among City of Coachella/Coachella Water Authority, Coachella Valley Water District, Desert Water Agency, City of Indio/Indio Water Authority, and Mission Springs Water District for Development of an Integrated Regional Water Management Plan* establishes CVWD as the responsible party for executing and administering Proposition 84 grant agreements with DWR as directed by the CVRWMG. This MOU, as well as the four (4) executed supplements to the MOU, is provided as Appendix 1-2.
- ✓ **2010 IRWM Plan**
  This proposal contains information that demonstrates that the projects in this proposal are included in an IRWM Plan that meets various conditions established by DWR. As the 2010 Coachella Valley IRWM Plan was adopted after September 30, 2008, the plan is included as Appendix 1-3.
- ✓ **Consistency with Coachella Valley IRWM Plan**
  This proposal contains information (see Appendix 1-4) that demonstrates that the selection process that took place to determine the projects within this Implementation Grant Proposal is consistent with the Coachella Valley IRWM Plan, as the project list was vetted through and approved of by the Planning Partners.

Authorizing Documentation

Resolution 2013-14 was adopted by the Coachella Valley Water District Board of Directors on January 22, 2013 and authorizes CVWD to submit this *Coachella Valley IRWM Implementation Grant Proposal – Round 2* and execute an agreement with the State of California for IRWM implementation activities (see Appendix 1-1).

Eligible Applicant Documentation

This *Coachella Valley IRWM Implementation Grant Proposal – Round 2* is being submitted by CVWD on behalf of the following agencies and non-governmental organizations:

- Coachella Valley Water District (CVWD) – *Non-Potable Water Use Expansion Program*
- Coachella Valley Regional Water Management Group (CVRWMG) represented by CVWD – *Coachella Valley Salt and Nutrient Management Program.* The CVRWMG is comprised of the following water agencies:
  - City of Coachella/Coachella Water Authority (CWA)
  - CVWD
  - Desert Water Agency (DWA)
  - Indio Water Authority (IWA)
  - Mission Springs Water District (MSWD)
- MSWD – *Groundwater Quality Protection Program-Subarea D2*
- Pueblo Unido Community Development Corporation – *San Antonio del Desierto DAC Sewer Extension Project*
- Torres Martinez Band of Desert Cahuilla Indians – *Torres-Martinez Avenue 64 Water Supply Connection Project*

CVWD is an eligible applicant in accordance with the *IRWM Grant Program Guidelines*[1], because it is a local public agency of the State of California organized and operating under County Water District Law, California Water Code §30000, et seq. and Coachella District Merger Law, Water Code Section §33100, et seq. CVWD is a State Water Project Contractor and Colorado River Contractor empowered to deliver water supplies to its service area, and has statutory authority over water supply.

Per the adopted *Memorandum of Understanding (MOU) among City of Coachella/Coachella Water Authority, Coachella Valley Water District, Desert Water Agency, City of Indio/Indio Water Authority, and Mission Springs Water District for Development of an Integrated Regional Water Management Plan*, as formalized in the Fourth Supplement to the MOU, CVWD has been designated as the administrating agency of this Implementation Grant as directed by the CVRWMG (see Appendix 1-2).

The Coachella Valley IRWM Region (Region), within which all projects included as part of this grant proposal are located, was accepted into the IRWM Grant Program through the 2009 Region Acceptance Process.

GWMP Compliance

None of the projects included within this *Coachella Valley IRWM Implementation Grant Proposal – Round 2* would directly affect groundwater levels or quality. As such, the projects included in this proposal do not require GWMP compliance in accordance with the *IRWM Grant Program Guidelines*.

The projects in this proposal that would indirectly address groundwater levels, the *Coachella Valley Salt and Nutrient Management Program* and the *Non-Potable Water Use Expansion Program*, would support the continued use of non-potable water within the Region and/or provide facilities for additional non-potable water use to reduce groundwater pumping. While these projects would help offset groundwater overdraft through the use of non-potable water sources, these groundwater benefits are indirect and would not directly affect groundwater levels. The *Torres-Martinez Avenue 64 Water Supply Connection Project*

[1] Department of Water Resources (DWR). 2012. Integrated Regional Water Management Proposition 84 and 1E Guidelines. November.

would connect a disadvantaged tribal community to the CVWD municipal water system and would offset localized groundwater pumping that is currently used to provide water supplies to the project area. This project would not have a cumulative impact on groundwater levels within the Region and therefore, would not directly affect groundwater levels.

The projects that indirectly address groundwater quality protection, the *Desert Hot Springs Groundwater Quality Protection Program – Subarea D2* and the *San Antonio del Desierto Sewer Extension Project*, would affect groundwater quality by connecting users to municipal wastewater systems and therefore are removing a source of pollutants. These projects would involve extending municipal wastewater collection systems to properties with existing septic systems or percolation ponds, thereby preventing water quality constituents from potentially entering local groundwater basins. These beneficial activities, however, do not constitute active groundwater management requiring development of a GWMP because they constitute future avoided impacts to the groundwater basin. Therefore, these projects do not require GWMP compliance in accordance with *IRWM Grant Program Guidelines*.

UWMP Compliance

The five water purveyors that constitute the CVRWMG (CWA, CVWD, DWA, IWA, and MSWD) were all required by the Urban Water Management Planning Act (CWC §10610 *et seq.*) to submit a 2010 UWMP to DWR by July 1, 2011. There are two urban water suppliers included as primary project sponsors within this *Coachella Valley IRWM Implementation Grant Proposal – Round 2* including: CVWD and MSWD. As required by the Urban Water Management Planning Act (CWC §10610 *et seq.*), each of these agencies submitted and received approval by the Department of Water Resources (DWR) of a complete 2010 UWMP. Per these requirements, the two water suppliers listed above are currently eligible to receive grant funds. The UWMPs for these entities are available online at:

- CVWD: http://www.cvwd.org/news/publicinfo/2011_07_20_2010_UWMP_Final_Report.pdf
- MSWD: https://www.mswd.org/documents/Final%20Draft%20Mission%20Springs%202010%20UWMP.pdf

AB 1420 Compliance

As defined in the *IRWM Grant Program Guidelines*, AB 1420 conditions the receipt of IRWM grant funds on implementation of demand management measures in compliance with CWC §10631. There are two urban water suppliers included in this grant proposal which must also comply with AB 1420 requirements: CVWD and MSWD. Per these requirements, each of these water suppliers has submitted AB 1420 compliance forms (see Attachment 11).

Water Meter Compliance

As defined in the *IRWM Grant Program Guidelines*, CWC §529.5 requires urban water suppliers applying for IRWM grant funds to demonstrate that they meet the State's water meter requirements. There are two urban water suppliers included in this grant proposal which must also comply with Water Meter requirements: CVWD and MSWD. Per these requirements, each of these water suppliers has submitted Water Meter compliance forms (see Attachment 11).

Progress on Meeting Current IRWM Plan Standards

The Coachella Valley IRWM Region is in the process of updating the existing IRWM Plan that was adopted in December 2010 in accordance with the 2010 *IRWM Grant Program Guidelines*. Table 1-1 provides required information that demonstrates how the Coachella Valley IRWM Region will adopt an IRWM Plan Update that meets the IRWM Plan Standards contained in Appendix C of the 2012 *IRWM*

Grant Program Guidelines. As described below, the projects contained within this grant proposal are consistent with both the adopted 2010 IRWM Plan and the draft IRWM Plan Update.

Please note that the Coachella Valley IRWM Region is using Proposition 84 Planning Grant funding awarded by DWR to update its IRWM Plan. The Planning Grant contract was executed between DWR and CVWD on April 5, 2012 (Agreement No. 4600009342). As such, the Region is in the midst of updating the IRWM Plan at this time, and has not yet completed efforts to address some of the Specific Standard Questions provided by DWR in the *Proposal Solicitation Package.*

Table 1-1: Overview of Selected IRWM Plan Standards

Standard	Responses to Specific Standard Questions
Governance	After the adoption of the CVRWMG MOU (see Appendix 1-2), the Region Acceptance Process (RAP) document was submitted to DWR in April 2009. The structure and organization for the Coachella Valley IRWM Program was first developed in the RAP. The RAP was accomplished through a collaborative, consensus-seeking process that formalized the CVRWMG's fiduciary responsibility and authority for the IRWM planning process. It established the governance structure – a collaborative, consensus-seeking process made up of the CVRWMG, Planning Partners, Issues Groups, and stakeholders – under which the Coachella Valley IRWM Program is currently managed. The current governance structure for the Coachella Valley IRWM Program ensures that balanced access and opportunity is provided for participation in the IRWM effort. It allows for the participation of all interested parties in IRWM planning activities through establishment of the Planning Partners (an advisory group) and various Issues Groups to address specific components and issues of water management in the region. For example, a Salt and Nutrient Management Workgroup was formed in 2012 to develop the approach and work plan for the *Salt and Nutrient Management Program* included in this funding application; the Workgroup was comprised of water purveyors, wastewater agencies, tribes, regulatory agencies, and any other interested stakeholder. Although the current governance structure provides balanced access and opportunity for participation, development meetings held in May 2010 for the 2010 IRWM Plan identified the need to work directly and separately with two Issues Groups: • Native American tribes • Disadvantaged Community (DAC) representatives In 2012, the CVRWMG solicited funding from DWR in the form of an IRWM Planning Disadvantaged Community Outreach Grant (Agreement No. 4600009468) to reflect the identified need for a DAC Issues Group as well as potential barriers that may exist to DAC involvement in the IRWM effort. This "DAC Outreach Program" demonstration project is currently being used to fund directed outreach to DACs and increase DAC participation in the IRWM Program. Further, the IRWM Plan Update process that is currently underway includes additional tribal outreach efforts to solicit information from tribal representatives on a one-on-one basis, as was recommended by Native American Tribes in the Region. As with the rest of the IRWM Plan Update, the governance structure and stakeholder involvement components of the plan are in draft form at this time. However, due to the inclusive and balanced nature of the current governance structure, it is not anticipated that it will need to be substantially altered in the IRWM Plan Update.

Standard	Responses to Specific Standard Questions
Region Description	Since the 2010 IRWM Plan, the region description has not changed significantly because the IRWM boundaries remain consistent with those established in the 2010 IRWM Plan. However, the IRWM Plan Update is undertaking substantial efforts including stakeholder outreach and technical evaluations to address issues identified in the 2010 IRWM Plan. Information collected, analyzed, and synthesized during the technical evaluations will be used to refine the existing regional description. Current progress for each technical evaluation and information regarding how each technical evaluation will be incorporated into the regional description is summarized below. • *DAC Groundwater Quality Evaluation* – this evaluation has made substantial progress in collecting and analyzing groundwater quality data. The collected groundwater quality data has been compared with the location of DACs in the Region as well as the municipal service boundaries of the Region's water agencies to determine "Areas of Concern" (AOCs), which are defined as areas overlaying the groundwater basin, outside of an established permitted potable water service area, and containing DACs. In December 2012, mapping of the AOCs as well as water quality concerns in the AOCs was presented to the Planning Partners, who provided additional input on water quality concerns in the AOCs as well as other communities that should be included as AOCs. Groundwater quality data, demographic data, and other information from this evaluation will be included within the regional description and used to provide updated information regarding regional water quality concerns in DACs. • *Salt and Nutrient Management Strategy* – this technical evaluation was completed in January 2013. This technical evaluation included three workshops with regional stakeholders to gather input from stakeholders and provide a forum for discussion of salt and nutrient issues. Salt and nutrient management concerns, salt and nutrient loading trends, and updated information regarding recycled use will be compiled from this technical evaluation and incorporated into the regional description. • *Integrated Flood Management Evaluation* – this technical evaluation is currently underway, and to date has held one stakeholder workshop. The purpose of this evaluation is to compile regional flood data and to use that data to better-characterize regional flood protection needs. As such, information from this technical evaluation will be used to update information in the regional description regarding flooding. The region description will also be updated to include information produced outside of the IRWM Program since the 2010 IRWM Plan was adopted. For example, each of the CVRWMG agencies has completed an updated UWMP since adoption of the 2010 IRWM Plan, and the IRWM Plan Update will include updated information from these plans such as updated population projections, water supply, and demand information. In addition, the region description will be updated with other documents such as the 2010 *Coachella Valley Water Management Plan Update* that have been completed since adoption of the 2010 IRWM Plan.

Standard	Responses to Specific Standard Questions
Objectives	During selection of projects for the current grant application, the Planning Partners determined that the adopted IRWM Plan Objectives and project selection criteria are still current and should be used to evaluate projects. This consensus decision by the Region's stakeholders indicates that the IRWM Plan Objectives will not likely change before adoption of the IRWM Plan Update in 2014. Task 3-1 of the IRWM Planning Grant that is funding the IRWM Plan Update is to refine the IRWM Plan Goals, Objectives, and Priorities. As such, the CVRWMG, Planning Partners, and stakeholders will revisit the existing Plan Objectives and Priorities and determine whether or not they need to be updated.
Resource Management Strategies	As required by the Resource Management Strategies Standard in the 2012 *IRWM Grant Program Guidelines*, the IRWM Plan Update will consider the resource management strategies (RMS) from the *California Water Plan Update 2009*. Please note that due to the existing IRWM Plan's compliance with the 2010 IRWM Guidelines, the current IRWM Plan already considered the RMS in the *California Water Plan Update 2009*. In addition, the IRWM Plan Update will use a similar process as conducted for the current IRWM Plan to determine RMS appropriate for the Region. As part of the IRWM Plan Update, IRWM stakeholders will be asked to provide additional input on any RMS beyond those in the *California Water Plan Update 2009* that should be considered and included in the IRWM Plan Update.
Integration	The Coachella Valley IRWM Program is committed to integration in both the planning process and in project formulation and implementation and recognizes that integration is a fundamental component of IRWM planning. The 2010 IRWM Plan recognized this fact, stating that, "it is critical that the process (IRWM planning process) include the integration of four key areas: stakeholders/institutions, resources, projects, and strategies." While an IRWM integration approach has not yet been formally established as part of the IRWM Plan Update, it is anticipated that the Update will allow, encourage, and actively pursue integration in both the planning process and project formulation and implementation as did the 2010 IRWM Plan.
Project Review Process	During selection of projects for the current grant application, the Planning Partners determined that the project review process in the adopted IRWM Plan is still current and should be used to evaluate projects. This consensus decision by the Region's stakeholders indicates that the existing project review process will not likely change substantially before adoption of the IRWM Plan Update in 2014. However, it is anticipated that the Planning Partners will consider climate change vulnerabilities and greenhouse gas emissions in their consideration of the project review process. In 2012, the Planning Partners and the CVRWMG discussed potential climate change vulnerabilities that are applicable to the Region and ranked those vulnerabilities in terms of "high", "medium", and "low" applicability and importance to the Region. While the project review process for the IRWM Plan Update has not yet been formalized, it may consider vulnerabilities established by the Planning Partners and the CVRWMG. In addition, projects may be qualitatively evaluated during the project selection process for their relative greenhouse gas (GHG) emissions during construction and operation. Given the potential technical difficulty of implementing GHG emissions analysis for all projects, this process needs to be vetted and discussed with Coachella Valley IRWM stakeholders.

Standard	Responses to Specific Standard Questions
Technical Analysis	During the development of the 2010 IRWM Plan, Coachella Valley IRWM stakeholders identified several data needs (gaps). Those data needs include: groundwater data, surface water data, flood control data, habitat data, and demographic data. As indicated previously, several technical evaluations are being completed for the IRWM Plan Update. Additionally, the companion DAC Outreach Program (see Governance section above) is also being conducted to complete data gaps relative to DAC issues such as location of leaking or failing septic systems, sites where residents are concerned about drinking water quality and/or buying bottled water, and location of flooding hazards. The technical evaluations and the DAC Outreach Program will be used to fill some of the data gaps identified in the 2010 IRWM Plan. Examples of ways in which data gaps will be filled are provided below: • **Groundwater Data:** Three technical evaluations – one regarding salt and nutrient management, one regarding DAC groundwater quality data, and one regarding groundwater elevation – are currently underway for the IRWM Plan Update. These technical evaluations will all include collection and analysis of groundwater data, which will be made regionally-available through the IRWM Plan Update, and will therefore help to fill regional groundwater data gaps. • **Flood Control Data:** A technical evaluation regarding integrated flood management is also being conducted for the IRWM Plan Update. This effort will involve compiling and synthesizing flood data from the State's *Flood Future Report*, as well as working with stakeholders to collect and compile regional flood data. Therefore, this technical evaluation will help to fill regional flood control data gaps. • **Demographic Data:** One of the primary purposes of the DAC Outreach Program is to collect additional demographic data regarding DACs throughout the Region. This effort is substantial, involving on-the-ground research that will be conducted by local non-profit organizations. This effort will help fill identified data gaps associated with socioeconomic demographic information in the Region.
Relation to Local Water Use Planning	Part of the IRWM Plan Update will include work to address the Relation to Local Water Use Planning Standard. The CVRWMG itself represents the five water purveyors in the region, and they have also made great efforts to invite and encourage all of the local wastewater agencies to participate in the Planning Partners. Although the exact degree and nature regarding how the IRWM Program efforts for the aforementioned standard will be incorporated into the IRWM Plan Update are not certain at this time, the IRWM Plan Update will include actions that attempt to improve coordination with local water use planning efforts.
Relation to Local Land Use Planning	Part of the IRWM Plan Update will include work to address the Relation to Local Land Use Planning Standard. The CVRWMG has made great efforts to invite and encourage all of the local municipalities and the County of Riverside (both staff and elected officials) to participate in the Planning Partners. Although the exact degree and nature regarding how the IRWM Program efforts for the aforementioned standard will be incorporated into the IRWM Plan Update are not certain at this time, the IRWM Plan Update will include actions that attempt to improve coordination with local land use planning efforts.

Standard	Responses to Specific Standard Questions
Stakeholder Involvement	The current stakeholder process is based on participation of the Planning Partners – which includes all CVRWMG agencies, wastewater agencies, municipalities, County staff and elected representative, agricultural and golf course interests, tribes, and DAC representatives – to guide the IRWM planning effort. This outreach process, which is based upon the governance structure originally established as part of the 2010 IRWM Plan, is considered effective, because it welcomes participation by all parties interested in water management in the Coachella Valley. However, the Region has taken efforts to improve coordination with both DACs and tribal communities as part of the IRWM Plan Update effort. Further outreach to the DACs is largely being completed through the separate but parallel DAC Outreach Program (see Governance section above), which has the ultimate goal of determining how to improve DAC participation in the IRWM Program. With regard to tribal outreach, individual tribal outreach meetings were conducted in 2012 for each of the Native American Tribes within the Region to better-characterize water-related tribal issues and needs in the IRWM Plan Update. This individual outreach was recommended by the tribal groups during the 2010 IRWM Plan as a method to improve coordination with the tribes.
Coordination	As part of the IRWM Plan Update process, the CVRWMG has made improvements to the coordination process, and in particular has held meetings and conference calls with neighboring IRWM efforts to improve coordination with these entities. The 2010 IRWM Plan identified a process to coordinate water management projects and activities of participating stakeholders to avoid conflicts and take advantage of efficiencies; this process will continue and possibly be elaborated upon in the IRWM Plan Update. Other coordination efforts that will be elaborated upon from the 2010 IRWM Plan will be vetted through the Region's stakeholders to determine their potential applicability and usefulness to the Region.
Climate Change	During the Planning Partners meeting in December 2012, the Planning Partners completed a prioritization exercise during which they evaluated climate change vulnerabilities that may apply to the Region and ranked these vulnerabilities in terms of "low", "medium", or "high" priority. This vulnerability assessment is at least equivalent to the qualitative check list assessment in the *Climate Change Handbook for Regional Water Planning*. Further, the outcome of this assessment was a list of prioritized vulnerabilities (low, medium, or high), which was an outcome of both the vulnerability assessment and the IRWM's decision-making process as it relied on input from the Planning Partners and the CVRWMG. Although not yet completed, it is anticipated that the IRWM Plan Update will also include a plan, program, or methodology for further data gathering/analyzing of the prioritized vulnerabilities.

IRWM Plan Compliance

Projects covered by this grant proposal are included within the Coachella Valley IRWM Plan, which was adopted by the CVRWMG governing bodies in December 2010. The IRWM Plan complies with Part 2.2 of Division 6 of the CWC §10530 et al. As the Region is establishing eligibility using an IRWM Plan adopted after September 30, 2008, the final Coachella Valley IRWM Plan is included in Appendix 1-3 of this Implementation Grant Proposal.

To demonstrate compliance with the aforementioned statute, this Proposal contains verification that the IRWM Plan has been adopted by all five CVRWMG agencies. In addition, the two other project sponsors (Pueblo Unido Community Development Corporation and the Torres-Martinez Band of Desert Cahuilla

Indians) have also adopted the 2010 IRWM Plan. Attachment 2 contains the resolutions of adoption from each of these entities.

DWR stipulates that grants are only available for projects included in an IRWM Plan that meets a series of conditions. The following sections detail how the 2010 IRWM Plan and/or the IRWM Plan Update meet the necessary conditions set forth by DWR.

1. The 2010 IRWM Plan (existing adopted plan) complies with all provisions set forth in Part 2.2 of Division 6 of the CWC §10530 et al. The IRWM Plan Update, although not currently completed, will also comply with all provisions set forth in Part 2.2 of Division 6 of the CWC §10530 et al. Please note that the existing IRWM Plan is included as Appendix 1-3 to this proposal.
2. The 2010 IRWM Plan was not adopted before September 30, 2008. As such, the CVRWMG does not need to enter into a binding agreement with DWR to update, within two years of the execution of the date of the agreement, the IRWM Plan to meet the IRWM Plan Standards contained in the 2012 *IRWM Grant Program Guidelines*. However, the CVRWMG via CVWD has already entered into a binding agreement (Agreement No. 4600009342) with DWR to update the IRWM Plan with provisions set forth in the 2012 *IRWM Grant Program Guidelines*. This IRWM Plan Update is currently underway and focuses on filling several critical data gaps (see Region Description section in Table 1-1 above) related to water management in Coachella Valley.
3. The 2010 IRWM Plan and the IRWM Plan Update both contain programs and projects that will help to reduce additional dependence on imported water supplies, which are sourced, in part from the Sacramento-San Joaquin Delta (Delta). The degree to which specific projects contained within this proposal will help to reduce additional dependence on the Delta are detailed in Attachment 13.
4. As indicated previously, the Region received a Proposition 84 Planning Grant that is assisting the Region in completing the IRWM Plan Update. The Planning Grant contract was executed between DWR and CVWD on April 5, 2012, and CVWD is currently in compliance with the Planning Grant Agreement. CVWD is submitting quarterly progress reports, is on schedule to complete the IRWM Plan Update, and work is being completed within the terms of the Planning Grant budget.

Consistency with Adopted IRWM Plan

Projects included within this grant proposal are consistent with the adopted Coachella Valley IRWM Plan, because all projects proposed for implementation grant funding were submitted for consideration to the Coachella Valley IRWM Program as outlined in the IRWM Plan. In addition, these projects are also included in the 2010 IRWM Plan and the IRWM Plan Update, as the IRWM Plan stipulates that the online project database allows the project list to remain "live", always available for review and update. Given this stipulation, the IRWM Plan does not require re-adoption following changes to the project list. Appendix 1-4 includes Planning Partners notes that demonstrate consensus regarding the project list included in this proposal.

The CVRWMG and Planning Partners developed the project submittal process in May 2010. Described in *Chapter 7, Project Review and Prioritization Process* of the IRWM Plan (refer to Appendix 1-3), this process involves three major steps: solicitation, prioritization, and selection. Solicitation can be described as a "Call for Projects" that help meet the Region's established goals and objectives. The objective of this step is to compile a comprehensive list of water-related projects for the Region. Any individual(s) that represent a public agency or non-profit organization with common water interests and needs can submit a project to the IRWM Program via the project website (www.cvrwmg.org). An online project database was developed to assist in the management of project information (http://irwm.wrime.com/cvirwm/login.php).

The database provides stakeholders with access to project information based on username/login functionality. Stakeholders may access the online project database from the project website, enter and edit their project information, and submit the projects for consideration in the IRWM Plan. Using an online web tool for management of the IRWM project list allows all project information to be shared with other users, and also provides flexibility for users to amend their projects at any time.

For the Proposition 84-Round 2 Implementation Grant process, stakeholders were alerted to the grant opportunity on September 10, 2012, and given until October 19, 2012 (6 weeks) to enter projects into the online project database. After the October 19, 2012 deadline, projects submitted through the open "Call for Projects" were reviewed, ranked, and prioritized using a two-step screening and scoring approach. Projects were first evaluated for consistency with the regional objectives. Projects that were found to meet at least one objective passed the screening process and moved on to the next step of the project review process: scoring and ranking. To evaluate and prioritize projects as part of the IRWM planning process, the scoring and ranking process takes into account three fundamental components:

1. Principles of IRWM planning
2. Priorities of the Coachella Valley IRWM Region
3. Feasibility of projects to proceed

Through a consensus process, the CVRWMG and Planning Partners established the relative importance of each of the aforementioned scoring and ranking criteria. The ranked project list was then reviewed against these priorities and specific projects were identified for the grant application.

Proposed Funding Package

As described above, the CVRWMG and Planning Partners used the Coachella Valley IRWM Plan as its guidebook in evaluating and selecting projects for this *Coachella Valley IRWM Implementation Grant Proposal – Round 2*. All projects proposed within this funding package are consistent with and help to implement the goals and objectives laid out in the IRWM Plan. Table 1-2 shows the various goals and objectives established within the IRWM Plan, and Table 1-3 demonstrates that all of the projects included within this *Coachella Valley IRWM Implementation Grant Proposal – Round 2* would directly meet at least twelve (12) of those objectives. The five projects will work towards three critical issues in the Coachella Valley: diversifying water supply, improving water quality, and providing necessary infrastructure for DACs.

- *Non-Potable Water Use Expansion Program*– This project will allow for the delivery and use of non-potable water (Canal water and recycled water) to users who currently depend on groundwater pumping for irrigation purposes. This project is considered a source substitution project, which would meet recommendations in the 2010 *Coachella Valley Water Management Plan* by maximizing the use of local sources of non-potable water for irrigation purposes and therefore help to manage groundwater overdraft of the Whitewater River Subbasin.
- *Coachella Valley Salt and Nutrient Management Program* – This program is designed to implement planning, monitoring, stakeholder outreach, and other activities necessary for the Region to complete a regional Salt and Nutrient Management Plan in accordance with the State of California's *Recycled Water Policy*. This program will ensure that the Region can continue to use existing recycled water supplies and expand recycled water use in the future, which will help to manage groundwater overdraft via in lieu recharge activities that will reduce groundwater pumping.
- *Groundwater Quality Protection Program-Subarea D-2*– This project will extend municipal sewers to Sub-Area D-2 in MSWD's Assessment District No. 12 in the City of Desert Hot Springs, thus eliminating the need for on-site septic systems that overlie the Desert Hot Springs Subbasin. This

project will eliminate septic tanks that threaten contamination of groundwater supply and protect hot mineral water, which is the economic basis of the disadvantaged community of Desert Hot Springs. The project will, therefore, help to protect residents of a DAC from significant costs that would result if treatment of the potable water supply were necessary due to contamination and will address water quality issues in a DAC.

- *San Antonio del Desierto DAC Sewer Extension Project* – This project will provide necessary infrastructure to connect the San Antonio del Desierto mobile home park, located in the economically disadvantaged community of Mecca, to the CVWD sanitary sewer system. This project will provide water quality and human health benefits, as wastewater at the mobile home parks is currently collected in anaerobic percolation ponds that are extremely close to residents, inadequately designed, and may potentially provide a source of contamination to the shallow groundwater aquifer that underlies the eastern portion of the Coachella Valley.
- *Torres-Martinez Avenue 64 Water Supply Connection Project* – This project will provide engineering and design work to support the future connection of the economically disadvantaged Torres Martinez tribal community to the CVWD potable water system. This project will provide many benefits to a tribal DAC that currently relies on a failing and shallow groundwater well for water supply purposes. This well has technical issues that cause frequent failures, leaving residents without water supplies. Further, water quality issues with the groundwater that is provided from the shallow groundwater aquifer have resulted in the need for residents to rely on bottled water for drinking purposes.

Table 1-2: Coachella Valley IRWM Plan Goals and Objectives

Goals	Objectives
1. Optimize water supply reliability.	A. Provide reliable water supply for residential and commercial, agricultural community, and tourism needs.
	B. Manage groundwater levels to manage and reduce overdraft, manage perched water, and minimize subsidence.
	C. Secure reliable imported water supply, including restoring/improving reliability of State Water Project supply and securing other imported water supplies.
	D. Maximize local supply opportunities, including water conservation, water recycling and source substitution, and capture and infiltration of runoff.
2. Protect or improve water quality.	E. Protect groundwater quality and improve, where feasible.
	F. Preserve and improve surface water quality by maintaining integrity of agricultural drainage systems, protecting the quality of natural runoff used for potable supply, and reducing pollution in stormwater runoff.
3. Provide stewardship of our water-related natural resources.	G. Preserve local environment and restore, where feasible.
	H. Manage flood risks, including current acute needs and needs for future development.
4. Coordinate and integrate water resource management.	I. Optimize conjunctive use of available water resources.
	J. Maximize stakeholder involvement and stewardship in water resource management.
5. Ensure cultural, social, and economic sustainability of water in the Valley.	K. Address water-related needs of local Native American culture.
	L. Address water and sanitation needs of disadvantaged communities, including those in remote areas.
	M. Maintain affordability of water.

Table 1-3: Consistency with IRWM Plan Objectives

Proposed Project	Contribution to IRWM Plan Objectives												
	A	B	C	D	E	F	G	H	I	J	K	L	M
Non-Potable Water Use Expansion Program	●	●	●	●					○	○	○	○	●
Coachella Valley Salt and Nutrient Management Program	○	○		○	○					●	○	○	○
Groundwater Quality Protection Program – Sub-Area D-2	○	○		○	●					○		●	○
San Antonio del Desierto DAC Sewer Extension Project	○		●	○	●	○	○			●		●	○
Torres Martinez Avenue 64 Water Supply Connection Project	●	●								○	●	●	●

● = directly related ○ = indirectly related

Appendix 1-1: CVWD Resolution 2013-14

RESOLUTION OF THE BOARD OF DIRECTORS OF
COACHELLA VALLEY WATER DISTRICT

RESOLUTION NO. 2013-14

BE IT RESOLVED by the Board of Directors of the Coachella Valley Water District assembled in regular meeting this 22nd day of January, 2013, that it hereby authorizes an Application to the California Department of Water Resources to Obtain Integrated Regional Water Management Implementation Grants pursuant to the Safe Drinking Water, Water Quality and Supply, Flood Control, River and Coastal Protection Bond Act of 2006 (Public Resources Code Section 75001 *et seq.*), and enter into an Agreement to Receive Grants for the Coachella Valley Integrated Regional Water Management Plan; and

BE IT FURTHER RESOLVED that it hereby authorizes the Acting General Manager to amend the Consulting Contract with RMC Water and Environmental for Preparation of a Proposition 84, Round 2 Integrated Regional Water Management Implementation Grant, and authorize this District's portion of the application preparation cost in the amount of $35,275; and

BE IT FURTHER RESOLVED that it hereby authorizes the Acting General Manager to direct staff to prepare necessary data, conduct investigations, file applications, and execute grant agreements with the California Department of Water Resources in association with this application process; and

BE IT FINALLY RESOLVED that this Board resolution authorizes a total of $35,275.

* * * * * * * * * * *

Appendix 1-1: CVWD Resolution 2013-14

STATE OF CALIFORNIA)
COACHELLA VALLEY WATER DISTRICT) ss.
OFFICE OF THE SECRETARY)

I, JULIA FERNANDEZ, Secretary of the Board of Directors of the Coachella Valley Water District, DO HEREBY CERTIFY that the foregoing is a full, true and correct copy of Resolution No. 2013-14 adopted by the Board of Directors of said District at a regular meeting thereof duly held and convened on the 22nd day of January, 2013, at which meeting a quorum of said Board was present and acting throughout. The Resolution was adopted by the following vote:

Ayes:	Five
Directors:	Nelson, Powell, Pack, De Klotz, Livesay
Noes:	None

Dated this 22nd day of January, 2013.

(SEAL)

Julia Fernández
Board Secretary

Exhibit 2 - MOU

MEMORANDUM OF UNDERSTANDING
among
CITY OF COACHELLA/COACHELLA WATER AUTHORITY, COACHELLA VALLEY WATER DISTRICT, DESERT WATER AGENCY, CITY OF INDIO/INDIO WATER AUTHORITY, AND MISSION SPRINGS WATER DISTRICT
for
DEVELOPMENT OF AN INTEGRATED REGIONAL WATER MANAGEMENT PLAN

This Memorandum of Understanding (MOU) dated Sept. 9,2008 is entered into among the City of Coachella/Coachella Water Authority, Coachella Valley Water District, Desert Water Agency, City of Indio/Indio Water Authority, and Mission Springs Water District (collectively known as Partners) for the purpose of coordinating water resources planning activities undertaken by the water agencies.

WHEREAS, each Partner has adopted a Resolution of commitment pledging to create an Integrated Regional Water Management Plan (IRWMP).

WHEREAS, it is in the interests of the signatory Partners and the region served by the Partners that these water resources are responsibly managed and conserved to the extent feasible; and

WHEREAS, the Partners wish to coordinate their long term water supply planning efforts in accordance with Section 10531 of the *Integrated Regional Water Management Planning Act of 2002* and Division 43 of the *Safe Water, Water Quality and Supply, Flood Control, River and Coastal Protection Bond Act* of 2006 (Acts); and

WHEREAS, the Partners anticipate the potential need for future agreements on specific projects or programs and with other affected agencies to further coordinate long term water supply planning.

NOW, THEREFORE, it is mutually understood and agreed as follows:

SECTION 1:
AUTHORITY OF PARTNERS

1.1 The Coachella Water Authority is a joint powers authority formed as a component of the City of Coachella and Redevelopment Agency of the City of Coachella and has statutory authority over water supply.

1.2 The Coachella Valley Water District is a public agency of the State of California organized and operating under County Water District Law, California Water Code section 30000, et seq, and Coachella District

Merger Law, Water Code section 33100, et seq. Coachella Valley Water District is a State Water Project Contractor and Colorado River Contractor empowered to import water supplies to its service area, and has statutory authority over water supply.

1.3 The Desert Water Agency is an independent special district created by a special act of the state legislature contained in chapter 100 of the appendix of the California Water Code. Desert Water Agency is also a State Water Project Contractor empowered to import water supplies to its service area, replenish local groundwater supplies, and collect assessments necessary to support a groundwater replenishment program as provided for in the Desert Water Agency Law and has statutory authority over water supply.

1.4 The Indio Water Authority is a joint powers authority formed as a component of the City of Indio and Redevelopment Agency of the City of Indio and has statutory authority over water supply.

1.5 Mission Springs Water District is a County Water District formed under Section 30000 et seq of the California Water Code and has statutory authority over water supply.

SECTION 2: DEFINITIONS

The abbreviations and capitalized words and phrases used in this MOU shall have the following meanings:

2.1 Acts – mean Section 10531 of the Integrated Regional Water Management Planning Act of 2002 and California Water Code Division 43, known as the *Safe Water, Water Quality and Supply, Flood Control, River and Coastal Protection Bond Act* of 2006

2.2 Coachella Valley Region – the watershed bounded on the North by the San Bernardino Mountains, Little San Bernardino Mountains and Mecca Hills Area, on the East by Mortmar and Travertine Rock, on the South by the Santa Rosa Mountains and San Jacinto Mountains and on the West by Stubbe Canyon.

2.3 CVWD – Coachella Valley Water District

2.4 CVRWMG – Coachella Valley Regional Water Management Group

2.5 CWA – Coachella Water Authority

2.6 DWA – Desert Water Agency

2.7 IRWMP – Integrated Regional Water Management Plan

2.8 IWA – Indio Water Authority

2.9 MSWD – Mission Springs Water District

SECTION 3:
PURPOSES AND GOALS OF THIS MOU

3.1 **Purpose and Goals:**

3.1.1 This MOU is to memorialize the intent of the Partners to coordinate and share information concerning water supply planning programs and projects and other information, and to improve and maintain overall communication among the Partners involved. It is anticipated that coordination and information sharing among the Partners will assist the agencies in achieving their respective missions to the overall well-being of the region. Coordination and information sharing shall focus on issues of common interest in Section 3.2.

3.1.2 The execution of this MOU by the Partners shall constitute the formation of a Regional Water Management Group consisting of the Partners, in accordance with the Acts. The Regional Water Management Group shall be named the Coachella Valley Regional Water Management Group(CVRWMG).

3.1.3 It is the goal of the Partners to prepare and adopt an IRWMP for the Coachella Valley Region and to implement projects and programs individually or jointly in groups that address issues of common interest, as the group so identifies.

3.2 **Common Issues and Interest:**

3.2.1 Water supply programs and projects that may provide mutual benefits in improving water supply reliability and/or water quality.

3.2.2 Coordination of near-term and long-term water supply planning activities.

3.2.3 Development of regional approaches to problem-solving and issues resolution as well as to further common interest.

3.3 **Future Agreements By Partners:** The Partners acknowledge that by virtue of commitments and intentions stated within this MOU, the need for

certain other considerations that will facilitate the preparation of an IRWMP for the Coachella Valley Region will likely emerge. These include and are not limited to:

3.3.1 Developing a Scope of Work

3.3.2 Determining the cost sharing of projects

3.3.3 Establishing methods for project management

3.3.4 Establishing a project timeline

SECTION 4:
JOINT PLANNING FOR PROJECTS AND PROGRAMS

4.1 **Projects and Programs Covered by this MOU:** it is the intent of the Partners that they coordinate and collaborate to address the common issues identified. The Partners may develop and implement projects and programs individually or jointly in groupings of two or more, or enter into additional agreements in furthering those goals. Applicable projects and programs include, but are not limited to the following:

4.1.1 Water conservation programs and other demand management programs.

4.1.2 Water recycling, desalination, groundwater basin management, and water quality improvement programs and projects.

4.1.3 Water banking, conjunctive use and transfer arrangements.

4.1.4 Storage development to improve system reliability, efficiencies, and flexibility.

4.1.5 Project and program planning and development to solicit external funding.

4.1.6 Other meritorious projects or programs consistent with the purposes of this MOU.

4.2 **Communication and Coordination:** It is the intent of the Partners to meet on a monthly basis in order to carry out the purposes and goals of this MOU. The frequency and location of meetings are subject to the discretion of the Partners and may be changed when appropriate.

SECTION 5:
GENERAL PROVISIONS GOVERNING MOU

5.1 **Term:** The term of this MOU is indefinite. Any Partner may withdraw from the MOU by written notice given at least 45 days prior to the effective date.

5.2 **Construction of Terms:** This MOU is for the sole benefit of the Partners and shall not be construed as granting rights to any person other than the Partners or imposing obligations on a Partner to any person other than another Partner.

5.3 **Good Faith:** Each Partner shall use its best efforts and work wholeheartedly and in good faith for the expeditious completion of the objectives of this MOU and the satisfactory performance of its terms.

5.4 **Rights of the Partners and Constituencies:** This MOU does not contemplate the Partners taking any action that would:

5.4.1 Adversely affect the rights of any of the Partners; or

5.4.2 Adversely affect the customers or constituencies of any of the Partners.

5.5 This document and participation in this IRWMP are nonbinding, and in no way suggest that a Partner may not continue its own planning and undertake efforts to secure project funding from any source.

5.6 It is expected that Partners will contribute the personnel and financial resources necessary to develop the IRWMP.

IN WITNESS WHEREOF, the parties have executed this Memorandum of Understanding as of the day and year indicated on the first page of this MOU.

Tim Brown, City Manager
City of Coachella:

Tim Brown, Executive Director
Coachella Water Authority:

Steve Robbins, General Manager/Chief Engineer
Coachella Valley Water District:

Dave Luker, General Manager
Desert Water Agency:

Glenn Southard, City Manager
City of Indio:

Glenn Southard, Executive Director
Indio Water Authority:

Arden Wallum, General Manager
Mission Springs Water District:

SUPPLEMENT TO MEMORANDUM OF UNDERSTANDING among CITY OF COACHELLA/COACHELLA WATER AUTHORITY, COACHELLA VALLEY WATER DISTRICT, DESERT WATER AGENCY, CITY OF INDIO/INDIO WATER AUTHORITY, AND MISSION SPRINGS WATER DISTRICT for DEVELOPMENT OF AN INTEGRATED REGIONAL WATER MANAGEMENT PLAN

This Supplement dated April 29, 2010 is entered into among the City of Coachella/Coachella Water Authority, Coachella Valley Water District, Desert Water Agency, City of Indio/Indio Water Authority, and Mission Springs Water District (collectively known as Partners) for the purpose of coordinating water resources planning activities undertaken by the water agencies.

WHEREAS, each Partner is a party to a Memorandum of Understanding (MOU) for Development of an Integrated Water Management Plan (IRWMP) dated September 9, 2008; and

WHEREAS, the Partners wish to supplement the MOU for the purpose of retaining a consultant to assist in preparing an IRWMP;

NOW, THEREFORE, it is mutually understood and agreed as follows:

SECTION 1: RETENTION OF CONSULTANT

1.1 The consultant's scope of work, fees and contract terms shall be approved by the Partners.

1.2 Mission Springs Water District (MSWD) shall retain a consultant selected by the Partners and administer the consultant agreement as directed by the Partners.

SECTION 2: PAYMENT

2.1 MSWD shall initially pay the consultant per the terms of the consulting agreement and as approved by the Partners, and then invoice each partner for reimbursement of one-fifth (1/5) of the payment that has been made to the consultant.

2.2 Each Partner shall pay the invoice within 14 days of receipt of invoice.

SECTION 3: PARTICIPATION

3.1 Each Partner retains the right to withdraw its participation in the MOU, as stipulated by the MOU in Section 5.1.

3.2 A withdrawing Partner remains obligated for reimbursement of its share of consulting fees to be paid pursuant to agreement with the consultant executed prior to that Partner's withdrawal from participation.

SECTION 4: MISCELLANEOUS

4.1 Abbreviations, capitalized words and phrases used in this supplement shall have the same meaning as in the MOU.

4.2 All terms of the MOU remain unchanged, except, as supplemented herein.

4.3 This Supplement may be executed in any number of counterparts, each of which shall be deemed original, but all of which, when taken together, shall constitute one and the same instrument.

IN WITNESS WHEREOF, the Partners have executed this Supplement as of the day and year indicated on the first page of this MOU.

Gene Rogers, Interim City Manager
City of Coachella

Gene Rogers, Executive Director
Coachella Water Authority

Steve Robbins, General Manager-Chief Engineer
Coachella Valley Water District

Dave Luker, General Manager
Desert Water Agency

Tara Lee Adams, City Manager
City of Indio

Tara Lee Adams, Executive Director
Indio Water Authority

Arden Wallum, General Manager
Mission Springs Water District

SUPPLEMENT TO MEMORANDUM OF UNDERSTANDING

Gene Rogers, Interim City Manager
City of Coachella:

Gene Rogers, Executive Director
Coachella Water Authority:



Steve Robbins, General Manager-Chief Engineer
Coachella Valley Water District:

Dave Luker, General Manager
Desert Water Agency:

Tara Lee Adams, Interim City Manager
City of Indio:

Tara Lee Adams, Interim Executive Director
Indio Water Authority:

Arden Wallum, General Manager
Mission Springs Water District:

Gene Rogers, Interim City Manager
City of Coachella:

Gene Rogers, Executive Director
Coachella Water Authority:

Steve Robbins, General Manager-Chief Engineer
Coachella Valley Water District:

Dave Luker, General Manager
Desert Water Agency:

Tara Lee Adams, Interim City Manager
City of Indio:

Tara Lee Adams, Interim Executive Director
Indio Water Authority:

Arden Wallum, General Manager
Mission Springs Water District:

Gene Rogers, Interim City Manager
City of Coachella:

Gene Rogers, Executive Director
Coachella Water Authority:

Steve Robbins, General Manager-Chief Engineer
Coachella Valley Water District:

Dave Luker, General Manager
Desert Water Agency:

Tara Lee Adams, Interim City Manager
City of Indio:

Tara Lee Adams, Interim Executive Director
Indio Water Authority:

Arden Wallum, General Manager
Mission Springs Water District:

Gene Rogers, Interim City Manager
City of Coachella

Gene Rogers, Executive Director
Coachella Water Authority

Steve Robbins, General Manager-Chief Engineer
Coachella Valley Water District

Dave Luker, General Manager
Desert Water Agency

Tara Lee Adams, City Manager
City of Indio

Tara Lee Adams, Executive Director
Indio Water Authority



Arden Wallum, General Manager
Mission Springs Water District

Appendix 1-2: CVRWMG MOU

SECOND SUPPLEMENT TO MEMORANDUM OF UNDERSTANDING among CITY OF COACHELLA/COACHELLA WATER AUTHORITY, COACHELLA VALLEY WATER DISTRICT, DESERT WATER AGENCY, CITY OF INDIO/INDIO WATER AUTHORITY, and MISSION SPRINGS WATER DISTRICT for DEVELOPMENT OF AN INTEGRATED REGIONAL WATER MANAGEMENT PLAN

This SECOND SUPPLEMENT dated March 13, 2012, is entered into among the City Of Coachella/Coachella Water Authority, Coachella Valley Water District, Desert Water Agency, City Of Indio/Indio Water Authority, and Mission Springs Water District (collectively known as Partners) for the purpose of coordinating water resources planning activities undertaken by the water agencies.

WHEREAS, each Partner is a party to a Memorandum of Understanding (MOU) for Development of an Integrated Regional Water Management Plan (IRWMP) dated September 9, 2008; and

WHEREAS, each Partner is a party to a first Supplement to that MOU for the purpose of retaining a consultant to assist in preparing an IRWMP dated April 29, 2010; and

WHEREAS, each Partner wishes to supplement the MOU a second time for the purpose of retaining consultants and entering into grant funding contracts with the Department of Water Resources (State) for Proposition 84, Chapter 2 as follows:

A. Agreement Number 4600009468, for Disadvantaged Communities Outreach (DAC grant), in the amount of $500,000.
B. Agreement Number 4600009342, for updating the existing IRWMP (Planning grant), in the amount of $1,000,000.

NOW, THEREFORE, it is mutually understood and agreed as follows:

SECTION 1: AGREEMENTS

1.1 The Coachella Valley Water District (CVWD), designated by the Partners as lead agency for the Coachella Valley IRWMP, shall have overall responsibility for executing and administering Proposition 84 grant agreements as directed by the Partners.
1.2 CVWD shall retain consultants selected by the Partners and administer consulting agreements as directed by the Partners.

1.3 Partners shall share equally with CVWD all necessary costs, risks, and obligations for satisfying the terms of the Proposition 84 grant agreements with the State.

SECTION 2:
DAC AND PLANNING GRANT INVOICING AND PAYMENT

2.1 CVWD will establish an escrow account, and, upon signing this amendment, each Partner will deposit $50,000 into that account for a total balance of $250,000 to ensure that outstanding invoices can be paid if the State fails to provide reimbursements.
2.2 CVWD will receive invoices from consultants on a monthly basis, and will pay invoices from the escrow account.
2.3 No less than quarterly, CVWD will invoice the State. CVWD will deposit funds received from the State into the escrow account for payment of invoices.
2.4 If outstanding invoices exceed $250,000 more than reimbursement from the State, the escrow account balance will drop to zero and the Partners will postpone grant work until State reimbursements are received.
2.5 CVWD will not be responsible for making payments which are neither backed by reimbursements from the State, nor by funds in the escrow account described in Section 2.1.
2.6 Upon completion of the Proposition 84 grant agreements, the funds remaining in the escrow account will be distributed equally to the Partners.
2.7 The sole purpose of escrow account funds is for paying consultant invoices for the DAC and planning grants after the invoices have been reviewed and approved by the Partners. The funds may not be used for any other purpose without the consensus of the Partners.

SECTION 3:
PARTICIPATION

3.1 Each Partner retains the right to withdraw its participation in the MOU as stipulated by the MOU in Section 5.1
3.2 A withdrawing Partner remains obligated for reimbursement of its share of costs to be paid pursuant to any agreements executed prior to that Partner's withdrawal from participation.

SECTION 4:
MISCELLANEOUS

4.1 Abbreviations, capitalized words and phrases used in this supplement shall have the same meaning as in the MOU.
4.2 All terms of the MOU remain unchanged, except, as supplemented herein.

4.3 This Second Supplement may be executed in any number of counterparts, each of which shall be deemed original, but all of which, when taken together, shall constitute one and the same instrument.

IN WITNESS WHEREOF, the Partners have executed this Supplement as of the day and year indicated on the first page of this MOU.

CITY OF COACHELLA/ COACHELLA WATER AUTHORITY



COACHELLA VALLEY WATER DISTRICT

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DESERT WATER AGENCY

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CITY OF INDIO/INDIO WATER AUTHORITY

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MISSION SPRINGS WATER DISTRICT

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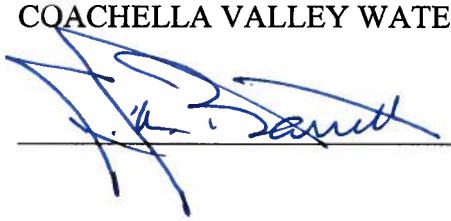
4.3 This Second Supplement may be executed in any number of counterparts, each of which shall be deemed original, but all of which, when taken together, shall constitute one and the same instrument.

IN WITNESS WHEREOF, the Partners have executed this Supplement as of the day and year indicated on the first page of this MOU.

CITY OF COACHELLA/ COACHELLA WATER AUTHORITY

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COACHELLA VALLEY WATER DISTRICT



DESERT WATER AGENCY

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CITY OF INDIO/INDIO WATER AUTHORITY

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MISSION SPRINGS WATER DISTRICT

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4.3 This Second Supplement may be executed in any number of counterparts, each of which shall be deemed original, but all of which, when taken together, shall constitute one and the same instrument.

IN WITNESS WHEREOF, the Partners have executed this Supplement as of the day and year indicated on the first page of this MOU.

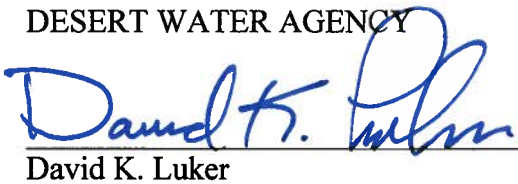
CITY OF COACHELLA/ COACHELLA WATER AUTHORITY

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COACHELLA VALLEY WATER DISTRICT

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DESERT WATER AGENCY



David K. Luker
General Manager

CITY OF INDIO/INDIO WATER AUTHORITY

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MISSION SPRINGS WATER DISTRICT

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4.3 This Second Supplement may be executed in any number of counterparts, each of which shall be deemed original, but all of which, when taken together, shall constitute one and the same instrument.

IN WITNESS WHEREOF, the Partners have executed this Supplement as of the day and year indicated on the first page of this MOU.

CITY OF COACHELLA/ COACHELLA WATER AUTHORITY

_____

COACHELLA VALLEY WATER DISTRICT

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DESERT WATER AGENCY

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CITY OF INDIO/INDIO WATER AUTHORITY

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MISSION SPRINGS WATER DISTRICT

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IN WITNESS WHEREOF, the Partners have executed this Supplement as of the day and year indicated on the first page of this MOU.

CITY OF COACHELLA/ COACHELLA WATER AUTHORITY

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COACHELLA VALLEY WATER DISTRICT

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DESERT WATER AGENCY

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CITY OF INDIO/INDIO WATER AUTHORITY

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MISSION SPRINGS WATER DISTRICT

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Appendix 1-2: CVRWMG MOU

THIRD SUPPLEMENT TO MEMORANDUM OF UNDERSTANDING among CITY OF COACHELLA/COACHELLA WATER AUTHORITY, COACHELLA VALLEY WATER DISTRICT, DESERT WATER AGENCY, CITY OF INDIO/INDIO WATER AUTHORITY, and MISSION SPRINGS WATER DISTRICT for DEVELOPMENT OF AN INTEGRATED REGIONAL WATER MANAGEMENT PLAN

This THIRD SUPPLEMENT dated August 8, 2012, is entered into among the City Of Coachella/Coachella Water Authority, Coachella Valley Water District, Desert Water Agency, City Of Indio/Indio Water Authority, and Mission Springs Water District (collectively known as Partners) for the purpose of coordinating water resources planning activities undertaken by the water agencies.

WHEREAS, each Partner is a party to a Memorandum of Understanding (MOU) for Development of an Integrated Regional Water Management Plan (IRWMP) dated September 9, 2008; and

WHEREAS, each Partner is a party to a first Supplement to that MOU for the purpose of retaining a consultant to assist in preparing an IRWMP dated April 29, 2010; and

WHEREAS, Each Partner is a party to the second Supplement to that MOU for the purpose of retaining consultants and entering into grant funding contracts with the Department of Water Resources (State) for Proposition 84, Chapter 2 as follows:

A. Agreement Number 4600009468, for Disadvantaged Communities Outreach (DAC Grant), in the amount of $500,000.
B. Agreement Number 4600009342, for updating the existing IRWMP (Planning Grant), in the amount of $1,000,000.

WHEREAS, each partner wishes to supplement the MOU a third time for the purpose of entering into grant funding contracts with the Department of Water Resources (State) for Proposition 84, Chapter 2, Agreement Number 4600009560, for an IRWM Implementation Grant (Implementation Grant) in the amount of $4,000,000.

NOW, THEREFORE, it is mutually understood and agreed as follows:

SECTION 1:
AGREEMENTS

1.1 The Coachella Valley Water District (CVWD), designated by the Partners as lead agency for the Coachella Valley IRWMP, shall have overall responsibility for executing and administering this Implementation Grant as directed by the Partners.

1.2 The Grant administration costs reimbursed to CVWD shall be limited to $100,000 as described in EXHIBIT C, Table 1, Budget Category GA of the Implementation Grant Agreement.

1.3 The purpose of the Implementation Grant is to fund four individual projects, each of which has a Local Project Sponsor responsible for individual project management, oversight, compliance, and operations and maintenance. Local Project Sponsors are expected to act on behalf of CVWD in the fulfillment of Grantee responsibilities where specified in the Implementation Grant Agreement. The four individual projects and their Local Project Sponsors are listed in the Implementation Grant Agreement as follows:

- Regional Water Conservation Program — CVWD
- Short-Term Arsenic Treatment Project — Pueblo Unido Community Development
- Groundwater Quality Protection Program — Mission Springs Water District
- Groundwater Quality Protection Program — City of Cathedral City

1.4 The Regional Water Conservation Program equally benefits each of the five Partners.

SECTION 2:
REGIONAL WATER CONSERVATION PROGRAM
INVOICING AND PAYMENT

2.1 Each Partner will pay their share of costs to implement programs and shall submit invoices to CVWD for reimbursement no less than quarterly.

2.2 No less than quarterly, CVWD will invoice the State. CVWD will distribute funds received from the State to the Partners based on invoices submitted by the Partners.

2.3 No Partner shall be expected to make payments for any project or program that are greater than their individual share of costs, without first receiving funds from each Partner sufficient to cover their individual share of the cost.

2.4 CVWD will not be responsible for making payments which are neither backed by reimbursements from the State, nor by funds from the Partners as described in section 2.3 above.

SECTION 3:
PARTICIPATION

3.1 Each Partner retains the right to withdraw its participation in the MOU as stipulated by the MOU in Section 5.1
3.2 A withdrawing Partner remains obligated for reimbursement of its share of costs to be paid pursuant to any agreements executed prior to that Partner's withdrawal from participation.

SECTION 4:
MISCELLANEOUS

4.1 Abbreviations, capitalized words and phrases used in this supplement shall have the same meaning as in the MOU.
4.2 All terms of the MOU remain unchanged, except, as supplemented herein.
4.3 This Second Supplement may be executed in any number of counterparts, each of which shall be deemed original, but all of which, when taken together, shall constitute one and the same instrument.

IN WITNESS WHEREOF, the Partners have executed this Supplement as of the day and year indicated on the first page of this MOU.

CITY OF COACHELLA/ COACHELLA WATER AUTHORITY

X 

COACHELLA VALLEY WATER DISTRICT

_____

DESERT WATER AGENCY

_____

SECTION 3:
PARTICIPATION

3.1 Each Partner retains the right to withdraw its participation in the MOU as stipulated by the MOU in Section 5.1
3.2 A withdrawing Partner remains obligated for reimbursement of its share of costs to be paid pursuant to any agreements executed prior to that Partner's withdrawal from participation.

SECTION 4:
MISCELLANEOUS

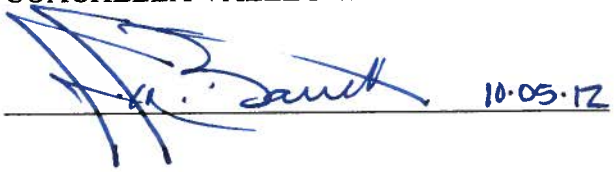
4.1 Abbreviations, capitalized words and phrases used in this supplement shall have the same meaning as in the MOU.
4.2 All terms of the MOU remain unchanged, except, as supplemented herein.
4.3 This Second Supplement may be executed in any number of counterparts, each of which shall be deemed original, but all of which, when taken together, shall constitute one and the same instrument.

IN WITNESS WHEREOF, the Partners have executed this Supplement as of the day and year indicated on the first page of this MOU.

CITY OF COACHELLA/ COACHELLA WATER AUTHORITY

_____

COACHELLA VALLEY WATER DISTRICT



DESERT WATER AGENCY

_____

SECTION 3:
PARTICIPATION

3.1 Each Partner retains the right to withdraw its participation in the MOU as stipulated by the MOU in Section 5.1
3.2 A withdrawing Partner remains obligated for reimbursement of its share of costs to be paid pursuant to any agreements executed prior to that Partner's withdrawal from participation.

SECTION 4:
MISCELLANEOUS

4.1 Abbreviations, capitalized words and phrases used in this supplement shall have the same meaning as in the MOU.
4.2 All terms of the MOU remain unchanged, except, as supplemented herein.
4.3 This Second Supplement may be executed in any number of counterparts, each of which shall be deemed original, but all of which, when taken together, shall constitute one and the same instrument.

IN WITNESS WHEREOF, the Partners have executed this Supplement as of the day and year indicated on the first page of this MOU.

CITY OF COACHELLA/ COACHELLA WATER AUTHORITY

_____

COACHELLA VALLEY WATER DISTRICT

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DESERT WATER AGENCY



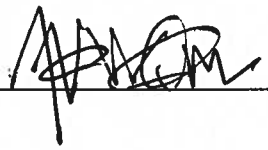
CITY OF INDIO/INDIO WATER AUTHORITY

MISSION SPRINGS WATER DISTRICT

CITY OF INDIO/INDIO WATER AUTHORITY

_____

MISSION SPRINGS WATER DISTRICT



Appendix 1-2: CVRWMG MOU

FOURTH SUPPLEMENT TO MEMORANDUM OF UNDERSTANDING among CITY OF COACHELLA/COACHELLA WATER AUTHORITY, COACHELLA VALLEY WATER DISTRICT, DESERT WATER AGENCY, CITY OF INDIO/INDIO WATER AUTHORITY, and MISSION SPRINGS WATER DISTRICT for DEVELOPMENT OF AN INTEGRATED REGIONAL WATER MANAGEMENT PLAN

This FOURTH SUPPLEMENT dated February 22, 2013, is entered into among the City Of Coachella/Coachella Water Authority, Coachella Valley Water District, Desert Water Agency, City Of Indio/Indio Water Authority, and Mission Springs Water District (collectively known as Partners) for the purpose of coordinating water resources planning activities undertaken by the water agencies.

WHEREAS, each Partner is a party to a Memorandum of Understanding (MOU) for Development of an Integrated Regional Water Management Plan (IRWMP) dated September 9, 2008; and

WHEREAS, each Partner is a party to a first Supplement to that MOU for the purpose of retaining a consultant to assist in preparing an IRWMP dated April 29, 2010; and

WHEREAS, Each Partner is a party to the second Supplement to that MOU for the purpose of retaining consultants and entering into grant funding contracts with the Department of Water Resources (State) for Proposition 84, Chapter 2 as follows:

A. Agreement Number 4600009468, for Disadvantaged Communities Outreach (DAC Grant), in the amount of $500,000.
B. Agreement Number 4600009342, for updating the existing IRWMP (Planning Grant), in the amount of $1,000,000.

WHEREAS, each Partner is a party to the third Supplement to the MOU for the purpose of entering into grant funding contracts with the Department of Water Resources (State) for Proposition 84, Chapter 2, Agreement Number 4600009560, for an IRWM Implementation Grant (Implementation Grant) in the amount of $4,000,000, and for the purpose of designating the Coachella Valley Water District (CVWD) as administrating agency of the Implementation Grant as directed by the Partners.

WHEREAS, The Partners wish to supplement the MOU for the purpose of retaining a consultant for *Subtask 9.1: Outreach* of the Implementation Grant.

NOW, THEREFORE, it is mutually understood and agreed as follows:

SECTION 1:
AGREEMENTS

1.1 The consultant's scope of work, fees and contract terms shall be approved by the Partners.
1.2 CVWD shall retain the consultant selected by the Partners and administer the consultant agreement as directed by the Partners

SECTION 2:
REGIONAL WATER CONSERVATION PROGRAM
INVOICING AND PAYMENT

2.1 The Regional Water Conservation Program equally benefits each of the five Partners, and the procedures agreed to for invoicing and payment established in the Third Supplement to the MOU shall be followed.
2.2 CVWD will establish an escrow account, and upon signing this fourth amendment, each Partner will deposit $10,000 into that account for a total balance of $50,000 to ensure that outstanding invoices can be paid if the state fails to provide reimbursements.
2.3 CVWD will receive invoices from the consultant on a monthly basis and will pay invoices from the escrow account.
2.4 No less than quarterly, CVWD will invoice the State. CVWD will deposit funds received from the State into the escrow account for payment of consultant invoices.
2.5 If the escrow account balance drops to zero, the Partners will postpone grant work until state reimbursements are received.
2.6 CVWD will not be responsible for making payments, which are neither backed by reimbursements from the State, nor by funds in the escrow account.
2.7 Upon completion of *Subtask 9.1: Outreach*, the funds remaining in the escrow account will be distributed equally to the Partners.
2.8 The sole purpose of this escrow account is for paying consultant invoices for *Subtask 9.1: Outreach.* The funds may not be used for any other purpose without consensus of the Partners.

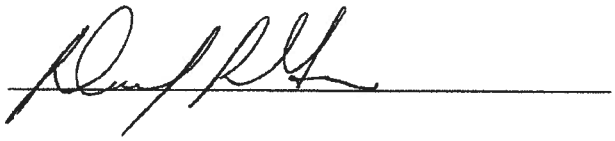
3.2 A withdrawing Partner remains obligated for reimbursement of its share of costs to be paid pursuant to any agreements executed prior to that Partner's withdrawal from participation.

SECTION 4:
MISCELLANEOUS

4.1 Abbreviations, capitalized words and phrases used in this supplement shall have the same meaning as in the MOU.
4.2 All terms of the MOU remain unchanged, except, as supplemented herein.
4.3 This Supplement may be executed in any number of counterparts, each of which shall be deemed original, but all of which, when taken together, shall constitute one and the same instrument.

IN WITNESS WHEREOF, the Partners have executed this Supplement as of the day and year indicated on the first page of this MOU.

CITY OF COACHELLA/ COACHELLA WATER AUTHORITY



COACHELLA VALLEY WATER DISTRICT

_____

DESERT WATER AGENCY

_____

3.2 A withdrawing Partner remains obligated for reimbursement of its share of costs to be paid pursuant to any agreements executed prior to that Partner's withdrawal from participation.

SECTION 4:
MISCELLANEOUS

4.1 Abbreviations, capitalized words and phrases used in this supplement shall have the same meaning as in the MOU.
4.2 All terms of the MOU remain unchanged, except, as supplemented herein.
4.3 This Second Supplement may be executed in any number of counterparts, each of which shall be deemed original, but all of which, when taken together, shall constitute one and the same instrument.

IN WITNESS WHEREOF, the Partners have executed this Supplement as of the day and year indicated on the first page of this MOU.

CITY OF COACHELLA/ COACHELLA WATER AUTHORITY

_____

COACHELLA VALLEY WATER DISTRICT

_____

DESERT WATER AGENCY

_____

SECTION 3:
PARTICIPATION

3.1 Each Partner retains the right to withdraw its participation in the MOU as stipulated by the MOU in Section 5.1
3.2 A withdrawing Partner remains obligated for reimbursement of its share of costs to be paid pursuant to any agreements executed prior to that Partner's withdrawal from participation.

SECTION 4:
MISCELLANEOUS

4.1 Abbreviations, capitalized words and phrases used in this supplement shall have the same meaning as in the MOU.
4.2 All terms of the MOU remain unchanged, except, as supplemented herein.
4.3 This Fourth Supplement may be executed in any number of counterparts, each of which shall be deemed original, but all of which, when taken together, shall constitute one and the same instrument.

IN WITNESS WHEREOF, the Partners have executed this Supplement as of the day and year indicated on the first page of this MOU.

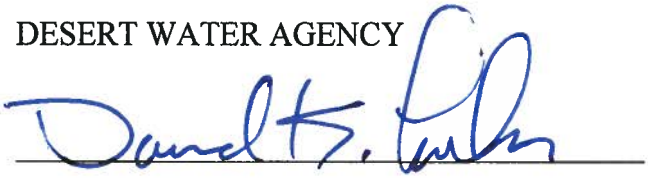
CITY OF COACHELLA/ COACHELLA WATER AUTHORITY

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COACHELLA VALLEY WATER DISTRICT

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DESERT WATER AGENCY



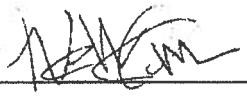
CITY OF INDIO/INDIO WATER AUTHORITY

MISSION SPRINGS WATER DISTRICT

CITY OF INDIO/INDIO WATER AUTHORITY

_____

MISSION SPRINGS WATER DISTRICT









CVRWMG

Coachella Valley
Regional Water Management Group

FINAL

Coachella Valley Integrated Regional Water Management Plan

Prepared by

Coachella Valley Regional Water Management Group

In collaboration with the Planning Partners

December 2010

City of Coachella

WATER DISTRICT

DESERT WATER

INDIO Water Authority

MSWD Mission Springs Water District







Final

Coachella Valley Integrated Regional Water Management Plan

December 2010

Prepared by:

Coachella Valley Regional Water Management Group

In collaboration with the Planning Partners

With Support from:

and

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Coachella Valley Regional Water Management Group

City of Coachella / Coachella Water Authority
Coachella Valley Water District
Desert Water Agency
City of Indio / Indio Water Authority
Mission Springs Water District

Planning Partners

Agua Caliente Band of Cahuilla Indians
Augustine Band of Cahuilla Indians
Cabazon Band of Mission Indians
California Rural Legal Assistance Foundation
City of Cathedral City
City of Desert Hot Springs
City of Indian Wells
City of La Quinta
City of Palm Desert
City of Palm Springs
City of Rancho Mirage
Coachella Valley Association of Governments
Coachella Valley Economic Partnership
Colorado River Regional Water Quality Control Board
County of Riverside
Desert Alliance for Community Empowerment
Friends of the Desert Mountains
Morongo Band of Mission Indians
Myoma Dunes Mutual Water Company
Poder Popular
Representative from Assemblymember Manuel Perez
Representative from Supervisor Marion Ashley
Representative from Supervisor John Benoit
Riverside County Flood Control and Water Conservation District
Salton Community Services District
Torres-Martinez Desert Cahuilla Indians
Twenty-Nine Palms Band of Mission Indians
U.S. Bureau of Indian Affairs
Valley Sanitary District







Executive Summary

This executive summary of the Coachella Valley Integrated Regional Water Management (IRWM) Plan provides an overview of the planning effort.

Overview of IRWM Planning

IRWM planning is a process by which multiple agencies and stakeholders within a region work together to address water management issues through a collaborative process. In this sense, IRWM planning is an efficient method of regional planning that synthesizes previous planning efforts and allows various stakeholders to collaborate more effectively.

IRWM planning enables a region to apply for grants related to the IRWM program led by the California Department of Water Resources (DWR).

Coachella Valley IRWM Plan

This IRWM Plan covers the Coachella Valley Region, which is located in central Riverside County. The Region is generally the same as the Whitewater River watershed, but does not include portions of the watershed that are under the jurisdiction of the San Gorgonio Pass Water Agency.

This IRWM Plan was created by the Coachella Valley Regional Water Management Group (CVRWMG), which is a partnership of the following five Coachella Valley water purveyors: Coachella Water Authority, Coachella Valley Water District, Desert Water Agency, Indio Water Agency, and the Mission Springs Water District.

The Coachella Valley Region is appropriate for integrated regional water management because is all-encompassing and allows for the inclusion of all pertinent agencies and stakeholders interested in water management in the Coachella Valley. The boundary selected also shares a common water supply, wastewater, and flood control infrastructure, making it easier to coordinate and establish regional goals and objectives. The selected regional boundary was formalized by within a Region Acceptance Process in April 2009.

Goals and Objectives

The Coachella Valley Region is facing a variety of water-related issues that can be addressed through the IRWM planning process. Input and discussion by the CVRWMG and regional stakeholders led to the formulation of the following goals for this IRWM Plan:

1. Optimize water supply reliability,
2. Protect or improve water quality,
3. Provide stewardship of water-related natural resources,
4. Coordinate and integrate water resource management, and
5. Ensure cultural, social, and economic sustainability of water in the Coachella Valley.

Following a series of facilitated public workshops and meetings, the CVRWMG and stakeholders developed thirteen specific IRWM Plan objectives to accomplish the five goals. These objectives include:

A. Provide reliable water supply for residential and commercial, agricultural community, and tourism needs.
B. Manage groundwater levels to reduce overdraft, manage perched water, and minimize subsidence.
C. Secure reliable imported water supply, including restoring/improving reliability of State Water Project supply and securing other imported water supplies.
D. Maximize local supply opportunities, including water conservation, water recycling and source substitution, and capture and infiltration of runoff.
E. Protect groundwater quality and improve, where feasible.
F. Preserve and improve surface water quality by maintaining integrity of agricultural drainage systems, protecting the quality of natural runoff used for potable supply, and reducing pollution in stormwater runoff.
G. Preserve the water-related local environment and restore, where feasible.
H. Manage flood risks, including current acute needs and needs for future development.
I. Optimize conjunctive use of available water resources.
J. Maximize stakeholder involvement and stewardship in water resource management.
K. Address water-related needs of local Native American culture.
L. Address water and sanitation needs of disadvantaged communities, including those in remote areas.
M. Maintain affordability of water.

Future IRWM Planning in Coachella Valley

This IRWM Plan is intended to be the first in an ongoing process of regional collaboration that will continue in the Coachella Valley. Subsequent updates are anticipated to involve updating the Plan itself, and also refining the identified stakeholder involvement effort, issues and needs, and other items relevant to water resources planning within the Coachella Valley.

Organization and Contents

The IRWM Plan follows DWR's IRWM Plan Standards, and is organized as follows.

Chapter 1, Introduction

Chapter 1, Introduction of the IRWM Plan contains background information regarding the Coachella Valley and the Whitewater River watershed. This chapter also provides background information regarding the Coachella Valley Regional Water Management Group (CVRWMG), which is a collaborative group comprised of five water purveyors (City of Coachella, Coachella Valley Water District, Desert Water Agency, Indio Water Authority, and Mission Springs Water District). In addition, Chapter 1 describes various coordination efforts that were taken between CVRWMG and interested parties such as stakeholders, the public, advisory groups, disadvantaged communities (DAC), and Native American Tribes to develop the IRWM Plan.

Chapter 2, Region Description

Chapter 2, Region Description provides a comprehensive overview of the Coachella Valley. This chapter contains detailed information regarding the Valley's watershed, water systems, and water distribution. Specifically, this chapter describes various issues and attributes of the Valley, including the Valley's internal boundaries, regional boundary, water supplies and demand, water quality, social and cultural make-up, major water-related objectives and conflicts, and discusses neighboring and/or overlapping IRWM planning efforts. In addition, this chapter gives information regarding the legislative and policy context of climate change, and incorporates information regarding potential implications that could result from climate change.

Chapter 3, Issues and Needs

Chapter 3, Issues and Needs details the specific issues, needs, and conflicts relevant to water management in the Valley, which were used to develop the IRWM Plan objectives. This chapter covers topics such as water demand, water supply, water quality, flood management, natural resources, and issues specific to DAC and Tribal Issues Groups.

Chapter 4, Objectives

Chapter 4, Objectives builds on information from *Chapter 3, Issues and Needs*, identifying goals and objectives of the IRWM Plan. This chapter also establishes planning targets that will be used in the future to measure the successfulness of meeting objectives within the IRWM Plan. In addition, this chapter provides information regarding the measurability of IRWM Plan objectives, and details how the objectives were prioritized by the CVRWMG, Planning Partners, and stakeholders.

Chapter 5, Stakeholder Involvement

Chapter 5, Stakeholder Involvement provides an overview of the stakeholder involvement process that was developed to allow for continual involvement, engagement, and participation from various stakeholder groups as part of the IRWM planning process. Specifically, this chapter provides information regarding the governance structure that is set in place for the IRWM Plan, including governance for the CVRWMG, Planning Partners, and Issues Groups. This chapter contains information regarding stakeholder composition, including development of the Planning Partners, and the formation of DAC and Native American Issues Groups.

Chapter 6, Resource Management Strategies

Chapter 6, Resource Management Strategies includes information regarding the integration principles and methods that were used to develop the IRWM Plan. This chapter describes the integration approach and its components, including: stakeholder/institutional integration, resource integration, project integration, and strategy integration. Furthermore, this chapter discusses the Resource Management Strategies (RMS) that were considered to achieve the goals and objectives of the IRWM Plan, explains the RMS selection process, and describes each RMS that was selected. Lastly, this chapter includes an evaluation of possible effects of climate change and discusses the potential of various selected RMS to reduce greenhouse gas emissions.

Chapter 7, Project Evaluation and Prioritization

Chapter 7, Project Evaluation and Prioritization discusses information regarding the way in which various projects were selected for inclusion within the IRWM Plan. This chapter provides detailed

information regarding the processes for project submittal, project review, and project prioritization, and explains how projects were ultimately selected. Additionally, this chapter explains methods that were created to develop the IRWM Plan, to evaluate project and plan performance, and discusses the supplemental prioritization processes that may be used to identify appropriate projects to be included in future funding applications.

Chapter 8, Agency Coordination

Chapter 8, Agency Coordination provides information regarding coordination activities within the IRWM Region, and describes neighboring and/or overlapping IRWM efforts. This chapter discusses agency coordination between the CVRWMG and various state, federal, and local agencies. Lastly, this chapter provides information regarding the IRWM Plan and its relation to local water planning and local land use planning, and discusses future efforts to establish proactive relationships.

Chapter 9, Framework for Implementation

Chapter 9, Framework for Implementation discusses impacts and benefits associated with implementation of the IRWM Plan and priority projects. This chapter also contains information regarding climate change mitigation and the greenhouse gas reduction potential associated with the IRWM Plan. In addition, this chapter identifies technical analyses used to develop the IRWM Plan, and discusses data management, plan performance/monitoring efforts, and financing/funding mechanisms.







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Acronyms

AB 32	Assembly Bill 32
AD	Assessment district
AF	Acre-feet
AFY	Acre feet per year
Basin Plan	Water Quality Control Plan for Plan for the Colorado River Basin – Region 7
BMP	Best management practice
BPO	Basin Plan Objective
BWD	Borrego Water District
CA	California
CalEPA	California Environmental Protection Agency
CARB	California Air Resources Board
CAS	California Climate Adaptation Strategy
CAT	Climate Action Team
CDC	California Department of Conservation
CDPH	California Department of Public Health
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CMP	Consolidated Monitoring Program
CO_2e	CO_2 equivalents
County	County of Riverside
CRA	Colorado River Aqueduct
CUWCC	California Urban Water Conservation Council
CVAG	Coachella Valley Association of Governments
CVCC	Coachella Valley Conservation Commission
CVMSHCP	Coachella Valley Multiple Species Habitat Conservation Plan
CVRWMG	Coachella Valley Regional Water Management Group
CVSC	Coachella Valley Stormwater Channel
CVWD	Coachella Valley Water District
CVWMR	Coachella Valley Water Management Region
CWA	Coachella Water Authority
CWP	California Water Plan
DAC	Disadvantaged communities
DACE	Desert Alliance for Community Empowerment
DEH	Riverside County Department of Environmental Health
DWA	Desert Water Agency
DWR	California Department of Water Resources
EDA	Economic Development Agency

EIR	Environmental Impact Report
EJ	Environmental justice
EO	Executive Order
GHG	Greenhouse gas
gpcd	Gallons per capita per day
HOA	Home Owners Association
IC/ID	Illicit discharge/illicit connection
ID	Improvement District
IID	Imperial Irrigation District
IPCC	Intergovernmental Panel on Climate Change
IRWM	Integrated Regional Water Management
IWA	Indio Water Authority
JPA	Joint Powers Authority
LID	Low impact development
MCL	Maximum containment level
mg/L	Milligrams per liter
mgd	Million gallons per day
MHI	Median Household Income
MOU	Memorandum of Understanding
MS4	Municipal Separate Storm Sewer System
MSWD	Mission Springs Water District
MWA	Mojave Water Agency
MWD	Metropolitan Water District of Southern California
NPDES	National Pollutants Discharge Elimination System
OPR	Governor's Office of Planning and Research
pCi/L	Picocuries per liter
Plan	Coachella Valley Integrated Regional Water Management Plan
ppb	Parts per billion
ppm	Parts per million
QSA	Quantification Settlement Agreement
RAP	Region Acceptance Process
RCFCWCD	Riverside County Flood Control and Water Conservation District
RECI	Water Contact Recreation
RECII	Water Non-Contact Recreation
Region	Coachella Valley Water Management Region
RWQCB	Regional Water Quality Control Board
SB 97	Senate Bill 97
SCAG	Southern California Association of Governments
SCSD	Salton Community Services District

SGPWA	San Gorgonio Pass Water Agency
SSA	Salton Sea Authority
SWMP	Stormwater Management Plan
SWP	State Water Project
SWRCB	State Water Resources Control Board
TDML	Total Maximum Daily Load
TDS	Total Dissolved Solids
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USEPA	U.S. Environmental Protection Agency
USGS	U.S. Geological Survey
UWMP	Urban Water Management Plan
Valley	Coachella Valley Water Management Region
VSD	Valley Sanitation District
WET-CAT	Climate Action Team, Water-Energy group
WMWC	Whitewater Mutual Water Company
WRP	Water reclamation plant
WRSC	Whitewater River Stormwater Channel







1 Introduction

The Integrated Regional Water Management (IRWM) program is a local water resources management approach directed by the California Department of Water Resources (DWR). It is aimed at securing long-term water supply reliability within California by first recognizing the inter-connectivity of water supplies, and then encouraging the development and implementation of projects that yield combined benefits for water supplies, water quality, and natural resources. Based on the *California Water Plan Update 2009* (Volume 1, Chapter 7, Objective 1: Expand Integrated Regional Water Management):

> *"The broad purpose of IRWM is to promote a regional planning and implementation framework to comprehensively address water supply, quality, flood, and ecosystem challenges and to implement integrated solutions through a collaborative multi-partner process that includes water managers, tribes, non-governmental organizations, State, federal, and local governments, and disadvantaged communities."*

The Coachella Valley IRWM Plan presents an integrated regional approach for addressing water management issues through a process that identifies and involves water management stakeholders from the Coachella Valley. The Coachella Valley IRWM Plan:

- Defines the Coachella Valley IRWM Region and water systems,
- Identifies regional water management goals and objectives,
- Establishes objectives and measurable targets for the Region,
- Identifies water management issues and needs,
- Clarifies stakeholder involvement and agency coordination processes,
- Identifies and evaluates resource management strategies,
- Assesses the integration of projects based on objectives,
- Establishes a project evaluation and prioritization process based on regional priorities, and
- Establishes a framework for implementation of projects.

While the Plan presents an opportunity to collaborate at a regional level, it does not duplicate previous planning efforts throughout the region, but rather synthesizes them and allows stakeholders to collaborate more effectively.

According to Section 15262 of the California Environmental Quality Act (CEQA) Guidelines, this IRWM Plan qualifies as a planning study that identifies projects and programs for possible future actions, but does not have a legally binding effect of the participating agencies. As such, programmatic environmental analysis under CEQA is not required. Similarly, the IRWM Plan is categorically exempt from CEQA pursuant to Section 15306 (Class 6) because the Plan consists of basic data and information collection and evaluation of water management activities. Prior to construction or implementation of all projects listed within this Plan, environmental review will be performed in accordance with CEQA.

1.1 Background

The Coachella Valley IRWM region is chiefly the same as the Whitewater River watershed, also known as the Coachella Valley (see **Figure 1-1**). The region is about 65 miles long on a northwest-southeast trending axis and covers approximately 1,420 square miles. The area is drained primarily by the Whitewater River that flows southward to the Salton Sea at an elevation of approximately 220 feet below sea level. The region's watershed boundaries to the north and northwest are the rugged and barren mountain ranges of the Colorado Desert, the San Bernardino Mountains, Little San Bernardino Mountains, and Mecca Hills. The watershed boundaries to the east and south are Mortmar, the Salton Sea, and Travertine Rock. This eastern boundary is defined by the watershed that encloses all surface drainage emptying into the north end of the Salton Sea. The Salton Sea is not within the IRWM region. The southernmost boundary turns west from the Salton Sea and follows the CVWD political boundary to the watershed divide. The watershed boundaries to the south and west are the high, precipitous Santa Rosa Mountains and San Jacinto Mountains, which create an effective barrier against the easterly moving coastal storms. The western boundary is composed of a political line that separates Desert Water Agency and Mission Springs Water District from San Gorgonio Pass Water Agency.

The Coachella Valley IRWM region currently faces multiple potential water supply and quality issues, including rapid population and water demand growth; significant reliance on imported water supply; groundwater degradation; habitat loss; flooding; and water quality issues from a variety of sources including agriculture, urban runoff, and failing septic systems (see *Chapter 3 Issues and Needs* for a more detailed description of each issue). Thus, the IRWM Plan promotes collaborative water management efforts and outlines strategies for addressing the current water management issues within the Coachella Valley.

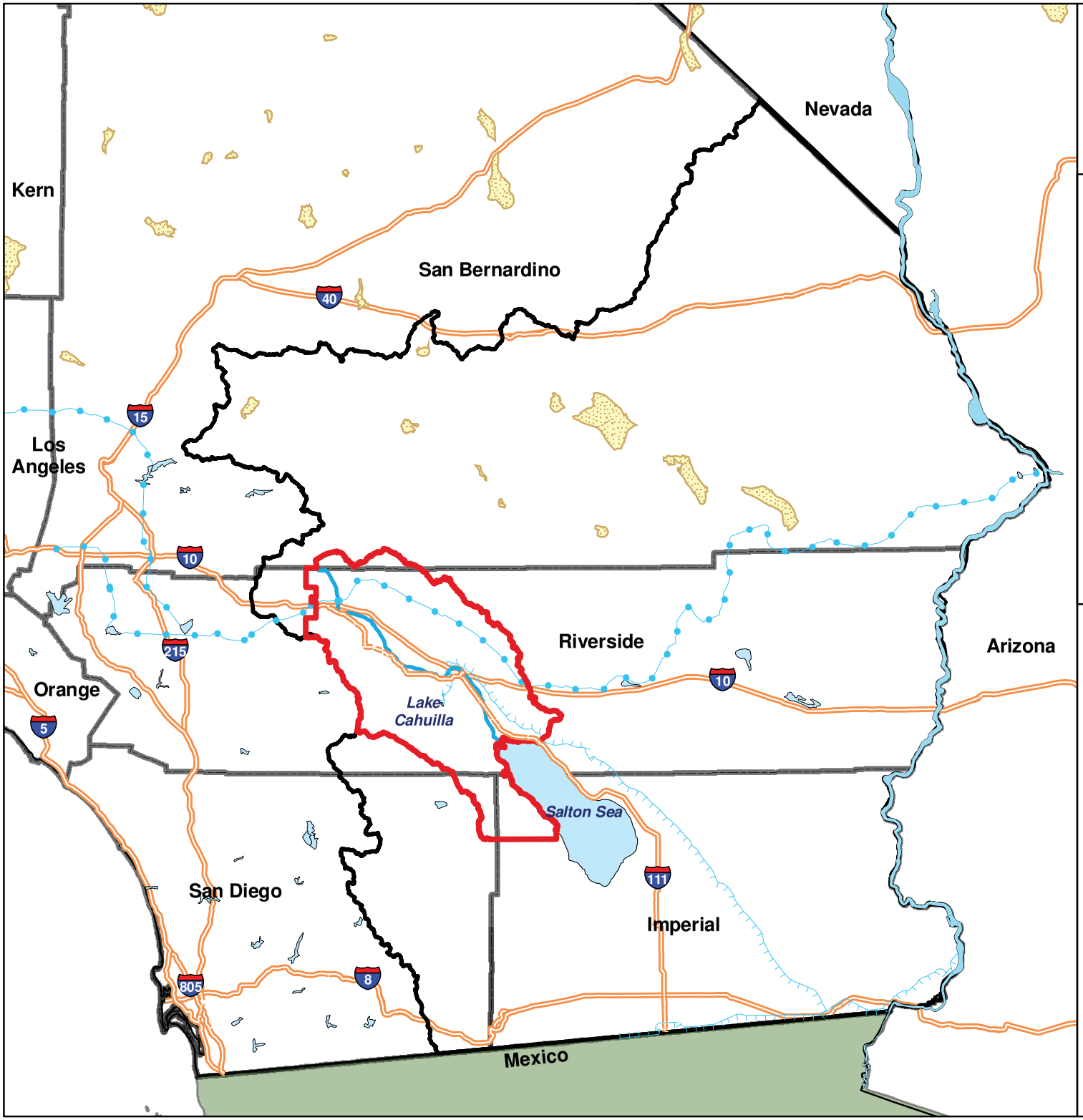
1.2 Regional Water Management Group

The Coachella Valley IRWM program is led by the Coachella Valley Regional Water Management Group (CVRWMG), whose purpose is to foster collaboration among water resource managers, develop and implement the IRWM Plan, and to enable the Coachella Valley region to apply for grants tied to DWR's IRWM program. The CVRWMG is a partnership composed of the five Coachella Valley water purveyors (see **Figure 1-2**). Each of the water purveyors and their statutory authority over water is described below.

- **Coachella Water Authority (CWA)** is a joint powers authority formed as a component of the City of Coachella and Redevelopment Agency of the City of Coachella. CWA has statutory authority over water supply.

- **Coachella Valley Water District (CVWD)** is a public agency of the State of California organized and operating under County Water District Law, California Water Code §30000, et. seq. and Coachella District Merger Law, Water Code §33100, et seq. CVWD is a State Water Project contractor and Colorado River contractor empowered to import water supplies to its service area. CVWD has statutory authority over water supply.

- **Desert Water Agency (DWA)** is an independent special district created by a special act of state legislature contained in Chapter 100 of the appendix of the California Water Code. DWA is also a State Water Project contractor empowered to import water supplies to its service area, replenish local groundwater supplies, and collect assessments necessary to support a groundwater replenishment program as provided for in the Desert Water Agency Law. DWA has statutory authority over water supply.



Coachella Valley IRWM Region

Figure 1-1

- Colorado River Aqueduct
- Coachella and All American Canals
- Whitewater River Stormwater Channel
- Interstate Hwys.
- Colorado River and its Lakes
- Lakes
- Dry Lakes
- Colorado River Funding Area
- Coachella Valley IRWM Region
- County Lines

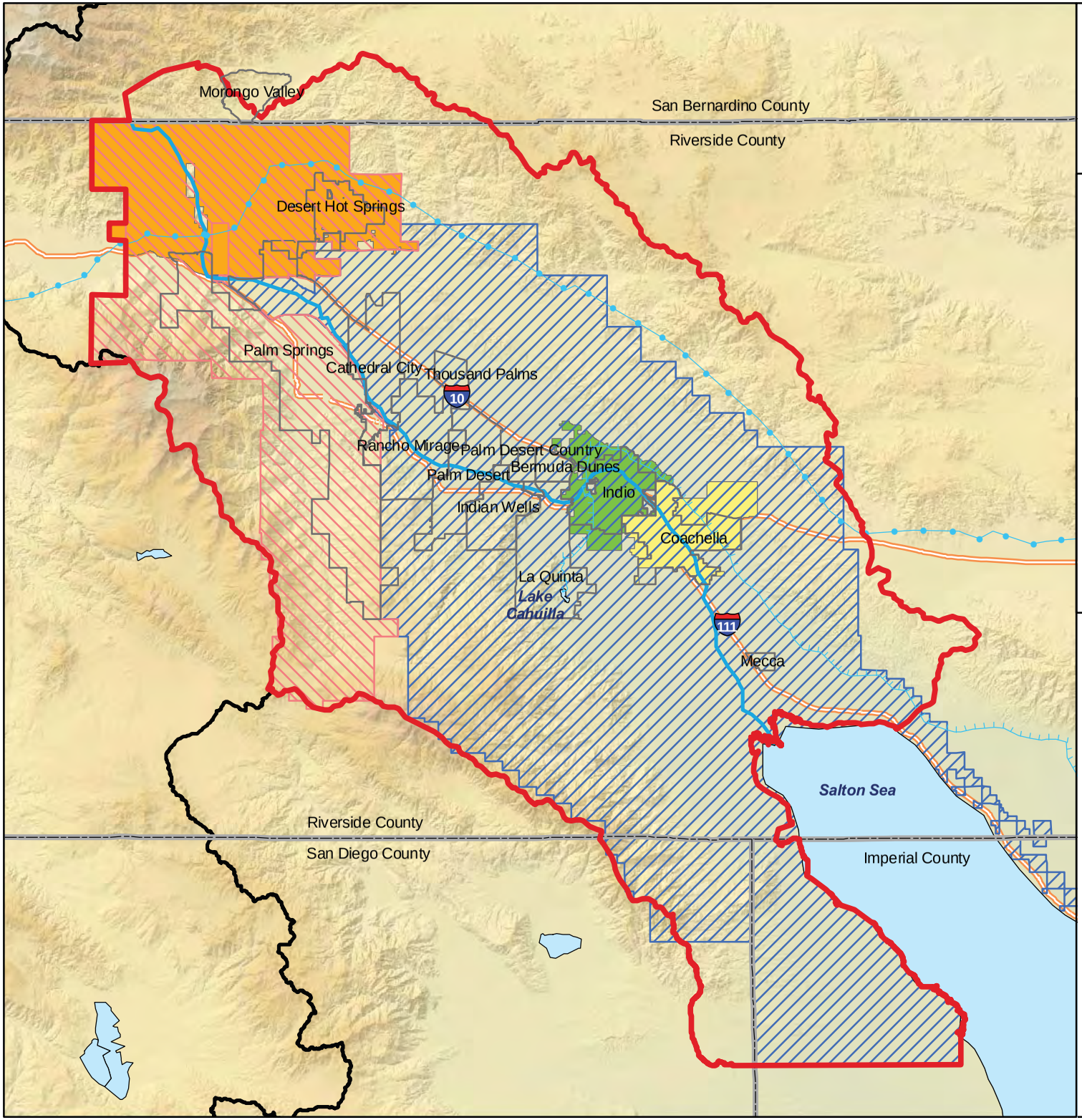
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Department: RMC Water & Environment



Coachella Valley Regional Water Management Group

Figure 1-2

- Colorado River Aqueduct
- Coachella and All American Canals
- Whitewater River Stormwater Channel
- Interstate Hwys.
- Colorado River and its Lakes
- Lakes
- City
- Coachella Valley IRWM Region
- Colorado River Funding Area
- Indio Water Authority
- Mission Springs Water Agency
- Coachella Water Authority
- Coachella Valley Water District
- Desert Water Agency

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Department: RMC Water & Environment

- **Indio Water Authority (IWA)** is a joint powers authority formed as a component of the City of Indio and Redevelopment Agency of the City of Indio. IWA has statutory authority over water supply.
- **Mission Springs Water District (MSWD)** is a County Water District formed under §30000 et seq. of the California Water Code. MSWD has statutory authority over water supply.

The five partners signed a Memorandum of Understanding (MOU) in September 2008 for the purpose of coordinating water resources planning activities and developing and adopting an IRWM Plan (see **Appendix E** of this IRWM Plan). Members of CVRWMG articulated their intent in Section 3 of the MOU:

> *"3.1.1 This MOU is to memorialize the intent of the Partners to coordinate and share information concerning water supply planning programs and projects and other information, and to improve and maintain overall communication among the Partners involved. It is anticipated that coordination and information sharing among the Partners will assist the agencies in achieving their respective missions to the overall well-being of the region."*

The MOU, as well as the formalization of the Coachella Valley as an approved region through the 2009 Region Acceptance Process (RAP), qualify the CVRWMG as a RWMG in accordance with §10539 of the California Water Code (CWC).

1.3 Overview of Stakeholder Involvement

Building understanding and support for the Coachella Valley IRWM Plan and grant application processes among key stakeholders, as well as the general public, was critical to ensuring the Plan reflects the local needs, promotes the formation of partnerships, and encourages coordination with state and federal agencies. A proactive approach to implementing public outreach and information dissemination by the CVRWMG generated broad-based support for the IRWM Plan. This section presents an overview of the variety of outreach mechanisms used to improve the general awareness of the Coachella Valley IRWM program (see *Chapter 5 Stakeholder Involvement* for detailed information)

1.3.1 Stakeholder Coordination and Public Involvement

The goal of the stakeholder coordination effort is to provide a means for the region's various entities with interests and/or authority over water management in the region to maintain an active level of involvement in the IRWM program and implementation of the IRWM Plan. *Chapter 5, Stakeholder Involvement* contains a detailed description of the various stakeholders involved in the IRWM program.

The goal of public involvement is to increase awareness, understanding, and support for the Coachella Valley IRWM planning effort among the general public. The benefits of keeping the general public informed of the IRWM program and subsequent IRWM Plan implementation include educating constituents and politicians about the importance and interrelation of water management strategies, increased regional as well as local support for projects, and generating broad-based support for continued regional coordination.

Various outreach activities were done to solicit public involvement in the development of the Coachella Valley IRWM Plan. These outreach activities are described in detail in *Chapter 5, Stakeholder Involvement, Section 5.5, Balanced Access and Opportunity for Participation.*

Planning Partners

One of the first steps for the Coachella Valley IRWM program was to identify the Planning Partners who would serve an advisory role for the development of the IRWM Plan and grant applications. This was done through exploratory meetings held by the CVRWMG with other water resource agencies in the Valley. This led the CVRWMG to identify areas of mutual interests and opportunities for collaboration on the Coachella Valley IRWM Plan. A list of the Planning Partners can be found in *Chapter 5, Stakeholder Involvement*, Table 5-3: Coachella Valley Planning Partners. The Planning Partners include representatives from local cities, County of Riverside, tribal governments, disadvantaged community (DAC) representatives, and other local water management stakeholders.

The Planning Partners support the CVRWMG with the following tasks:

- Reviewing and contributing to draft issues identification, goals and objectives, project prioritization criteria, long-term governance, implementation framework, and other Plan deliverables;
- Providing guidance on how to outreach to key stakeholders, including disadvantaged communities and tribes;
- Contributing to agenda and content for public workshops; and
- Reviewing and contributing to funding application content.

Issues Groups

One of the roles of the Planning Partners and the CVRWMG is to identify issues that will require specific stakeholders groups, called Issues Groups, to properly address. To date, two Issues Groups have formed: Disadvantaged Communities (DAC) Outreach and Tribal Outreach. These Issues Groups work to identify the water management issues associated with these specific populations, discuss goals and objectives that can be established to address those issues, and identify solutions (projects and programs) that work toward meeting those objectives. More information regarding the formation, outreach, and involvement of Issues Groups as part of the IRWM program can be found in *Chapter 5, Stakeholder Involvement, Section 5.3.1 Group Membership and Participation.* Formation of additional Issues Groups will occur as the IRWM process continues forward and new topics and needs are identified by stakeholders.

The goal of disadvantaged communities (DAC) outreach is to identify and obtain input from groups that may be otherwise limited from participating in the IRWM planning and implementation efforts due to financial or other constraints. Through targeted outreach, the CVRWMG identified the major water-related concerns facing these groups (see *Chapter 3, Issues and Needs, Section 3.1.8 Issues Groups* for the identified issues). Numerous local and State-wide DAC organizations were targeted during outreach for the Coachella Valley IRWM program.

Environmental justice (EJ) is defined by the USEPA as "the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and environmental of environmental laws." Outreach to organizations also involved with EJ issues ensures that water management activities implemented under the Coachella Valley IRWM program do not unduly burden DACs (e.g., through location of facilities).

Various outreach activities were conducted to solicit DAC members to participate in the development of the Coachella Valley IRWM Plan. These outreach activities are described in detail in *Chapter 5, Stakeholder Involvement, Section 5.6 Disadvantaged Communities Outreach.*

1.3.2 Tribal Outreach and Coordination

The goal of engaging the Valley's tribal governments is to better understand their critical water resources issues and needs. Through targeted outreach, the CVRWMG learned more about the major water-related concerns facing the tribes such that long-term implementation of the IRWM Plan was responsive to those needs. The following six Native American tribes in the region were engaged during outreach for the IRWM program (Note: Though the Morongo Band of Mission Indians Reservation does not lie directly within the Coachella Valley Region boundary, the tribe was invited to participate in regional planning efforts because it does draw from the underlying groundwater basin and has a vested interest in the Region):

- Agua Caliente Band of Cahuilla Indians
- Augustine Band of Mission Indians
- Cabazon Band of Mission Indians
- Morongo Band of Mission Indians
- Torres-Martinez Desert Cahuilla Indians
- Twenty-Nine Palms Band of Mission Indians

Additionally, meetings included the Bureau of Indian Affairs and other tribal coordinating agencies and groups when appropriate.

Various outreach activities were conducted to solicit Tribal members in the development of the Coachella Valley IRWM Plan. These outreach activities are described in further detail in *Chapter 5, Stakeholder Involvement, Section 5.7 Tribal Outreach and Coordination.*

1.4 IRWM Plan Development

The IRWM Plan was developed by various stakeholders in collaboration with the CVRWMG, Planning Partners, and consulting team. Through a series of meeting and public workshops, water resource needs, issues, and conflicts were identified, regional goals and objectives were established, and projects that contribute to Plan objectives were identified.

This IRWM Plan is organized in accordance with IRWM Plan Standards established in **Appendix C** of DWR's IRWM Grant Program Guidelines (August 2010). **Table 1-1** cross-references the IRWM Plan Standards with relevant sections of the Coachella Valley IRWM Plan. **Figure 1-3** provides a conceptual graphic illustrating the Coachella Valley IRWM Plan framework.

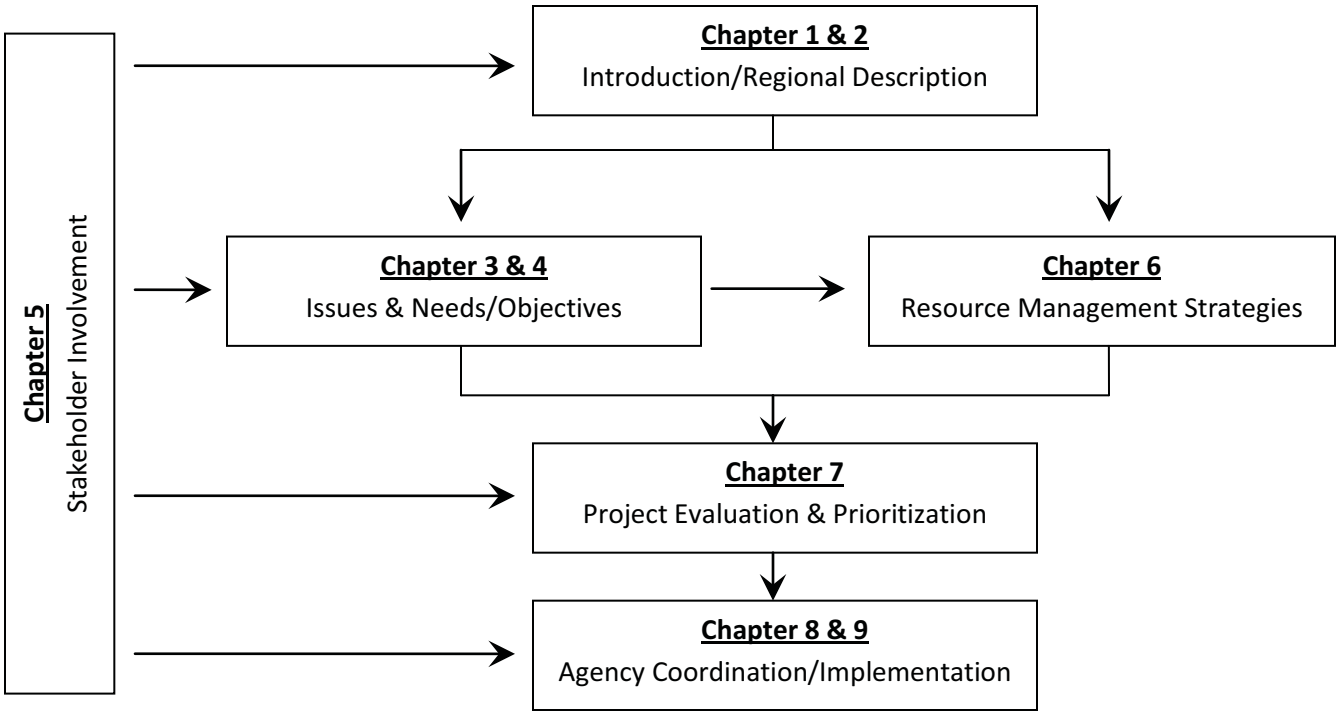
The overall direction and development of the IRWM Plan was provided by the CVRMWG and Planning Partners. The CVRMWG were assisted in preparing plan documents by:

- RMC Water and Environment
- Integrated Planning and Management, Inc.

Table 1-1: Organization of IRWM Plan

IRWM Plan Standards	Location in Coachella Valley IRWM Plan
Governance	Stakeholder Involvement (Chapter 5) Agency Coordination (Chapter 8) Framework for Implementation (Chapter 9)
Region Description	Region Description (Chapter 2) Agency Coordination (Chapter 8)
Objectives	Issues and Needs (Chapter 3) Objectives (Chapter 4)
Resource Management Strategies	Resource Management Strategies (Chapter 6)
Integration	Resource Management Strategies (Chapter 6)
Project Review Process	Project Review and Prioritization Process (Chapter 7) Appendix B: Coachella Valley IRWM Project List
Impact and Benefit	Framework for Implementation (Chapter 9)
Plan Performance and Monitoring	Framework for Implementation (Chapter 9)
Data Management	Framework for Implementation (Chapter 9)
Finance	Framework for Implementation (Chapter 9)
Technical Analysis	Issues and Needs (Chapter 3)
Relation to Local Water Planning	Agency Coordination (Chapter 8)
Relation to Local Land Use Planning	Agency Coordination (Chapter 8)
Stakeholder involvement	Stakeholder Involvement (Chapter 5)
Coordination	Stakeholder Involvement (Chapter 5) Agency Coordination (Chapter 8)
Climate Change	Region Description (Chapter 2) Resource Management Strategies (Chapter 6)

Figure 1-3: IRWM Plan Framework/Schematic









2 Region Description

*This chapter complies with the **Region Description Standard** by documenting that the IRWM planning region is defined by the combination of the water systems being managed; common water issues; and that there is sufficient variety of interested parties included in the planning region.*

This chapter provides a comprehensive overview of the Coachella Valley IRWM region, building from the information submitted as part of the Region Acceptance Process (RAP). This chapter also describes climate change in a legislative context, and discusses potential implications of climate change.

The Coachella Valley IRWM region is chiefly the same as the Whitewater River watershed, also known as the Coachella Valley (refer to Figure 1-1). The Region's watershed boundaries to the north and west are the rugged, barren mountain ranges of the Colorado Desert, San Bernardino Mountains, Little San Bernardino Mountains, and Mecca Hills. The watershed boundaries to the east are Mortmar, the Salton Sea, and Travertine Rock. The eastern boundary is defined by the watershed that encloses all surface drainage emptying into the north end of the Salton Sea. The Salton Sea is not within the IRWM region. The southernmost boundary turns west from the Salton Sea and follows the CVWD political boundary to the watershed divide. The watershed boundaries to the south and west are the high precipitous Santa Rosa Mountains and San Jacinto Mountains, which create and effective barrier against the easterly moving coastal storms. The western boundary is composed of a political line that separates DWA and MSWD from San Gorgonio Pass Water Agency.

Coachella Valley is located in central Riverside County. The Coachella Valley IRWM region is about 65 miles long on a northwest-southeast trending axis and covers approximately 1,420 square miles. The area is drained primarily by the Whitewater River that flows southward to the Salton Sea at an elevation of approximately 220 feet below sea level. The Coachella Valley is characterized by low precipitation and high summer daytime temperatures. Water bodies in the Coachella Valley include the Salton Sea, Whitewater River, and a collection of small ephemeral streams and creeks.

The Coachella Valley is comprised of nine city jurisdictions and unincorporated areas with a total 2010 projected population of approximately 477,900 (CVAG 2008). The largest city is Indio with a population of nearly 78,000 (CVAG 2008). In spite of its dry conditions and intense temperatures, the Coachella Valley generates $576M worth of crop value annually through its agricultural sector. Coachella Valley is known for producing a variety of fruits and vegetables, but most notably famous for dates and the origination of the Coachella grapefruit. Coachella Valley's underground aquifer has allowed extensive economic growth. Widespread water availability through aquifer pumping has supported high caliber golf and country clubs making Coachella Valley a premier destination for both golf and tourism; tourism has become major contributor to regional revenue.

The Coachella Valley region is appropriate for integrated regional water management because of its geologic proximity, interconnected economies and inclusion within the Whitewater River watershed. The selected regional boundary falls under the Colorado River Basin RWQCB jurisdiction, multiple political authorities, and several water purveyors.

2.1 Selection of Regional Boundary

The IRWM regional boundary was selected because it is all-encompassing and allows for the inclusion of all pertinent agencies and stakeholders interested in water management in the Coachella Valley. The boundary selected also shares a common water supply, wastewater, and flood control infrastructure, making it easier to coordinate and establish regional goals and objectives. Because it includes the service areas of the five CVRWMG partners, each of the partners indicated their individual intent to adopt the IRWM Plan and the regional boundary determined through stakeholder processes.

The western political boundary controlled by the San Gorgonio Pass Water Agency (SGPWA) just east of the Whitewater River watershed boundary was omitted from the IRWM regional boundary, because the groundwater basins of SGPWA are separated from the Coachella Valley Groundwater Basin (CVGB) by geological features near Fingal Point. The regions do share surface water drainage, but surface water flow only occurs during infrequent extreme, prolonged rain events. As such, their water supplies are independent of the Coachella Valley's water supplies. In addition, the two planning areas are separated by a political boundary, do not share customers, and their stakeholder groups do not overlap. SGPWA is mostly outside of the Colorado River Funding Area (as defined by DWR for the Statewide IRWM program), and is actively participating in the Upper Santa Ana Water Resources Association, which is developing an IRWM Plan.

On April 28, 2009, the CVRWMG submitted a Region Acceptance Process (RAP) application to DWR for establishment of the Coachella Valley IRWM Region. DWR approved the Region in November 2009. Further information regarding neighboring and/or overlapping IRWM efforts and an explanation of the planned working relationship that promotes cooperation between IRWM regions can be found in *Chapter 8 Agency Coordination, Section 8.1.2 Neighboring and/or Overlapping IRWM Efforts*.

2.2 Watershed and the Water Systems

This section includes a description of Watersheds/Water Systems within the Coachella Valley Region.

2.2.1 Watershed

The Coachella Valley IRWM Region is essentially comprised of the Whitewater River watershed, with the western edge formed by the DWA and MSWD political boundaries and the southern edge formed by the CVWD political boundary (as described in *Chapter 1 Introduction, Section 1.1 Background).* Groundwater basins that underlie the watershed are further subdivided as described below in *Section 2.2.2, Groundwater.*

The U.S. Geological Survey (USGS) and Colorado River Regional Water Quality Control Board (RWQCB) (2006) describe the Whitewater Hydrologic Unit as beginning 1.5 miles north of Whitewater and 3.5 miles upstream from San Gorgonio River. The drainage area of the watershed is approximately 57.5 mi^2. The watershed consists of sparsely populated mountains, desert, and agricultural lands. The Whitewater River is the primary drainage course in the area, spanning the entire Coachella Valley. The River has perennial flow north of Palm Springs, becoming dry as water percolates into the groundwater basin or is diverted for recharge at Whitewater Spreading Area. The Whitewater River is ephemeral

downstream of the Whitewater Spreading Area and flows are rare. The River is fed by several ephemeral tributaries. The Whitewater River is also the main stormwater channel in the Coachella Valley.

2.2.2 Water Systems and Distribution

The Coachella Valley's water supply systems are made up primarily of three sources:

- Groundwater pumped from the Whitewater River Basin;
- Imported Colorado River water supplies obtained by CVWD and DWA; and
- Natural surface water from mountain streams.

Wastewater, recycled water, conservation, desalinated water, stormwater, and flood management are also important components of the regional water system; these components are discussed further below.

Groundwater

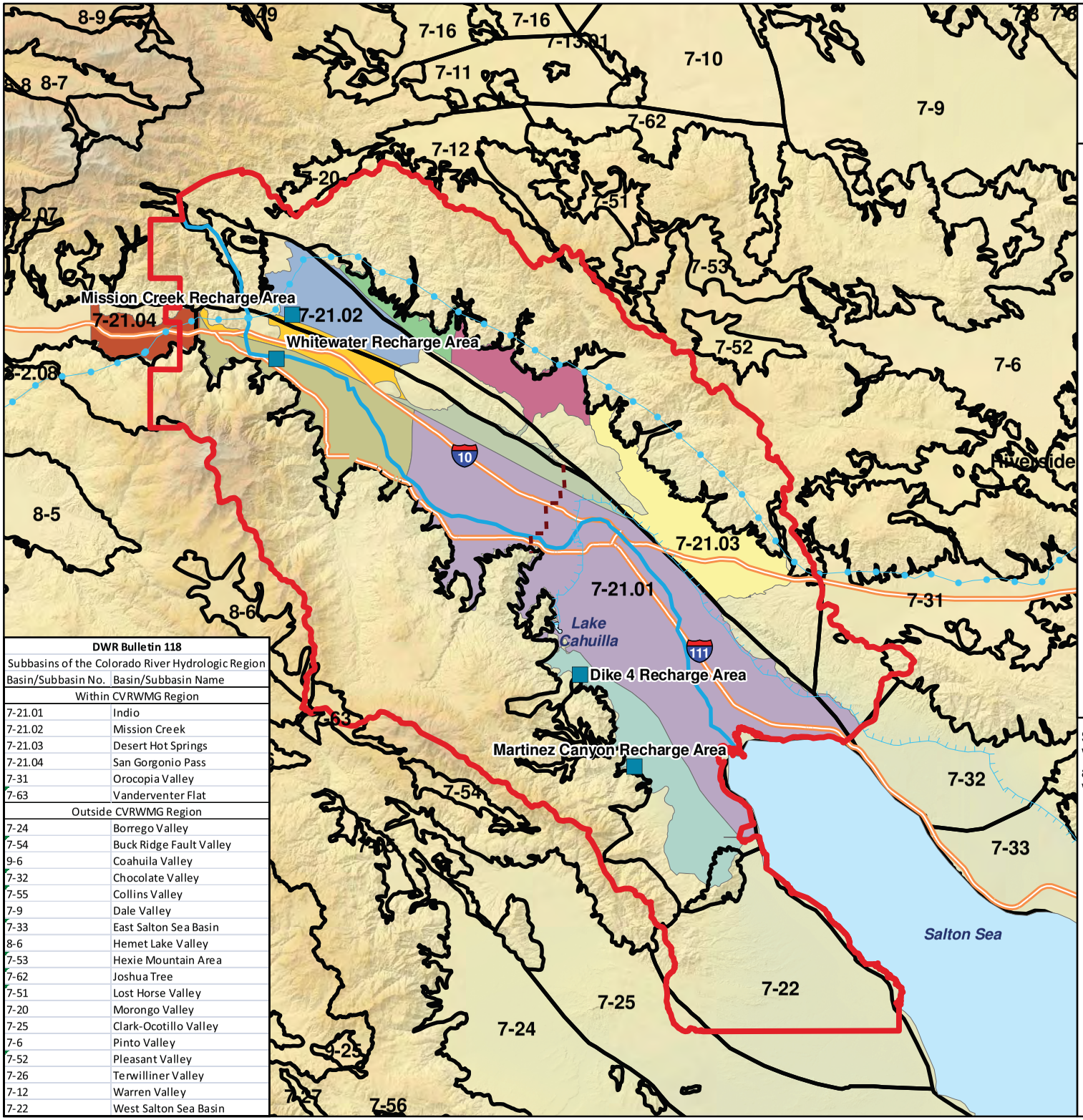
Groundwater is the largest source of water supply for the Coachella Valley IRWM region. The Coachella Valley Groundwater Basin has an estimated storage capacity of 39 million acre-feet of water. DWR's *Bulletin 118: California's Groundwater* (2004) defines the Coachella Valley Groundwater Basin (No. 7-21) as residing within the Colorado River Hydrologic Region. DWR divides this basin into the following four sub-basins, Indio (No. 7-21.01), Mission Creek (No. 7-21.02), Desert Hot Springs (No.7-21.03), and San Gorgonio Pass (No. 7-21.04). The location of the Coachella Valley Groundwater Basin and subbasins are shown in **Figure 2-1**.

DWR's Bulletin 118 divides the Coachella Valley Groundwater Basin into several basins with respect to local geographic and geologic conditions, including the large and active faults that constitute the San Andreas Fault system. The largest of these subbasins is the Indio Subbasin (No. 7-21.01), which is further divided into upper and lower portions. The upper and lower portions of the Indio Subbasin are also referred to as the Upper and Lower Whitewater River Subbasins in local planning documents, including the Coachella Valley Water Management Plan (CVWD 2002) and IWA's Water Resources Development Plan (IWA 2008). Geographically, the Lower Whitewater River Subbasin is southeast of a line extending from Washington Street and Point Happy northeast to the Indio Hills near Jefferson Street, and the Upper Whitewater River Subbasin is northwest of this line.

DWR's *Bulletin No. 108: Coachella Valley Investigation* (1964) provides a detailed description of the physical characteristics of the Coachella Valley Groundwater Basin and its subdivisions, and contains an inventory of the surface and underground water resources within the basin.

Basin inflows include natural recharge from mountain runoff, artificial recharge with Colorado River water, flows from outside the groundwater basin, return flows from urban over-irrigation, agricultural drainage, and non-consumptive return. Basin outflows include groundwater pumping (largest outflow according to Bulletin 118), evapotranspiration, flows to the Salton Sea, and flows to subsurface drains (which also flow to the Salton Sea).

Almost all domestic water served by the local water purveyors is obtained locally from wells drilled into the Coachella Valley's vast groundwater basin. All five CVRWMG water purveyors, Myoma Dunes Mutual Water Company, and other pumpers share the basin. Myoma Dunes Mutual Water Company is a private water company that provides domestic water services to a portion of the Bermuda Dunes community.



DWR Bulletin 118	
Subbasins of the Colorado River Hydrologic Region	
Basin/Subbasin No.	Basin/Subbasin Name
Within CVRWMG Region	
7-21.01	Indio
7-21.02	Mission Creek
7-21.03	Desert Hot Springs
7-21.04	San Gorgonio Pass
7-31	Orocopia Valley
7-63	Vanderventer Flat
Outside CVRWMG Region	
7-24	Borrego Valley
7-54	Buck Ridge Fault Valley
9-6	Coahuila Valley
7-32	Chocolate Valley
7-55	Collins Valley
7-9	Dale Valley
7-33	East Salton Sea Basin
8-6	Hemet Lake Valley
7-53	Hexie Mountain Area
7-62	Joshua Tree
7-51	Lost Horse Valley
7-20	Morongo Valley
7-25	Clark-Ocotillo Valley
7-6	Pinto Valley
7-52	Pleasant Valley
7-26	Terwilliner Valley
7-12	Warren Valley
7-22	West Salton Sea Basin

Groundwater Basins and Recharge Areas

Figure 2-1

- Recharge Area
- Division between Upper and Lower Valley
- Colorado River Aqueduct
- Coachella and All American Canals
- Whitewater River Stormwater Channel
- Interstate Hwys.
- Coachella Valley IRWM Region
- Groundwater Basins

Hydrogeologic Subbasins in CV

- Fargo Canyon Sub Area
- Garnet Hill Sub Area
- Miracle Hill Sub Area
- Mission Creek Subbasin
- Oasis Sub Area
- Palm Springs Sub Area
- San Gorgonio Pass Subbasin
- Sky Valley Sub Area
- Thermal Sub Area
- Thousand Palms Sub Area

Source: DWR Bulletin 118 & 2009 Coachella Valley Water District Engineer's Report on Water Supply and Replenishment Assessment - Lower & Upper Whitewater River Subbasin Areas of Benefit

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Average pumping by water purveyor is as follows (CVRWMG 2009 RAP; IWA 2005 UWMP; MSWD 2005 UWMP; City of Palm Desert 2004 Water, Sewer and Utilities Element):

- CVWD: 132,000 AFY from approximately 115 wells
- DWA: 38,700 AFY from 27 wells
- IWA: 20,200 AFY from 18 wells
- MSWD: 9,200 AFY from 14 wells
- CWA: 8,400 AFY from 8 wells
- Myoma Dunes: 4,775 AFY from 5 wells

Prior to 1949, water levels steadily declined because of agricultural pumping. The Coachella branch of the All American Canal (Coachella Canal) was completed in 1949 and the first deliveries of the Colorado River water to the Coachella Valley began in that year. As a result, groundwater pumping was significantly reduced from 1950 to the early 1980s, water levels rose in the eastern Coachella Valley. However, since the 1980s, increased pumping has caused water levels in the eastern Coachella Valley to decline despite Colorado River imports. CVWD (2000) estimates the decrease in freshwater in storage in the Coachella Valley Groundwater Basin for 1999 to be 136,700 acre-feet, of which the Indio subbasin is the largest part.



Whitewater Spreading Area at Windy Point

Recharge Areas

Natural recharge to the groundwater basin is attributed to surface runoff and subsurface inflow. Natural recharge in the area is estimated to be only a fraction of the annual pumping – about 50,000 AFY. The bulk of groundwater recharge takes place through artificial means (CVWD 2002). There are four recharge areas in the Coachella Valley IRWM region (see **Figure 2-1** and **Table 2-1**):

- **Whitewater Spreading Area** recharges Colorado River Water and captures stormwater, with historical peak recharge of 288,000 acre-feet in 1986,
- **Mission Creek Spreading Facility** recharges Colorado River Water and has a recharge capacity of 30,000 to 40,000 AFY,
- **Thomas E. Levy Recharge Facility** recharges water obtained from the Coachella Canal and has a recharge capacity of approximately 30,000 to 40,000 AFY, and
- **Martinez Canyon Pilot Recharge Project** recharges Coachella Canal water and currently has capacity of about 2,000 AFY.

SWP and Colorado River allotments delivered by the Colorado River Aqueduct and the Coachella Canal help reduce the CVGB overdraft. These recharge facilities could provide conjunctive use opportunities with other agencies.

Overdraft Conditions

Despite the large amount of artificial groundwater recharge, the local groundwater basin has not been in balance since the 1930's. The overdraft was estimated to be about 137,000 AFY in 1999, with a cumulative overdraft of nearly 4.8 million acre-feet between 1936 and 1999 (CVWD 2002 WMP). This means that 4.8 million more acre-feet of freshwater were withdrawn from the basin than was recharged (see **Figure 2-2**).

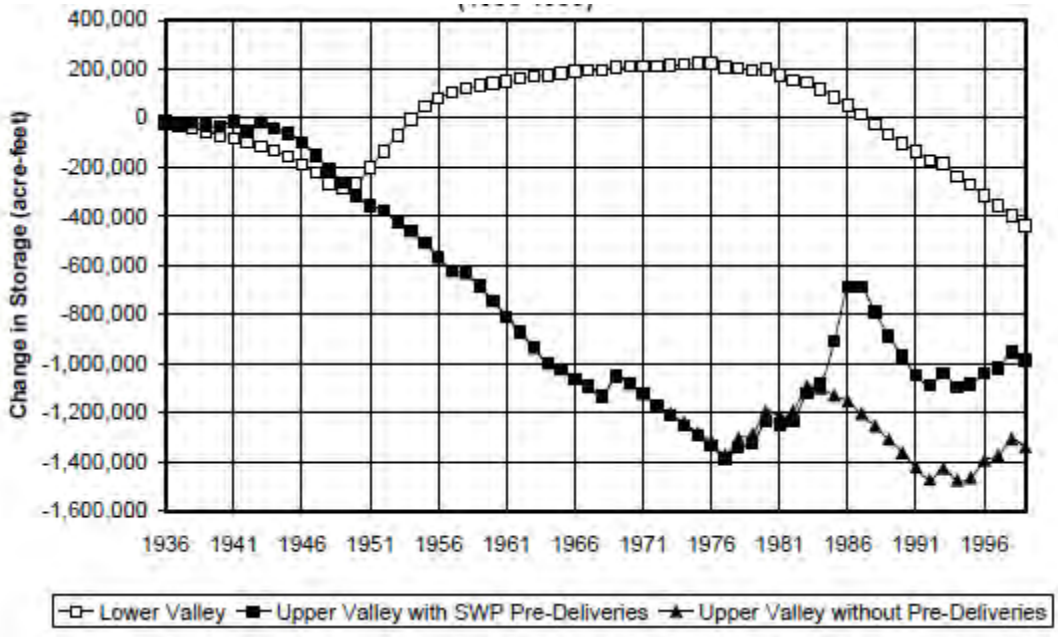
Table 2-1: Groundwater Subbasins and Corresponding Recharge Areas

Bulletin 118 Basin Name (Basin No.)	Subbasins	Groundwater Storage Capacity (AF)*	Recharge Areas
Indio (7-21.01), aka Whitewater River	Garnet Hill Sub Area	1,000,000	Being Studied
	Palm Springs Sub Area	4,600,000	Whitewater Recharge Area
	Thousand Palms Sub Area	1,800,000	Whitewater Recharge Area
	Oasis Sub Area	3,000,000	Thomas E. Levy Recharge Area Martinez Canyon Pilot Recharge
	Thermal Sub Area	19,400,000	Thomas E. Levy Recharge Area Martinez Canyon Pilot Recharge
Mission Creek (7-21.02)	Mission Creek	2,600,000	Mission Creek Recharge Area
Desert Hot Springs (7-21.03)	Fargo Canyon Sub Area Miracle Hill Sub AreaSky Valley Sub Area	4,100,000	N/A

*Source: CVWD UWMP (2005)

Groundwater overdraft has caused groundwater levels to decrease more than 60 feet in portions of the East Valley and raised significant concern about water quality degradation and land subsidence in this area. Recently, however, reduced pumping in the East Valley along with recharge at the Thomas E. Levy Facility has resulted in a partial return to artesian flow in the vicinity of Mecca. Groundwater levels in the West Valley have decreased substantially, except in the areas near the Whitewater Spreading Facility where artificial recharge has successfully raised water levels.

Figure 2-2: Cumulative Change in Groundwater Basin Storage (1936-1999)



Source: CVWD 2002 WMP

Continued overdraft would have significant consequences for the Coachella Valley, including:

- increased costs to pump water and deepen wells;
- land subsidence in some areas with resultant potential for ground fissures and damage to buildings, homes, sidewalks, streets, wells, and buried pipelines; and
- water quality degradation in some areas, which includes increased salinity from Salton Sea intrusion and perched water intrusion.

Imported Water

Due to the potentially significant consequences caused by groundwater overdraft, the Region has developed imported water supplies to supplement and replenish groundwater supplies. CVWD and DWA obtain imported water supplies through two primary sources: 1) State Water Project supply via exchange with Metropolitan Water District of Southern California (MWD) for delivery through the Colorado River Aqueduct and 2) Colorado River supply via the Coachella Canal. CVWD and DWA also continually seek new opportunities to purchase imported water supplies from SWP contractors and other sources.

Figure 2-3 provides a Statewide map of imported water aqueducts.

State Water Project Supply via Colorado River Aqueduct

CVWD and DWA are State Water Project (SWP) contractors, but they have no direct physical connection to SWP water. Therefore, they receive their SWP deliveries via MWD's Colorado River Aqueduct, which originates near Parker Dam at Lake Havasu on the Colorado River and terminates at Lake Matthews. The aqueduct traverses the Coachella Valley IRWM region and has two turnout locations in the Coachella Valley for recharge of the groundwater basin. The first turnout is located near Highway 62 at the Mission Creek Spreading Area for recharge of the Mission Creek Subbasin. The second is located just north of

the intersection of the Whitewater River and Interstate 10 for recharge of the aquifer at the Whitewater Spreading Area, which outflows to the Whitewater River Subbasin.

CVWD and DWA have entered a series of exchange and delivery agreements with MWD to receive SWP deliveries via the Colorado River Aqueduct. These agreements are explained in the following paragraphs.

In 1973, CVWD and DWA entered into an Exchange Agreement with MWD for delivery of SWP water to replenish groundwater in the Whitewater River Sub-basin of the Upper CVGB. The same agencies executed an Advance Delivery Agreement in 1983, which allows MWD to store up to 600,000 acre feet of water in the Whitewater River Sub-basin. The agreement was updated in 2003. MWD assigned 11,900 acre feet of its annual Table A allocation to DWA and 88,100 acre feet of its annual Table A allocation to CVWD for a total of 100,000 acre feet (Table A is an entitlement schedule set forth by the SWP on an annual basis). MWD retained the option to call-back or recall a portion of the assigned water allocations at a cost, in accordance with specific conditions. To date, MWD has only exercised this option one time.

CVWD and DWA executed the Mission Creek Groundwater Replenishment Agreement in April 2003, which also allowed for storage of advanced deliveries from MWD. CVWD, MSWD, and DWA are currently working together on development of a Mission Creek-Garnet Hill Water Management Plan (Mission Creek-Garnet Hill WMP) to address sub-basin issues.

CVWD and DWA have also been actively acquiring additional Table A amounts to their respective SWP Table A allotments. The combined CVWD and DWA Table A allotment is now 194,100 AFY (refer to **Table 2-2** below).

MWD, CVWD, and DWA are currently studying the feasibility of extending the California Aqueduct to deliver SWP supplies to the Coachella Valley. However, capital costs associated with an aqueduct extension may be prohibitive.

Table 2-2: Table A Allotments

	Original SWP Table A	Tulare Lake Basin Transfer #1	Tulare Lake Basin Transfer #2	MWD Transfer	Berrenda Mesa Transfer	Total
CVWD	23,100	9,900	5,250	88,100	12,000	138,350
DWA	38,100	0	1,750	11,900	4,000	55,750
Total	61,200	9,900	7,000	100,000	16,000	194,100

Colorado River Supply via Coachella Canal

To secure its Colorado River water supplies, CVWD entered into the Quantification Settlement Agreement (QSA) and twelve related agreements with Imperial Irrigation District, MWD, San Diego County Water Authority, the State of California, and the U.S. Department of the Interior. The QSA enables California to reduce its historic overdependence on Colorado River water to its 4.4 million acre-foot basic annual apportionment through agriculture-to-urban water transfers and other water supply programs. The QSA secures CVWD's Colorado River water allotment of 459,000 AFY by 2026.



Statewide Imported Water Systems

Figure 2-3

- Aqueducts
- River
- Water Bodies
- CVRWMG Management Region
- Colorado River Funding Region Boundary

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COACHELLA VALLEY IRWMP

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Date Updated: July 2010
Made By: DNF
Department: RMC Water & Environment

The Coachella Canal originates 20 miles west of Yuma, Arizona at "Drop 1" of the All American Canal and conveys Colorado River water 123 miles northwest along the western boundary of the Coachella Valley IRWM region to a man-made storage reservoir, Lake Cahuilla. The Coachella Canal conveys flow by gravity and is concrete-lined to prevent seepage loss. Along its route, the Coachella Canal distributes non-potable Colorado River water for irrigation to approximately 73,000 acres of agricultural land in the eastern Coachella Valley through nearly 500 miles of buried delivery laterals. Total agricultural water demand in 1999 was 358,700 AFY, primarily in the East Valley. The Coachella Canal also provides non-potable irrigation water to several Coachella Valley golf courses. Lake Cahuilla, at the terminus of the Coachella Canal, was built by CVWD in 1968 to provide operational storage for imported Colorado River water.

Surface Water

Surface waters of the Coachella Valley IRWM region consist of the Whitewater River Stormwater Channel (WRSC) and principal tributaries to the WRSC, including the San Gorgonio River, Snow Creek, Falls Creek, Chino Creek, Mission Creek, Morongo Creek, Tahquitz Creek, Andreas Creek, Palm Canyon Wash, Deep Canyon Creek, and the Palm Valley Channel. The WRSC and the majority of its tributaries are ephemeral streams, and are normally dry. Surface water from the above-mentioned creeks and rivers is almost entirely put to a beneficial use, such as groundwater recharge.

DWA receives about 5% of its water supply (or 2,500 AFY) through surface water sources, including Chino Creek, Snow Creek, and Falls Creek. These creeks are all tributary to the Whitewater River. CVWD also diverts mountain runoff from the Whitewater River Canyon near Windy Point to the Whitewater Spreading Facility for groundwater recharge. In addition, the Agua Caliente Band of Cahuilla Indians may divert surface water supplies from Tahquitz Creek, Andreas Creek, and the Whitewater River. Surface water that is not diverted by the tribe is put to beneficial use, such as groundwater recharge.

Distribution Systems

Water supply for the Coachella Valley is generally pumped from subbasins of the CVGB. Water is pumped from many wells around the region into each agency's distribution system. Each of the five water purveyors of the CVRWMG operates its own distribution system. Below is a breakdown of the water supplied by each water purveyor (CVRWMG RAP 2009):

- **CVWD** provides approximately 132,000 acre feet per year to 280,000+ residents through 106,000 active meters. The system has about 30 pressure zones. It is made up of approximately 115 deep wells, 2,000 miles of pipe and 120 million gallons of reservoir storage in 59 reservoirs.
- **DWA** pumps water with 27 active wells in the system. The system is made up of 12 pressure zones. DWA domestic service includes about 22,000 active services through 369 miles of pipeline and serves about 71,000 people. The agency utilizes 28 reservoirs with the capacity of 59 million gallons. Annual production of DWA is about 38,700 acre feet.
- **CWA** is a domestic water system that provides 8,400 AFY of potable groundwater to over 40,000 residents in the City of Coachella. The pressurized pipeline distribution system has 2 pressure zones and consists of approximately 8 deep wells and 10.1 million gallons of reservoir storage in 3 enclosed, welded-steel reservoirs.
- **IWA** has about 21,000 active connections within its system. The system consists of 4 pressure zones and 7 reservoirs with a capacity of 19 million gallons of storage, 20 wells, 6 pumping plants and 350 miles of distribution pipelines.

- **MSWD** provides water to residential and commercial customers through three independent distribution systems that include 14 active wells. Water is distributed to about 12,500 connections through 239 miles of pipeline. There are 26 reservoirs that have storage capacity of 23 million gallons.

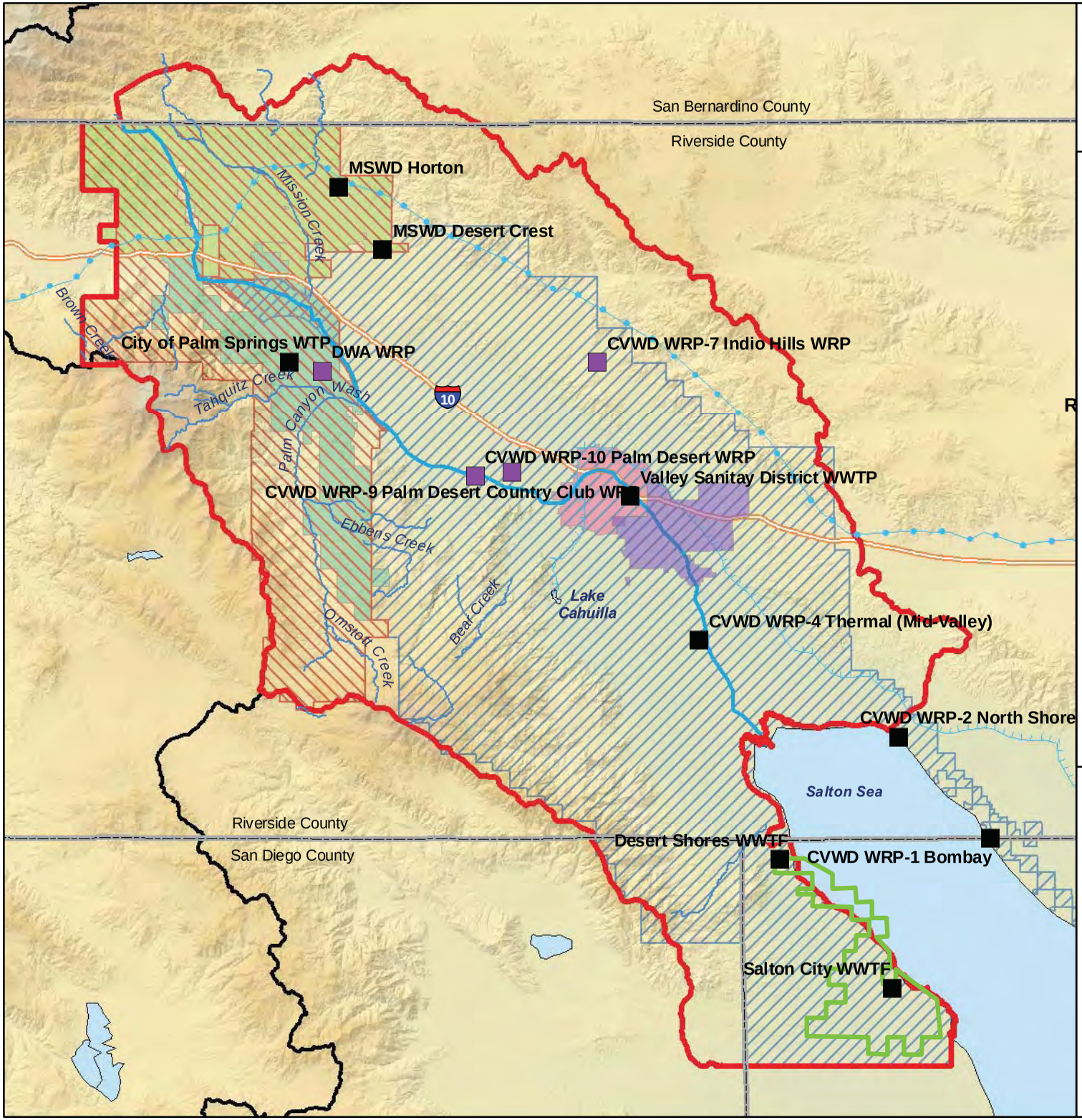
2.2.3 Wastewater

The Coachella Valley IRWM Region encompasses five sanitation service areas, with a total of eleven wastewater treatment plants. Of the eleven wastewater treatment plants, four of these plants recycle water. Recycled water usage in the Valley has increased from about 500 acre-ft/year in 1965 to more than 14,000 acre-ft/year currently (CVRWMG 2009 RAP). However, a portion of the customers within the Region are still on septic systems. The Coachella Valley IRWM region boundary sanitation service areas are shown on **Figure 2-4**.

The five sanitation service areas and wastewater treatment facilities that serve Coachella Valley residents include (CVRWMG 2009 RAP; CVWD 2005 UWMP; MSWD 2005 UWMP):

- **City of Coachella** (Coachella Sanitation District) operates a 4.5 million gallons per day (mgd) wastewater treatment plant and discharges effluent to the WRSC.
- **City of Palm Springs** operates a sewer collection system and a 10.9 mgd treatment facility. Treated effluent is transferred to DWA's reclamation plant where it is recycled.
- **DWA** operates an 11 mgd reclamation plant which distributes recycled water for landscape irrigation. DWA operates a sewer collection system in Palm Springs and discharges to the City of Palm Spring's collection system. DWA also operates a sewer collection system in the southeastern area of Cathedral City and discharges to CVWD's sewer collection system.
- **CVWD** operates a total of six treatment plants with a total capacity of 30.6 mgd. CVWD operates three water reclamation plants (WRP-7, WRP-9 and WRP-10) which treat to tertiary levels and distribute approximately 8 mgd of recycled water. One wastewater treatment plant (WRP-4) discharges effluent to the WRSC. Two small plants (WRP-1 and WRP-2) discharge effluent to percolation ponds.
- **MSWD** operates two wastewater treatment plants (Horton Wastewater Plant and Desert Crest Wastewater Plant) with a combined capacity of 2.7 mgd. Effluent from both plants is discharged to percolation ponds.
- **Valley Sanitary District** (VSD) operates a wastewater treatment plant that services the majority of IWA customers, and discharges effluent to the WRSC. The plant generates 6.5 mgd which is primarily diverted to the Coachella Valley Stormwater Channel.
- **Salton Community Services District (SCSD)** operates the Salton City Wastewater Treatment Facility, which serves the unincorporated community of Salton City and has the capacity to treat 0.25 mgd. SCSD also operates the Desert Shores Wastewater Treatment Facility, which serves the unincorporated community of Desert Shores and has the capacity to treat 0.20 mgd. Both of these facilities dispose of effluent through evaporation and percolation.

Several of the local wastewater treatment facilities discharge effluent to percolation ponds. CVWD and the City of Palm Springs discharge secondary treated recycled water to percolation ponds in the West Valley when the demand for recycled water is low in winter months, while MSWD and SCSD discharge secondary treated effluent to percolation ponds for final disposal. In the East Valley, CVWD, CWA, and VSD discharge secondary treated effluent which has been chlorinated and then dechlorinated to the Coachella Valley Stormwater Channel (CVSC).



Wastewater and Recycled Water

Figure 2-4

- Wastewater Treatment Plants
- Wastewater Reclamation Plants
- Colorado River Aqueduct
- Coachella and All American Canals
- Whitewater River Stormwater Channel
- River or Creek
- Interstate Hwys.
- Lakes
- Coachella Valley IRWM Region
- Colorado River Funding Area
- Salton Community Services District Boundary
- County Lines
- City of Palm Springs
- Coachella Valley Water District
- Desert Water Agency
- Mission Springs Sanitation District
- Valley Sanitary District
- Coachella Sanitary District

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COACHELLA VALLEY IRWMP

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Date Updated: Nov 2010
Made By: DNF
Department: RMC Water & Environment

Wastewater Treatment

The City of Coachella currently operates one secondary-treatment wastewater facility, although the City is currently completing a cost-benefit analysis that will determine the feasibility of upgrading this facility for tertiary treatment (CWA 2008).

The City of Palm Springs's wastewater treatment plant was built in 1960, and as such is in need of various retrofits. In April 2010, the Palm Springs City Council approved various actions relating to the City's wastewater treatment plant, including approval of the City of Palm Springs Wastewater Treatment Plant Capital Repair and Rehabilitation Plan (Palm Springs 2010).

DWA currently operates one water reclamation plant that provides tertiary treatment for recycled water. The agency operates a sewer collection system, but transfers collection to CVWD and the City of Palm Springs for treatment.

CVWD's major wastewater treatment facility, the Mid-Valley WRP (WRP-4) located near Thermal, became operational in 1986 and allows the District to serve communities from La Quinta to Mecca. Currently, this plant, along with similar facilities near Palm Desert, Thermal, North Shore, Bombay Beach, and Thousand Palms, allows the District to provide sanitation service to most of the areas that it serves with domestic water.

MSWD operates two plants, the Horton Wastewater Treatment Plant and Desert Crest Wastewater Treatment Plant that provide secondary treated wastewater. The Horton Wastewater Treatment Plant has been expanded four times and its current capacity is 2 mgd. Desert Crest Wastewater Treatment Plant produces much less, in the dry summers the plant can produce as low as 35,000 gallons and in the winter up to 70,000 gallons per day due to reduced population in the hot summer months (MSWD 2010). Both of these wastewater treatment plants distribute water to percolation ponds providing recharge.

VSD's wastewater plant, located in Indio, treats water on a secondary level at a rate of 6.5 mgd. Post-treatment water is diverted to the Coachella Valley Channel and small portions of the treated wastewater are used for neighboring tribal lands and irrigation (VSD 2010). IWA and VSD recently entered into an MOU for a joint effort to develop a water reclamation facility for recycled water use to include landscape irrigation.

SCSD renovated the Salton City Wastewater Treatment Facility in 2008 in response to increases in the amount of wastewater flows in SCSD's service area. SCSD intends to compose a Master Sewer Plan to address future projected wastewater flows, and could potentially expand the Salton City Wastewater Treatment Facility to 0.5 mgd to address future wastewater needs in its service area.

Many Valley residents, however, are still using septic systems for wastewater treatment. Failing septic systems or a high density of septic systems have the potential to contaminate the local groundwater basin. MSWD recently approved the formation of a $58 million sewer assessment district (AD12), which is designed to remove existing septic tank systems and finance the costs of additional improvement to the sewer system. Within DWA's service area, the City of Cathedral City has secured grants and assessment districts to fund the costs of septic to sewer conversions for the Dream Home and Cathedral City Cove areas. These projects were completed in summer of 2010. **Figure 2-5** demonstrates the location of septic-to sewer conversion projects that were submitted for the Coachella Valley IRWM Plan as of September 30, 2010.

Table 2-3: Summary of Wastewater Treatment Plants

Facility	Agency	Location	Secondary Treatment (mgd)
Coachella	Coachella Sanitation District	Coachella	2.4
WRP-1	CVWD	Bombay Beach	0.15
WRP-2	CVWD	North Shore	0.03
WRP-4	CVWD	Thermal (Mid-Valley)	7.0
Horton	MSWD	Desert Hot Spring	2.0
Desert Crest	MSWD	Unincorporated, County land	0.7
VSD	VSD	Indio	6.5
Palm Springs	City of Palm Springs	Palm Springs	10.9
Salton City	SCSD	Salton City	0.25
Desert Shores	SCSD	Desert Shores	0.20
Total			**30.13**

Sources- http://www.cvwd.org/news/publicinfo/2005_12_29_CVMWD_UWMP.pdf
http://www.palmsprings-ca.gov/index.aspx?page=877

2.2.4 Recycled Water

Recycled water has been used in the Coachella Valley IRWM region since 1965, mainly for irrigation of golf courses. Water recycling has the potential to provide a reliable non-potable water supply to the Region. Water recycling has the potential to save energy and reduce costs in the region as recycled water production requires only a quarter of the energy necessary to pump groundwater from deep wells. The use of reclaimed water also protects the local water supply by reducing the amount of nitrates which could reach the groundwater basin. At present, recycled water rates are subsidized as an incentive to encourage customers to maximize their use of recycled water.

In the West Valley, municipal wastewater is the only potential source of recycled water. In the East Valley, three sources of recycled water have been identified for potential use: fish farm effluent (dependent on one fish farming business operation), agricultural drainage flows, and municipal recycled water from CVWD and VSD water reclamation plants. The primary use for recycled water in the Coachella Valley IRWM region is golf course irrigation. In winter months, when demand for recycled water is low, wastewater facilities discharge secondary effluent to percolation ponds where it eventually becomes part of the groundwater.

Recycled water usage has increased from about 500 AFY in 1965 to over 14,000 AFY currently (CVRWMG RAP Submittal 2009). CVWD owns and/or operates three WRPs (WRP-7, WRP-9, and WRP-10) which generate reclaimed water for golf courses and large landscape areas. Flows from the western part of CVWD are generally directed to WRP-9 and WRP-10. The Palm Desert Regional WRPs (WRP-9 and WRP-10) serves the communities of Indian Wells, Palm Desert, and Rancho Mirage as well as a portion of Cathedral City. The Cities of Coachella and Palm Springs, and VSD each operate a WRP.

DWA also has a recycling program using wastewater effluent from the City of Palm Springs. DWA operates a 10 mgd water reclamation plant which distributes recycled water for irrigation uses. DWA began its recycled water program with the opening of the reclamation plant in 1988. Wastewater first goes to the City of Palm Springs wastewater treatment plant where it is initially treated, before DWA's recycling facility receives it and performs tertiary treatment for distribution.

MSWD has conducted both an assessment study and a feasibility study on recycled water for its service area. Design plans are complete for an expansion of MSWD's Horton Wastewater Treatment Plant to include the capability to treat wastewater to tertiary levels.

Table 2-4: Summary of Water Reclamation Plants

Facility	Agency	Location	WRP Secondary Treatment (mgd)	WRP Tertiary Treatment (mgd)
WRP-7	CVWD	Indio Hills	5.0	2.5
WRP-9	CVWD	Palm Desert Country Club	0.40	0.0
WRP-10	CVWD	City of Palm Desert	18.0	15.0
DWA	DWA	City of Palm Springs/DWA	10.9*	10.0
Total			**28.9**	**27.5**

Source- http://www.cvwd.org/news/publicinfo/2005_12_29_CVMWD_UWMP.pdf

*Note: This reflects the amount of water that Palm Springs has initially treated at the primary level. This water is subsequently delivered to DWA for tertiary treatment.

Potential uses for recycled water in the region can be divided into four major categories:

- Surface irrigation, especially for golf courses and greenbelt areas;
- Impoundments for recreation, fish hatcheries, landscape ponds;
- Cooling for industrial and commercial applications; and
- Other uses, such as toilet flushing, drain trap priming, fire fighting, decorative fountains, commercial laundries, industrial boiler feed, soil compaction, mixing concrete, and dust control on roads and streets.



CVWD Recycled Water Pump Station

Table 2-5 lists existing recycled water users for CVWD and DWA's reclamation plants. Currently, CVWD produces about 6,900 AFY of recycled water for irrigation use and approximately 2,000 AFY for in-plant water use. In addition to these users, CVWD delivers Coachella Canal water to a number of golf courses in the Lower Valley. DWA produces roughly 3,500 AFY of recycled water for a uses which include irrigation and landscaping.

Table 2-5: Existing Recycled Water Users

User	Use	Source	Usage (AFY)
CVWD Recycled Water			
Mountain Vista Golf Club	36 Hole Golf Course	WRP-7	1,867
Shadow Hills Country Club	18 Hole Golf Course	WRP-7	294
Palm Desert Country Club	27 Hole Golf Course	WRP-9	200
Casa Blanca HOA[3]	32 Acre HOA Greenbelt	WRP-10	116
Desert Willow	36 Hole Golf Course	WRP-10	962
Indian Ridge	36 Hole Golf Course	WRP-10	354
Marriott's Desert Springs	36 Hole Golf Course	WRP-10	695
Mountain View Falls HOA	21 Acre HOA Greenbelt	WRP-10	82
Palm Desert Greens	18 Hole Exec. Course	WRP-10	450
Palm Desert High School	20 Acre Athletic Fields	WRP-10	45
Portola Country Club	9 Hole Exec. Course	WRP-10	134
Toscana Country Club	Two 18 Hole Exec. Courses	WRP-10	862
Santa Rosa Country Club	18 Hole Golf Course	WRP-10	425
Silver Sands Racquet Club	75 Acre HOA Greenbelt	WRP-10	235
The Golf Center	9 Hole Exec. Course	WRP-10	156
Vista del Montañas HOA	25 Acre HOA Greenbelt	WRP-10	98
DWA Recycled Water			
N/A[1]	Park Irrigation	DWA[2]	348
N/A[1]	Combined Golf Course Irrigation	DWA	3,002
N/A[1]	Roadway Median	DWA	9
N/A[1]	Municipal Landscaping #1	DWA	15
N/A[1]	Municipal Landscaping #2	DWA	10
N/A[1]	Sports Field Irrigation #1	DWA	26
N/A[1]	Sports Field Irrigation #2	DWA	25
N/A[1]	Sports Field Irrigation #3	DWA	26
N/A[1]	Sports Field Irrigation #4	DWA	24
Total			**10,401**

Sources- http://www.cvwd.org/news/publicinfo/2005_12_29_CVMWD_UWMP.pdf
CVWD 2009 Non-Potable Water Report

[1]-DWA was unable to specify user due to a confidentiality agreement between their clients.

[2] -DWA denotes the DWA Water reclamation plant. They only have one facility.

[3]-HOA = Home Owners' Association

CVWD just completed Phase 1 of the Mid-Valley Pipeline Project, a $75 million non-potable pipeline distribution system that will expand its recycled water/Colorado River water distribution system to serve approximately 50 golf courses that currently use groundwater. The Mid-Valley Pipeline will deliver Coachella Canal water and recycled water to the expanded recycled water system as a secondary source of supply. This project will help maximize the use of recycled water and will reduce groundwater pumping by as much as 50,000 AFY. Desert Water Agency operates a recycling program using sewer

effluent from the City of Palm Springs. IWA recently identified secondary wastewater from VSD's wastewater treatment plant as an undeveloped resource and has partnered with VSD to design tertiary treatment to meet Title 22 requirements. The Coachella Sanitary District, managed by the City of Coachella, operates a 2.4 mgd secondary treatment wastewater facility and has plans to expand the treatment plant to include a recycled water system in the future.

2.2.5 Water Conservation

All five water purveyors within the Coachella Valley recognize that water is a limited resource and that water conservation and use efficiency should be actively pursued. Each agency implements a variety of irrigation and/or domestic water conservation measures, including model landscape ordinances, buried agricultural irrigation distribution pipelines, water-efficient irrigation controls, water efficient plumbing, water-wise landscaping programs, conservation outreach and education, conservation pricing of water rates, and water audits (CVWD 2005 UWMP; DWA 2005 UWMP; IWA 2010, UWMP; MSWD 2005 UWMP). The Valley's water conservation efforts are anticipated to reduce overall water demand by 20 percent by 2020, as mandated by the State.

CWA

On November 2, 2000, the City of Coachella became signatory to the Urban Water Conservation MOU with the California Urban Water Conservation Council (CUWCC). CWA currently implements the following water conservation programs: residential water audits (in partnership with Coachella Valley Resources Agency), residential plumbing retrofits, large landscape conservation incentives, outreach and education, and a model landscape ordinance.

The City also promotes water conservation and other resources in coordination with CVWD, Imperial Irrigation District (IID), and other energy utilities. The City distributes public information through bill inserts, brochures, and community events.

CVWD

Although CVWD is not currently a signatory to the CUWCC MOU, the District has had a water conservation program since the 1960s. Conservation is a key element of CVWD's 2002 Coachella Valley Water Management Plan (CVWMP). CVWD recognizes the importance of conserving water in order to reduce pressure on the groundwater supply. Water conservation programs currently in place include the Model Landscape Ordinance, the Lush and Efficient Landscape Gardening Guide, landscape plan checking, tiered water rates, water wise landscape workshops and seminars, and water wise landscape rebate programs.

Several water conservation and management activities are also incorporated into CVWD's agricultural irrigation distribution system. CVWD's irrigation distribution system was built to include conservation measures unheard of in the 1940s. Unique to that initial system was a pipeline distribution system, a pipeline drainage system, and metered deliveries to every farm. Currently, CVWD has an agricultural conservation program in its CVWMP.

IWA

The City of Indio is a signatory to the CUWCC MOU. Water conservation programs, which address most of the CUWCC BMPs, include a Landscaping and Water Conservation Ordinance, a Water Conservation Master Plan that addresses SBx7-7, a water smart landscaping rebate program, landscape audits, tracking of water wasters, education and outreach programs to schools, smart controller rebate program, and a residential plumbing retrofit program. Since the water smart landscaping rebate program was

implemented in July 2008, IWA has converted a total of 80,000 square feet of turf to water-efficient landscape and has issued a total of $57,000 in rebates (IWA 2010).

DWA

DWA is a signatory to the CUWCC MOU. The Agency's signed MOU is dated October 15, 1991. As a member of the CUWCC, DWA has complied with all BMP Targets outlined in the MOU that have been determined appropriate for the conditions within its service area (DWA UWMP 2005). Water conservation programs currently underway by DWA include landscape water audits, trainings and audits for homeowners associations (which are large water users), smart irrigation controller cost-share program, water wise tips and tools, and a hospitality conservation program.

MSWD

MSWD recognizes water use efficiency as an integral component of current and future water strategy for the service area. Although the District is not a signatory to the CUWCC MOU, MSWD has made State-mandated BMPs the cornerstone of its 2004 Water Conservation Master Plan and a key element in the overall regional water resource management strategy for the region. The Water Conservation Master Plan defines a series of sensible water conservation activities that complement the unique water resource characteristics of the District's service area (MSWD 2005). MSWD is currently implementing the following water conservation program elements: Water Efficient Landscape Guidelines, water wise tips and tools, and outreach and education.

2.2.6 Agricultural Water

The majority of agricultural land within the Coachella Valley is irrigated with water that originates from the Colorado River; some irrigation water is pumped from local groundwater. The water originating from the Colorado River is diverted from the river at the Imperial Dam, which is owned by the U.S. Bureau of Reclamation (USBR) and operated by IID. After the water is diverted from the Colorado River, it flows 159 miles through the All-American and Coachella Canals before it reaches Lake Cahuilla, an operational storage reservoir. The Coachella Canal and Lake Cahuilla are maintained by CVWD. CVWD is responsible for distributing the water to farmers within the Improvement District No. 1 boundary through an underground pipeline system that reaches every 40-acre agricultural parcel.

Typical methods of irrigation in the Coachella Valley include: furrow irrigation, border strip irrigation, micro-sprinkler irrigation, drip irrigation, and sprinkler irrigation. Irrigation methods are usually chosen based on crop type or performance objectives, but more than 60 percent of area farms use water efficient drip or other micro-irrigation techniques.

Desalinated Water

Desalination processes are being developed for reuse of agricultural drainage flows in Coachella Valley. The Coachella Valley has a large network of drains and open channels that transport irrigation drainage flows and stormwater. In the agricultural area of the East Valley, a high perched groundwater table and concentration of salts in irrigated soils makes this system a requirement. CVWD operates and maintains the drainage system consisting of 166 miles of buried pipe and 21 miles of open channels. The system receives flows from on-farm drainage lines. In most areas the drainage system flows to the CVSC. In areas near the Salton Sea some open channels flow directly into the sea. The Salton Sea serves as a drainage reservoir for irrigation return water and stormwater from the Coachella Valley, Imperial Valley, Borrego Valley and Mexicali Valley (Mexico).

CVWD plans to begin desalting agricultural drainage to a quality equivalent to Canal water and delivering it for irrigation use by 2023 (CVWD 2005 UWMP). In 1997, CVWD filed an application with the State Water Resources Control Board to appropriate all waters in the CVSC. The application was submitted with the intent to protect local water resources. The submittal required that initial diversions must take place by 2013, building up to full diversion in 2063. The CVWMP (CVWD 2002) envisions that the submitted project will be able to divert and filter approximately 13.6 mgd of drain water prior to desalination. This will allow 11,000 AFY of agricultural drain water to be desalted to a quality equivalent to Canal water and delivered for irrigation use. The desalination facility would have a 10 mgd capacity that will produce about 7.5 mgd of product water. Approximately 3.5 mgd of the flow would be bypassed and blended with the product water to produce the desired quality. Because the CVSC contains water of wastewater origin, this supply is not suitable for potable uses even if treated. Therefore, the water will most likely be delivered where the downstream demand is for agricultural irrigation. Since this water is nonfederal, it is not subject to the contractual restrictions regarding use of Canal water within CVWD's Improvement District-1 (ID-1) service area (see **Figure 2-6**). The District anticipates that an equal amount of Canal water can be delivered to golf courses or the portion of the Oasis system outside ID-1. No specific location for the plant has been identified to date.

The treatment process would produce about 2.6 mgd of filter backwash and brine waste. Preliminary studies have considered both on-site and off-site evaporation ponds for brine disposal. On-site evaporation ponds would require about 530 acres of surface area due to the relatively low total dissolved solids (TDS) of the brine. Alternatively, the brine could be conveyed to the Salton Sea either in the CVSC or a parallel brine outfall. Evaporation ponds located near the sea could remove an equivalent amount of salt by evaporating Salton Sea water. CVWD is currently conducting a pilot treatment study to evaluate the feasibility of various desalination processes.

2.2.7 Stormwater and Flood Management

The mean seasonal precipitation in the Coachella Valley IRWM region averages approximately 3 inches per year. The region is subject to general storms from coastal regions that result in heavy precipitation over large areas and can last several days. The region is also subject to local thunderstorms that cover smaller areas and result in high-intensity precipitation of short duration.

Riverside County Flood Control and Water Conservation District (RCFCWCD) and CVWD are the Region's flood control districts (see **Figure 2-7**). They operate and maintain a series of regional flood control facilities throughout the Valley. These facilities carry mountain and surface runoff to the Salton Sea. Local cities and the County of Riverside manage localized urban drainage systems that drain to these facilities. The back bone of this system is the Region's 49-mile Whitewater River/Coachella Valley Stormwater Channel. West of Washington Street, it is a naturally occurring wash, which has been improved to carry storm flows and is called the Whitewater River Stormwater Channel (WRSC); east of Washington Street, it's called the Coachella Valley Stormwater Channel (CVSC).

Septic to Sewer Conversion Projects in the IRWM Plan

Figure 2-5



Legend

- Proposed Septic to Sewer Projects
- Colorado River Aqueduct
- Coachella and All American Canals
- Whitewater River Stormwater Channel
- Interstate Hwys.
- Lakes
- Coachella Valley IRWM Region
- Coachella Sanitary District
- Colorado River Funding Area
- County Lines
- City of Palm Springs
- Coachella Valley Water District
- Desert Water Agency
- Mission Springs Sanitation District
- Valley Sanitary District

This figure contains submitted septic-to-sewer conversion projects for the Coachella Valley IRWM Plan as of September 30, 2010.

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Date Updated: November 2010
Made By: GS
Department: RMC Water & Environment

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Irrigation Districts

Figure 2-6

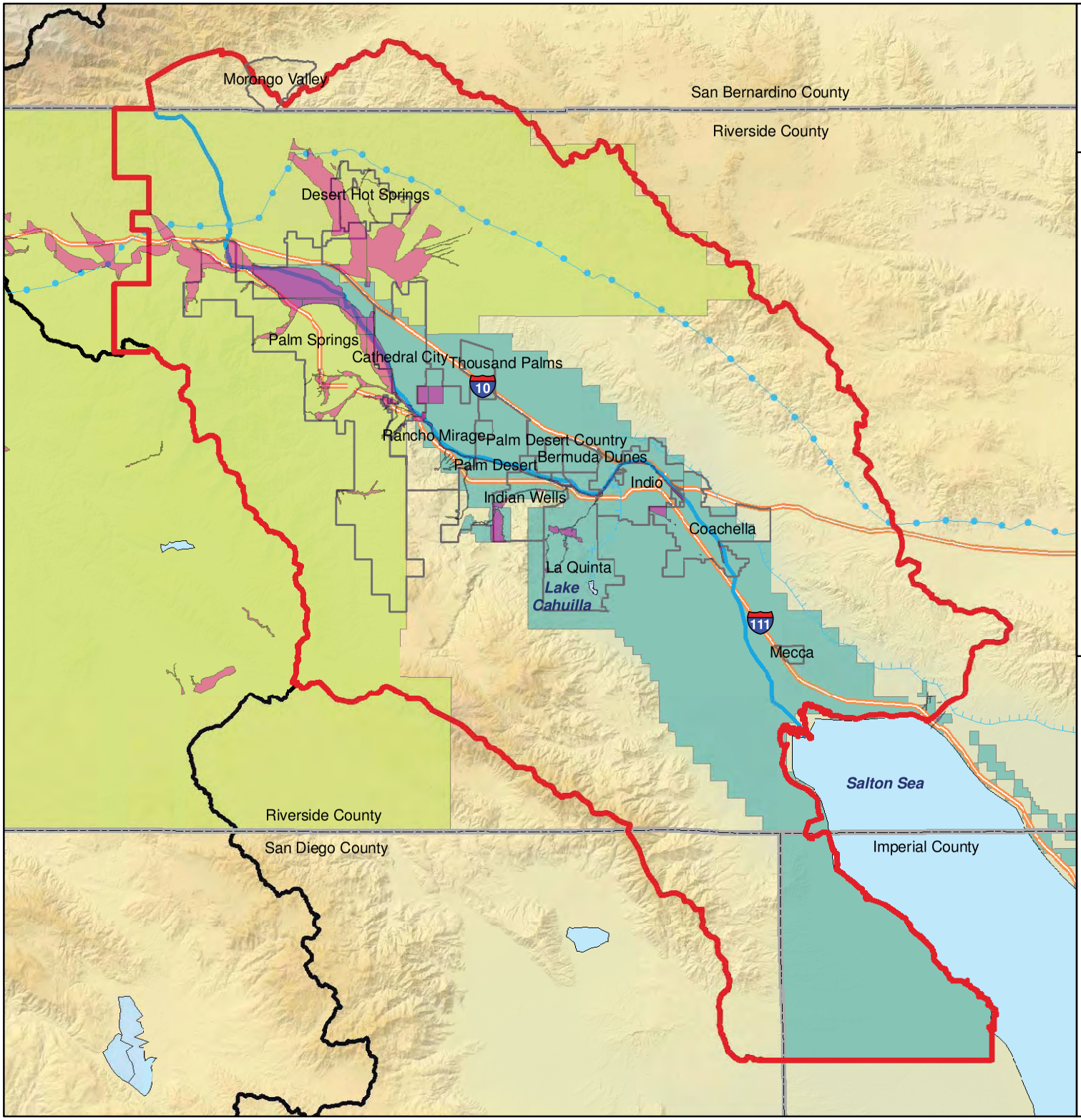
- Colorado River Aqueduct
- Coachella and All American Canals
- Whitewater River Stormwater Channel
- Interstate Hwys.
- Lakes
- Cities
- Coachella Valley IRWM Region
- Colorado River Funding Area
- County Lines
- CVWD Improvement District #1

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Department: RMC Water & Environment



Stormwater Management

Figure 2-7

- Colorado River Aqueduct
- Coachella and All American Canals
- Whitewater River Stormwater Channel
- Interstate Hwys.
- Lakes
- FEMA High Risk Flood Zone
- City
- Coachella Valley IRWM Region
- Colorado River Funding Area
- County Lines
- Coachella Valley Water District
- Riverside County Flood Control and Water Conservation District

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Department: RMC Water & Environment

Stormwater Channels

CVWD's and RCFCWCD's regional flood control systems consist of a series of debris basins, levees, and stormwater channels that divert floodwaters from the mountains and alluvial fans surrounding the Coachella Valley to the WRSC. The WRSC is the backbone of the Region's flood control system. The channel is designed according to the Standard Project Flood measurement of 85,000 cubic feet per second. Local cities and the County divert runoff from storm events to the WRSC. Each city in the Valley provides local drainage control via a system of storm drains, retention basins and dry wells, some of which discharge to CVWD's regional flood control system. Three wastewater treatment plants (VSD, Coachella, and WRP-4) also discharge effluent to the WRSC.



Flash Flooding Results in Property Damage

The WRSC is both naturally-occurring and engineered. It originates on the slopes of the San Bernardino Mountains and flows generally southeast through the region to the Salton Sea. Downstream of the Indian Wells/La Quinta boundary, the channel was constructed and later improved to convey storm flows to approximately Avenue 52 in Coachella. From Avenue 52 to the Salton Sea, the channel lacks bank stabilization and is in a levee condition meaning that the estimated surface elevation of Standard Project Flood is higher than the elevation of adjacent properties.

CVWD's flood control systems consist of a series of debris basins, levees, and 16 stormwater channels that divert floodwaters from the canyons and alluvial fans surrounding the Coachella Valley to the WRSC. Many of these structures were built or restructured in the 1970s in cooperation with cities and other agencies following severe floods. Coachella provides local drainage control via a system of storm drains, retention basins and dry wells, some of which discharge to CVWD's regional flood control system. City of Indio/IWA local drainage control is via a system of storm drains, retention basins, and dry wells.

Localized Flood Hazards

The local area is subject to alluvial-fan flash flooding from the surrounding mountain ranges and severe flooding has been frequently recorded beginning as early as 1825. In the late 70's, severe flood damage occurred to homes and businesses in several of the region's cities. As a result, flood control infrastructure was constructed in the early 1980's with the help of U.S. Army Corps of Engineers (USACE) and local funding. The WRSC and its tributary channels protect the Valley cities from Palm Springs to Coachella from flooding. However, there are still several areas of the Coachella Valley IRWM region that lack flood control facilities and are vulnerable to devastating alluvial and riverine flooding. These areas include the following:

- Areas adjacent to Mission Creek in the Desert Hot Springs area
- Sky Valley and Indio Hills
- Thousand Palms

- Portions of Indio north of Interstate 10
- The Oasis community extending from Avenue 66 to Avenue 86
- Areas adjacent to the CVSC south of Avenue 52
- Highway 111 between Palm Springs and Cathedral City
- Valley roadways that cross the Whitewater River

USACE's Thousand Palms Flood Control Project proposes a system of levees to go east from Rio del Sol Road to Washington Street. A plan to control flooding in the East Valley is a priority, as the South Valley Implementation Plan has been abandoned.

A wide range of regional flood control improvements, including dams, debris basins, and concrete-lined channels, have been constructed throughout the Coachella Valley in an effort to protect life and property from flooding hazards, particularly the 100-year flood. Smaller-scale improvements have been constructed to protect specific neighborhoods and communities from flood flows and to convey mountain runoff to the Whitewater River.

The current lack of flood control in the East Valley prevents higher-density housing from being developed. In the City of Desert Hot Springs, alluvial flooding issues coupled with MSHCP requirements make development very difficult. As there appears to be a relationship between flood control and the ability to accommodate housing growth, the need for affordable housing may help drive flood control projects.

2.2.8 Natural Communities and Habitats

The Coachella Valley contains 27 species of plants and animals that are threatened or facing extinction, including the Desert tortoise, Burrowing owl, and Palm Springs pocket mouse. The San Andreas Fault zone has created a unique corridor of desert fan palm oases stretching along the southern side of the Indio Hills where water is forced to or near the surface by the damming action of the fault. Mesquite hummocks and mesquite bosques are also associated with the fault in some areas (MSHCP 2007). **Figure 2-8** provides mapping of the natural communities located within the Coachella Valley IRWM region, including semi-desert chaparral, Sonoran creosote bush scrub, Upper Sonoran mixed chaparral, ephemeral sand fields, and Chamise chaparral.

Habitat Conservation

The Coachella Valley Multiple Species Habitat Conservation Plan (CVMSHCP) is a regional conservation plan that aims at protecting 240,000 acres of open space and 27 species, ensuring the survival of endangered species, and enhancing regional infrastructure without causing environmental conflicts. The CVMSHCP addresses issues regarding water needs for habitat preservation. Specifically, the CVMSHCP attempts to avoid groundwater draw down, which can potentially impact the ability of certain plants to hold and release sand.

In terms of regional water demand, ecological and habitat preservation constitutes a relatively small amount of demand. Despite this fact, many of the agencies involved in the IRWM Plan have addressed this demand by becoming or applying to become signatories to the CVMSHCP. Current signatories include the City of Indio (IWA), CVWD, City of Coachella (CWA), County of Riverside, Cathedral City, Indian Wells, La Quinta, Palm Desert, Palm Springs, Rancho Mirage, and Imperial Irrigation District. MSWD and the City of Desert Hot Springs have applied to be signatories.

The CVMSHCP reports that the largest threat to desert-floor biological resources is constant urban and resort development. The protection of wildlife water sources will be essential to freshwater-wetland, riparian and marsh habitat survival. **Figure 2-9** provides an overview of the CVMSHCP conservation areas. Below is a summary of conservation objectives in regards to the preservation of their water sources:

- **Whitewater Floodplain Conservation Area:** Conserve at least 435 acres in the fluvial (water-borne) sand transport area in the Riverside County portion of the area; maintain the current capacity for fluvial sand transport in the Whitewater River; and conserve at least 107 acres of existing Sonoran cottonwood-will riparian forest natural community, which provides habitat for riparian birds and other covered species.
- **Snow Creek/Windy Point Conservation Area:** Conserve at least 838 acres of the fluvial and aeolian sand transport in the City of Palm Springs and at least 1,482 acres in the unincorporated portion of the area; maintain the current capacity for fluvial sand transport in San Gorgonio River floodplain; and conserve the Whitewater Floodplain Biological Corridor.
- **Stubbe and Cottonwood Canyons Conservation Areas**: Conserve at least 1,129 acres in the fluvial (water-borne) sand transport area; maintain the current capacity for fluvial sand transport in Stubbe Canyon Wash; and conserve at least 25 acres of Sonoran cottonwood-willow riparian forest and natural community.

2.3 Internal Boundaries

This section contains a description of internal boundaries within the Region.

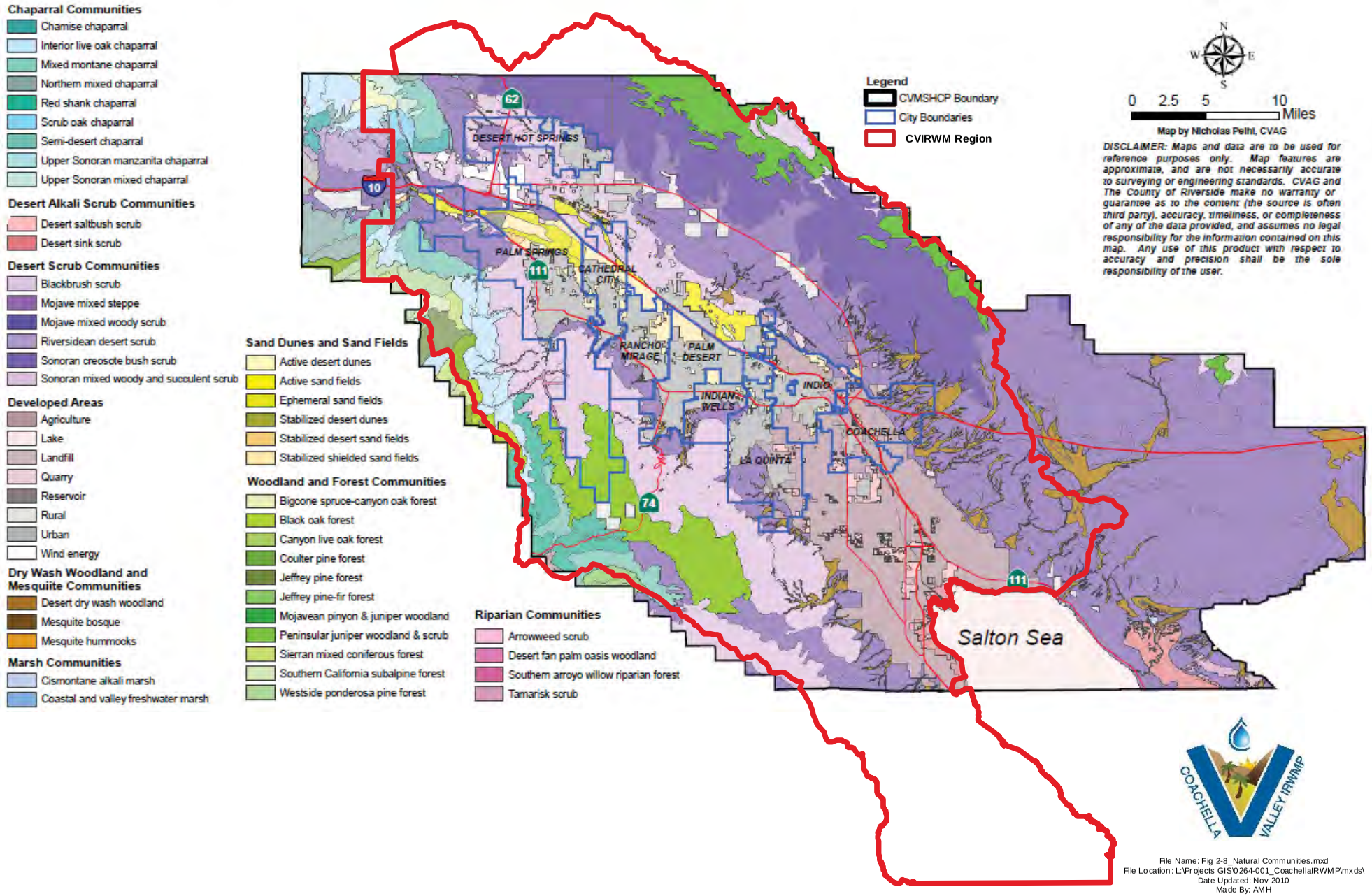
Jurisdictional boundaries of the Coachella Valley IRWM region include the nine Coachella Valley cities, the service areas of the five CVRWMG partners, and eleven Coachella Valley Community Councils. In addition to the information within this section, further information regarding internal boundaries can be found as follows: Figure 1-2 shows boundaries of the CVRWMG water purveyors; Figure 2-4 shows the boundaries of the local sanitation districts; Figure 2-5 shows the boundaries of CVWD's irrigation district; and Figure 2-7 shows the location of stormwater management and flood districts.

2.3.1 Land Use Agencies

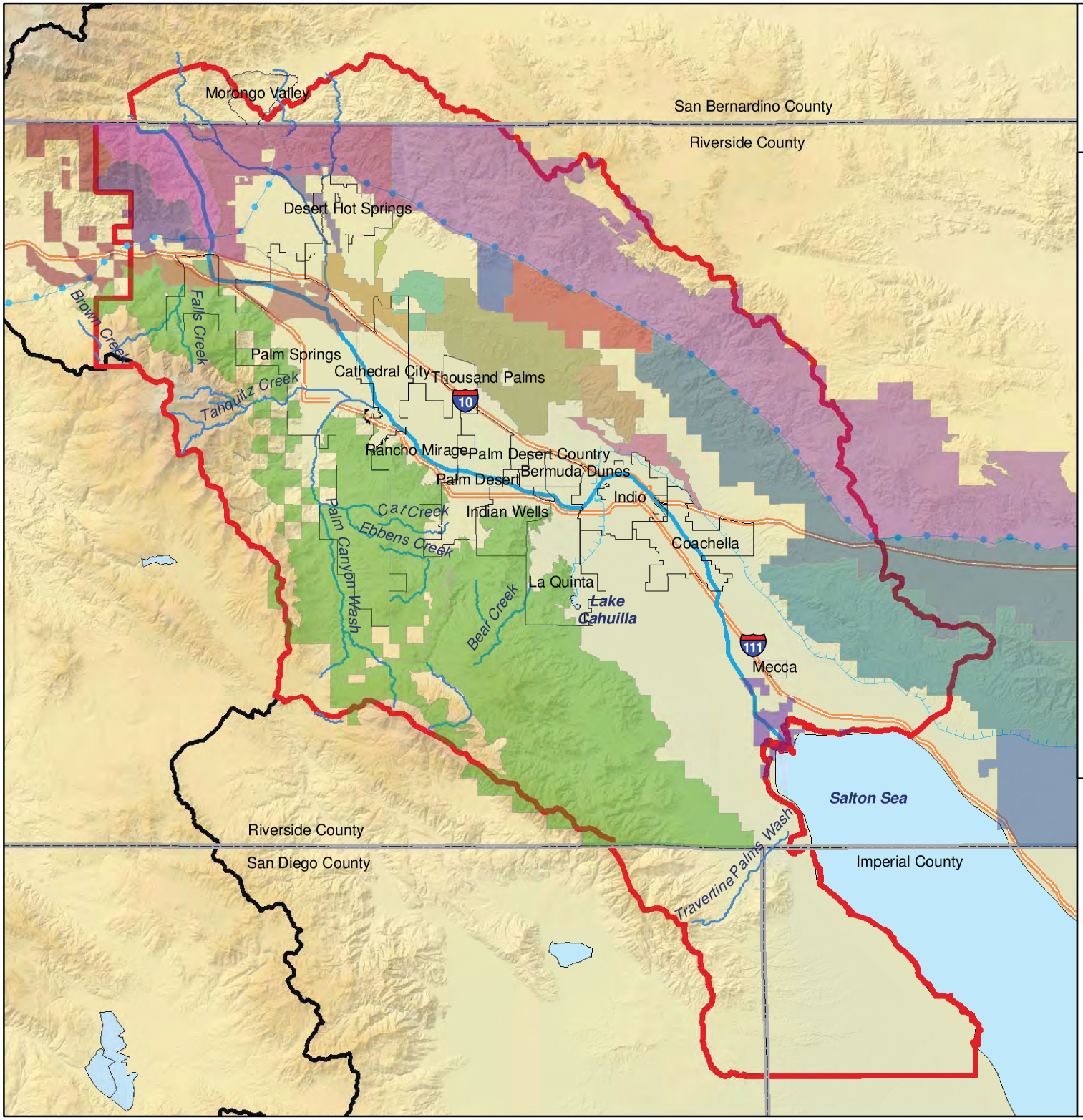
There are a predicted 477,900 residents in Coachella Valley in 2010 (CVAG 2008). About 75 percent of Valley residents lived in one of the nine incorporated cities, while the other 25 percent lived in unincorporated portions of the Valley. Palm Springs is the largest city with respect to land area, while Indio is the most populated of the Coachella Valley cities with a population of nearly 78,000 residents. The other seven incorporated cities include Cathedral City, Coachella, Desert Hot Springs, Indian Wells, La Quinta, Palm Desert, and Rancho Mirage (see **Figure 2-10** and **Table 2-6**). Please note that the 2010 population estimate given by CVAG for the Coachella Valley includes unincorporated areas within the CVAG jurisdiction, but not within the Coachella Valley IRWM Region; these population additions are likely minimal.

Natural Communities

Figure 2-8



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Department: RMC Water & Environment



Conservation Areas

Figure 2-9

Conservation Areas

- Cabazon Conservation Area
- Coachella Valley Stormwater Channel and Delta Conservation Area
- Desert Tortoise and Linkage Conservation Area
- Dos Palmas Conservation Area
- East Indio Hills Conservation Area
- Edom Hill Conservation Area
- Highway 111/I-10 Conservation Area
- Indio Hills Palms Conservation Area
- Indio Hills/Joshua Tree National Park Linkage Conservation Area
- Joshua Tree National Park Conservation Area
- Long Canyon Conservation Area
- Mecca Hills/Orocopia Mountains Conservation Area
- Morongo Wash Special Provisions Area
- Santa Rosa and San Jacinto Mountains Conservation Area
- Snow Creek/Windy Point Conservation Area
- Stubbe and Cottonwood Canyons Conservation Area
- Thousand Palms Conservation Area
- Upper Mission Creek/Big Morongo Canyon Conservation Area
- West Deception Canyon Conservation Area
- Whitewater Canyon Conservation Area
- Whitewater Floodplain Conservation Area
- Willow Hole Conservation Area
- Colorado River Aqueduct
- Coachella and All American Canals
- Whitewater River Stormwater Channel
- River or Creek
- Interstate Hwys.
- Lakes
- Dry Lakes
- Coachella Valley IRWM Region
- Colorado River Funding Area
- County Lines

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COACHELLA VALLEY IRWMP

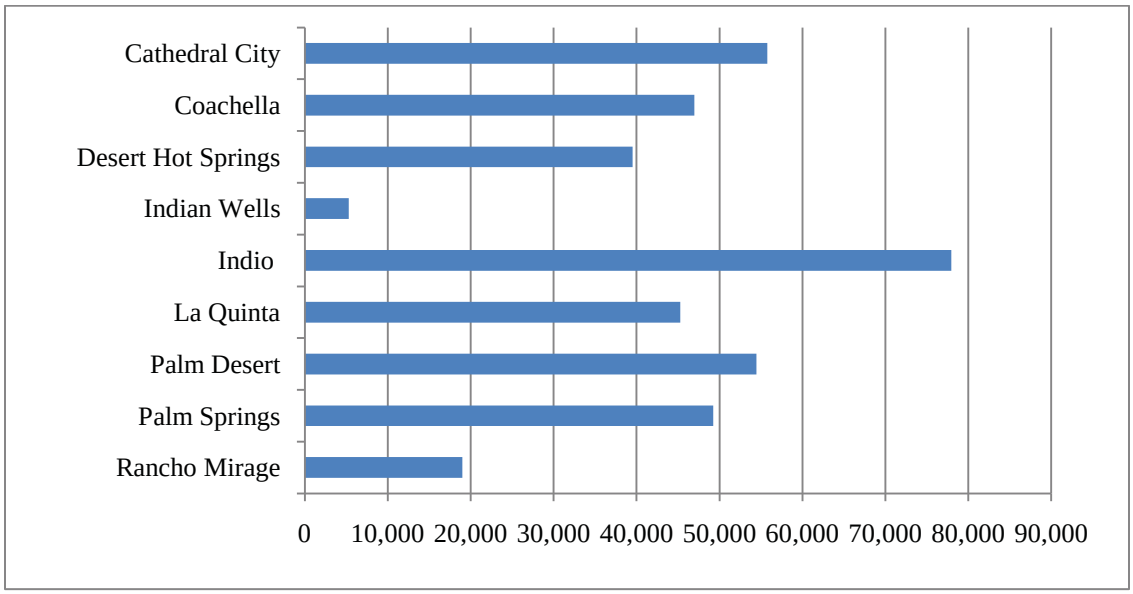
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Date Updated: Nov 2010
Made By: DNF
Department: RMC Water & Environment

Table 2-6: Coachella Valley Cities

City	Population	Land Area (miles^2)
Cathedral City	55,745	21.8
Coachella	46,981	28.6
Desert Hot Springs	39,539	23.4
Indian Wells	5,309	14.6
Indio	77,967	29.1
La Quinta	45,272	35.7
Palm Desert	54,435	27.0
Palm Springs	49,239	94.4
Rancho Mirage	18,983	24.7

Sources: Coachella Valley Association of Governments 2008
http://www.cvag.org/CVAG%20Demographics/CVAGProfile.pdf
http://www.cvag.org/CVAG_Demographics.htm

Figure 2-10: Population of Coachella Valley Cities



Eleven community councils are represented within the Coachella Valley. Community councils represent smaller groups of individuals that share a common geographic location (smaller than city councils). Community councils typically agree upon common values and create a tighter social cohesion through collective issues and concerns. Community councils are located within unincorporated Riverside County land, and are therefore advisory to the County Board of Supervisors for the district within which they are located. Below is a list of the Coachella Valley Community Councils:

- Bermuda Dunes Community Council
- Desert Edge Community Council

- Desert Palms Community Council
- Indio Hills Community Council
- Mecca Community Council
- North Shore Community Council
- Oasis Community Council
- Sky Valley Community Council
- Thermal Community Council
- Thousand Palms Community Council
- Vista Santa Rosa Community Council

The central Coachella Valley has experienced major changes in land use, predominantly the conversion from prime farmland to urban or other land forms. Farmland has vastly been transformed since the 1980s to developed, metropolitan areas. The region has been among the top urbanizing counties in California since 1984 when mapping of the region started (California Department of Conservation, 2010). Over 13,500 acres were removed from prime farmlands and urban land has increased by just less than 16,000 acres during this timeframe.

2.4 Water Supplies and Demand

This section describes the water supply and demand projections for at least a 20-year planning horizon.

2.4.1 Water Supply

Each water agency in the region has different supply availability depending on various factors such as water source type or distribution systems. The following table shows the projected supply condition of each service agency under normal water year conditions from 2010-2030.

Table 2-7: Total Projected Water Supply

	Water Supply (AFY)				
Agency	**2010**	**2015**	**2020**	**2025**	**2030**
CVWD[1]	513,800	568,800	607,300	634,900	658,000
DWA[2]	56,500	57,530	58,950	60,280	61,600
MSWD[3]	40,000	42,000	45,350	46,070	46,720
CWA[4]	34,800	54,200	59,200	62,000	65,800
IWA[5]	24,900	41,700	45,800	46,500	46,500
Total	670,000	764,230	816,600	849,750	878,620

[1] CVWD 2005 Urban Water Management Plan, p.3-40.
[2] DWA College Park Specific Plan/Water Supply Assessment
[3] MSWD 2005 Urban Water Management Plan, p. 4-10.
[4] CWA 2005 Urban Water Management Plan, p. 3-5.
[5] IWA 2010 Urban Water Management Plan

2.4.2 Water Demand

The Coachella Valley is expected to continue to experience substantial population growth. Projections produced by the Coachella Valley Association of Governments (CVAG) and the Southern California Association of Governments (SCAG) indicate that by year 2020, the Valley's population, including outlying unincorporated areas is expected to grow to approximately 676,700 permanent residents (CVAG 2008). The projected average annual growth rate between 2000 and 2020 is nearly 2.0 percent, with the most rapid growth expected to take place in the East Valley (CVAG 2009). Continued growth in seasonal residences is also likely. Coachella Valley's population is projected to increase from 285,000 in 2000 to 414,000 in 2020, and to 529,000 in 2035, a growth of 31 percent and 46 percent, respectively. Growth will be more rapid in the East Valley, where population is projected to nearly double by 2035. Population growth in the West Valley is expected to be 76 percent.

Total water demand for the Region is projected to increase by 44% from 533,250 AFY in 2005 to 817,938 AFY in 2030 (see **Table 2-8** and **Figure 2-11**). Over half of the demand in the Region is attributed to non-potable uses – including agricultural and landscape irrigation – in the East Valley (see **Table 2-9** and **Figure 2-12**). Increases in potable water demand are mainly attributed to residential growth. A breakdown of water demand by agency is shown in **Figure 2-11**.

Demands for water in the Coachella Valley are divided between urban uses and agricultural uses. Urban demands are expected to increase at a faster rate than agricultural demands primarily due to population growth. Urban uses include domestic, industrial and golf course use whereas agricultural use includes crop irrigation, fish farming, greenhouses, and farming processes that require water. Urban uses represent about 476,764 AFY (58 %) of the future demand while agricultural uses represent the remaining 345,243 AFY (42 %) (CVWD 2005).

Table 2-8: Total Projected Water Demand with Conservation[1]

	Water Usage (AFY)					
Agency	**2005**	**2010**	**2015**	**2020**	**2025**	**2030**
CVWD[2]	452,366	518,381	570,504	588,728	625,567	644,288
DWA[3]	45,400	50,550	55,350	59,482	65,782	69,782
MSWD[4]	9,194	14,400	19,800	22,500	25,200	27,900
CWA[5]	5,698	10,921	16,145	21,368	26,591	31,814
IWA[6]	20,592	23,432	27,954	34,141	39,394	44,154
Total	**533,250**	**617,684**	**689,753**	**726,219**	**782,534**	**817,938**

[1] Projections are for a normal water year and include water losses and recycled water use.
[2] CVWD 2005 UWMP
[3] DWA 2005 UWMP and DWA College Park Specific Plan/Water Supply Assessment
[4] MSWD 2005 UWMP
[5] CWA 2005 UWMP
[6] IWA 2010 UWMP

Figure 2-11: Total Projected Water Demand with Conservation

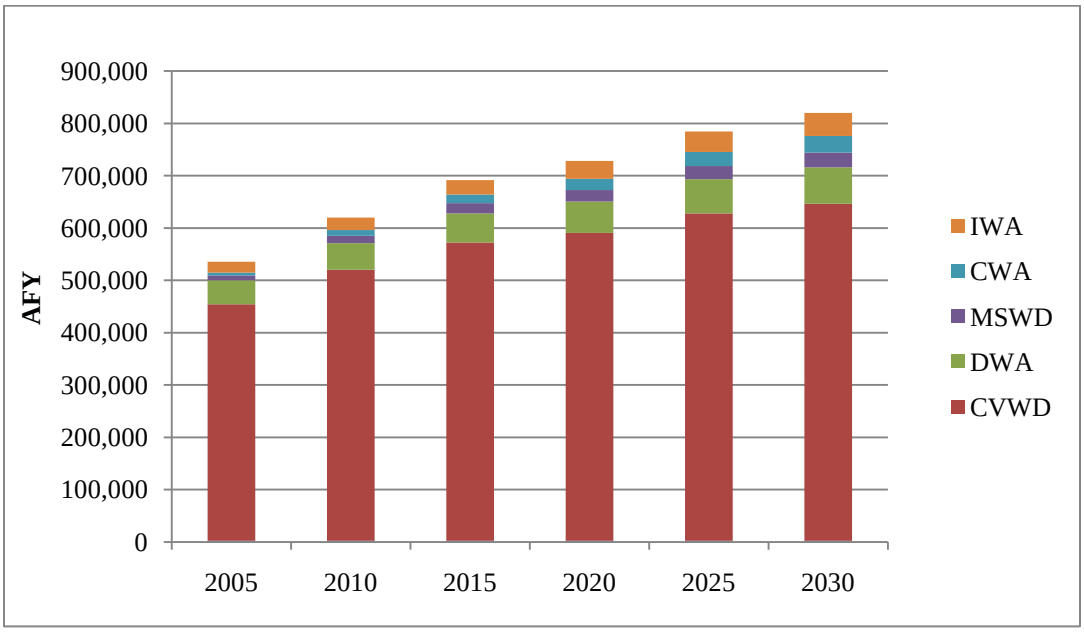
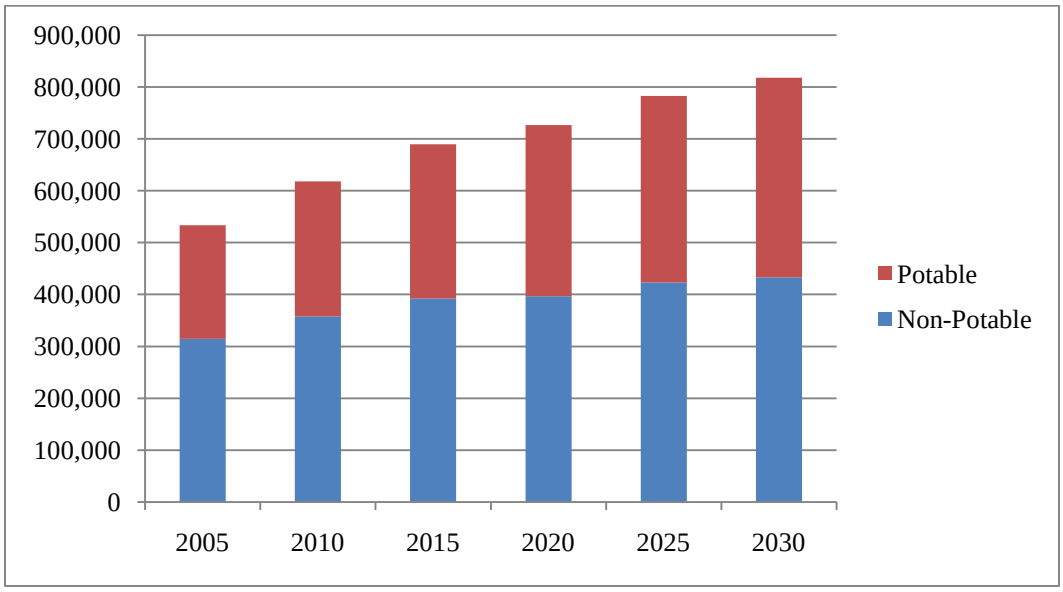


Table 2-9: Total Projected Non-Potable Water Demand with Conservation[1]

	Water Usage (AFY)					
Agency	**2005**	**2010**	**2015**	**2020**	**2025**	**2030**
CVWD[2]	310,000	350,700	381,100	381,700	404,700	413,200
DWA[3]	2,850	4,500	6,100	6,100	8,400	8,400
MSWD[4]	0	0	2,000	5,350	6,070	6,720
CWA[5]	283	543	802	1,062	1,321	1,581
IWA[6]	1,221	2,045	2,332	2,680	2,921	3,116
Total	**314,354**	**357,788**	**392,334**	**396,892**	**423,412**	**433,017**

[1] Projections are for a normal water year and include water losses and recycled water use.
[2] CVWD 2005 UWMP
[3] DWA 2005 UWMP and DWA College Park Specific Plan/Water Supply Assessment. Assumes total projected non-potable water demand to be the same as recycled water demand.
[4] MSWD 2005 UWMP. Assumes total projected non-potable water demand to be the same as recycled water demand.
[5] CWA 2005 UWMP. Assumes total projected non-potable water demand to be the same as recycled water demand.
[6] IWA 2010 UWMP. Assumes total projected non-potable water demand to be the same as recycled water demand.

Figure 2-12: Projected Potable vs. Non-Potable Water Demand



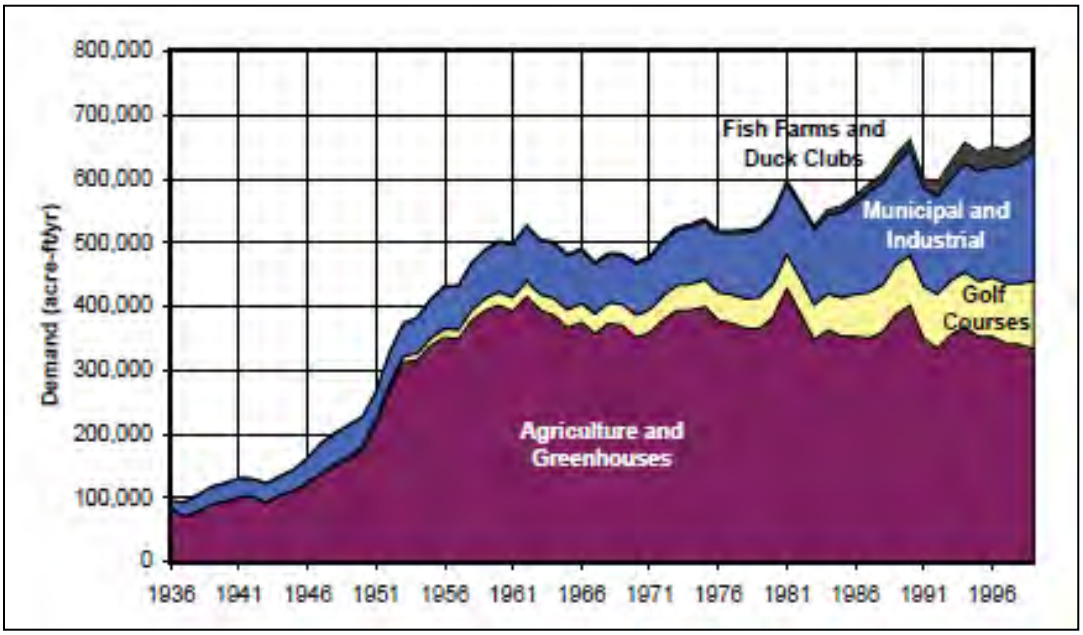
Note that this analysis was prepared during the height of an economic boom and does not reflect the recent downturn in housing and other development trends. In order to get a more realistic projection of future demands, it will be necessary to reassess current growth trends in the Region. Regardless of the current trends, it is essential for agencies to proactively update their water management plans and ensure supply for future development.IWA has completed and adopted its 2010 Urban Water Management Plan (UWMP), and the other four water agencies will be preparing 2010 updates to their UWMPs to take their local development plans into account.

Trends

In 1936, water demand for the Valley was approximately 96,300 AFY. Between 1936 to the early 1960s, agricultural demand rose significantly due to the water availability provided by the establishment of the All-American Canal. Since then, water demand has been reduced through the implementation of better irrigation management and efficiency. In 1936, agricultural water demand accounted for 87% of total demand; currently, that demand has decreased to 54% (CVWD 2005). By 1999, Coachella Valley demands were approximately 668,900 AFY. Total agricultural water demand in 1999 was 358,700 AFY (54%) and 310,200 AFY for urban demand (46%). This represents a nearly seven-fold increase in demand during this 64-year period (see **Figure 2-13**). **Figure 2-13** shows that agricultural water demand varies considerably on an annual basis. Agricultural water demand is dependent on many factors, including the number of acres farmed, the type of crops planted, local climatic conditions, and agricultural water use efficiency measures used. Most of Coachella Valley's agricultural activities occur in the East Valley.

Urban water demand historically serviced domestic and industrial building, services, and needs. In 1936, the total Coachella Valley urban demand was 12,200 AFY; in 1999 this value rose to 310,200 AFY (CVWD UWMP 2005). Urban demand has jumped from 13% in 1936 to 46% in 1999. The higher demands can be attributed to the amplified development of residential neighborhoods, hotels, golf course, resorts and country clubs.

Figure 2-13: Total Historical Water Demands by Type of Use in CVWD



Source: CVWMP 2002

2.5 Water Quality

This section describes the current and future (or proposed) water quality conditions in the Region.

This section discusses current water quality conditions within the Region. For information regarding future or proposed water quality conditions, as well as water quality protection and improvement needs, refer to *Chapter 3, Issues and Needs*, *Section 3.1.5 Water Quality*. Note that the quality of local water supplies will vary depending on the water source.

Water quality objectives for the Coachella Valley are established within the Water Quality Control Plan for the Colorado River Basin Region 7 (Basin Plan) (Colorado River RWQCB 2006). The Basin Plan is intended to protect surface and groundwater quality throughout the Colorado River Basin, which includes the Whitewater River watershed. Maximum containment levels (MCLs), established by the U.S. Environmental Protection Agency (USEPA) under the Safe Drinking Water Act, are the standard by which water quality is described throughout this section. MCLs are the maximum allowable concentration of contaminants in surface or groundwater to be used for drinking water supply.

2.5.1 Groundwater Quality

Groundwater supply from the CVGB is generally of high quality. In addition, disinfection is regularly provided as a precautionary measure before distribution for potable uses. However, groundwater quality issues have arisen in isolated areas throughout the Valley. Naturally occurring substances such as uranium, arsenic, and fluoride have been detected, and are likely due to natural geologic conditions. Further, some localized areas have also seen elevated nitrate levels. Representatives of DAC and tribal organizations report that groundwater supplies for some mobile home park communities within the East Valley have arsenic concentrations that exceed the MCL of 10 ppm.

Basin-wide groundwater quality is difficult to characterize as groundwater quality varies throughout the Valley. The water quality in a given well depends upon well depth (or the screened interval of the water supply well), proximity to faults, presence of surface contaminants, proximity to recharge basins, and other hydrogeologic features. **Table 2-10** provides a summary of recent groundwater quality concentrations. Water quality monitoring from CVRWMG wells shows that groundwater concentrations, most recently, from the Colorado River Aqueduct and East/West Valley groundwater do not exceed any MCL drinking water standards (see **Table 2-10**). However, as discussed above, DAC and Tribe reports suggest that arsenic levels exceed MCL drinking water standards in localized areas. As part of the *Coachella Valley IRWM Planning Grant Proposal*, CVRWMG agencies intend to complete water quality evaluations within DAC and tribal communities in order to address this issue. Perched ground water on the other hand has exceeded allowable TDS levels. However, six parameters assessed by CVWD between 1996 and 2004 had concentrations that exceeded either a primary or secondary drinking water standard at various locations. These included TDS, nitrate, sulfate, chloride, fluoride and arsenic. Most water pumping for domestic purposes has TDS concentrations of less than 300mg/L. Groundwater pumped for agricultural and domestic purposes typically contain small concentrations of silts, clays, and fine sands.

Riverside County Department of Environmental Health (DEH), State of California, and U.S. Environmental Protection Agency (USEPA) all have groundwater monitoring programs in the Region. Government and non-profit organizations that are concerned about groundwater quality include the CVRWMG, Desert Alliance for Community Empowerment (DACE), U.S. Department of Agriculture (USDA) Rural Development Office, California Department of Public Health (CDPH), Torres-Martinez Desert Cahuilla Indians, Agua Caliente Band of Cahuilla Indians, Rural Community Assistance Corporation (RCAC), Environmental Justice Coalition for Water (EJCW), Poder Popular of the Coachella Valley, California Rural Legal Assistance Inc. / Foundation (CRLA), and Pueblo Unido CDC.

Salinity

Overdraft of natural groundwater supplies has increased with increasing demand, because the extraction rates exceed recharge rates. The CVGB has been in overdraft for a significant portion of the last century (City of Palm Desert Comprehensive Plan 2004). The continued decline of groundwater levels could result in substantial degradation of water quality in the groundwater basins. The possible negative impacts of groundwater overdraft include 1) the downward flow from the degraded upper aquifers in the East Valley and, 2) the intrusion of highly saline Salton Sea water into the East Valley aquifer. In the past, the East Valley has prevented leakage of poor-quality water from the upper aquifers by maintaining an upward pressure gradient. Rather than leak into the lower aquifers, the degraded water flows into manmade drains to the Salton Sea. However, reduction of water levels in the lower aquifers could also lead to downward leakage of the low-quality, upper aquifer water and subsequent degradation of water quality.

Located south of Coachella Valley, the Salton Sea has salinity levels 25 percent higher than that of ocean water. This water is too salty to grow crops, to irrigate golf courses or lawns, or to drink. Having no outlet, Salton Sea water evaporates, leaving behind extremely concentrated salt water. Historically, groundwater pressure levels in the lower aquifers have been high enough to keep denser Salton Sea water from displacing the high-quality waters in adjacent freshwater aquifers. Continued decline of groundwater levels may cause high-quality water to be displaced by salt water. As displacement occurs, wells near the Salton Sea, and eventually large areas in the Lower Valley, may become unusable, as they pump saline water. Once saltwater intrusion occurs, it is extremely expensive, if not impossible, to remove salts from the groundwater basins. Groundwater currently accounts for about 63 percent of the Coachella Valley's total water supply. Saltwater intrusion would result in the loss of the groundwater resource which could seriously affect the Coachella Valley economy.

Table 2-10: Quality of Water Sources

Water Source	TDS (ppm)	Nitrate (ppm)	Perchlorate (ppb)	Uranium (pCi/L)	Selenium (ppb)
MCL (Drinking Water)	1,000, 1,500[1]	45	6	20	50
Coachella Canal (Colorado River)	710 – 914 (avg 761)[2]	<2[2]	<4[3]	3.5[3]	<5[3]
SWP Exchange Water (Colorado River Aqueduct)	660	NA	2	NA	NA
Groundwater Recharge (Colorado River Aqueduct Turnout – From San Jacinto Tunnel West Portal)	614 – 655 (avg 635)[5]	<2 – 2.1 (avg <2)[5]	<4[5]	3.2 – 3.5 (avg 3.3)[6]	<5[7]
Groundwater (East, West Valleys)	130 - 1200 (avg 242)[8]	<2 – 39 (avg 6.6)[8]	<4[8]	<1 – 12 (avg 3.8)[8]	<5[8]
Surface Water (Chino Canyon Creek)	148[4]	<2[4]	ND	ND	ND
Surface Water (Snow Creek)	77[4]	<2[4] (estimated)	NA	NA	NA
Surface Water (Falls Creek)	NA	NA	NA	NA	NA
Surface Water (Whitewater River – North of Colorado River Aqueduct Turnout)	231[4]	<2[4]	NA	NA	NA
Recycled Water	343 – 443 (avg 405)[2]	25.5 – 53.6 (avg 39.9)[2]	NA	NA	NA
Perched Groundwater	2,500	NA	NA	NA	NA

[1] Secondary MCL, upper and short term consumer acceptance contaminant levels
[2] CVWD data, range and average results for 2009
[3] CVWD data, May 12, 2010 result
[4] USGS data, 2009 Water Year Report, April 13, 2010 result
[5] MWD data, range and average results for 2009
[6] MWD data, range and average results for 2008
[7] MWD data, range and average results for April and October 2009
[8] CVWD data, most recent range and average results for active CVWD wells in Whitewater River Subbasin
NA: Not analyzed

Continued overdraft also increases the possibility of land subsidence within the Lower Valley. As groundwater is removed from the lower Coachella Valley groundwater aquifers, the soil begins to compress from the weight of the ground above, causing subsidence. Subsidence may cause damage to streets and highways and could result in the rupture of water mains, sewer lines and gas pipes. Building foundations might crack leading to required and costly maintenance. Structures that cover large areas or have height are especially vulnerable. Railroads, earthen dams, wastewater-treatment facilities and canals are also vulnerable to damage from subsidence. Groundwater pollution becomes a concern because surface flow and its possible contaminants – chemicals, animal waste, sediments, particulates, etc. – may have a more direct route to the aquifer without much filtration and percolation due to losses from subsidence.

2.5.2 Imported Water Quality

Although both imported water supplies (described above) come from the Colorado River, their water qualities are different. The Coachella Canal diversion is further downstream than the Colorado River Aqueduct diversion; this results in higher concentrations of TDS and other contaminants of concern. The Colorado River Aqueduct intake location at Parker Dam is upriver of the All-American Canal diversion point at Imperial Dam.

The quality of water from the SWP is generally good. Historically, TDS concentrations in MWD's Colorado River Aqueduct water have averaged approximately 660 ppm since 1973. Total hardness varies from 54 to 131 milligrams per liter (mg/L) as CaCO3. TDS and hardness are typically lower in wet years and higher in dry years. In spite of its lower mineral content, SWP water contains more total organic carbon as well as bromide, both of which are precursors for creating disinfection byproducts. Since CVWD does not take direct delivery of SWP water – rather, they receive SWP exchange water – its quality is not of current concern.

TDS concentrations of Coachella Canal water (at Avenue 52) have averaged nearly 800 ppm since 1949 (CVWD 2002 WMP). Historical water quality testing has shown low levels of perchlorate, selenium, and uranium in Colorado River supplies; however, testing results indicate that the contaminants are no longer a concern.

Concentrations of TDS and other constituents for other water sources are listed in **Table 2-10** (above). The table shows that imported water has yet to be reported above maximum containment level (MCL) objectives.

2.5.3 Surface Water Quality

Quality of the surface water supplies currently utilized by DWA is good, with only disinfection needed before distribution for potable uses. **Table 2-9** (above) provides a summary of recent surface water quality concentrations. As shown surface water concentrations have not exceeded any MCL levels. The concentrations shown for TDS and nitrates are both well within the MCLs.

The RWQCB's Surface Water Monitoring Program was developed in 1980 as an outgrowth of the State's Primary Monitoring Network. Its goal has been to characterize the water quality of the Region's surface water bodies. Quarterly sampling was conducted on major water bodies and annual sampling was conducted on other surface waters. Analyses were conducted for pH, turbidity, total dissolved solids, suspended solids, volatile suspended solids, settleable solids, phosphate, nitrate, ammonia, MBAS, BOD, COD, and fecal coliform. Field measurements were made for dissolved oxygen, temperature, pH, flow rate, and conductivity. Data from this program has been entered into the statewide database system (SWQIS) from which it is periodically entered into the federal water quality data system (STORET).

2.5.4 Recycled Water Quality

As shown in **Table 2-9** (above), the recycled water results have concluded that in some scenarios nitrate has been detected at higher concentrations than MCL standards. However studies have indicated that little nitrate moves past the root zone in well managed golf courses, which could potentially reduce recycled water users' application of nitrate-rich fertilizers.. For recycled water users, it is important to identify water quality concentrations such as boron, phosphorus, nitrogen and/or pH in order to adjust fertilization and irrigation practice accordingly (California Agricultural Water Stewardship Initiative 2010).

2.5.5 Stormwater Quality

CVSC, which drains to the Salton Sea, is listed on the RWQCB's 2006 Clean Water Act Section 303(d) List of Water Quality Limited Segments (USEPA Approval: June 28, 2007) for pathogens and toxaphene from illegal discharges and animals. The listing for pathogens only applies to a 17 mile area of the CVSC from Dillion Road to the Salton Sea. Although public access to the CVSC is prohibited, this violation of water quality standards impairs the following CVSC beneficial uses: Water Contact Recreation (REC I) and Water Non-Contact Recreation (REC II). The listing for toxaphene only applies to a 2 mile area of the CVSC from Lincoln Street to the Salton Sea.

A Total Maximum Daily Load (TMDL) was adopted by the RWQCB on May 16, 2007 for bacterial indicators in the CVSC. On June 17, 2010, the RWQCB adopted revision to the Basin Plan amendment language (Resolution No. R7-2010-0028). Specifically, the TMDL regulates discharges from the County and City of Coachella (the only MS4 permittee discharging into the impaired section of the CVSC). Agricultural discharges and CVWD participated in early implementation actions and are exempted from completing near-term actions.

Regional Stormwater Permit

The RCFCWCD and the County of Riverside (County) are considered Principal Permittees for the 2008 Whitewater River MS4 Permit. Other Permittees are considered co-permittees and they include CVWD and the cities of Banning, Cathedral City, Coachella, Desert Hot Springs, Indian Wells, Indio, La Quinta, Palm Desert, Palm Springs, and Rancho Mirage. The Whitewater Region Stormwater Management Plan (SWMP) describes activities and programs implemented by all Permittees to manage urban runoff to comply with the requirements of the MS4 permit for the Whitewater River watershed.

All Permittees must also, in conjunction with the MS4 Permittees of the other major watersheds within Riverside County (Santa Ana River Region and Santa Margarita River Region), create a Consolidated Monitoring Program (CMP) to coordinate monitoring programs across the regions. The Permittees will evaluate the effectiveness of their program elements to identify revisions to the program that will subsequently be reflected in an updated SWMP. RCFCWCD has developed and implemented a monitoring program for the Whitewater River region. To accomplish the monitoring program objectives specific to the Whitewater River watershed, the program has incorporated: data management, source identification, storm drain characterization, and water quality monitoring.

The CMP is reviewed and updated annually based on program findings and changes in program needs, including TMDL development and implementation. A significant revision was initiated in 2008-2009 to include the provisions from the 2008 Whitewater Region MS4 Permit, adopted on May 21, 2008. Updated provisions for the Whitewater River Region will be reflected in the Whitewater SWMP which was due to the Regional Board in June 2009. The CMP outlines four objectives:

- Develop and support and effective MS4 management program.
- Identify those receiving waters, which, without additional action to control pollution from urban runoff, cannot reasonably be expected to achieve or maintain applicable water quality standards.
- Characterize pollutants associated with urban runoff and assess the influence of urban land uses on receiving water quality.
- Analyze and interpret the collected data to identify trends, if any, both to prevent impairments through the implementation of preventative BMPs and to track improvements based on the MS4 management program.

Water Quality Concerns

Many of the analytes of concern have not been detected in the water quality samples collected for the CMP. Of the analytes detected in the water quality samples, there have not been persistent exceedances of Basin Plan Objectives (BPOs). The following analytes have exceeded the BPOs: lead, selenium, fecal coliform, and enterococcus. Selenium and lead are naturally present in the ground water within the Whitewater River region. Indicator bacteria (fecal coliforms, total coliforms, fecal treptococci, and enterococcus) have been detected in water quality samples, some of which are detected above the BPO, more often than other analytes of concern. Sources of indicator bacteria include excretion from humans, mammals, amphibians, or birds. Indicator bacteria can be detected with higher probability in areas where pet droppings and bird droppings are more frequent. Bacterial indicators may be considered a priority water quality problem for the Whitewater River region depending on their concentrations, their frequent and dispersed detections, and their potential to adversely affect beneficial uses.

Following is a brief summary of parameters for each sampling site that exceeded Basin Plan Objectives (BPOs) during the 2007-2008 Annual Progress Report (RCFCWCD 2009).

- Avenue 52 Storm Drain experienced a higher BPO level for enterococcus than anticipated for their dry weather samples
- Date Palm Drive Storm Drain constituent results indicated that enterococcus and fecal coliform were detected at levels higher than BPO standards. Selenium levels were also higher than BPO levels.
- Ramey Street Storm Drain water quality results that no constituents exceed BPO levels except for fecal coliform.
- Sunrise Storm Drain Outlet was similar to the Ramsey Street Storm Drain site in that only fecal coliform was observed to be higher than BPO levels.
- Whitewater River Canyon Road station satisfied all BPO standards.
- Whitewater River Station at Avenue 72 results satisfied all BPO standards.

2.5.6 Drinking Water Quality

All five water purveyors that make up the CVRWMG annually report the quality of water that they serve. The majority of domestic water served by the CVWRMG partners is obtained locally from wells drilled into the Coachella Valley's vast groundwater basin; although DWA also obtains some supply from surface water sources. Most water quality testing is performed in State-certified laboratories. A few highly specialized tests are performed by other laboratories. Water quality staff monitor for over 100 regulated and unregulated chemicals (both covered and not covered in the Clean Water Act).

While all of CVRWMG partners' domestic water supplies meet current drinking water requirements, some private wells contain low levels of arsenic. Research has shown the health effects of low levels of arsenic as being linked to cancer, skin damage and circulatory ailments. The CVRWMG agencies also monitor nitrate levels in groundwater closely because they can have health effects and preventive measures are taken seriously. Nitrate in drinking water that exceeds 45 mg/L poses major health risks to infants younger than three months. Methemoglobinemia, also known as blue baby syndrome, is caused by consumption of water that is highly contaminated with nitrate. Other contaminants that are monitored include:

- Inorganic contaminants- salts or metals from urban stormwater runoff industrial or domestic wastewater discharges, oil and gas production, mining or farming.

- Pesticide and herbicides- primarily from agriculture but also for residential landscaping, transported by urban stormwater runoff.
- Organic chemical contaminants-synthetic and volatile organic chemicals, by-products of industrial processes and petroleum production, can come from gas stations, urban stormwater runoff and septic systems.
- Radioactive contaminants-naturally occurring and can be detected near mining activities and petroleum production.

The CVRWMG members have conducted source water assessments that provide information about the vulnerability of district drinking water wells to contamination. In 2002, CVWD completed a comprehensive source water assessment that evaluated all groundwater wells supplying the district's six public water systems. An assessment is performed on each new well added to CVWD's system and on existing wells approximately every five years. Other agencies in the CVRWMG follow similar reporting protocols. Groundwater from these district wells are considered vulnerable to urban and agricultural activities, because of the Region's permeable aquifer, and because the Region's water purveyors cannot control land use decisions. Drinking water supplied by the CVRWMG purveyors to Coachella Valley communities, to date, have complied with state and federal drinking water quality standards.

2.6 Social and Cultural Make-up

This section describes the social and cultural makeup of the regional community.

The Coachella Valley population includes a wide-ranging, diverse group of citizens. In 2008, the 2010 Coachella Valley population was projected to be 477,900, including unincorporated areas that lie outside the IRWM region boundary (CVAG 2008). Of that, 75% of the population resides within incorporated cities and 25% of the population inhabits unincorporated areas of the County, including Indian lands and mobile park homes that are largely located outside of city jurisdictions (City of Coachella 2009). The Coachella Valley's proximity to Los Angeles, San Diego and Riverside counties in conjunction with its supply of affordable homes have attracted more permanent residents to the Region.

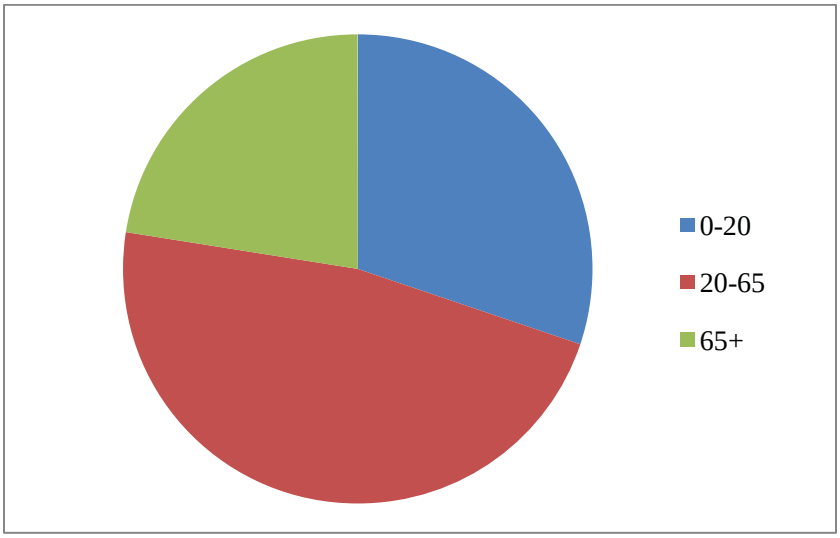
Compared with the state as a whole, the Coachella Valley economy has a larger proportion of jobs in agriculture, construction, retail trade, and services and a comparatively small proportion of jobs in manufacturing, wholesale trade, and government. The Coachella Valley is one of the fastest growing regions in California because of its vibrant, entrepreneurial business climate and its international acclaim as a tourism destination. The tourism sector in the region provides an exciting, resort-style lifestyle; from 121 golf courses to art and children's museums to Indian gaming casinos to concerts and theater to nationally acclaimed attractions like the Palm Springs Aerial Tramway, the PNP Paribas Open Tennis Masters Tournament, the Bob Hope Classic PGA golf tournament, the Kraft Nabisco LPGA golf tournament, the Living Desert Zoo and Botanical Gardens, the Palm Springs Air Museum, Coachella Music and Arts Festival and the Stagecoach Festival. Due to all the local attractions for tourism, the region allows for hundreds of retail trade and service jobs (Alliance 2010).

Higher education institutions have been moving to the region, and providing an opportunity for local high school students to further their education. The new California State University, San Bernardino-Palm Desert campus and the University of California, Riverside's Palm Desert Graduate Center campus have become magnets attracting businesses to the Coachella Valley bringing in educators and administrators. College of the Desert's $350 million expansion has provided lower division college courses as well as career, vocational education and technical training. Other institutions of higher education are Chapman University, Phoenix University, and Kaplan College.

Social Make-up

The population in the Coachella Valley is older than in Riverside County and California. In 2004, the median age in the Coachella Valley is 36.1 years compared to 32.64 in Riverside County, and 33.64 in California. In 2004, thirty percent (30.2%) of the residents are aged 20 or younger and twenty-two (22.5%) are seniors and this ratio is projected to remain almost the same in 2009 (30.0% and 23.3% respectively) (Coachella Valley Health Assessment 2006). **Figure 2-14** graphs the Valley's age distribution.

Figure 2-14: Coachella Valley Age Distribution

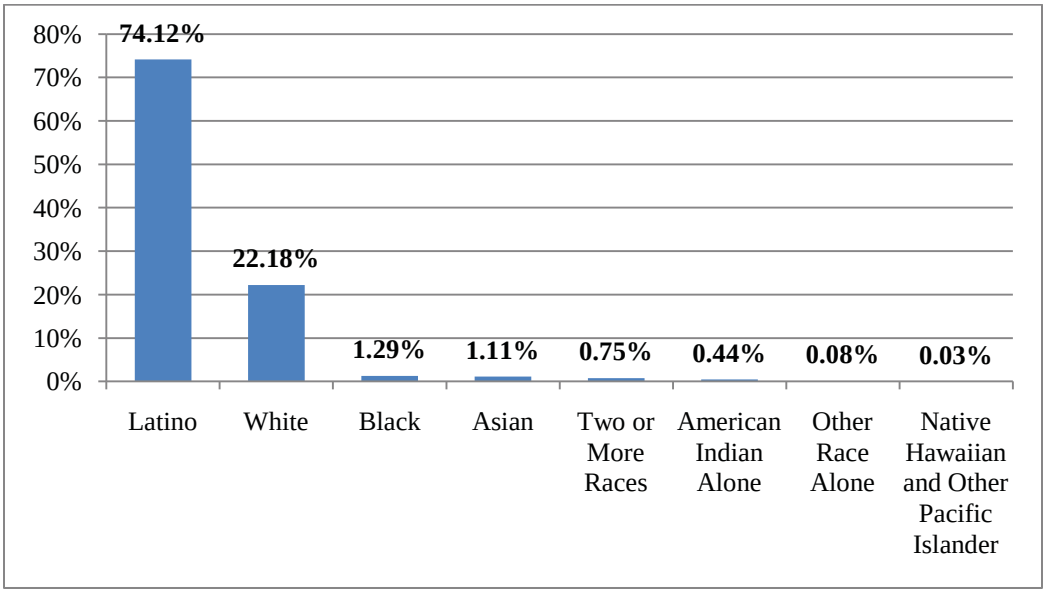


CVAG has provided a summary of the age data of the region by city. Generally speaking, the highest median age groups (61.3 years old and 63.4 years old) are living in Rancho Mirage and Indian Wells respectively. The youngest age-group reside in Coachella, their median average age was 22.8; followed by Indio at 27.3. There is a strong correlation between the age group and median home prices. The older the median age group, the higher the median home price (CVAG 2007).

Cultural Make-up and Diversity

The Coachella Valley has a well-established, yet growing, Latino population (Coachella Valley Health Assessment 2006). Latinos have always had a strong presence in the Palm Springs central and eastern sections; the cities of Indio and Coachella have also contained a high Latino population for decades. Most of the Valley's Latinos are Mexican from a multi-generational community. Central American immigrants can be mostly found in Indio and Cathedral City, while Cuban Americans, Puerto Ricans, and South Americans are prevalent in Palm Springs and Rancho Mirage areas. Compared with the state as a whole, the Coachella Valley economy has a substantially larger proportion of jobs in agriculture, construction, retail trade, and services and a comparatively small proportion of jobs in manufacturing, wholesale trade, and government. In the past, most Latinos found steady work through Coachella Valley's large agricultural trade, but at the present time, other employment opportunities have arisen with the expansion of home and business development within the region. **Figure 2-15** graphs racial composition of the Coachella Valley.

Figure 2-15: Coachella Valley Racial Composition



Economic Profile

From 2000 until 2007, the Coachella Valley grew at a much faster pace than California and the nation; employment has grown by 32.6 percent (4.1 percent annually), as compared to 4.4 percent (0.6 percent annually) nationwide. In recent quarters, however, the Valley's employment growth has stalled and fallen behind State and national levels (CVEP 2009). The Coachella Valley's most concentrated employment sectors are agriculture, and hospitality and tourism. The region has a relatively small share of its employment in manufacturing, finance, and professional services as compared to the national share.

The Coachella Valley's largest industry – hospitality and tourism – has long contributed to local job growth and the attraction of billions of dollars in tourism-serving investment, including hotels, golf courses, shopping, dining and nightlife establishments, casinos, and second-home developments. The agriculture sector is one of the other traditional lynchpins of the Coachella Valley economy. According to CVWD, the average gross value per acre of cropland was $7,986 for a total value of over $491 million in 2007 (CVWD 2009). The top producing crops for that same year were grapes, dates, lemons and limes, oranges and tangerines, peppers, lettuce, and greens.

The economic profile of Coachella Valley varies throughout the Region. While some communities within the Region have annual median household income (MHI) similar to Statewide values, the Coachella Valley has several disadvantaged communities (DACs). Please refer to *Chapter 5, Stakeholder Involvement, Section 5.6 Disadvantaged Communities Outreach* for detailed information regarding the economic composition and geographic location of DACs within the Coachella Valley.

Tribes

Most lands within the Coachella Valley are either private lands, public lands administered by the U.S. Bureau of Land Management, or Native American tribal lands. Major Native American reservation lands include (see **Figure 2-16**):

- Torres-Martinez Desert Cahuilla Indian Reservation, Cahuilla
- Cabazon Band of Mission Indian Reservation, Indio
- Augustine Band of Cahuilla Indian Reservation, Coachella
- Agua Caliente Band of Cahuilla Indian Reservation, Palm Springs
- Twenty-Nine Palms Band of Mission Indian Reservation, near Palm Springs
- Santa Rosa Tribal Lands, in southern Coachella Valley
- Morongo Tribal Lands, which are located just west of the IRWM Region

The Torres-Martinez and Agua Caliente Reservations are the largest by acre; the Agua Caliente Indian Reservation is approximately 31,500 acres, while the Torres-Martinez Indian Reservation is roughly 24,000 acres in size.

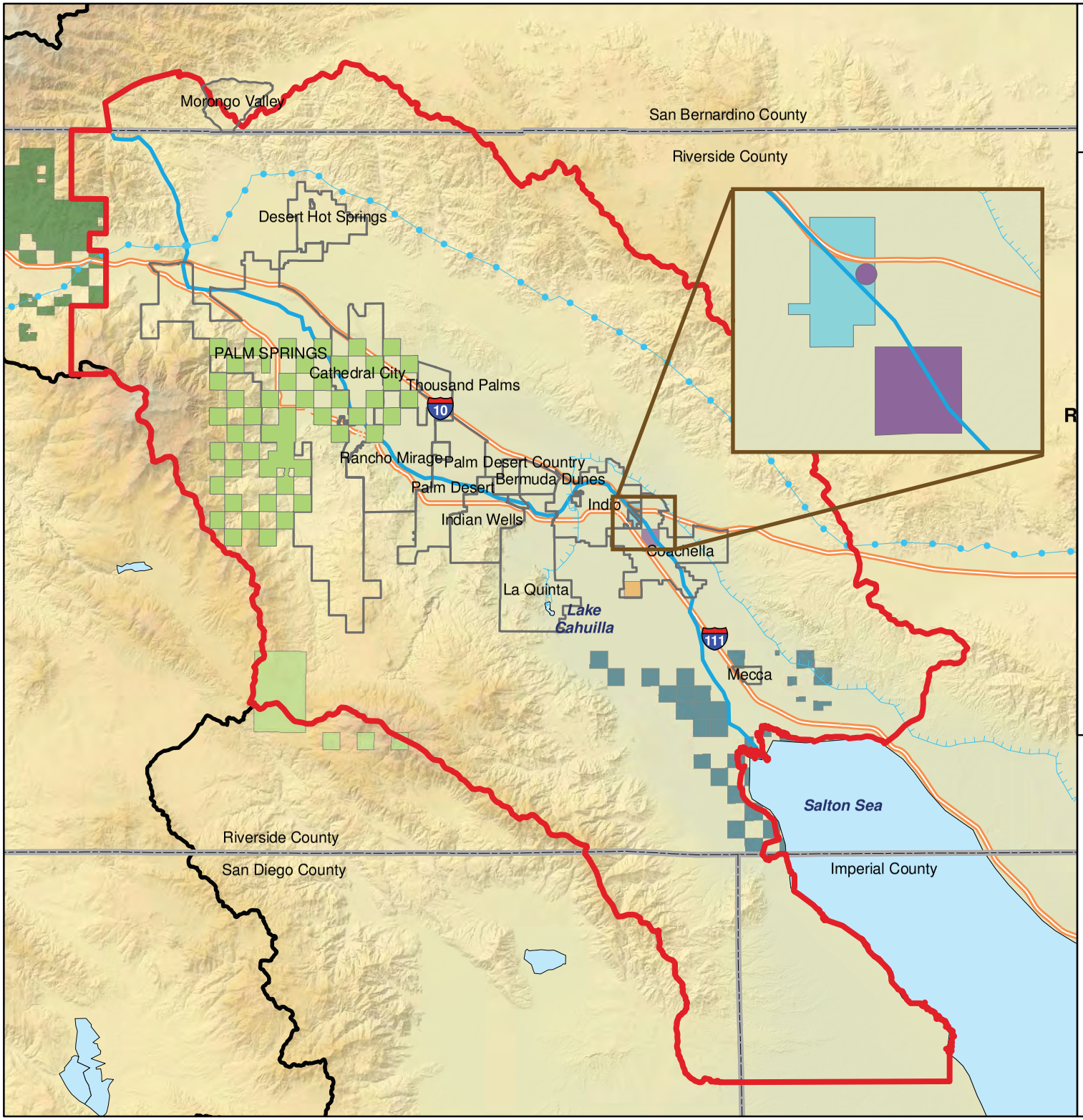
Due to their historical presence in the Valley, tribes face specific issues and considerations with relation to this IRWM Plan. Native Americans are the original inhabitants of the Coachella Valley, having resided in the Valley for centuries. The water in the Valley has sustained these Native American people agriculturally, economically, culturally, and spiritually for a long period of time, as it still does today. The CVRWMG intends to collaborate with the local tribes on long-term water management planning to ensure that the water supply within the Valley is adequate for all users. *Chapter 8, Agency Coordination, Section 8.2.1 Water Supply Planning and Groundwater Management,* describes how planned buildout on the tribal reservations were considered in the CVWMP (CVWD 2002) in order to have a complete understanding of current and future impacts on the groundwater basin.

Current and future planning for the management and administration of water in the Valley takes into account identified tribal issues and needs. These points were taken into consideration by the CVRWMG as part of this IRWM Plan. Detailed information regarding tribal issues can be found within *Chapter 3, Issues and Needs, Section 3.1.8 Issues Groups.*

2.7 Major Water-Related Objectives and Conflicts

This section contains a description of major water-related objectives and conflicts.

Both conflicts and agreements have occurred between the agencies prior to the establishment of the CVRWMG. Major water-related conflicts have generally revolved around groundwater recharge and pumping activities and associated assessments. MSWD was annexed as a sub agency to DWA in 1963 and since that time, land owners within MSWD's boundaries have paid a SWP assessment for the capital costs of the SWP. All land owners within DWA's boundaries pay the assessment as well. As early as 1984, MSWD, CVWD, and DWA held discussions about recharging the Mission Creek Subbasin and the facilities that would be required. In 2001, construction of a turnout from the Colorado River Aqueduct began and by 2002, construction of the spreading basins was completed. In 2001, MSWD adopted a resolution declaring its support for DWA's program to replenish the subbasin. Construction of the recharge basins was completed the following year.



Tribal Lands

Figure 2-16

- Colorado River Aqueduct
- Coachella and All American Canals
- Whitewater River Stormwater Channel
- Interstate Hwys.
- Lakes
- Cities
- CVRWMG Management Region
- Colorado River Funding Region Boundary
- County Lines
- Agua Caliente Tribal Lands
- Augustine Tribal Lands
- Cabazon Tribal Lands
- Morongo Tribal Lands
- Santa Rosa Tribal Lands
- Torres-Martinez Desert Cahuila Indians
- Twenty-Nine Palms Band of Mission Indians

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COACHELLA VALLEY IRWMP

File Name: Fig 2-16_Tribal Lands.mxd
File Location: L:\Projects GIS\0264-001_CoachellaIRWMP\mxds\
Date Updated: Nov 2010
Made By: DNF
Department: RMC Water & Environment

CVWD and DWA executed the Mission Creek Groundwater Replenishment Agreement in April 2003, which allowed for storage of advanced deliveries from MWD. In a May 2003 White Paper, MSWD outlined its concerns with the Agreement, underscoring its dependence and interest in the subbasin. In October 2003, MSWD filed action in the Superior Court of the State of California against DWA and CVWD seeking a writ of mandate, declaratory relief for prescriptive and appropriative water rights and declaratory and injunctive relief for a physical solution of a groundwater basin. MSWD sought adjudication of the subbasin and questioned the quality of the imported water. Both CVWD and DWA filed answers challenging the complaint. In December 2004, MSWD, DWA, and CVWD reached a settlement agreement. The agreement stated the agencies would work jointly to manage the subbasin. The agreement included provisions regarding payment of Replenishment Assessment Charges, shared costs for basin studies and development of a Basin Management Plan for the Mission Creek and Garnet Hill Subbasins. In October 2008, final contracts needed for development of the Basin Management Plan were approved by CVWD and MSWD. DWA agreed with development of modeling studies but questioned whether the Basin Management Plan would duplicate efforts expected for the IRWM Plan. In April 2009, DWA approved a modified proposal to facilitate management plan preparation; In November 2010, DWA approved the additional efforts.

In January 2005, CVWD established a replenishment assessment charge that covered East Valley groundwater pumpers, including the cities of Coachella and Indio. The City of Indio ceased paying the charge in July 2007, challenging the benefits of the Dike 4 replenishment project to the City. One year later, after negotiations with the City failed to resolve the issues, CVWD filed suit against the City of Indio for nonpayment. In April of 2008, IWA filed a cross complaint seeking CVWD to show proof that IWA received any special benefit from the replenishment assessment charge. In December 2008, CVWD and the City of Indio announced they had approved terms of an agreement to settle the nonpayment lawsuit. The terms include the following:

- CVWD and IWA will participate in an IRWM Plan,
- Future groundwater basin recharge projects financed through the Replenishment Assessment Charge will continue to benefit the lower basin,
- A recharge facility will be built within the City of Indio if feasible, and
- IWA will pay CVWD all outstanding Replenishment Assessment Charges.

In early 2007, CVWD filed a California Environmental Quality Act (CEQA) lawsuit against IWA regarding a development within IWA's sphere of influence. The Citrus Ranch development is located outside of the Whitewater River basin and in order to move forward with the development, IWA had planned to export water from the basin to Citrus Ranch. CVWD did not believe IWA had researched alternative sources and addressed the overdraft impact. The lawsuit was settled in October 2008 stating among other things, that the developer of Citrus Ranch, SunCal, will pay the city approximately $5.6 million to offset the project's impact on the local groundwater supplies.

DWA and CVWD assess a replenishment assessment based on the amount of water pumped. Therefore, revenues are generated from the extraction of groundwater and not the delivery of imported water. This is a key component in understanding water management issues within the Coachella Valley IRWM region.

The Coachella Valley IRWM program is a collaborative effort resulting from the aforementioned lawsuits, and contains regionally-defined issues, objectives, resource management strategies, and implementation projects that ultimately provide resolution. For further information regarding major water-related conflicts defined in the Coachella Valley, refer to *Chapter 3, Issues and Needs*. *Chapter 4 Objectives, Section 4.1.1 Determining Objectives* provides an understanding of how the CVRWMG seeks to resolve those conflicts.

2.8 Climate Change

*This section implements the **Climate Change Standard** by describing and considering the effects of climate change on the Region.*

According to the U.S. Environmental Protection Agency, greenhouse gases (GHGs) are a group of gases in the atmosphere that have the ability to absorb and emit solar radiation. The presence of GHGs contributes to the greenhouse effect, a process that warms the planet by not allowing heat to leave Earth's surface. GHGs absorb the planet's heat and re-radiate that energy in all directions within the Earth's atmosphere, creating warm enough conditions for human habitation. Without the greenhouse effect, scientists estimate that the average temperature on Earth would be colder by approximately 30 degrees Celsius (54 degrees Fahrenheit), far too cold to sustain our current ecosystem. GHGs, therefore, play a vital role in regulating our global climate.

Increased GHG emissions have been linked to stronger greenhouse effects, global temperature increases, and sea level rise (United States Global Change Research Program 2010). These climatic changes could potentially continue depending on a number of factors, including the amount and type of heat-trapping GHG emissions and the sensitivity of climates to those emissions. The affects have the potential of being felt much sooner and the sources may be more apparent in relation to the Earth's water cycle.

As described in the United States Global Change Research Program literature global consequences of climate change are very broad, but on a smaller, regional scale the impacts of warming trends become much more diverse and distinctive. Climate responds to local, regional, and global factors (United States Global Change Research Program 2010). For instance, precipitation is not distributed evenly over the globe. Its average distribution is governed primarily by atmospheric circulation patterns, the availability of moisture, and surface terrain effects.

The inconsistencies of land surfaces, wind patterns, and moisture levels across regions have produced very distinct climatic trends that ultimately alter the quantity and quality of natural resources. According to the California Water Plan 2009 Update (DWR 2009), California could be facing a significant water crisis exacerbated by climate change. The following list describes possible anticipated changes in the regional water cycle (DWR 2009):

- Decreases in snowfall could result from climate change increasing air temperatures, which would inhibit snow fall conditions to form;
- Decreased snowfall could lead to a reduction in snowpack size. Water supply availability would potentially change, because a less substantial snowpack would result in less snow melt, thereby reducing water sources;
- Water supply availability could also change if atmospheric temperatures reduce glaciers sooner than expected;
- Earlier peak stream flow due to climatic shifts (earlier melting periods) has the potential of impacting water supply, fisheries, and recreation activities. In the U.S. warming has occurred earlier in the winter season and into the spring, causing natural water flows to occur at higher intensities, which leaves the late spring and early summer with reduced water availability;
- Runoff/recharge volumes could be significantly reduced in the late spring and summer months because of the onset of warmer atmospheric pressures from climate change earlier in the winter season;

- Increased water usage could occur in summer months when warmer temperatures arrive and water availability has been reduced significantly due to earlier melting;
- Regions could be more susceptible to severe droughts as water supplies are over-utilized, and climate change worsens drought conditions;
- Water losses could be felt region-wide if higher air temperatures lead to increased evaporation rates in water bodies. This could also exacerbate drought conditions; and
- The frequency and intensity of floods can potentially increase in late winter and early spring as a consequence of early melting and inundation of early water supplies to the region.

These predicted water cycle changes, coupled with urbanization, create an awareness of potentially serious water supply challenges in the following years and decades ahead. Changes in climate may have adverse effects related to the release and availability of water sources critical for California's regional needs. Every region in California faces potential flood risks; housing and urban development in California continues to occupy floodplains and flood-prone areas every day (U.S. Global Change Research Program 2010). The threat of flooding therefore becomes much greater in densely populated regions. The State's water and flood systems could face both the threat of too little water to meet water demand during droughts and too much water to protect life and property during floods.

As described in *Section 2.3 Water Supply and Demand,* it is anticipated that the Coachella Valley IRWM region will experience increasing population growth, thereby possibly driving up water demands. Current water extractions and projected water demands are not sustainable in the Coachella Valley; if current water practices persist, climate change might reduce availability of water supplies, which has the potential to inhibit crop growth and fishery production, damage recreational areas, and degrade water quality (U.S. Global Change Research Program 2010).

2.8.1 Legislative and Policy Context

Given the currently predicted effects of climate change on California's water resources, DWR's IRWM Grant Program Guidelines seek to ensure the Coachella Valley IRWM Plan describes and considers the effects of climate change. Below is a summary of State legislation and policy that were considered as part of this IRWM Plan.

Executive Order (EO) S-3-05

EO S-3-05, signed on June 1, 2005 by Governor Arnold Schwarzenegger, is one of the key pieces of legislation that has laid the foundation for California's climate change policy. This piece of legislation recognizes California's vulnerability to the impacts of climate change, which includes its water-related natural resources. EO S-3-05 established three GHG reduction targets for California:

- By 2010, reduce GHG emissions to 2000 California levels
- By 2020, reduce GHG emissions to 1990 California levels
- By 2050, reduce GHG emissions to 80 percent below 1990 California levels

In addition to establishing GHG reduction targets for California, EO S-3-05 dictates the head Secretary of the California Environmental Protection Agency (CalEPA) to establish the Climate Action Team (CAT) for State agencies to coordinate oversight of efforts to meet these targets. As laid out in the EO, the CAT has submitted biannual reports to the governor and State legislature describing progress made toward reaching the targets.

There are currently 12 sub-groups within CAT, one of which is the Water-Energy group (also known as WET-CAT). WET-CAT was tasked with coordinating the study of GHG effects on California's water supply system, including the development of GHG mitigation strategies for energy consumption related to water use. Since the adoption of the AB 32 Scoping Plan (see discussion below), WET-CAT has been working on the implementation and analyses of six water-related measures identified in the Scoping Plan: Water Use Efficiency, Water Recycling, Water System Energy Efficiency, Re-use Urban Runoff, Increase Renewable Energy Production, and Public Goods Charge for Water.

Assembly Bill 32: The California Global Warming Solutions Act of 2006

Assembly Bill 32 (AB 32), the California Global Warming Solutions Act of 2006, is a piece of legislation that has laid the foundation for the State's response to climate change. In 2006, AB 32 was signed by Governor Schwarzenegger to codify the mid-term GHG reduction target established in EO S-3-05 (reduce GHG emissions to 1990 levels by 2020). AB 32 directed the California Air Resources Board (CARB) to develop discrete early actions to reduce GHGs by 2007, and to adopt regulations to implement those early action measures by January 1, 2010.

Climate Change Scoping Plan

AB 32 required CARB to prepare a Scoping Plan to identify and achieve reductions in GHG emissions in California. The approved Climate Change Scoping Plan, which was adopted by CARB in December 2008, recommends specific strategies for different business sectors, including water management, to achieve the 2020 GHG emissions limit.

Senate Bill 97

Senate Bill 97 (SB 97) directed the Governor's Office of Planning and Research (OPR) to develop amendments to the CEQA Guidelines to determine how climate change is analyzed in documents required under the California Environmental Quality Act (CEQA). On December 31, 2009, the Natural Resources Agency adopted amendments to the CEQA Guidelines and sent them to the California Office of Administrative Law for approval and filing with the Secretary of State (http://www.ceres.ca.gov/ceqa/guidelines/). The CEQA Guidelines are not prescriptive; rather they encourage lead agencies to consider many factors in performing a CEQA analysis, and maintain discretion with lead agencies to make their own determinations based on substantial evidence.

Managing an Uncertain Future: Climate Change Adaptation Strategies for California's Water

DWR, in collaboration with the State Water Resources Control Board (SWRCB), other state agencies, and numerous stakeholders, has initiated a number of projects to begin climate change adaptation planning for the water sector. In October 2009, DWR released the first state-level climate change adaptation strategy for water resources in the U.S., and the first adaptation strategy for any sector in California. Entitled *Managing an Uncertain Future: Climate Change Adaptation Strategies for California's Water*, the report details how climate change is currently affecting the state's water supplies, and sets forth ten adaptation strategies to help avoid or reduce climate change impacts to water resources.

Central to these adaptation efforts will be the full implementation of IRWM plans, which address regionally-appropriate management practices that incorporate climate change adaptation. These plans will evaluate and provide a comprehensive, economical, and sustainable water use strategy at the watershed level for California.

Executive Order S-13-08

Given the potentially serious threat of sea level rise to California's water supply and coastal resources, and the subsequent impact it would have on our state's economy, population, and natural resources, Governor Schwarzenegger issued EO S-13-08 to enhance the state's management of climate impacts from sea level rise, increased temperatures, shifting precipitation, and extreme weather events.

California Climate Adaptation Strategy

In response to the passage of EO S-13-08, the Natural Resource Agency wrote the report entitled *2009 California Climate Adaptation Strategy* (CAS), to summarize the best known science on climate change impacts in the state, to assess vulnerability, and to outline possible solutions that can be implemented within and across the state agencies to promote resilience to climate change.

GHG Reporting Rule

While California has taken the lead in climate change policy and legislation, there have been several recent important developments at the federal level. On September 22, 2009, USEPA released its final GHG Reporting Rule (Reporting Rule). Starting in 2010, facility owners that emit 25,000 metric tons of CO_2e or more per year are required to submit an annual GHG emissions report with detailed calculations of facility GHG emissions. These activities will dovetail with the AB 32 reporting requirements in California.

2.8.2 Implications of Effects of Climate Change

Coachella Valley imports a majority of its water supply in order to satisfy regional demands. Of the five water purveyors, CVWD and DWA are both SWP contractors and retailers. Annual SWP water supplies delivered to state water contractors will depend on the amount of rainfall, snowpack, runoff, water storage, pumping capacity from the Delta, and water demand. Water delivery reliability will thus depend on three major factors: the availability of water at the source; the ability to convey water from the source to delivery points; and the magnitude of demand for water. The availability of the water source will be dependent on the amount of snowpack and water use in the source area. The reliability of the water source may also be contingent on the additional stressors that result from possible temperature increases.

Research on recent California climate variability indicates that the state has been warming at a rate of 0.13°C per decade (U.S. Global Change Research Program 2010). Temperature increases are expected to modify rainfall and runoff, which may in turn affect SWP operations. Precipitation patterns are unpredictable and thus warmer climate can produce wetter *and* drier conditions. Changes in the regional and seasonal distribution of precipitation could cause the most damage. For the SWP, the size of the April 1 snowpack in the Feather River watershed and the storage in Lake Oroville are key components of the annual estimation of the SWP's delivery capabilities from April through September. By and large, increased temperatures due to climate change may reduce the snowpack at a faster rate, thereby releasing snowmelt water earlier than anticipated. This could potentially make water resource areas more susceptible to flooding in the late winter and early spring, quickly depleting water sources for the later seasons when water is crucial (summer and fall). The reliability of water from the source is therefore hindered by any drastic modification of rainfall patterns. Water demand close to the water source could also be expected to increase, creating a domino effect of diminishing water availability and reliability to any SWP contractors downstream; thus possibly leading to water shortages for the Valley. The reliability of SWP water supply is expected to be reduced for the range of future climate projections studied.

Outside of the SWP, the Coachella Canal allows CVWD to provide approximately 300,000 acre-feet per year of Colorado River water to over 1,100 non-potable customers, which mostly consist of agricultural and golf course uses. Past climate records based on changes in spring snowpacks and Colorado River flows indicate that drought is a frequent feature of the Southwest, which includes Coachella Valley, with some of the longest documented "megadroughts" on Earth (U.S. Global Change Research Program 2010). Coachella Valley's arid climate is likely to experience a higher number of dry days between precipitation events, thereby leading to longer and longer drought periods. To further complicate the situation, Coachella Valley's population and urban areas are continuing to grow (refer to *Section 2.1*.5 *Water Supplies and Demand* for future population projections). The number of customers is estimated to increase and associated water use will grow, leading to greater water supply challenges.

Groundwater will be less directly and more slowly impacted by climate change, as compared to surface water sources. This is because rivers get replenished on a shorter time scale, and drought and floods are quickly reflected in surface water levels. Groundwater, on the other hand, will be affected much slower. Only after prolonged droughts or overdraft conditions will groundwater levels show declining trends. Groundwater pumping in Coachella Valley is already exceeding recharge rates and experiencing overdraft. Continued groundwater pumping at current rates could further decrease water tables and concurrently, reduced recharge associated with climate change could add to the growing problem with groundwater sustainability.

As vulnerability analysis tools become available, this description of potential climate change effects will be updated. Refer to *Chapter 6 Resource Management Strategies, Section 6.5 Adapting Resource Management Strategies to Climate Change* for information regarding climate change adaptation and mitigation.







3 Issues and Needs

This chapter outlines the major water-related issues and need of the Region, and demonstrates that it based on sound technical information, analyses, and methods as directed in the ***Technical Analysis Standard****.*

3.1 Coachella Valley Issues and Needs

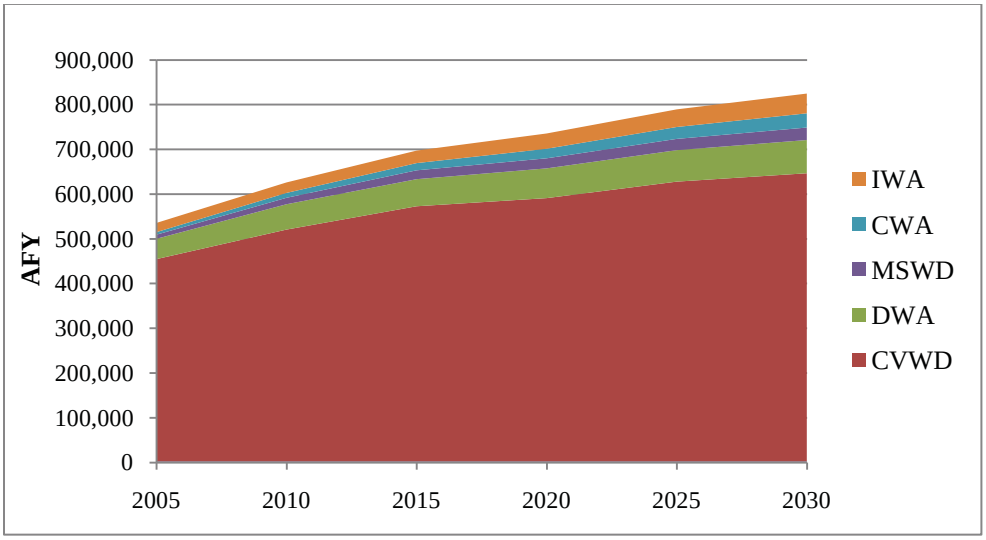
In order to clearly establish the IRWM Plan Objectives (see *Chapter 4, Objectives*), the following section outlines the issues, needs, and conflicts related to water management in the Valley.

3.1.1 Demand

The total water demand for the Region is projected to increase by 68% from 534,680 AFY in 2005 to 898,108 AFY in 2030. Almost half of the demand in the Region is attributed to non-potable uses in the East Valley. A breakdown of water demand by agency is shown in **Figure 3-1** (see *Chapter 2, Region Description,* Table 2-7: Total Projected Water Demand with Conservation).

In order to determine realistic projections of future demands, it is essential for agencies to proactively update their Urban Water Management Plans (UWMPs) and ensure supply for future development. Water agencies will soon be preparing 2010 updates to their Urban Water Management Plans to take their local development plans into account.

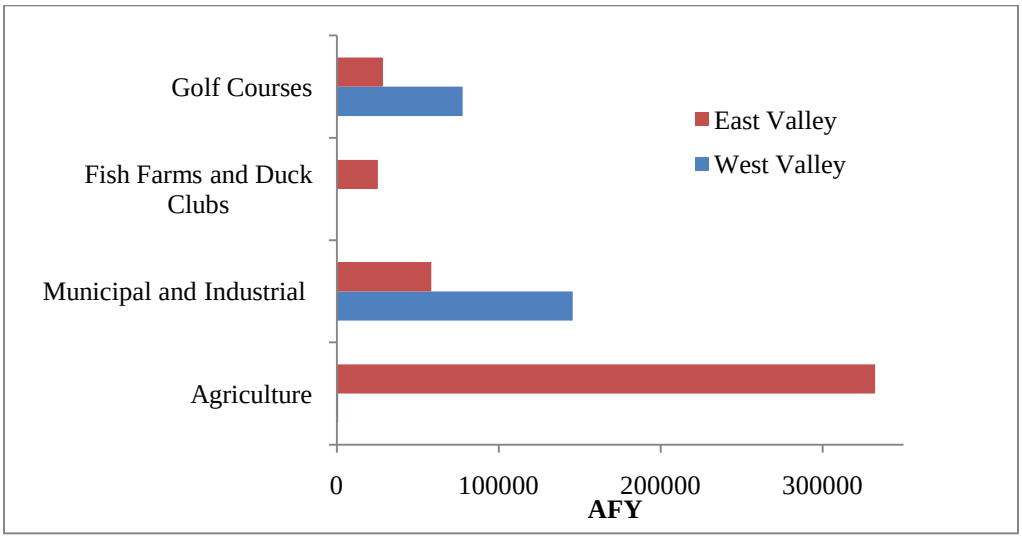
Figure 3-1: Total Projected Water Demand with Conservation[1]



[1] Projections are for a normal water year and include water losses and recycled water use.
[2] CVWD 2005 Urban Water Management Plan
[3] DWA College Park Specific Plan/Water Supply Assessment
[4] MSWD 2005 Urban Water Management Plan
[5] CWA 2005 Urban Water Management Plan
[6] IWA 2010 Urban Water Management Plan

Water demand in the Coachella Valley is divided between urban and agricultural uses. In 1999, water demand in Coachella Valley was a total of 333,300 AFY for agricultural uses and 204,000 AFY for urban uses. **Figure 3-2** provides a breakdown of water demand for the East and West Coachella Valley in 1999. However, due to projected residential growth in the Coachella Valley (discussed in *Chapter 2, Region Description*), urban demands are expected to increase at a faster rate than agricultural demands.

Figure 3-2: Total Water Demand in 1999 for East and West Valley



Source: CVWD 2002 Coachella Valley Water Management Plan

Regional water demand issues are listed below.

Regional Water Demand Issues	
Topic	**Issue Statement**
Increasing Water Demands	Regional population projections include continued growth, equating to water demand increases. Municipal demands are expected to increase at a faster rate than agricultural demands primarily due to population growth. Because the region is currently in overdraft conditions, there is increasing concern about the availability of high quality groundwater supply.[1]
1. CVWD 2005 UWMP; CVWD 2002 WMP; CWA 2006 WMP Update; MSWD WMP	

3.1.2 Water Supply

Coachella Valley water supplies are primarily obtained from: imported water supplied through the Coachella Canal and the Colorado River Aqueduct, as well as groundwater pumped from the Coachella Valley Groundwater Basin. However, concerns over Coachella Valley's future water supplies has increased due to a combination of drought, reductions in imported water deliveries, over pumping of groundwater, and seasonal variation in surface water. These concerns are discussed further below.

Groundwater

Despite the large amount of artificial groundwater recharge, the local groundwater basin has not been in balance since the 1930's. The freshwater overdraft was estimated to be about 137,000 AFY in 1999, with

a cumulative overdraft of nearly 4.8 million acre-ft between 1936 and 1999 (CVWD 2002 WMP). This means that 4.8 million more acre-ft of freshwater was withdrawn from the basin than was recharged.

Groundwater overdraft has caused groundwater levels to decrease more than 60 feet in portions of the East Valley and raised significant concern about water quality degradation and land subsidence in this area. Recently, however, reduced pumping in the East Valley along with recharge at the Thomas E. Levy Facility has resulted in a return to artesian flow in the vicinity of Mecca. It is thought that a pumping hole created by Kent Sea Farms has recovered since they reduced their pumping from about 8,000 AFY to 2,000 AFY. Groundwater levels in the West Valley have also decreased substantially, except in the areas near the Whitewater Spreading Facility where artificial recharge has successfully raised water levels. **Figure 3-3** shows areas within the Region where land subsidence studies have been conducted.

Continued overdraft would have significant consequences for the Coachella Valley, including:

- Land subsidence and associated permanent loss of groundwater storage capacity in some areas, along with resultant potential for ground fissures and damage to buildings, sidewalks, streets, wells, and buried pipelines;
- Increased costs to pump water and deepen wells; and
- Water quality degradation, which includes increased salinity from Salton Sea intrusion and perched water intrusion.

Issues related to groundwater supplies are listed below.

Groundwater Supply Issues

Topic	Issue Statement
Groundwater Overdraft	Basin pumping exceeds total recharge by more than 100,000 AFY on average. Pumping needs to be brought into balance through increased recharge, source substitution, and conservation. Failure to achieve this balance will lead to continued water level declines, water quality degradation, and land subsidence, which can result in loss of groundwater storage and impacts on infrastructure.[1]
Land Subsidence	Continued water level declines may result in significant land subsidence, which leads to permanent loss of groundwater storage as well as cracking, warping, and failure of buildings and subsurface infrastructure. In the vicinities of Palm Desert, Indian Wells, and La Quinta, subsidence rates have increased 2-4 times since 2000.[2]
Land Fissuring	Surficial land fissuring may occur due to land subsidence, particularly along basin margins. Fissures are hazardous and could damage buildings in some of the valleys most heavily developed and populated areas.[3]
Liquefaction	As overdraft conditions improve in the East Valley and groundwater levels rise, the potential for liquefaction increases, as well as the need for adequate drainage.[4]
Groundwater Recharge	A 100-200 foot-thick aquitard in the East Valley retards deep percolation, thus making recharge of the Lower Aquifer difficult.[5]
Increased Conjunctive Use	Potential increases in conjunctive use, to the degree that recharge and source substitution are increased more than net outflow, could lead to a solution to overdraft-related problems facing the basin. Key issues that must be addressed include completion of the SWP aqueduct extension and amount of this additional recharge water, its cost, its reliability, and its quality.[6]
Costs	Cost related to continued overdraft could include: reduced groundwater storage capacity; increased power consumption due to increased pumping lifts; repair and replacement of damaged infrastructure; and additional water treatment requirements due to decreases in water quality.[7]

Groundwater Supply Issues	
Topic	**Issue Statement**
1. CVWD 2005 UWMP; CVWD 2002 WMP; IWA IWRDP - Phase 1 White Paper; IWA 2007 WMP; MSWD WMP; MSWD 2007 RWFS; DWA 2005 UWMP	
2. CVWD 2005 UWMP; CVWD WMP 2002; USGS 2007; IWA IWRDP - Phase 1 White Paper	
3. CVWD WMP 2002	
4. CVRWMG Planning Group meeting - May 19, 2010	
5. IWA IWRDP - Phase 1 White Paper	
6. CVWD 2005 UWMP; CVWD WMP 2002	
7. CVWD WMP 2002	

Imported Water

The Coachella Valley Region relies on SWP supply via the Colorado River Aqueduct and Colorado River supply via the Coachella Canal (refer to Figure 2-3 in *Chapter 2, Region Description*). However, concern regarding the reliability of imported water supplies has increased due to: reductions in SWP deliveries; drought in the Colorado River Basin and recent litigation that could potentially affect the 2003 Quantification Settlement Agreement; and increased costs for importing water.

Further details on imported water supply are listed below.

Imported Water Supply Issues	
Topic	**Issue Statement**
SWP Delivery	Reductions in SWP delivery would directly impact groundwater replenishment in the Valley.[1] Delta conveyance solutions may only increase reliability without increasing overall yield.[2]
SWP Reliability	SWP supplies are less reliable due to Statewide drought conditions and environmental constraints (which have led to reduced pumping) in the Delta.[3]
SWP Cost	Concern about the cost of Delta conveyance projects increasing SWP costs and local groundwater replenishment assessments.[4]
Colorado River Delivery	Colorado River supplies are vulnerable due to the prolonged Colorado River Basin drought and recent litigation which could impact the stability of the 2003 QSA. However, the 2003 QSA and 1968 Colorado River Basin Project Act currently ensure full delivery to the Coachella Valley except in the case of a prolonged period of extreme drought.[5]
Climate Change	Implications of climate change may impact SWP allotments and/or deliveries and Colorado River water deliveries and/or allocations.[6]
1. DWA Board Minutes - August 4, 2009; IWA IWRDP - Phase 1 White Paper	
2. DWA Board Minutes - December 1, 2009, May 19, 2009	
3. DWR 2009 Colorado River Regional Report Draft	
4. DWA Board Minutes - December 1, 2009, May 19, 2009	
5. DWR 2009 Colorado River Regional Report Draft; CVWD 2005 UWMP	
6. IWA IWRDP - Phase 1 White Paper	



Land Subsidence Study Areas

Figure 3-3

- Recharge Area
- Colorado River Aqueduct
- Coachella and All American Canals
- Whitewater River Stormwater Channel
- Interstate Hwys.
- Cities
- Coachella Valley IRWM Region
- DWA Land Subsidence Study Area
- USGS Study Area
- Inferred Land Subsidence

Source: USGS Detection and Measurement of Land Subsidence in Coachella Valley, 1996-2005; Desert Water Agency GPS Control Survey April 2008 and Facilities Benchmarks 1962-1994

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COACHELLA VALLEY IRWMP

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Date Updated: Wednesday, July 21, 2009
Made By: DNF
Department: RMC Water & Environment

Surface Water

Surface water is obtained from several local streams including the Whitewater River, Snow Creek, Falls Creek, and Chino Creek. In 1999, surface water supplied approximately 6,900 acre-ft of water to the Upper Valley (approximately 3 percent of its water supply) to meet municipal demand. Because the surface water supply is directly affected by variations in annual precipitation, the annual supply is highly variable. Since 1936, the estimated historical surface water supply has ranged from approximately 4,000 to 9,000 acre-ft/yr (CVWMP 2002). All surface water that is not used for domestic water supply is accounted for and put to beneficial use of recharging the groundwater aquifer.

Surface water supply issues are listed below.

Surface Water Supply Issues	
Topic	**Issue Statement**
Surface Water Supply	Surface water supplies are inherently more susceptible to seasonal variation and drought because they are fed by runoff originating in the local mountains.[1]
1. CVWD 2005 UWMP; DWA 2005 UWMP; DWA 2008 General Plan	

Water Conservation

All five water purveyors within the Coachella Valley recognize that water is a limited resource and that water conservation and use efficiency should be actively pursued. Each agency implements a variety of irrigation and/or domestic water conservation measures, including model landscape ordinances, water-efficient irrigation controls, water efficient plumbing, water-wise landscaping programs, conservation outreach and education, conservation pricing of water rates, and water audits (CVWD 2005 UWMP; DWA 2005 UWMP; MSWD 2005 UWMP). **Figure 3-4** provides screenshots of two local water conservation efforts.

Figure 3-4: IWA and CVWD Water Conservation Programs





Issues related to water conservation are listed below.

Water Supply Conservation Issues	
Topic	**Issue Statement**
Conservation	Conservation efforts (municipal, agricultural, and golf courses) are critical to reduce pressure on the groundwater supply. [1]
Local Economy	Water conservation measures must consider the effect on industries that rely on water for irrigation (tourism, golf, agriculture). [2]

1. CVWD 2005 UWMP; CVWD 2002 WMP; IWA 2007 WMP; MSWD 2005 UWMP
2. Planning Group – May 19, 2010

3.1.3 Recycled Water

Recycled water is needed to meet anticipated future demands and offset existing use of groundwater for non-potable uses, as well as provide for supply redundancy. However, during the summer months, recycled water supplies are not sufficient to meet all current demands; users are required to use their private wells or other water sources to supplement the recycled water supply. A map of existing recycled water systems is provided in Figure 2-4 (see *Chapter 2 Region Description*).

Issues related to recycled water are listed below.

Recycled Water Supply Issues	
Topic	**Issue Statement**
Recycled Water	Recycled water is needed to meet anticipated future demands and offset existing use of groundwater for non-potable uses, as well as provide for supply redundancy.[1]
Recycled Water	During summer months, recycled water supplies are not sufficient to meet all current demands; users are required to use their private wells or other water sources to supplement the recycled water supply. Need to consider augmenting recycled water with another non-potable source, like Colorado River water, to make the supply more reliable. [2]
Recycled Water	Challenges associated with cost-effectively linking recycled water supply to customers (i.e., strategic location of treatment facilities), possibly through inter-agency partnerships.[3]

1. IWA 2007 WMP; MSWD WMP; MSWD 2007 RWFS; DWA 2005 UWMP
2. CVWD 2005 UWMP
3. CVRWMG Planning Group meeting - May 19, 2010

3.1.4 Stormwater

Riverside County Flood Control and Water Conservation District (RCFCWCD) and CVWD are the Region's flood control districts. They operate and maintain a series of regional flood control facilities throughout the Valley that ultimately drain to the Salton Sea (refer to Figure 2-7 in *Chapter 2, Region Description*). Local cities and the County of Riverside manage localized urban drainage systems that drain to these facilities. The backbone of this system is the Region's 49-mile Whitewater River/Coachella Valley Stormwater Channel. West of Washington Street, it's called the Whitewater River Stormwater Channel (WRSC); east of Washington Street, it's called the Coachella Valley Stormwater Channel (CVSC).

Local cities and the County divert runoff from storm events to the WRSC. The WRSC is designed for the Standard Project Flood of 85,000 cubic feet per second. Three wastewater treatment plants (VSD, Coachella, and WRP-4) also discharge effluent to the WRSC.

Issues related to stormwater are listed below.

Stormwater Issues	
Topic	**Issue Statement**
Stormwater Management	Opportunities for source substitution include stormwater harvesting to retain and reuse all stormwater on site. Low impact development should be encouraged to reduce precipitation losses via runoff. [1]
1. IWA IWRDA - Phase I White Paper	

3.1.5 Water Quality

This section addresses key issues concerning Coachella Valley's water quality.

Water Supply

Groundwater

Groundwater supply from the Coachella Valley Groundwater Basin is generally of high quality. Disinfection is not required but is generally provided as a precautionary measure before distribution for potable uses. For a summary of recent groundwater quality concentrations, see Table 2-10 in *Chapter 2, Region Description*. The possible negative impacts of groundwater overdraft include a downward flow of degraded upper aquifer water, and intrusion of saline Salton Sea water into the East Valley aquifer thus degrading groundwater quality.

Still, groundwater quality is a concern in isolated areas of the Region. In the East Valley, a combination of reduced Coachella Canal deliveries and increased groundwater pumpage has reduced groundwater flow into the agricultural drains. This allows high-TDS water to migrate from the semi-perched zone downward to the Upper aquifer. **Figure 3-5** illustrates the structure of the local groundwater aquifer, including the semi-perched zone. Additionally, decreasing water levels in the Lower aquifer allows poorer quality Upper aquifer water to migrate downward into the Lower aquifer, particularly along the margins of the basin, where the aquitard separating the two zones is thin or absent. The net result is a decline in the water quality of the Lower aquifer in the East Valley (CVWMP 2002).

In the East Valley, there is concern about elevated levels of arsenic in the groundwater. Naturally occurring substances such as uranium, arsenic, and fluoride have been detected, and are likely due to natural geologic conditions. As described in *Chapter 2, Region Description, Section 2.5.1 Groundwater Quality*, representatives of DAC and tribal organizations report that groundwater supplies for some mobile home park communities within the East Valley have arsenic concentrations that exceed the MCL of 10 ppm. Groundwater overdraft also causes agricultural drainage to percolate past the drains and thereby increasing TDS levels in groundwater (CVWD WMP 2002). Overall, the major groundwater quality concerns for the Coachella Valley include degradation of water quality from: saline intrusion due to declining groundwater levels; presence of Arsenic in the East Valley; high concentration of TDS from agriculture drainage and fluoride; and septic tank leakage (see Wastewater discussion below).

Additionally, a naturally-occurring high groundwater table within the semi-perched zone has the potential to saturate the root zone of crops and stifle growth or eliminate crop production. Therefore, a drainage system was developed for much of the East Valley to reclaim the area for farming. CVWD operates and

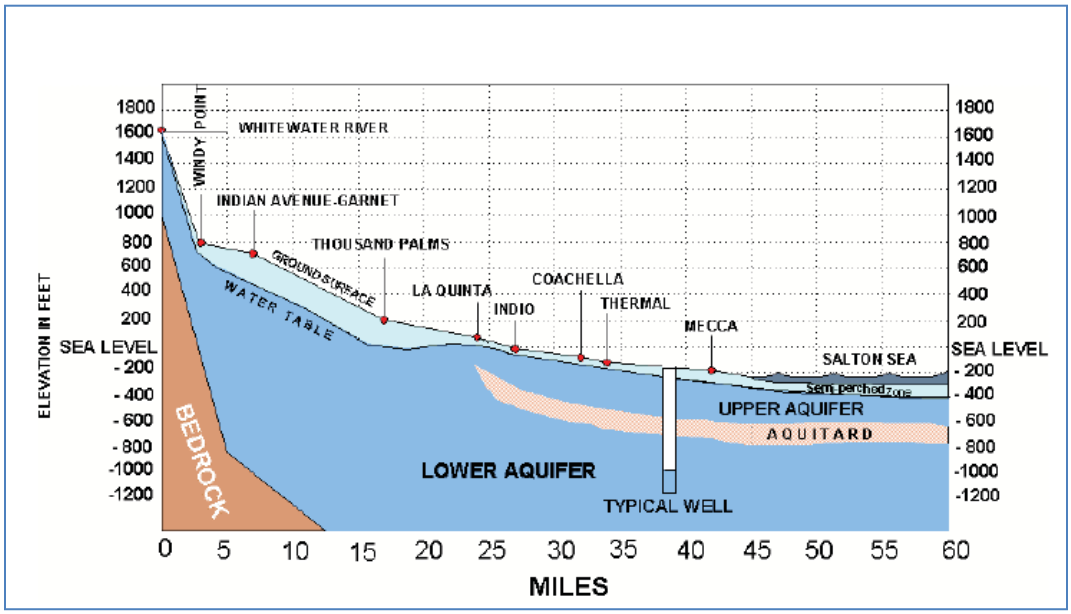
maintains a collector system of 166 miles of pipe, along with 21 miles of open ditches, to serve as a drainage network for nearly 38,000 acres of irrigated lands. All agricultural drains empty into the CVSC, except those at the southern end of the Coachella Valley which flow directly to the Salton Sea. CVWD plans to begin desalting agriculture drainage to a quality equivalent to Canal water and delivering it for irrigation use by 2023 (CVWD 20005 UWMP).

The CVRWMG has also addressed potential concerns regarding the organic compounds ethylene dibromide (EDB), trichloroethylene (TCE), dibromochloropropane (DBCP), and perchloroethylene (perc or PCE) in Coachella Valley groundwater. Current information demonstrates that EDB and TCE have not been detected in Coachella Valley groundwater, as both have been either banned or replaced. However, groundwater testing demonstrates that DBCP and PCE have been detected in isolated areas.

DBCP has been detected in some groundwater wells located within the Whitewater River Subbasin, and specifically in wells located in the communities of Palm Desert, Indian Wells, Bermuda Dunes, and La Quinta. DBCP was banned in California in the 1980's, but was previously used as a soil fumigant that was primarily applied on grapes in the Coachella Valley to control nematodes. Despite its presence, evidence demonstrates that detected levels of DBCP range from 0.01 to 0.02 ug/L, which is below the drinking water MCL of 0.2 ug/L. CVWD monitors DBCP occurrences in the Coachella Valley and installs wells outside areas of concern or at greater depths to avoid this constituent.

Although PCE is a solvent widely used for dry cleaning and metal degreasing, detection of this substance in the Valley has been limited to isolated incidents. For example, a former dry cleaning business has been identified as the source of a PCE plume in south Palm Springs and is currently subject to a cleanup order. PCE has also been detected in some wells in an area adjacent to the border of Rancho Mirage and Palm Desert within the Whitewater River Subbasin, although the source of PCE in this area has not been identified. When detected, PCE levels in these wells range from 0.5 ug/L to 1.5 ug/L, which is well below the drinking water MCL for PCE of 5.0 ug/L. CVWD monitors PCE occurrence in domestic wells and installs new wells outside areas of concern or at greater depths to avoid this constituent.

Figure 3-5: Coachella Valley Groundwater Basin Perched Zone



Source: CVWD 2002

Issues related to groundwater quality are detailed below.

Groundwater Quality Issues	
Topic	**Issue Statement**
Groundwater Recharge	Urban runoff percolation/retention basins could cause nitrates and other contaminants in the soil to be transported/leached into the deep aquifer. [1]
Groundwater Quality	Although the Coachella Valley Groundwater Basin has had historically high water quality, regional groundwater quality is potentially at risk for increased salinity and nitrates. Individual domestic septic tanks and leach fields, fertilizer application, and wastewater percolation ponds are likely sources of natural organic contaminants.[2]
Groundwater Recharge	The salinity of Colorado River water is higher than the salinity of SWP water, recycled water, and some groundwater. Use of Colorado River water for recharge and irrigation may result in the addition of salt to the basin. [3]
Groundwater Recharge	SWP water contains more total organic carbon and bromide than Colorado River water (both of which are precursors for creating disinfection byproducts). Long term recharge with SWP supplies could contaminate groundwater quality. [4]
Groundwater Quality	Several small private water systems in mobile home parks in East Valley exceed the MCLs for arsenic. Dependable arsenic removal systems are needed. [5]
Groundwater Quality	Groundwater quality may be degraded as a result of increased Salton Sea water and perched water intrusion. [6]

Groundwater Quality Issues	
Topic	**Issue Statement**
Groundwater Quality	Elevated fluoride, arsenic, chromium, and uranium concentrations have been found in groundwater. Several tribal and DAC populations are without a safe and reliable drinking water source. Further research is needed to understand the extent of potential contamination. [6]

1. CVRWMG Tribe meeting - May 20, 2010
2. DWR 2009 Colorado River Regional Report Draft; MSWD 2005 UWMP; RWQCB WMI; CVRWMG Tribe meeting - May 20, 2010
3. DWR 2009 Colorado River Regional Report Draft; MSWD 2005 UWMP; RWQCB WMI
4. DWR 2009 Colorado River Regional Report Draft; MSWD 2005 UWMP; RWQCB WMI RCAC 2010 Coachella Valley Water System Assessments
5. CVRWMG Planning Group meeting - May 19, 2010
6. CWA 2006 WMP Update; IWA IWRDP - Phase 1 White Paper, CVRWMG Tribe meeting - May 20, 2010, CVRWMG DAC meeting - May 20, 2010

Imported Water

Although water supplies (described in *Chapter 2, Region Description*) come from the Colorado River, their water qualities vary slightly. The Coachella Canal diversion is further downstream than the Colorado River Aqueduct diversion (see Figure 2-3: Statewide Imported Water Systems); this results in higher concentrations of TDS and other constituents of concern, including the potential for invasive species such as Quagga mussels. TDS concentrations have averaged in MWD's Colorado River Aqueduct water approximately 635 ppm since 1973 and in the Coachella Canal water (Avenue 52) nearly 800 ppm since 1949 (CVWD 2002 WMP). TDS concentrations and other constituents are listed in Table 2-10 in *Chapter 2 Region Description*.

Therefore, issues regarding imported water supply in Coachella Valley are: presence of TDS, hardness, and minerals; potential presence of Quagga mussels; and salinity of Colorado River water.

Issues related to imported water quality can be found listed below.

Imported Water Quality Issues	
Topic	**Issue Statement**
Colorado River Water Quality	In the past, low levels of perchlorate, selenium, and uranium were detected in Colorado River supplies. Testing results indicate that the contaminants are no longer a concern.[1]
Coachella Canal Water Quality	Coachella Canal water turbidity and temperature can vary greatly. Canal water is not suitable for domestic use without treatment.[2]
Colorado River Water Quality	Quagga mussels pose a potential threat to the imported water supply. These species have not been detected in the Coachella Canal to date, but future use of Colorado River water containing the mussels could cause multiple economic and environmental impacts. [3]
Colorado River Water Quality	The salinity of Colorado River water is higher than the salinity of SWP water, recycled water, and some groundwater. Use of Colorado River water for recharge and irrigation may result in the addition of salt to the basin; this is being studied.[4]

Imported Water Quality Issues	
Topic	**Issue Statement**
1. MSWD 2005 UWMP; DWA 2005 UWMP; CVWD 2005 UWMP	
2. CVWD 2005 UWMP	
3. CVWD Invasive Species – Quagga Mussels Issues Paper (Draft)	
4. CVWD 2005 UWMP; CVWD 2002 WMP; IWA IWRDP - Phase 1 White Paper; MSWD 2005 UWMP; DWA 2005 UWMP	

Local Surface Water

The surface water supplies currently used by DWA and those that may be diverted by the Agua Caliente Band of Cahuilla Indians are of high quality, with the concentration of TDS and nitrates both well within the MCLs.

Issues related to surface water can be found below.

Local Surface Water Quality Issues	
Topic	**Issue Statement**
Surface Water Supply	Surface water supplies are inherently more susceptible to seasonal variation and drought because they are fed by runoff originating in the local mountains.[1]
Surface Water Quality	Surface water supplies used for municipal supply are currently only disinfected, but may need filtration in the future.[2]
1. CVWD 2005 UWMP; DWA 2005 UWMP; DWA 2008 General Plan	
2. DWA 2008 General Plan	

Wastewater/Recycled Water

Wastewater may also impact local water quality through the leeching of septic effluent into the groundwater basin, as well as the addition of salts to the basin through irrigation with recycled water.

Wastewater

Some Valley residents utilize septic systems for wastewater treatment. Failing septic systems or a high density of septic systems have the potential to contaminate the local groundwater basin, a source of drinking water for the area.

Effluents from failing septic tanks have a high risk of polluting ground and surface water with nutrients, and human-borne pathogens. Nitrate, a water-soluble nutrient and major constituent of septic tank effluent, is a widespread ground water contaminant due largely to releases from septic tanks. Heavy pumping of water supply wells may draw down nitrate-polluted water in the unsaturated zone from septic tank discharges, and contaminate ground water.

Issues with wastewater quality are listed below.

Wastewater Quality Issues	
Topic	**Issue Statement**
Septic Systems	Failing septic systems have the potential to contaminate the local groundwater basin.[1]
Groundwater Quality	Widespread use and density of septic tanks in some areas raises possible concerns about using artificial recharge to address overdraft. Changes in groundwater levels could result in septic effluent percolating from underground tanks. However, recharge in the area may reduce the nitrate levels. This issue is being studied.[2]

1. MSWD website, CVRWMG DAC meeting - May 20, 2010, CVRWMG Tribe meeting - May 20, 2010
2. CVRWMG Planning Group meeting - May 19, 2010

Recycled Water

The two potential sources of recycled water in the Coachella Valley are desalinated agricultural drainage water and treated municipal wastewater effluent. At present, golf courses and parks utilize treated municipal effluent for irrigation. Although recycled water tends to contain elevated nitrogen concentrations, studies at the University of California at Riverside have indicated that little nitrate moves past the root zone in well managed golf courses (Colorado River RWQCB 2006).

The key concerns regarding the quality of recycled water for the IRWM Region are: potential percolation of recycled water with elevated nitrogen concentrations; timing of peak flows; regulatory conflicts associated with recycled water use; and high costs and large energy requirements.

Issues regarding quality of recycled water can be found below.

Recycled Water Quality Issues	
Topic	**Issue Statement**
Matching Quality to Use	Local sources need to be considered, including recycling and stormwater harvesting. Large irrigators (agriculture and golf courses) may be supplied recycled water from municipal effluent, desalinated agricultural drainage water, or untreated Canal water.[1]
Timing of Peak Flows	Wastewater flows in the region peak during winter during high-tourism months. Recycled water demands, however, peak during summer, when the precipitation is low and heat is high. Agencies are using percolation ponds for seasonal groundwater storage; percolation will be reduced as recycled water customer bases develop in the future.[2]
Regulatory Conflicts	Regulatory conflicts regarding recycled water use have arisen between DWR and CDPH. While DWR promotes and encourages the use of recycled water, the CDPH restricts the use of recycled water due to perceived health concerns. [3]
Costs	Planning and implementing a recycled water system, including treatment plant upgrades to tertiary and distribution system expansions, involves high costs and large energy requirements.[4]

1. IWA IWRDP - Phase 1 White Paper; CVWD 2002 WMP; CWA 2006 WMP Update; IWA 2007 WMP
2. CVWD 2005 UWMP; MSWD 2007 WRFS
3. Communication with CVRWMG 2010.
4. MSWD 2005 UWMP; MSWD 2007 WRFS

Stormwater

Contamination of drinking water wells from agricultural and urban stormwater runoff is a concern for the Coachella Valley IRWM region (CVWD 2002). Stormwater pollution can pose a serious health risk to people due to pesticides, bacteria, and chemicals being picked up as water drains from streets, parking lots, and lawns and enters the WRSC untreated.

Issues related to stormwater quality are detailed below.

Stormwater Quality Issues

Topic	Issue Statement
CVSC Water Quality	CVSC, which drains to the Salton Sea, is listed on the 303(d) List of Water Quality Impaired Segments for pathogens and toxaphene from illegal discharges and animals. A Total Maximum Daily Load (TMDL) is being developed for bacterial indicators in the CVSC. Specifically, the TMDL regulates discharges from the County and City of Coachella. [1]
Stormwater Quality	Salton Sea is listed on the 303(d) List of Water Quality Impaired Segments for nutrients, salinity, and selenium, due primarily to agricultural drainage. Changes in stormwater flows to the Salton Sea may have both positive and negative impacts in regards to this list. [2]

1. DWR 2009 Colorado River Regional Report; RWQCB WMI; RWQCB 303(d) List; RCFCWCD 2008 Whitewater Watershed Benefit Assessment
2. RWQCB 303(d) List

3.1.6 Flood Management

CVWD's regional flood control systems consist of a series of debris basins, levees, and stormwater channels that divert floodwaters from the canyons and alluvial fans surrounding the Coachella Valley to the WRSC. Coachella provides local drainage control via a system of storm drains, retention basins and dry wells, some of which discharge to CVWD's regional flood control system. City of Indio/IWA local drainage control is via a system of storm drains, retention basins, and dry wells.

Some areas are subject to alluvial-fan flash flooding from the surrounding mountain ranges and severe flooding has been frequently recorded beginning as early as 1825 (County of Riverside 2000). The WRSC and its tributary channels protect the Valley cities from Palm Springs to Coachella from flooding. However, there are still several areas of the Coachella Valley IRWM Region that lack flood control facilities and are vulnerable to devastating alluvial and riverine flooding (see **Figure 3-6**).

The current lack of flood control in the East Valley makes development cost-prohibitive. In the City of Desert Hot Springs, alluvial flooding issues coupled with MSHCP requirements make development very difficult. As there appears to be a relationship between flood control and the ability to accommodate housing growth, the need for affordable housing may drive allowances for affordable housing to be built in regions lacking proper flood control.



Areas Lacking Flood Control

Figure 3-6

- Colorado River Aqueduct
- Coachella and All American Canals
- Whitewater River Stormwater Channel
- River or Creek
- Interstate Hwys.
- Lakes
- Dry Lakes
- Coachella Valley IRWM Region
- Colorado River Funding Area
- County Lines
- FEMA High Risk Flood Zone
- CVRWMG-Identified Flood Vulnerable Area

Source: CVRWMG 2009;
IWA IWRDA - Phase I White Paper

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COACHELLA VALLEY IRWMP

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Date Updated: Nov 2010
Made By: DNF
Department: RMC Water & Environment

Issues concerning flood management are detailed below.

Flood Management Issues	
Topic	**Issue Statement**
Alluvial and Riverine Flooding	Much of the Coachella Valley has not been mapped by FEMA, yet is subject to alluvial and riverine flooding. [1]
Alluvial and Riverine Flooding	Several areas lack flood control facilities and are vulnerable to devastating alluvial and riverine flooding. From Avenue 52 to Salton Sea, the WRSC lacks bank stabilization and is in a levee condition meaning that the estimated surface elevation of Standard Project Flood is higher than the elevation of adjacent properties. [2]
1. CVRWMG 2009; IWA IWRDA - Phase I White Paper	
2. CVRWMG 2009; IWA IWRDA - Phase I White Paper	

3.1.7 Natural Resources

Key issues concerning the Coachella Valley IRWM Region's water-related natural resources are addressed in this section.

Habitat Conservation

The Coachella Valley IRWM Region may support populations of sensitive species such as migratory birds and endangered desert pupfish listed by California and the federal government. At the north end of the Salton Sea, the CVSWC provides important sheltering, nesting, and feeding resources for migratory and resident waterfowl.

Key water-related natural resource issues for the Coachella Valley include the need for permanent water availability for native flora and fauna; and preserving, restoring, and managing its water-related natural resources. Issues related to Coachella Valley's water-related natural resources are detailed below.

Coachella Valley Natural Resource Issues	
Topic	**Issue Statement**
Water Availability	Lowering the water table (increasing the depth to groundwater) can significantly affect water availability to mesquite plants.[1]
Water Availability	A permanent water source for permanent riparian habitat is needed for the California black rail, Yuma clapper rail, and riparian bird species in the Coachella Valley Stormwater Channel and Delta Conservation Area. Changes in flow to the Sea may impact this habitat.[1]
Water Availability	A permanent water source for desert pupfish habitat is needed in the agricultural drains and flood control channels.[1]
Habitat Restoration	Mesquite and Coachella Valley round-tailed ground squirrel habitat restoration may be needed on CVWD land in the East Indio Hills Conservation Area.[1]
1. CVAG 2007 MSHCP Executive Summary	

Salton Sea

Although the Salton Sea is not within the Coachella Valley IRWM region, local stakeholders acknowledge that runoff from the Valley's storm drains ultimately discharge to the Salton Sea and can impact its wetlands resources.

The Salton Sea is the largest lake in California and has served as a recreational attraction, avian refuge and is a great source of biodiversity. The northern end of the Salton Sea has been described as a freshwater marsh that provides nesting areas, shelters, and feeding resources for migratory waterfowl, including federally listed endangered species. However, the Salton Sea has no natural outlet other than evaporation. Salinity has been steadily increasing due to the lack of discharge; water evaporation thus leaves behind high concentrations of salt.

To ensure continued restoration and protection of wildlife dependent on the Salton Sea ecosystem, three pieces of legislation (Senate Bill 277, Senate Bill 317, and Senate Bill 654) were signed by Governor Schwarzenegger in September 2003, committing the state to a restoration path for the Salton Sea, establishing a Restoration Advisory Committee, and providing limited relief from California's Fully Protected Species Act. By October 2003, the Quantification Settlement Agreement (QSA) had been signed by local, state and federal agencies.

Water-related natural resource issues are listed below.

Salton Sea Issues	
Topic	**Issue Statement**
Salton Sea	Freshwater marshes and wetlands of Salton Sea face rising salinity due to evaporation. Preservation of these water sources and the quality of their water is critical to the survival and propagation of numerous wildlife species. [1]
1. DWR 2009 Colorado River Regional Report Draft; RWQCB WMI	

3.1.8 Issues Groups

Basic provisions of quality groundwater supply and wastewater services are needed to support basic quality of life, health, and safety needs for the two currently defined Issues Groups: DACs and Native American tribes.

Disadvantaged Communities

As described in *Chapter 2, Region Description*, the basis of the disadvantaged communities' characterization in most IRWM plans is U.S. Census maps on income level. The State of California defines a DAC as a community with an annual median household income (MHI) that is less than 80% of the Statewide MHI. Mapping at the Census tract scale was done using 2000 Census data. Data from the 2006-2008 American Community Survey demonstrates that the Statewide MHI was $61,654, and DACs are considered those who earned less than $48,923. Using these standards, portions of six of the nine cities in the Coachella Valley IRWM Region would qualify as DACs: Cathedral City, Coachella, Desert Hot Springs, Indio, Palm Desert, and Palm Springs. Figure 5-2 (in *Chapter 5, Stakeholder Involvement*) provides a map of DACs in the Coachella Valley using 2000 Census data.

Updated data from the 2010 Nielsen Update Demographics model for 2010 demonstrates that that the Statewide MHI was $62,401, and DACs are considered those who earned less than $49,921. Using these standards, all nine cities in the Coachella Valley IRWM Region contain neighborhoods that would qualify as DACs. Use of this Nielsen Update Demographics data shows that eight unincorporated communities also qualify as DACs: Desert Edge, North Shore, Mecca, Oasis, Sky Valley, Thermal, Thousand Palms, and Vista Santa Rosa. Figure 5-3 (in *Chapter 5, Stakeholder Involvement*) provides a map of DACs using 2010 Nielsen Claritas data).

Affordability of water and wastewater is a key issue for DACs. As described in *Chapter 2 Region Description, Section 2.5.2 Groundwater Quality*, DAC and Tribe reports suggest that arsenic levels

exceed MCL drinking water standards in localized areas. This issue is complicated by other issues such as affordable housing; for instance, there are many unpermitted mobile home parks in the East Valley that do not receive the required water system monitoring, and provide housing to residents that cannot afford necessary treatment and testing procedures on their own. The Riverside County DEH, Economic Development Agency (EDA), and CVRWMG partners need to be involved in these issues. Additionally, DAC communities within the East Valley report a lack of adequate wastewater infrastructure. The East Valley communities are located within the service area of CVWD; that agency's long-term water supply planning will address the desire for these communities to potentially connect to CVWD's drinking water and wastewater systems.

Furthermore, poor groundwater quality in the hot water aquifer has the potential to have adverse economic impacts on the hot water resources in the West Valley's Desert Edge community. Comprised of senior residents on fixed incomes, many of these small DACs desire to convert local septic systems to municipal sewer in order to ensure that water quality of the hot water resources is maintained. The County of Riverside and CVRWMG partners also need to be involved in these issues.

DAC water supplies must be affordable, accessible, and in compliance with state and federal requirements in order to meet the needs of both East and West Valley residents.

Water-related issues concerning DACs in the Coachella Valley are detailed below.

DAC Water-Related Issues

Topic	Issue Statement
Affordability	Addressing DAC water-related issues without increasing rates.[1]
Connection to the Sewer System	The need for septic to sewer conversion is great, but jurisdictional issues or high costs may delay or prohibit project construction.[1]
Water Supply	Other groundwater sources, such as wells above the perched aquifer, hot water basin wells, and agricultural wells, are not suitable for drinking. In places where wells are contaminated, other water sources such as hauled water can be scarce or entirely inaccessible.[1]
Water Supply	Many DACs are not within urban areas, making water supply even more difficult. One example is concentrated communities of farm workers in rural areas. Rural water treatment systems (point of source or other new technologies) and training are needed in these rural/remote areas.[1]
Flooding and Stormwater	Flooding and storm water management improvements are needed to address flooding hazards in DAC areas, particularly in unincorporated communities. [2]

1. CVRWMG DAC meeting - May 20, 2010
2. 2007 DAC Community Planning Group Notes; CVRWMG DAC meeting - May 20, 2010

Tribal Lands

Many of the issues faced by DACs are also faced by tribes, namely the lack of adequate water and wastewater infrastructure and the high costs associated with improving it. There is a lack of basic water and wastewater infrastructure on some tribal lands in the East Valley. For instance, private sewer facilities are undersized or inadequate in low percolation areas.

The tribes share the CVGB, using groundwater wells where municipal water is not available. Like other Valley users, the tribes are also concerned about regional water issues such as groundwater supply and

quality. Groundwater quality in some areas is unsuitable for certain uses. Testing at mobile home parks on tribal lands has found arsenic concentrations of 60-70 ppm compared to the 10 ppm MCL. Due to water quality issues, some tribes rely on bottled water for drinking water supply. There is also concern about increasing TDS concentrations due to recharge activities.

Resource management for sustainability is important to tribes. For example, in the Whitewater River channel on the Twenty-Nine Palms Reservation, flood control channel operations and maintenance activities could potentially impact native plant species or habitats that are culturally important to the tribes. There are also culturally-significant water resources on tribal lands. Tribes wish for these resources to be recognized in the IRWM Plan.

Detailed descriptions of issues concerning tribal reservations in the Coachella Valley are detailed below.

Tribal Water-Related Issues

Topic	Issue Statement
Water and Wastewater Infrastructure	There is a lack of basic water and wastewater infrastructure on some tribal lands in the East Valley. For instance, private sewer facilities are undersized or inadequate in low percolation areas.[1]
Recycled Water	Further expansion of recycled water systems has provided water supplies to tribal development authorities for use on golf courses and other non-potable uses.[2]
Water Quality	Testing at mobile home parks showed arsenic concentrations of 60-70 ppm compared to the 10 ppm MCL. Some tribes are using bottled water for basin water supply.[1]

1. CVRWMG Tribe meeting - May 20, 2010
2. DWA Board Minutes - December 25, 2009

3.1.9 Summary of Water Management Issues

As with other regions throughout the State, the Coachella Valley IRWM Region is facing a variety of water-related issues that can be addressed through the IRWM planning process. Issues identified in this chapter range from the need to secure additional imported water supplies to the quantity and quality of local groundwater to lack of regional flood control.

Table 3-1 below provides a preliminary evaluation and summary of the top 12 categories of key water management issues in the Coachella Valley.

Table 3-1: Summary of Significant Water Management Issues in Coachella Valley

#	Category	Key Issues
1	Reliability of Water Supply	Regional population projections include continued growth, equating to water demand increases. Municipal demands are expected to increase at a faster rate than agricultural demands primarily due to population growth.
2	Groundwater Levels	Basin pumping exceeds total recharge by more than 100,000 AFY on average. Pumping needs to be brought into balance through increased recharge, source substitution, and conservation. Failure to achieve this balance could lead to continued water level declines, water quality degradation, and land subsidence, which can result in loss of groundwater storage and impacts on infrastructure.
3	Imported Water Supply	SWP supplies are less reliable due to Statewide drought conditions and environmental constraints (which have led to reduced pumping) in the Delta. Colorado River supplies are vulnerable due to the prolonged Colorado River Basin drought and recent litigation which could impact the stability of the 2003 QSA.
4	Local Supply Opportunities	Local sources need to be considered, including recycling and stormwater harvesting. Large irrigators (agriculture and golf courses) may be supplied recycled water from municipal effluent, desalinated agricultural drainage water, or untreated Canal water. Challenges associated with cost-effectively linking recycled water supply to customers (i.e., strategic location of treatment facilities), possibly through inter-agency partnerships.
5	Groundwater Quality	The salinity of Colorado River water is higher than the salinity of SWP water, recycled water, and some groundwater. Therefore, use of Colorado River water for recharge and irrigation may result in the addition of salt to the basin. SWP water contains more total organic carbon and bromide than Colorado River water (both of which are precursors for creating disinfection byproducts). Long term recharge with SWP supplies could contaminate groundwater quality. Although the Coachella Valley Groundwater Basin has had historically high water quality, regional groundwater quality is potentially at risk for increased salinity and nitrates. Individual domestic septic tanks and leach fields, fertilizer application, and wastewater percolation ponds are likely sources of natural organic contaminants. Several small private water systems in mobile home parks in East Valley exceed the MCLs for arsenic. Dependable arsenic removal systems are needed.
6	Surface Water Quality	CVSC, which drains to the Salton Sea, is listed on the 303(d) List of Water Quality Impaired Segments for pathogens and toxaphene from illegal discharges and animals.
7	Local Environment	A permanent water source for permanent riparian habitat is needed for the California black rail, Yuma clapper rail, and riparian bird species in the Coachella Valley Stormwater Channel and Delta Conservation Area. Changes in flow to the Sea may impact this habitat.
8	Flood Risks	Several areas lack flood control facilities and are vulnerable to devastating alluvial and riverine flooding. From Avenue 52 to Salton Sea, the WRSC lacks bank stabilization and is in a levee condition meaning that the estimated surface elevation of Standard Project Flood is higher than the elevation of adjacent properties.

Table 3-1: Summary of Significant Water Management Issues in Coachella Valley

#	Category	Key Issues
9	Conjunctive Use	Potential increases in conjunctive use, to the degree that recharge and source substitution are increased more than net outflow, could lead to a solution to overdraft-related problems facing the basin. Key issues that must be addressed include completion of the SWP aqueduct extension and amount of this additional recharge water, its cost, its reliability, and its quality.
10	Water-Related Needs Of Native Americans	There is a lack of basic water and wastewater infrastructure on some tribal lands in the East Valley. For instance, private sewer facilities are undersized or inadequate in low percolation areas.
11	Water-Related Needs Of Disadvantaged Communities	Many DACs are not within urban areas, making water supply even more difficult. One example is farm workers in rural areas. Rural water treatment systems (point of source or other new technologies) and training are needed in these rural/remote areas. The need for septic to sewer conversion is great, but DACs worry that jurisdictional issues or high costs may delay or prohibit project construction.
12	Affordability Of Water	Cost related to continued overdraft could include: reduced groundwater storage capacity; increased power consumption due to increased pumping lifts; repair and replacement of damaged infrastructure; and additional water treatment requirements due to decreases in water quality. Planning and implementing a recycled water system, including treatment plant upgrades to tertiary and distribution system expansions, involves high costs and large energy requirements.

3.2 Technical Analysis

*This section addresses with **Technical Analysis Standard** by documenting that the IRWM Plan is based on sound technical information, analyses, and methods.*

This section identifies the scientific and technical analysis used in development of the Coachella Valley IRWM Plan. Published documents such as regional plans, studies, and technical reports were reviewed, experts were consulted, and meetings with various interest groups were held to understand the short term and long-range needs of the Coachella Valley.

The documents referenced in *Chapter 2, Region Description*, *Chapter 3, Issues and Needs*, and *Chapter 10, References* of the Coachella Valley IRWM Plan were reviewed by the CVRWMG and the consulting team (RMC and IPM, Inc). As a partnership of the five Coachella Valley water purveyors, the CVRWMG includes a wide variety of water professionals with different water-related backgrounds. The variety of backgrounds of the CVRWMG members and the consulting team allowed the information to be evaluated, analyzed, and interpreted from many different perspectives.

To better understand the water management needs of the Coachella Valley, the CVRWMG also held meetings with various interest groups, which are described in further detail in *Chapter 5, Stakeholder Involvement*:

- Coachella Valley Planning Partners are a group formed at the request of the CVRWMG consisting of representatives from public and non-profit entities that have an interest in water resources of the Region. The Planning Partners support the CVRWMG by reviewing and contributing to draft issues identification, goals and objectives, project prioritization criteria, long-term governance, implementation framework, and other Plan deliverables.
- Disadvantaged Community representatives within the Coachella Valley; DAC representatives were also invited to become Planning Partners. These meetings allowed the CVRWMG to understand the critical water supply/water quality issues and needs of the DACs; and to identify potential solutions.
- The Valley's tribal governments, Bureau of Indian Affairs, and other tribal coordinating agencies were contacted to better understand their critical water resources issues and needs. The CVRWMG learned more about the major water-related concerns facing the tribes such that the long-term implementation of the IRWM Plan was responsive to those needs.
- Other Coachella Valley stakeholders were also identified. These meetings consisted of individual community members concerned with water resources, and representatives from various community groups that are concerned about water resources. The CVRWMG gathered input from the stakeholders about the community priorities and water related concerns.

The information gathered from the pertinent literature, water resource experts, and various interest groups was compiled and analyzed by the CVRWMG and the consulting team to determine the water management needs of the Coachella Valley. This work focused on identifying the key water resource goals and objectives of the Plan area (see *Chapter 4, Objectives*). The CVRWMG and its consulting team then used the information to prepare the Coachella Valley IRWM Plan.

3.2.1 Technical Information

The IRWM Plan goals were determined through review of pertinent literature, and consultation of various experts and interest groups. The CVRWMG undertook an extensive review of regional plans, studies, and technical reports to identify water management issues facing the Coachella Valley. Each section of the above *Section 3.1, Coachella Valley Issues and Needs* contains a summary of issues statement and pertinent literature used to derive the issues statement. This summary provides a snapshot of the studies, models, and other technical methodologies used to analyze the technical information and data sets.

Information was obtained from a broad range of sources, including: CVWD, CWA, DWA, MSWD, IWA, CVAG, DWR, RCAC, Poder Popular, RCFCWCD, County of Riverside, Colorado River RWQCB, and the Desert Recreation District. Plans and reports included: water management plans, water quality reports, engineer's reports, habitat conservation plans, general plans, groundwater replenishment reports, master plans, feasibility studies, system assessments, storm water management plans, and trails studies. *Chapter 10, References* provides a comprehensive list of the resources used to develop this IRWM Plan. Use of these technical resources is appropriate for development of the IRWM Plan, because it represents historic, current, and projected conditions for all service providers within the Valley.







4 Objectives

*This chapter addresses the **Objectives Standard** and establishes which regional conflicts and water management issues the IRWM Plan is designed to address.*

This section identifies the goals and objectives of the IRWM Plan and establishes planning targets that can be used to gauge our success in meeting the objectives for the Coachella Valley IRWM region.

4.1 Goals and Objectives

This section presents the IRWM Plan intent, goals, and objectives, and then explains the collaborative process and tools used to establish objectives.

When the CVRWMG established the Coachella Valley IRWM program in September 2008, CVRWMG members articulated the following overall intent:

"3.1.1 This MOU is to memorialize the intent of the Partners to coordinate and share information concerning water supply planning programs and projects and other information, and to improve and maintain overall communication among the Partners involved. It is anticipated that coordination and information sharing among the Partners will assist the agencies in achieving their respective missions to the overall well-being of the region." (see **Appendix E**).

Through input and discussion by the CVRWMG, Planning Partners, and other stakeholders, five regional goals were established for this IRWM Plan.

IRWM Plan Goals

1. Optimize water supply reliability,
2. Protect or improve water quality,
3. Provide stewardship of water-related natural resources,
4. Coordinate and integrate water resource management, and
5. Ensure cultural, social, and economic sustainability of water in the Coachella Valley.

Through a series of facilitated public workshops and meetings, the CVRWMG, Planning Partners, and stakeholders developed thirteen specific IRWM Plan objectives to accomplish the five broad IRWM Plan goals. Detailed descriptions of each of the objectives are presented in the following sections along with the rationale for development and inclusion of each objective.

IRWM Plan Objectives

A. Provide reliable water supply for residential and commercial, agricultural community, and tourism needs.
B. Manage groundwater levels to reduce overdraft, manage perched water, and minimize subsidence.
C. Secure reliable imported water supply, including restoring/improving reliability of State Water Project supply and securing other imported water supplies.
D. Maximize local supply opportunities, including water conservation, water recycling and source substitution, and capture and infiltration of runoff.
E. Protect groundwater quality and improve, where feasible.
F. Preserve and improve surface water quality by maintaining integrity of agricultural drainage systems, protecting the quality of natural runoff used for potable supply, and reducing pollution in stormwater runoff.
G. Preserve the water-related local environment and restore, where feasible.
H. Manage flood risks, including current acute needs and needs for future development.
I. Optimize conjunctive use of available water resources.
J. Maximize stakeholder involvement and stewardship in water resource management.
K. Address water-related needs of local Native American culture.
L. Address water and sanitation needs of disadvantaged communities, including those in remote areas.
M. Maintain affordability of water.

4.1.1 Determining Objectives

The process for developing objectives for the Coachella Valley IRWM Plan was based on a succession of public workshops and meetings. The CVRWMG, Planning Partners, and stakeholders all participated in a series of facilitated brainstorming sessions on the water management issues facing the region. All of this information is synthesized in *Chapter 3, Issues and Need.* Specifically, a summary of significant water management issues facing the Coachella Valley IRWM Region can be found in Table 3-1.

The IRWM plan goals and objectives are developed based on the major issues identified during the CVRWMG, Planning Partners, and stakeholder meetings. Five issue groups were created to identify, discuss, and prioritize the various water resource issues in the Coachella Valley (see notes from June 2010 public workshop in **Appendix A**). These groups consisted of:

- Water Supply/Conservation Issue Group
- Groundwater Issue Group
- Wastewater/Recycled Water Issue Group
- Stormwater/Flood Management Issue Group
- Natural Resources Issue Group

Based on identified water resource issues, the goals and objectives were established for the IRWM program. Each of the objectives addresses multiple issues raised by the region's stakeholders and is consistent with CWC §1054(c).

Objective 1 Provide reliable water supply for residential and commercial, agricultural community, and tourism needs.

The focus of this objective is to meet the requirements of Goal 1 (optimize local water supply reliability). The Valley's 448,000 residents and $576M agricultural economy are both dependant on a reliable water supply. Additionally, regional growth forecasts project that water demands within the region are expected to increase despite conservation efforts (see Figure 3-1 in *Chapter 3 Issues and Needs, Section 3.1 Demand*). Adequate water supplies must be identified for all sectors of the Valley economy, including residential and commercial, agricultural, and tourism needs. Emphasizing local solutions that increase reliability would potentially reduce future additional demand for imported water supply from the Sacramento-San Joaquin Delta by encouraging development of other, more reliable sources of water.

Objective 2 Manage groundwater levels to reduce overdraft, manage perched water, and minimize subsidence.

The focus of this objective is to meet the requirements of Goal 1 (optimize local water supply reliability). Pumping of the Coachella Valley Groundwater Basin currently exceeds total recharge by more than 100,000 AFY on average. Groundwater levels must be managed in order to curb land subsidence and associated permanent loss of groundwater storage capacity. Further, groundwater overdraft exacerbates salinity issues associated with Salton Sea and perched water intrusion. As groundwater is the Valley's primary water supply source, it is essential that the Valley's water managers work together to manage regional groundwater conditions.

Objective 3 Secure reliable imported water supply, including restoring/improving reliability of State Water Project supply and securing other imported water supplies.

The focus of this objective is to meet the requirements of Goal 1 (optimize local water supply reliability). As documented in the *California Water Plan 2009 Update* (DWR 2009), water allocation, environmental, and hydrologic constraints present significant challenges to the sustainability of historic State Water Project and Colorado River supplies, particularly during long-term droughts. In order to serve projected growth while limiting groundwater overdraft, new or expanded imported water supplies must be secured for the Coachella Valley. This objective aims at securing reliable (non-SWP) imported water supplies and/or encouraging the Region to engage in water transfers that would potentially reduce Sacramento-San Joaquin Delta dependence. For example, collaboration with coastal water purveyors could potentially provide a new source of ocean desalinated water and reduce the region's future dependence on SWP supplies.

Objective 4 Maximize local supply opportunities, including water conservation, water recycling and source substitution, and capture and infiltration of runoff.

The focus of this objective is to meet the requirements of Goal 1 (optimize local water supply reliability). Diversification of regional water portfolios is a key element of this IRWM Plan. Water conservation (reducing water demand and use) is the Valley's most cost effective option and is therefore a central component of the region's diversification program. In order to meet the State's 20x2020 Water Conservation Plan (February 2010) goals for the Colorado River Funding Area – which include 285 gpcd baseline (1995-2005), 237 gpcd interim target (2015), and 188 gpcd target (2020) – all five local water purveyors are implementing water conservation measures. The CVRWMG agencies are also focusing on expansion of recycled water systems, source substitution, desalination of agricultural drain water, and stormwater capture and reuse. Maximizing local supply opportunities is the primary climate change adaptation strategy being employed by the CVRWMG. Source substitution will also help the CVRWMG

mitigate potential climate change by reducing energy consumption, especially the energy embedded in water use, and ultimately reduce GHG emissions. Increasing local supply opportunities would also potentially reduce the need for future additional imported water supply from the Sacramento-San Joaquin Delta.

Objective 5 Protect groundwater quality and improve, where feasible.

The focus of this objective is to meet the requirements of Goal 2 (protect water quality). Groundwater quality has historically been of high enough quality to meet all federal drinking water standards without treatment. However, emerging issues include nitrates leaching from septic systems that are failing or above recommended densities, high arsenic levels in the East Valley, and possible salt loading from various agricultural and recharge applications. The salinity of Colorado River water is higher than the salinity of SWP water, recycled water, and some groundwater. Compliance with Basin Plan groundwater quality objectives (taste and odors, bacterial indicators, chemical and physical quality, brines, and radioactivity) is vital for maintaining existing beneficial uses. As the Valley's primary water supply source, it is essential that the Valley's water managers work together to manage regional groundwater quality.

Objective 6 Preserve and improve surface water quality by maintaining integrity of agricultural drainage systems, protecting the quality of natural runoff used for potable supply, and reducing pollution in stormwater runoff.

The focus of this objective is to meet the requirements of Goal 2 (protect water quality). Multiple surface water quality issues challenge the Valley's water managers, including the salinity of agricultural drainage, sedimentation and erosion of natural waterways, and non-point source pollution in stormwater runoff. Although existing regulatory programs control pollutants through a broad range of point and non-point source programs, poor water quality conditions in some areas still challenge the region's water managers. Compliance with Basin Plan surface water quality objectives (aesthetics, tainting substances, toxicity, temperature, pH, dissolved oxygen, suspended solids, TDS, bacteria, biostimulatory substances, sediment, turbidity, radioactivity, chemical constituents, and pesticide wastes) is vital for maintaining existing beneficial uses. As documented in *Section 2, Region Description*, the CVSC does not currently attain water quality standards related to pathogens and toxaphene. Protection of the region's surface water bodies is critical to both meeting future water demands and maintaining functioning ecosystems.

Objective 7 Preserve the water-related local environment and restore, where feasible.

The focus of this objective is to meet the requirements of Goal 3 (provide stewardship of our water-related natural resources). The Coachella Valley features important desert and riparian habitats, and discharges all stormwater runoff into the biologically-rich Salton Sea. Native habitats may be subject to impacts or stress from invasive species, water quality degradation, or groundwater overdraft. Ecosystem protection and restoration activities should focus on the riparian habitats along the Coachella Valley Stormwater Channel.

Objective 8 Manage flood risks, including current acute needs and needs for future development.

The focus of this objective is to meet the requirements of Goal 3 (provide stewardship of our water-related natural resources). Several areas in the Valley currently lack flood control facilities and are vulnerable to devastating alluvial and riverine flooding. Current regulations demand that new

developments mitigate their incremental increase in surface runoff and provide retention basins where necessary. Despite these regulations, future growth and development throughout the Valley may increase the volume and duration of stormwater runoff due to the increased amount of impermeable surfaces, which may exacerbate flood risks in undeveloped areas. Floodplain management is particularly critical as it relates to the ability of the Region to adapt to possible climate change impacts associated with storm frequency and intensity.

Objective 9 Optimize conjunctive use of available water resources.

The focus of this objective is to meet the requirements of Goal 4 (coordinate and integrate water resource management). Conjunctive use involves closer coordination between imported surface water supply and other supply sources, including groundwater, recycled water, stormwater, and flood flows. Optimizing conjunctive use will contribute to meeting future water demands, while combating challenges associated with supply unreliability and/or climate change. Optimizing conjunctive use will also contribute to possible climate change adaptation by more efficiently managing water supply and, therefore, reducing associated energy use and GHG emissions. In addition, by improving efficiency through conjunctive use, the Region could potentially reduce future additional demand for imported water from the Sacramento-San Joaquin Delta.

Objective 10 Maximize stakeholder involvement and stewardship in water resource management.

The focus of this objective is to meet the requirements of Goal 4 (coordinate and integrate water resource management). The CVRWMG seeks to establish a stakeholder-driven process for water resources management and this objective encourages that paradigm throughout individual IRWM projects. Maximizing stakeholder involvement and stewardship is essential to Plan implementation because it provides a forum for addressing stakeholder concerns and ensuring regional support for proposed solutions. Public education and outreach at community events, public workshops, and school-based educational programs are necessary in order to promote awareness and support for management of the Valley's water resources.

Objective 11 Address water-related needs of local Native American culture.

The focus of this objective is to meet the requirements of Goal 5 (ensure cultural, social, and economic sustainability of water in Coachella Valley). As described in *Chapter 3 Issues and Needs, Section 3.1.8 Issues Groups*, key issues on tribal lands include lack of adequate water and wastewater infrastructure, particularly in East Valley areas. The Valley's tribes are also concerned with protection of culturally-significant native plant species and habitats, as well as culturally-significant water resources on tribal lands.

Objective 12 Address water and sanitation needs of disadvantaged communities, including those in remote areas.

The focus of this objective is to meet the requirements of Goal 5 (ensure cultural, social, and economic sustainability of water in Coachella Valley). As described in *Chapter 3 Issues and Needs, Section 3.1.8 Issues Groups*, affordability of water supply and wastewater treatment are key issues for DACs. Further, groundwater quality in some areas, such as wells in the perched aquifer, hot water basin wells, and agricultural wells, are not suitable for drinking.

Objective 13 Maintain affordability of water.

The focus of this objective is to meet the requirements of Goal 5 (ensure cultural, social, and economic sustainability of water in Coachella Valley). Water affordability is a concern for all Valley residents, and has been noted as a key concern of DACs and tribes, namely in terms of the capital costs associated with extension of municipal services to remote areas. Further, the Valley's water purveyors struggle with the costs associated with implementing recycled water systems and infrastructure repair and replacement. Although provision of high quality water supply is expensive, the CVRWMG seeks to maintain affordability of water for Valley residents.

4.1.2 Describing the Process

A collaborative process was used to determine the Coachella Valley IRWM Plan goals and objectives. The process of identifying and developing regional goals and objectives involved the following steps:

- Compiling a preliminary set of water resource issues based on regional plans, studies, and technical reports;
- Refining and clarifying the region's water resource issues through a series of facilitated public workshops and meetings;
- Translating the various water resource issues identified by stakeholders into a set of goals and objectives that achieve consensus; and
- Revising the regional goals and objectives based on stakeholder input and feedback.

The CVRWMG undertook an extensive review of regional plans, studies, and technical reports to identify the preliminary set of water resource issues. Information was obtained from a broad range of sources, including CVWD, CWA, DWA, MSWD, IWA, CVAG, DWR, RCAC, Poder Popular, RCFCWCD, County of Riverside, Colorado River RWQCB, and Desert Recreation District. Plans and reports included water management plans, water quality reports, engineer's reports, habitat conservation plans, general plans, groundwater replenishment reports, master plans, feasibility studies, systems assessments, stormwater management plans, and trails studies. *Chapter 10, References* provides a comprehensive list of the resources used to develop this IRWM Plan.

Following completion of the preliminary issues identification, a series of facilitates public workshops and meetings were held to gather further information on key water resource issues from stakeholders. A wide range of stakeholders were gathered in several different meetings to discuss and clarify the issues important to them:

- Planning Partners, including city, county, and regulatory representatives
- Targeted outreach to disadvantaged community representatives
- Targeted outreach to tribal representatives
- Public workshop attended by broad range of stakeholders

Following a thorough vetting of the region's water resource issues, the CVRWMG developed a draft list of goals and objectives for stakeholder consideration. These draft goals and objectives were intended to capture and address all of the many issues raised by stakeholder throughout the issue identification phase. The draft goals objectives were discussed and revised in multiple forums:

- Planning Partners, including city, county, and regulatory representatives
- Targeted outreach to disadvantaged community representatives

- Targeted outreach to tribal representatives
- Public workshop attended by broad range of stakeholders

Following revisions based on all comments received, a final list of goals and objectives were included in the project database, on the www.cvrwmg.org website, and in this IRWM Plan.

4.1.3 Goals, Objectives, and the Planning Hierarchy

This IRWM Plan is intended to optimize water supply reliability, protect water quality, provide stewardship of water-related natural resources, coordinate water resource management, and ensure the cultural and social sustainability of water in the Coachella Valley. To meet these broad goals, thirteen objectives were developed through a collaborative stakeholder process. With input from the Planning Partners, the CVRWMG has also identified measurable targets for each objective in **Table 4-1**. The targets and measurements listed in this table will be revisited through IRWM planning updates and revisions. At that time, the CVRWMG will establish a uniform set of metrics for measuring IRWM Plan effectiveness.

The measurable targets for each IRWM Plan objective provide a way to assess each proposed project's contribution to the regional goals and objectives established by the Valley's stakeholders. The targets are presented for purposes of measuring the region's collective attainment of the IRWM Plan objectives.

Through a public stakeholder process, the CVRWMG and Planning Partners developed these targets to measure the region's progress during Plan implementation (see *Chapter 9, Framework for Implementation*). On an annual basis, the CVRWMG will evaluate the status of each IRWM project and develop a summary of implementation progress for stakeholder review. By reporting each project's contribution to the measurable targets, the Annual Reports will provide the region with an understanding of how the Valley's water management issues and needs are being addressed each year. Projects which are undergoing planning, engineering, and construction will be updated to provide a comprehensive picture of their progress. For more information on monitoring efforts, see *Chapter 9, Framework for Implementation Section 9.4 Plan Performance and Monitoring.*

Table 4-1: Coachella Valley IRWM Plan Goals, Objectives, and Targets

Goals	Objectives	Qualitative and Quantitative Targets/Measurements
1. Optimize water supply reliability.	A. Provide reliable water supply for residential and commercial, agricultural community, and tourism needs.	• Provide average year, single-year dry, and multi-year dry supplies to meet projected demand
	B. Manage groundwater levels to reduce overdraft, manage perched water, and minimize subsidence.	• Stabilize groundwater levels at or near current groundwater levels • Limit further subsidence due to groundwater overdraft to an acceptable level in Palm Desert, Indian Wells, and La Quinta
	C. Secure reliable imported water supply, including restoring/improving reliability of State Water Project supply and securing other imported water supplies.	• Secure 40,000 AFY new imported water supply • Contribute to restoring/improving reliability of State Water Project supply
	D. Maximize local supply opportunities, including water conservation, water recycling and source substitution, and capture and infiltration of runoff.	• Achieve compliance with SB7x7 for conservation savings • Maximize recycled water use to 90% of available supplies AFY Expand stormwater capture and infiltration over current levels • Establish Canal water desalination capacity of 11,000 AFY
2. Protect or improve water quality.	E. Protect groundwater quality and improve, where feasible.	• Maintain West Valley groundwater quality at or above current conditions when economically feasible • Reduce the arsenic concentration in East Valley drinking water • Convert 2 percent per year of existing septic systems that are failing or identified as degrading water quality to municipal sewer • Reduce the frequency and volume of sanitary sewer overflows • Develop and implement a regional Salt and Nutrient Management Plan Strategy in accordance with the State's Recycled Water Policy
	F. Preserve and improve surface water quality by maintaining integrity of agricultural drainage systems, protecting the quality of natural runoff used for potable supply, and reducing pollution in stormwater runoff.	• Implement TMDL requirements according to adopted schedules • Preserve natural runoff in Chino Creek, Snow Creek, and Falls Creek for drinking water needs

Goals	Objectives	Qualitative and Quantitative Targets/Measurements
3. Provide stewardship of our water-related natural resources.	G. Preserve local environment and restore, where feasible.	• Conserve or protect native water-related habitats • Provide restoration consistent with the CVMSHCP
	H. Manage flood risks, including current acute needs and needs for future development.	• Provide flood protection to existing properties where benefits exceed costs • Develop new flood control facilities in conjunction with new development
4. Coordinate and integrate water resource management.	I. Optimize conjunctive use of available water resources.	• Implement projects coordinating management of surface and groundwater resources consistent with the CVWMP
	J. Maximize stakeholder involvement and stewardship in water resource management.	• Develop CVRWMG website to provide centralized access to water resources data • Conduct outreach and education on water resources topics/projects to the Valley population through conservation programs • Provide "hands-on" water resources stewardship opportunities to the Valley population through conservation programs
5. Ensure cultural, social, and economic sustainability of water in the Valley.	K. Address water-related needs of local Native American culture.	• Address Native American needs through ongoing communication with local tribes • Support protection of culturally-significant resources on tribal lands
	L. Address water and sanitation needs of disadvantaged communities, including those in remote areas.	• Address DAC needs through ongoing communication with an increasing number of organizations and participants. • Improve well conditions in DACs to meet drinking water standards, where feasible • Convert 50% or more septic systems that are failing or degrading water quality in DACs to municipal sewer
	M. Maintain affordability of water.	• Manage rate increases to $/AF • Maintain average cost to income ratio at current levels

4.2 Prioritizing Objectives

This section contains an explanation of how IRWM Plan objectives are grouped together as a priority for implementation.

Through facilitated meetings to discuss project prioritization, the CVRWMG, Planning Partners, and stakeholders have determined that the following regional goals and objectives are priorities for implementation in the Coachella Valley:

- Optimizes Water Supply Reliability (Goal 1, including Objectives A-D)
- Protects or Improves Water Quality (Goal 2, including Objective E-F)
- Manages Flood Risks (Objective H)
- Optimizes Conjunctive Use of Surface and Groundwater Supplies (Objective I)
- Directly Benefits Disadvantaged Communities (Objective L)

Because of the broad range of stakeholders involved in the planning process – from water suppliers and wastewater agencies, to land use planners and regional flood managers, to conservation organizations and DACs representatives – no specific numerical priority could be placed on the priorities. Different stakeholders in the IRWM planning process place priority on different issues and needs. However, through a consensus-based stakeholder process, the region's participants have determined that the nine identified objectives are key priorities for near-term Plan implementation. As such, those objectives are granted more weight in the project prioritization process discussed in *Chapter 7, Project Evaluation and Prioritization.*

Of primary importance to the Coachella Valley IRWM Plan is the concept of integration, which involves addressing water supply, water quality, flood control, and ecosystem challenges through multi-benefit project solutions. Projects and programs which are able to address multiple Valley issues through the combination of resource management strategies and/or partnerships are given priority weighting (see detailed discussion in *Chapter 7, Project Evaluation and Prioritization*). Single-objective projects, in contrast, that may address a critical water management needs are re-designed to seek greater integration with other regional efforts.







5 Stakeholder Involvement

*This chapter addresses the **Stakeholder Involvement Standard**, which ensures that the CVRWMG gives the opportunity to all stakeholders to actively participate in the IRWM decision making process on an on-going basis. This chapter also addresses the **Governance Standard**, which describes the structures and procedures that govern Plan decision making and result in Plan longevity.*

As discussed within *Chapter 1, Introduction*, the IRWM program is led by the CVRWMG with primary support from an advisory board known as the Planning Partners. Because the Coachella Valley is an emerging IRWM region, the CVRWMG has many options for ensuring that stakeholders are identified and provided the opportunity to participate. No structures are in place that would create a barrier to participation; therefore, nothing has to be deconstructed and each procedure, process, or structure that is put in place can be evaluated for its effectiveness at being inclusive and providing transparency. A review of the CVRWMG governance structure will show that the process for stakeholder participation is rooted in broad-based community input through key processes:

- Stakeholders focus on a variety of water resource issues are invited to participate, as evidenced by the broad reach of the stakeholder list (**Table 5-6** at end of chapter);
- Stakeholders are drawn from outside the water community, to include environmental, recreational, development, and land use representatives; and
- Stakeholders have wide regional distribution in their geographic reach.

The intent of the CVRWMG is to establish processes that will achieve a collaborative, multi-stakeholder result so that regional solutions address concerns of DACs, tribes, the environmental community, and other key stakeholders. Some of the processes that CVRWMG will employ to promote collaboration and access include:

- Stakeholders participate in identifying regional water issues and then are free to participate in more focused Issues Groups, according to their interests;
- Within each of the Issues Groups, diverse and divergent views are heard as the Groups frame and articulate issues; and
- A representative from each of the Issues Groups participated in the Planning Partners to consider and scope the final issues, goals, and objectives of this IRWM Plan.

5.1 Formation of Regional Water Management Group

This section describes how the CVRWMG was selected.

In the past, the regional water management of Coachella Valley was done by DWA and CVWD without much participation/input from other Coachella Valley water purveyors. The initial interest in producing an IRWM Plan for the Coachella Valley came from MSWD seeking to qualify for Proposition 50 grant money to fund its septic-to-sewer conversion project. In 2004 and 2005, MSWD, DWA, and CVWD began discussions on the need of an integrated approach to water resources planning and an IRWM Plan. However, litigation between the regional agencies, questions regarding the need for an IRWM Plan, and concerns of added government level involvement to the Region's water management efforts delayed the IRWM process.

By 2006, the general managers of CVWD, DWA, and MSWD, along with representatives of the City of Indio/IWA and the City of Coachella/CWA, began bi-monthly meetings in which regional water issues were discussed. This provided a forum for discussions on the Valley's interest and willingness to participate in an IRWM Plan. As a result, in early 2008, the group agreed to a study on IRWM governance, which was funded by CVWD. In February 2008, the five Coachella Valley water purveyors held their first IRWM meeting to develop an MOU (see **Appendix E** of this IRWM Plan).

On September 9, 2008 the five Coachella Valley water purveyors formed the CVRWMG through the adoption of a MOU that established procedures to collaborate and develop an IRWM Plan. Each of the five water purveyors indicated their individual intent to adopt the IRWMP by signing the MOU. The MOU outlines the purpose and goals for the development of the Coachella Valley IRWM Plan, identifies common issues and interests, establishes communication and coordination between the partners, and provides other general provisions. The MOU, as well as the formalization of the Coachella Valley as an approved region through the 2009 RAP, qualify the CVRWMG as a RWMG in accordance with CWC §10539.

5.2 Stakeholder Composition

This section contains a listing of the stakeholders participating in the planning effort as documentation that the CVRWMG is a collaborative effort with participation from varied stakeholders.

As a first step toward achieving inclusiveness in the IRWM program, the CVRWMG held an exploratory meeting with other water resource agencies on April 9, 2009. The four agencies invited to meet were the County of Riverside (CEO office), RCFCWCD, VSD, and the City of Palm Springs. As a result of the meeting, the CVRWMG identified areas of mutual interests and opportunities for collaboration. They include developing multipurpose projects in which RCFCWCD can play a role, as well as obtaining input from all agencies to create a more robust IRWM Plan. From this preliminary meeting, the CVRWMG established the Planning Partners to function as an advisory committee for the IRWM program.

The Coachella Valley IRWM region recognized the importance of including other entities in the IRWM planning process. As a result, they have reached out to engage the broad range of organizations or agencies described in the section above.

5.2.1 Stakeholder Coordination

The goal of the stakeholder coordination effort is to provide a means for the region's various entities with interests and/or authority over water management in the region to maintain an active level of involvement in the IRWM program and implementation of the IRWM Plan. These entities have a vested interest in local water resources and can assist in articulating the needs of the Region during the planning phase, as well as implementing projects during implementation phases. These are also the entities with the greatest potential to oppose the IRWM planning effort if not engaged. Opposition to the IRWM Plan by entities with water management authority could present a significant obstacle to IRWM Plan implementation if these groups are not given ample opportunity to participate and engage in the planning effort.

The goal of public involvement is to increase awareness, understanding, and support for the Coachella Valley IRWM planning effort among the general public. The benefits of keeping the general public informed of the IRWM program and subsequent IRWM Plan implementation include educating constituents and politicians about the importance and interrelation of water management strategies, increasing regional as well as local support for projects, and generating broad-based support for continued regional coordination.

5.2.2 Participants

All interested stakeholders and members of the general public are invited to maintain coordination with the CVRWMG and the subsequent long-term institutional structure. Individuals representing the following groups have been identified as potential stakeholders:

- State, county and municipal governments
- Community councils
- Environmental conservation and natural resources organizations
- Resource agencies and special interest groups
- Flood control districts
- Farm Bureau and agricultural interests
- Academic institutions
- Regional planning organization
- Stormwater management agencies
- Wastewater and water agencies
- School districts
- Private pumpers and large landscape irrigators
- Disadvantaged and environmental justice communities
- Elected officials
- Tribes
- Recreational interests
- Regulatory agencies
- Desert Valleys Builders Association

Interested members of the general public may include:

- Private homeowners
- Landscape architects and contractors
- Chambers of commerce
- Commercial, industrial, and residential developers
- Home owners associations
- Garden clubs and organizations
- Rotary clubs and other service clubs

Table 5-6 (at the end of this chapter) lists of all Coachella Valley IRWM region stakeholders. All stakeholders identified by the CVRWMG and Planning Partners have been contacted and invited to participate in the program. All other meeting attendees can be viewed in meeting minute notes located in **Appendix A**.

5.2.3 Involving Stakeholders in IRWM Planning

This section contains a discussion regarding how the stakeholders necessary to meet plan objectives are either involved in plan activities or are being invited to participate in plan activities.

CVRWMG believes that public access is critical to the success of the IRWM process and outlines below its approach to ensure an open and transparent process. The CVRWMG will take a strategic approach to public outreach using the following tactics:

- Develop an initial public outreach plan that can be executed by any combination of agency staff or consultants (see **Appendix C**).
- Determine best management practices for the dissemination of information for public review and for public input (e.g. print media, agency public information personnel, email and website).
- Make suggestions for establishing public meetings or reformatting of current meeting schedules to allow for public participation.
- Refine the timeline for the IRWM process in such a way that appropriate dates for notification of public meetings, workshops, sub-committee meeting, etc. can be documented and addressed in a logical and orderly manner.
- Apprise the members at each meeting, and sooner if necessary, as to the issues and needs for supporting public outreach.

The public is notified of meetings and given specific contact information, and participants are given sufficient time to prepare. The first opportunity for the public to attend IRWM program meetings was concurrent with the RAP application in October 2009; the second opportunity was during the IRWM Plan development process in June 2010; the third was for public comment on the Draft IRWM Plan in November 2010. The CVRWMG expects that as the process evolves, the process of soliciting the input, help and support of the public will also evolve.

Workshops are the core of stakeholder and public participation. Initial stakeholder workshops were aimed at formulation of interest groups for more specific development of concepts and funding proposals. The public workshops and Issues Groups are organized to help guide the actions and policies of the CVRWMG and support continuous development of the proposed IRWM Plan. The CVRWMG recognizes the need and importance of public participation and will work diligently to make sure that not only the public is listened to, but that it's valuable advice helps create the best IRWM process possible for the region.

5.3 Structure and Organization

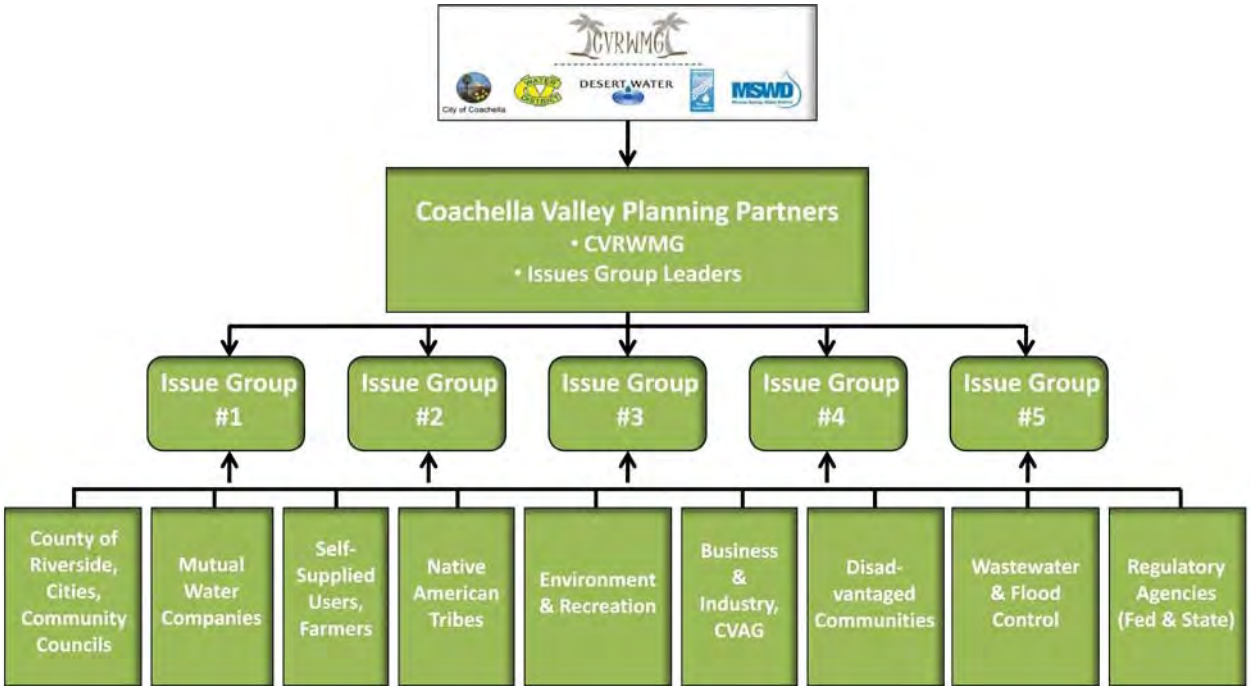
This section contains a description of the chosen governance structure, including committees or groups that support Plan development and implementation.

After the adoption of the CVRWMG MOU (see **Appendix E**), the Region Acceptance Process (RAP) document was submitted to DWR in April 2009. The structure and organization for the Coachella Valley IRWM program was first developed in the RAP. The RAP was accomplished through a collaborative, consensus-seeking process using facilitation services that formalized the CVRWMG's fiduciary responsibility and authority for the IRWM planning process. It established the governance structure – a collaborative, consensus-seeking process made up of the CVRWMG, Planning Partners, Issues Groups, and stakeholders – under which the Coachella Valley IRWM program is now managed.

The current governance structure for the Coachella Valley IRWM program allows for effective collaboration for updating and implementing the IRWM Plan. It allows for the participation of all interested parties in IRWM planning activities; however, all final decisions are made by consensus of the CVRWMG partners. Since the approval of the RAP, the Planning Partners have evolved into a cohesive group of stakeholders representing agencies and groups throughout the Coachella Valley. Development meetings held in May 2010 identified the need to work directly and separately with two Issues Groups: Native American Tribes and DAC representatives. These two Issues Groups have been meeting since the initiation of the Plan. In the future, new issue groups will be developed both as requested by the stakeholders and in response to the needs of the IRWM Plan.

The regional decision-making process – undertaken by the CVRWMG, the Planning Partners, the Issues Groups, and other stakeholders – involves reaching consensus on fundamental IRWM program goals and activities. **Figure 5-1** illustrates the region's organizational structure.

Figure 5-1: Organization Chart



5.3.1 Group Membership and Participation

This section describes how the CVRWMG, Planning Partners, Issues Groups, and stakeholders have been involved in IRWM Plan development and implementation. **Table 5-1** outlines the roles and responsibilities of the various stakeholders involved in the IRWM program. All stakeholders can contribute to development and implementation of the IRWM Plan regardless of their ability to contribute financially.

Table 5-1: Summary of Roles and Responsibilities

Issue or Action	Roles for Each Group			
	CVRWMG Agency	Planning Partners	Issues Groups	Stakeholders*
Goals and Objectives	Primary	Recommend	Advisory	Participation
Issues and Needs	Participation	Participation	Participation	Participation
Plan Development	Primary	Primary	Advisory	Participation
Project Development	Participation	Participation	Participation	Participation
Project Selection	Primary Approval	Advisory/ Recommend	Inform and Review	Inform and Review
Plan Approval/Adoption**	Primary Approval	Advisory/ Recommend		
Business and Fiduciary Decisions	Primary Approval			

Notes:
Primary/Approval: Fiduciary responsibility and authority for approval
Advisory/Recommend: Review, participate, provide advice, and recommend
Participation: Participate and provide information
Informational: awareness, become informed and participate where needed
*The general public has informational roles wherever the stakeholders are involved.
** Adoption is required for CVRWMG agencies but optional for Planning Partners unless they have project selected for implementation grant applications.

Table 5-2 provides an overview of the meeting structure and frequency for each of the various stakeholders in the IRWM program. Frequency of meetings corresponds to the roles and responsibilities outlined above for each group.

Table 5-2: Meeting Structure Summary

Meetings	Frequency	Purpose
CVRWMG Business Meetings	Monthly	Provide direction, financial resources, and final approval over IRWM program activities.
Planning Partners	Quarterly	Provide guidance and recommendations for IRWM program activities.
Issues Groups	Quarterly	Provide information and recommendations for specific IRWM topics.
Public Workshops	IRWM milestones	Provide feedback and information at key IRWM milestones.

CVRWMG

The CVRWMG members consist of the five water purveyors of the region that are further described in the *Chapter 1, Introduction (Section 1.2, Regional Water Management Group)*: CWA, CVWD, DWA, IWA, and MSWD. The CVRWMG is responsible for providing direction, financial resources, and final approval over the Coachella Valley IRWM program.

Financial decision-making authority and fiduciary responsibility rest with the CVRWMG agencies' governing bodies. These governing bodies are publicly elected or appointed boards or councils, who are therefore held accountable to their electing constituents. IRWM program decisions result from a consensus of the five members of the CVRWMG through the advice and recommendations of the Planning Partners and a full stakeholder participation process.

Leadership and Term

The role of the CVRWMG is to provide direction, financial resources, and final approval of the IRWM Plan. The CVRWMG functions as a collaborative and all IRWM program decisions result from consensus of the five members, through a stakeholder participation process where all five members have equal power. As such, there is no chair of the CVRWMG or term of office.

The CVRWMG has generally asked their consulting team to facilitate and chair meetings. However, the location of the meetings rotates among the participating agencies and, when needed, the local host may function as chair. Each agency may send several representatives to participate in CVRWMG meetings; however, each agency will participate as a unit in consensus building. If a CVRWMG member is unable to attend a meeting, the member must designate an alternate in his/her place and participate in all discussions and report back to other agency representatives. The CVRWMG may establish subcommittees to address particular issues or tasks.

When approved in business meetings or by other means, official actions that do not require approval by the CVRWMG agency governing boards are transmitted under letter signed by all five partners.

Plan Development and Outreach

The role of the CVRWMG is primarily to develop the IRWM Plan. CVRWMG provides funding and support for the Plan, as well as providing information to the consultants assisting with development of the Plan. The CVRWMG's involvement in this IRWM planning process is critical, as the service areas of the CVRWMG agencies cover a vast majority of the IRWM planning area in the Coachella Valley. As such, several of the CVRWMG agencies are the primary authors of sections of the IRWM Plan.

CVRWMG members also have primary authority over implementation of the IRWM program. A CVRWMG member will submit IRWM Grant Program planning and implementation grant applications on behalf of the group, and will administer awarded grant funding to the selected projects. The CVRWMG and its governing boards have the ultimate responsibility for the overall program and for ensuring that all appropriate stakeholders and Issues Groups participate and contingent upon available funding.

CVRWMG Business Meetings

The CVRWMG will generally have monthly business meetings as necessary for the purpose of directing the consulting team and coordinating amongst each other.

Meeting Description and Content*:* The agenda for the meeting will set the business to be conducted, but will generally include the CVRWMG organization, management of the IRWM program and other purposes identified in Sections 3 and 4 of the CVRWMG MOU (see **Appendix E**). The meeting will be the opportunity for the CVRWMG to provide direction to the consulting team working on the IRWM Plan and related efforts.

Audience: Because the meeting content will be technical and detailed in nature, consistent participation is required in order to maintain momentum and effectively contribute to the discussions.

***Attendees**:* CVRWMG Partner agencies, as indicated in the MOU, shall have a representative at each meeting (see **Appendix E**). Other attendees may be recommended by one or more CVRWMG Partners but may only attend upon consensus of all CVRWMG Partners. Business meetings are not public meetings therefore attendees are CVRWMG Partners, consulting team members and/or approved invited guests.

***Documentation**:* Materials and approved notes of the CVRWMG business meetings may contain confidential information and are not public documents. Elements of the materials and summaries of actions may be prepared for public information, including publication to www.cvrwmg.org.

Planning Partners

One of the first steps in soliciting public involvement was to establish a list of key stakeholders that can serve in an advisory capacity. Planning Partners include the County of Riverside, Coachella Valley cities, special districts, public agencies, non-governmental organizations, and tribes. Planning Partners have participation from Issues Group Leaders and other representatives from stakeholder groups throughout the Valley with the approval of the CVRWMG. Representatives for the Planning Partners were self-selected by the Issues Groups to allow for interaction and feedback from the Issues Groups.

The Planning Partners played a valuable role in shaping key elements of the IRWM Plan, such as helping to establish goals and objectives, developing prioritization criteria for projects, reviewing and weighing in on draft IRWM Plan chapters, and implementing Plan activities. An advisory group's membership may be changed from time to time by the CVRWMG, as appropriate for ongoing management of the IRWM program. The goal of the Planning Partners is balanced membership and participation from representatives of all significant water resource issue areas in the Valley. **Table 5-3** provides a list of the Planning Partners.

The Planning Partners are expected to meet on a quarterly basis as necessary to provide recommendations on IRWM planning and funding application activities. At a minimum, meetings would be held during key program milestones, including project solicitation and prioritization and development of the IRWM Plan Update. Meetings may be held at variable times of day as needed and in different geographic locations within the Region. As appropriate, meetings would be located near disadvantaged areas to facilitate attendance by members of the local public.

Outreach would involve announcing and posting agendas, summaries, handouts and presentations of the advisory group meetings on the Coachella Valley IRWM website. Additionally, all meetings and materials would be announced to the Coachella Valley IRWM stakeholder email distribution list.

Letters indicating support of this IRWM Plan from the Planning Partners are available in **Appendix F**.

Leadership and Term

The Planning Partners currently do not have chairperson(s); rather the consulting team facilitates and chairs meetings. If the group determines that chairperson(s) are warranted, Planning Partners co-chairs will be appointed by CVRWMG, with the consensus of the Planning Partners. One co-chair shall be a member of the CVRWMG and the other shall be a representative of non-CVRWMG partners. The co-chairs may serve terms of one to two years, or the duration of the IRWM Update.

Table 5-3: Coachella Valley Planning Partners

No.	Agency / Organization
CVRWMG	
1	City of Coachella / Coachella Water Authority
2	City of Indio / Indio Water Authority
3	Coachella Valley Water District
4	Desert Water Agency
5	Mission Springs Water District
Planning Partners	
1	Agua Caliente Band of Cahuilla Indians
2	Augustine Band of Cahuilla Indians
3	Cabazon Band of Mission Indians
4	California Rural Legal Assistance Foundation
5	City of Cathedral City
6	City of Desert Hot Springs
7	City of Indian Wells
8	City of La Quinta
9	City of Palm Desert
10	City of Palm Springs
11	City of Rancho Mirage
12	Coachella Valley Association of Governments
13	Coachella Valley Economic Partnership
14	Colorado River Regional Water Quality Control Board
15	County of Riverside
16	Desert Alliance for Community Empowerment
17	Friends of the Desert Mountains
18	Morongo Band of Mission Indians
19	Myoma Dunes Mutual Water Company
20	Poder Popular
21	Representative from Assemblymember Perez
22	Representative from Supervisor Ashley
23	Representative from Supervisor Benoit
24	Riverside County Flood Control and Water Conservation District
25	Salton Community Services District
26	Torres-Martinez Desert Cahuilla Indians
27	Twenty-Nine Palms Band of Mission Indians
28	U.S. Bureau of Indian Affairs
29	Valley Sanitary District

Plan Development and Outreach

The Planning Partners are the primary advisory group for development of the IRWM Plan. They are involved with all facets of Plan development and implementation. They comprise many of the project submissions and are therefore essential to implementation of the Plan. Planning Partners also provide support for public outreach efforts. The public who may wish to participate in the IRWM planning process may contact their city and district representatives of the Planning Partners, and may interact with any member of the Planning Partners that they wish.

Planning Partners Coordination Meetings

The CVRWMG may also have frequent Planning Partners meetings which may or may not occur on the same day as business meetings or public workshops.

***Meeting Description and Content**:* The agenda for the Planning Partners meeting will be set by the content for the development of the IRWM Plan and the needed materials, information, feedback and recommendations from the Planning Partners and Issues Groups Leaders. IRWM Plan content includes advice, issue identification and characterization, goal and objective development, project development and integration and plan documentation which will be the primary meeting content. These meetings will be the primary opportunity for the Planning Partners and CVRWMG to provide in-kind contributions and assistance to the development of the IRWM Plan and related efforts. Planning Partners would assist the development of draft materials and feedback prior to the broader stakeholder group and would require more significant time commitment than stakeholder participation.

***Audience**:* Meeting content will be somewhat technical and detailed in nature and will benefit from consistent attendance for best results.

***Attendees**:* Members of the CVRWMG agencies, consultant team, Planning Partner agencies and organizations, DAC Partners, Tribal Partner staff and Issues Groups Leaders will attend this meeting. Planning Partners include the County of Riverside, CVRWM Area Cities, DAC representatives, Tribal staff and other invited water-related organizations. Attendees may shift as the topics and content of the meeting changes but CVRWMG, Planning Partners and Issues Group Leaders shall have representatives at each meeting. Other attendees may be recommended by one or more Planning Partner or Issues Groups Leader but may only attend upon CVRWMG approval. This is not a public meeting.

***Documentation**:* Materials and work products from the Planning Partners should not contain confidential information and will be made available to the public. Meeting preparation may include meeting notices and invitations, development and distribution of presentations, and meeting handouts and minutes. All materials, presentations, and notes of the Planning Partners will be made available on the website: www.cvrwmg.org.

Issues Groups

Participation in Issues Groups is open to any stakeholder who consistently participates. The Issues Groups may select their co-chairs or defer to the consulting team for leadership.

Native American Tribes Issues Group – The Native American Tribes Issues Group has been active and brings specific issues of cultural water use and special needs related to sovereign tribes in the region. Like other Valley users, the tribes are also concerned about regional water issues such as groundwater supply and quality. Tribal principals, as well as representatives the U.S. Bureau of Indian Affairs, were included. **Table 5-4** indicates the principal participants who are represented in meetings.

Table 5-4: Native American Tribes Issues Group Participants

Contact Person	Division/Title	Organization
Richard M. Milanovich	Chairman	Agua Caliente Band of Cahuilla Indians
Mary Ann Green	Chairwoman	Augustine Band of Mission Indians
John James	Chairman	Cabazon Band of Mission Indians
Robert Martin	Chairman	Morongo Band of Mission Indians
Mary L. Resvaloso	Chairperson	Torres-Martinez Desert Cahuilla Indians
Dean Mike	Chairman	Twenty-Nine Palms Band of Mission Indians
Kim Schneider	Palm Springs Agency	Bureau of Indian Affairs
Robert Eben	Superintendant Southern California Agency	Bureau of Indian Affairs
Dale Morris	Pacific Region, Regional Director	Bureau of Indian Affairs

Tribal representatives are also included as Planning Partners for the development of the Plan. Separate Tribal group meetings will be held as needed to facilitate their participation and ensure their issues are appropriately reflected during Plan implementation.

Disadvantaged Community Issues Group – DAC needs and issues were identified as special and different than other groups at the initiation of planning efforts. The DAC Issues Group and meetings began in May 2010. **Table 5-5** indicates the principal participants who are represented in meetings.

Table 5-5: DAC Issues Group Participants

Name	Organization
Anna Lisa Vargas	Poder Popular
Betty Leehan	Desert Edge Community Council
Cindy Nance	Desert Edge Community Council
Debbie Davis	Environmental Justice Coalition for Water
Ed Houser	Desert Edge Community Council
Elanor Dullen	Desert Edge Community Council
Jeff Hays	Desert Alliance for Community Empowerment
Jennifer Clary	Clean Water Action
Jennifer Hernandez	California Rural Legal Assistance Foundation
Jose Huerta	Poder Popular
Laurel Firestone	Community Water Center
Martha Guzman Aceves	California Rural Legal Assistance Foundation
Megan Beaman Carlson	California Rural Legal Assistance Foundation
Miriam Torres	Environmental Justice Coalition for Water
Rita Sonnenberg	Desert Edge Community Council
Sergio Carranza	Pueblo Unido CDC
Yvonna Cazares	Environmental Justice Coalition for Water

Several DAC representatives were also invited to the Planning Partners to support Plan development. DAC Issues Group meetings will continue to be held as needed to assist the DACs in project development and Plan implementation. The CVRWMG has been awarded a contract for services from DWR to explore and extend DAC outreach opportunities associated with the IRWM program.

Other Issues Groups – The RAP presented many other issue areas which may be important to the stakeholders shown in the organizational chart. Additional groups will be formed on an ad-hoc basis to address regional water management issues.

Leadership and Term

The Issues Groups currently do not have chairperson(s); rather the consulting team facilitates and chairs meetings. If the group determines that chairperson(s) are warranted, Issues Groups co-chairs will be appointed by CVRWMG, with the consensus of the Issues Groups. The Issues Groups co-chairs may be selected from any member who is capable of participating in the Planning Partners meetings. Issues Group co-chairs term of office may be one to two years, or the duration of the IRWM Update.

Plan Development and Outreach

Issues Group members and co-chairs are important to the development of issues and project solutions for the IRWM Plan. They are also valuable in establishing regional objectives and reviewing and providing comments on the IRWM Plan. Issues Group co-chairs may assist with outreach in their issue area to the public and other issue groups.

Issues Group Meetings

The Issues Group meetings may or may not occur on the same day as CVRWMG business meetings, Planning Parts meetings, or public workshops.

Meeting Description and Content: The agenda for the Issue Group meeting will be set by the content for the development of the IRWM Plan and the needed materials, information, feedback and recommendations from the Planning Partners and Issues Group Leaders. IRWM plan content includes advice, issue identification and characterization, goal and objective development, project development and integration and plan documentation which will be the primary meeting content. These meetings will be the primary opportunity for the Issues Group and CVRWMG to provide in-kind contributions and assistance to the development of the IRWM Plan and related efforts. Issues Group would assist the development of draft materials and feedback prior to the broader stakeholder group and would require more significant time commitment than stakeholder participation.

Audience: Meeting content will be somewhat technical and may be detailed in nature and will benefit from consistent attendance for best results. Meeting content will be modified for public or new members and may review some prior steps.

Attendees: Members of the CVRWMG agencies, consultant team, and Issue Group members will attend these meetings. Two Issues Groups currently meet, DAC and Tribal partners. Attendees may shift as the topics and content of the meeting changes but CVRWMG will have representatives at each meeting. Other attendees may be recommended by Planning Partners or Issues Groups Leader but may only attend upon CVRWMG approval. Issues Groups meeting agenda may vary depending on the issue and development of the group. Issues Groups meeting will generally be public meetings. Issues Groups members will have specialized knowledge about the subject matter of the group.

Documentation: Materials and work products from the Issues Groups should not contain confidential information and will be made available to the public. Meeting preparation may include meeting notices and invitations, development and distribution of presentations, and meeting handouts and minutes. All materials, presentations, and notes of the Issues Groups will be made available on the website: www.cvrwmg.org.

Stakeholders

Any member of the public who has an investment in or concern with integrated regional water management is a stakeholder. No leadership or term of office is specified for stakeholders.

The core of general public participation and communication will be through public workshops. Through these workshops, the CVRWMG and Planning Partners can solicit input and support from the public. The public is also welcome to attend public workshops that are aimed at formulating Issues Groups that develop concept and funding proposals. These workshops and subcommittees are structured to help guide the actions and policies of the CVRWMG and support development of the IRWM Plan.

Public Workshops

Public workshops may or may not occur on the same day as business meetings or Planning Partner meetings. Workshop topics could include water cost management, groundwater, water quality, water conservation, habitat conservation, and stormwater/flood management. Public workshops may be held at variable times of day as needed and in different geographic locations within the Region. As appropriate, meetings will be located near disadvantaged areas to facilitate attendance by members of the local public.

Two Public Workshops were conducted to enable stakeholders and the general public to help guide the actions and policies of the CVRWMG, as well as support the development of this IRWM Plan. An initial goal of the Public Workshops was to break out into Issues Groups for more specific identification and confirmation of the critical water resources issues in the Valley. The Issues Groups may be reconvened as needed to support development of project concepts and funding proposals.

Meeting Description and Content: The agenda for the Stakeholder Outreach Meetings will be the topical IRWM Plan content and information that is ready for public exposure, comment and feedback. IRWM Plan content issues and decisions will be presented and comments and feedback requested and a variety of formats may be used. This meeting will be the primary opportunity for the public and agencies or groups that do not participate in the Planning Partners to provide advice, comment and feedback on the IRWM Plan and related efforts.

Audience*:* Meeting content will be developed for public presentation and be presented in the most nontechnical manner possible. These meetings will review prior steps and will not rely on consistent participation.

Attendees*:* Members of the CVRWMG agencies, Planning Partners and Issues Groups Leaders will attend in addition to the general public and agencies or groups that do not participate in the other meetings but are interested in the IRWM process or issues to be included in the plan.

Documentation*:* Workshop preparation will include public meeting notices and invitations, development and distribution of public workshop presentations, meeting handouts and minutes, distribution of comment/feedback questionnaires, and compilation and summarization of public responses obtained during the workshops. All materials, presentations, and notes of the public workshops will be made available on the website: www.cvrwmg.org.

5.4 Effective Decision-Making

This section describes how decisions are made at the regional level and how decisions are made within the CVRWMG.

The regional decision-making process – undertaken by the CVRWMG, the Planning Partners, the Issues Groups, and other stakeholders – involves reaching consensus on fundamental IRWM program goals and activities. **Figure 5-1** (above) illustrates the region's organizational structure.

The CVRWMG's approach to decision-making with respect to the development and implementation of the IRWM Plan includes a high level of involvement by the Planning Partners, Issues Groups, and stakeholders. A range of issues is identified in a process that includes a broad variety of stakeholders. The stakeholders then participate in a smaller number of Issues Groups to clarify and formalize issues and opportunities. The chairperson of each Issues Group participates in the Planning Partners, which also includes the CVRWMG partners and any consultants that may be needed. The Planning Partners are tasked with development and implementation of the IRWM Plan, with the CVRWMG providing direction, financial resources, and final approval of the draft plan. The CVRWMG may convene additional subcommittees to address technical, legal, financial, or public outreach issues, as needed.

The CVRWMG, Planning partners, and Issues Groups used a consensus-seeking protocol for decision-making for Plan development and expect to continue with that approach to make key decisions, such as:

- Establishing IRWM Plan goals and objectives;
- Prioritizing projects for inclusion in the Plan and grant applications;
- Financing CVRWMG and IRWM program activities;
- Implementing Plan activities;
- Making future Plan revisions; and
- Hiring and managing consultants.

The CVRWMG expects the combination of a consensus-seeking decision style and broad-based stakeholder participation to be reflected in the regional goals and objectives as comprehensive regional collaboration.

5.4.1 CVRWMG Decision Making Process

The decision making process outlined in the CVRWMG Groundrules is based on the principles of consensus. The CVRWMG Groundrules are part of the RAP, and they help to define the governance structure, purpose, and decision making process for the Group. Decisions by the CVRWMG are made based on agreement among all the participants. To build consensus, an effort is made to meet the interests of all participating CVRWMG members. In addition, if members reach consensus on some but not all of the issues under discussion, they can only go forward with recommendations on the agreed-upon issues. For issues that still remain, members may agree upon a statement that delineates the areas of disagreement, and propose a process for the resolution of these differences in the future.

CVRWMG members are expected to characterize the concerns and positions of the agency/organization they represent and to support consensus-based recommendations to their respective Boards. The decisions, recommendations, and final work product must be acceptable to every CVRWMG member.

5.5 Balanced Access and Opportunity for Participation

This section describes the manner in which the governance structure ensures a balance of interested persons or entities representing different sectors and interests, and provides them the opportunity to participate, regardless of their ability to contribute financially to the IRWM Plan.

The current governance structure allows for the participation of all interested groups to take part in the development and implementation of the Coachella Valley IRWM Plan. No structures have been created that would bar the participation of those interested in being part of the IRWM process. The CVRWMG has invited participation from all stakeholders identified throughout the Valley. This open representation approach allows for the representation of stakeholders without regard to economic status or other constraints. The governance structure was created to achieve regional solutions that address the concerns of all stakeholders, DACs, tribes, and the environmental community through a collaborative and multi-stakeholder approach. See *Section 5.3.1, Group Membership and Participation* (above) for the specific procedures in place to ensure an equal playing field amongst all stakeholders involved in the Coachella Valley IRWM Plan. The roles, their responsibilities, and time commitment (if any) within the governance structure are also detailed in the above *Section 5.3.1*.

The CVRWMG holds an open invitation for participation to all groups within the region. One area where additional participation is expected is from a diverse group of DAC communities. The CVRWMG members and stakeholders look forward to the DAC Outreach Demonstration Program to better develop region-wide DAC participation.

5.5.1 Outreach Activities

Beyond participation in the numerous outreach and involvement meetings outlined in *Section 5.3.1, Group Membership and Participation*, local stakeholders may become involved in the IRWM program through the following outreach mechanisms.

Website

A Coachella Valley IRWM website was developed – www.cvrwmg.org – as a key component of the regional outreach program. The website contains a wealth of information about the IRWM program, including: explanation of the IRWM program and funding opportunities; issues identification, goals and objectives, and other planning materials; the adopted IRWM Plan; information about potential IRWM projects to be included in Proposition 84 and 1E grant applications; information about the CVRWMG; Planning Partners, and Issues Group meeting agendas, summaries, and presentations; and other helpful links.

Newsletters

Information regarding upcoming meetings may be relayed to the general public via fliers posted at community facilities, city and county office buildings, and announcements published in local newspapers and organizational newsletters. An electronic newsletter may be produced quarterly and at major milestones of the IRWM program, as needed to ensure stakeholders are being engaged.

Press Releases

Local newspapers are encouraged to provide coverage of meetings or to provide updates on the progress of IRWM planning efforts. Media relations provide a credible and economic approach to achieving

widespread dissemination of key project information. Studies show that information presented to the public through a third party, such as the media, is more readily believed by the public, as opposed to advertising or other methods of information coming directly from the source. Primary press outreach will be associated with kickoff and early awareness efforts early in the project. Press releases may be released quarterly and at major milestones of the IRWM program, including an open "Call for Projects" and IRWM Plan approval, but may be issued at other important junctures.

On-Line Project Database

To facilitate communications among planners and project proponents, the CVRWMG has commissioned an on-line project database aimed at providing universal access to information about IRWM projects in the Coachella Valley region. The project database allows project proponents and other interested parties to add, edit, and review project proposals throughout the region. This tool, coupled with the Public Workshops, is intended to connect stakeholders with one another to identify and enhance synergies among projects, hopefully leading to better integration and stronger partnerships. The on-line project database will also enhance CVRWMG efforts to inform the general public about "what is IRWM" through concrete project examples.

Correspondence

An electronic distribution list of stakeholders and interested parties, and any special subgroups, has been developed and maintained. E-mail notices, the primary method of communication, will be sent to announce the availability of new materials on the Coachella Valley IRWM website, meeting minutes, and upcoming meetings.

5.5.2 Effective Communication – Both Internal and External to Region

This section describes the various communications efforts that are fostered by the Coachella Valley IRWM Plan governance structure with the different functional groups within the CVRWMG, stakeholders, neighboring RWMGs, government agencies, and the public.

CVRWMG

The CVRWMGs two-way communication primarily occurs during the scheduled monthly business meetings. Communication with each of the members also occurs through correspondence via telephone, e-mail, and office visits. The CVRWMG communicates to Planning Partners, Issues Groups, and the public through email, at Planning Partner meetings, and public workshops. The CVRWMG also communicates with the public via their website (http://www.cvrwmg.org/) with information pertaining to the IRWM program.

Project Proponents

Potential project proponents were provided information on the "Call for Projects" through email, at Issues Groups meetings, Planning Partner meetings, and at public workshops. The "Call for Projects" was released via the email list serve and information was made available to all potential project proponents. One of the primary means of communication for project proponents is through an online project database. This database was created to facilitate communication among the project proponents, as well as provide universal access to information about the IRWM projects in the Coachella Valley region. Public workshops and DAC specific meetings were held to provide assistance and support for project proponents. The review and integration of proposed projects was done through communication between

stakeholders, Issues Groups, Planning Partners, and the CVRWMG at meetings and all information is available on the website database.

Stakeholders and Public

Primary method of communication for stakeholders and the public is via email, meetings, and public workshops. This enables stakeholders and the public to help guide the actions and policies of the CVRWMG and support the development of the IRWM Plan. Both stakeholders and the public also communicate to the CVRWMG via representation from each of the individual Issues Groups.

Neighboring RWMGs

The CVGB and aquifers of the adjacent IRWM regions, listed in *Chapter 8, Agency Coordination* (see *Section 8.1.2, Neighboring and/or Overlapping IRWM Efforts*), do not have hydraulic connections, therefore planning efforts have remained separate from the Coachella Valley IRWM Plan. For a map of the agencies that may have existing or developing IRWM planning efforts that are adjacent to the Coachella Valley IRWM region, see Figure 8-1.

Since the stakeholders do not overlap and the surrounding planning regions are distinctly separate, the governance structure has not established means of formal communication with the adjacent RWMGs. Neighboring RWMG and IRWM representatives have been invited to attend public meetings and workshops on the Coachella Valley IRWM Plan, and representatives from the Anza Borrego and Mojave regions have attended. Formal discussion with neighboring RWMG is expected to occur in upcoming IRWM Plan Update timeframe. In addition, the ongoing outreach tasks proposed in the *Coachella Valley IRWM Planning Grant Proposal* will enable the CVRWMG to communicate and collaborate with these neighboring IRWM regions.

Government Agencies

State agencies, federal agencies, and NGOs who have an advisory role within the governance structure take part in the development and implementation IRWM process as Planning Partners, Issues Group members, and stakeholders. Government agencies which have direct or significant water-related missions have been invited to participate in the Planning Partners meetings. Local agencies such as the County of Riverside, Riverside County Flood Control and Water Conservation District, Valley Sanitary District, United States Bureau of Indian Affairs, Coachella Valley Association of Governments, and Colorado River RWQCB have an advisory role as part of the Planning Partners.

5.5.3 Open Door Policy

The CVRWMG provides a contact person on the program website and welcomes new stakeholders to contact them; the CVRWMG contact will orient them to the various IRWM processes, encourage them to access information about the IRWM Plan, and inform them how they can participate. The CVRWMG is working with the Issues Groups to ensure that they acknowledge the specialized needs of some participants. These extra efforts may include public meetings along transit access corridors, shifting meeting times so certain stakeholders can attend, or translation services. Further, the CVRWMG is committed to providing IRWM program information to all stakeholders regardless of their access to web-based or e-mail services. The Coachella Valley IRWM Plan is available at CVRWMG agency offices and local public libraries. The CVRWMG is also willing to provide access to material for any stakeholder that requests this information.

5.6 Disadvantaged Communities Outreach

This section defines local disadvantaged communities and describes how they are specifically invited to participate in the IRWM planning and implementation process.

The Coachella Valley has a wide range of disadvantaged communities (DACs) from different demographics, including migrant and seasonal farm workers, very low-income families, urban residents, and low-income seniors. Water management issues that have been identified to date by DAC representatives include arsenic contamination in drinking water supplies, sanitation needs to protect groundwater, health, and safety and, in general, affordability and accessibility of water. The goal of DAC outreach is to identify and obtain input from groups that may be otherwise limited from participating in the IRWM planning and implementation efforts due to financial constraints.

The State of California defines a DAC as a community with an annual median household income (MHI) that is less than 80% of the Statewide MHI. MHI's were estimated through 2000 U.S. Census Bureau data for Coachella Valley census tracts and with 2010 Nielsen Claritas data for census block groups. Census tracts are small, relatively permanent geographic entities within counties delineated by a committee of local data users. Mapping at the Census tract scale is only available using 2000 Census data; the 2010 Nielsen Claritas data was also analyzed to give more current and detailed information regarding the MHI of incorporated cities and unincorporated communities within the Region. According to 2000 Census data, statewide MHI in year 2000 was $47,493 and DACs are considered those who earned less than $37,994. Using 2000 Census tracts, **Figure 5-2** shows the DACs within the Valley using the 2000 U.S. Census data.

Using the 2006-2008 American Community Survey, the Statewide MHI was $61,654 and 80% of the Statewide MHI was $48,923[1]. MHI's for Coachella Valley cities are as follows (* indicates DACs):

- Cathedral City $38,887*
- Coachella $28,590*
- Desert Hot Springs $25,987*
- Indian Wells $93,986
- Indio $34,624*
- La Quinta $54,552
- Palm Desert $48,316*
- Palm Springs $35,973*
- Rancho Mirage $59,826

Using the information above, six of the nine Coachella Valley cities in the region would qualify in their entirety as DACs. In reality, however, the mosaic of DACs is much more complex and is affected by seasonality of crops and hospitality as well as other factors. The region identified a need for more detailed mapping and outreach to be conducted to ensure that significant areas of DACs, including unincorporated and otherwise isolated communities, such as small and unpermitted mobile home communities, are captured.

According to the 2010 Nielsen Update Demographics model, the Statewide MHI for 2010 was $62,401, and DACs are therefore communities with an MHI less than $49,921. Using this information, all nine cities in the Coachella Valley contain pockets of communities that would qualify as DACs. In addition, this dataset shows that the unincorporated communities of Desert Edge, North Shore, Mecca, Oasis, Sky

[1] U.S. Census Bureau, 2006-2008 American Community Survey. American FactFinder: California. http://factfinder.census.gov/home/saff/main.html?_lang=en

Valley, Thermal, Thousand Palms, and Vista Santa Rosa also qualify as DACs. **Figure 5-3** shows DACs at the census block group-level using the 2010 Nielsen Claritas data.

Many communities within the East Valley are dependent on on-site drinking water wells that are reported as having elevated arsenic levels. Moreover, these communities pay relatively high rates for their groundwater supply, and in many instances must travel long distances to purchase alternative bottled water. Lack of transportation creates an additional barrier to purchase of bottled water. Some DAC areas within the Coachella Valley contain remote or difficult to serve areas that are not within the path of development or close to municipal services for water and wastewater service. These communities have special difficulties in affordability of water-related services.

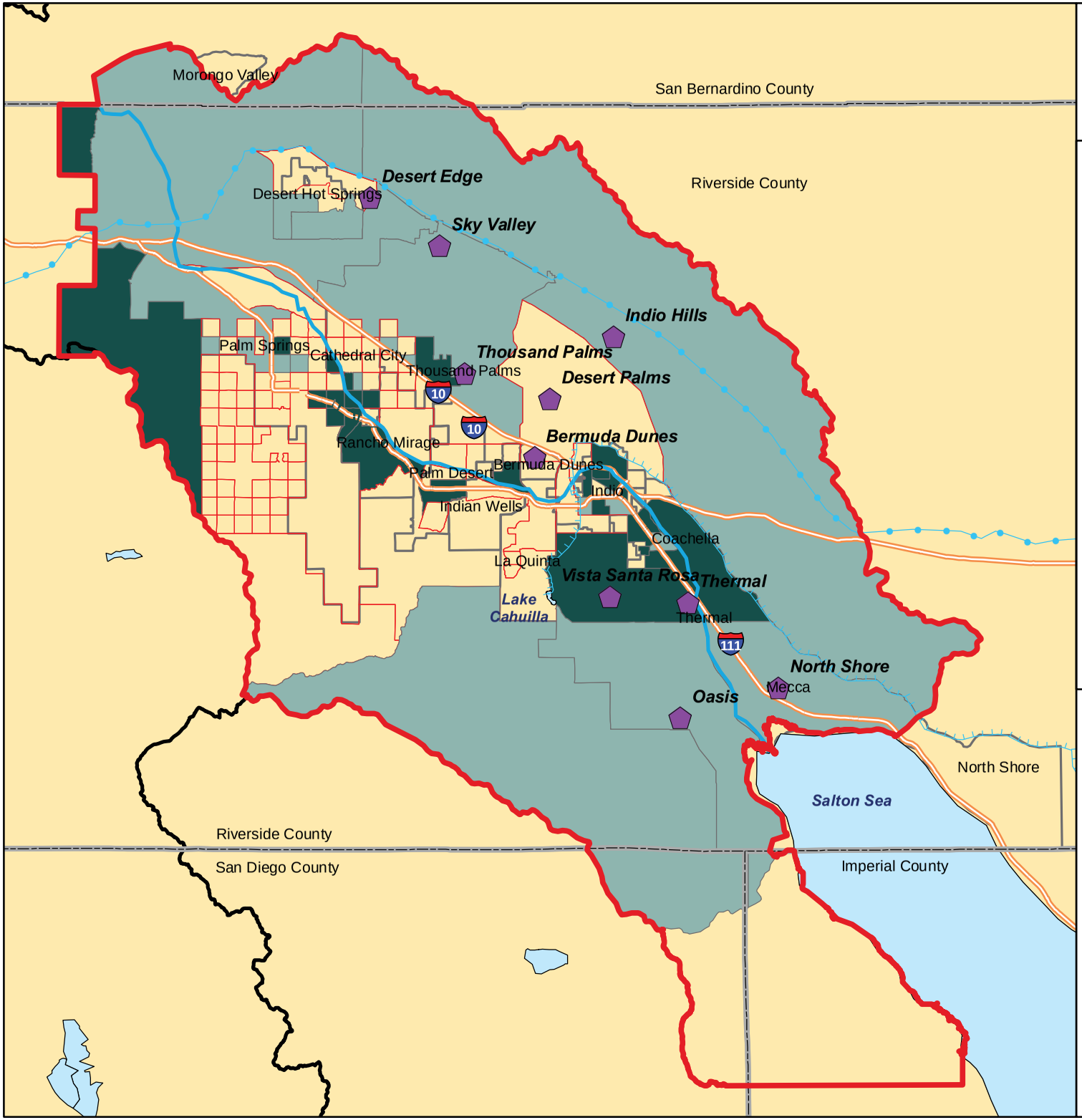
The goal of DAC outreach is to identify and obtain input from groups that may be otherwise restricted from participating in the IRWM planning and implementation efforts due to financial and other constraints. Through targeted outreach, the CVRWMG seeks to learn more about the major water-related concerns facing these groups such that long-term implementation of the IRWM Plan is responsive to those needs. This effort builds upon the work conducted by the Disadvantaged Community Planning Group, established in 2007 to track the progress of DAC programs under Proposition 84.

Numerous local and State-wide DAC organizations were targeted during outreach for the Coachella Valley IRWM program:

- California Rural Legal Assistance Inc. / Foundation (CRLA)
- Clean Water Action
- Community Water Center
- Desert Alliance for Community Empowerment
- Desert Edge Community Council
- Environmental Justice Coalition for Water (EJCW)
- Pueblo Unido CDC
- Poder Popular
- Inland Congregation United for Change (ICUC)

Environmental justice (EJ) is defined by the USEPA as "the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and environmental of environmental laws." Outreach to organizations also involved with EJ issues ensures that water management activities implemented under the Coachella Valley IRWM program do not unduly burden DACs (e.g., through facility location decisions).

Communities targeted as part of the DAC and EJ outreach are groups that have historically been disproportionately impacted with respect to the development, implementation, or enforcement of environmental laws, regulations, and policies due to race, culture, or income. The CVRWMG will work to tailor a more regionally-specific definition of a DAC and identify representatives of those communities. **Table 5-5** above provides a list of participants in the DAC Issues Group.



Disadvantaged Communities

Figure 5-2

- Community Councils
- Colorado River Aqueduct
- Coachella and All American Canals
- Whitewater River Stormwater Channel
- Interstate Hwys.
- Lakes
- City or Unincorporated Community
- Coachella Valley IRWM Region
- Colorado River Funding Area
- County Lines

Median Household Income (2000)

- $0 - $20,000
- $20,000 - $30,000
- $30,000 - $37,994
- >$37,994

Statewide median household invome (MHI) in year 2000 was $47,493. Disadvantaged communities are considered those who earned less than $37,994 (80% Statewide MHI)

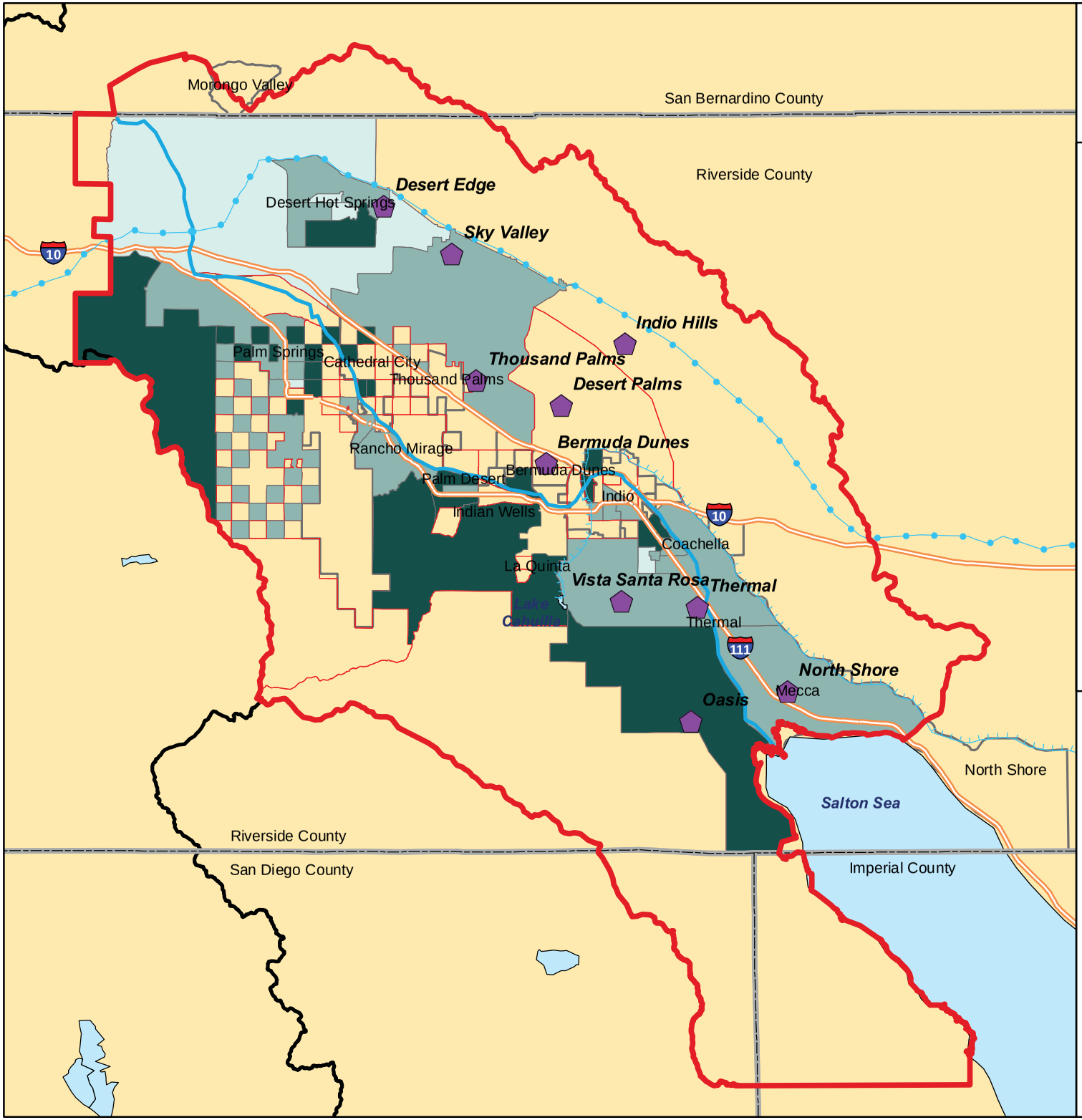
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COACHELLA VALLEY IRWMP

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Date Updated: Nov 2010
Made By: DNF
Department: RMC Water & Environment



Disadvantaged Communities (Claritas Data)

Figure 5-3

- Community Councils
- Colorado River Aqueduct
- Coachella and All American Canals
- Whitewater River Stormwater Channel
- Interstate Hwys.
- Lakes
- City or Unincorporated Community
- Coachella Valley IRWM Region
- Colorado River Funding Area
- County Lines

Median Household Income (2010)

- $0 - $30,000
- $30,000 - $40,000
- $40,000 - $49,921
- >$49,921

Statewide median household invome (MHI) in year 2010 was $62,401. Disadvantaged communities are considered those who earned less than $49,921 (80% Statewide MHI)
Source: Nielsen Claritas 2010

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COACHELLA VALLEY IRWMP

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File Location: L:\Projects GIS\0264-001_CoachellaIRWMP\mxds\
Date Updated: November 2010
Made By: DNF
Department: RMC Water & Environment

5.6.1 Outreach Activities

DAC/EJ Outreach Meetings

The CVRWMG may host up to six (6) meetings with DAC/EJ members to better understand their critical water supply and water quality needs and to identify potential solutions. Initial meetings will focus on bringing any groups that were not involved in the earlier efforts up to speed and informing all groups about recent activities and opportunities. Subsequent meetings will expand the methods of outreach in DAC/EJ communities, update those groups which may not be able to attend or participate in broader Planning Partners meetings, and develop IRWM planning efforts to meet the needs of each community.

Meetings will be held at times convenient for DAC/EJ representatives (recognizing that this may include evenings and/or weekends) and in different geographic locations within the Region.

Meeting preparation will include public meeting notices and invitations, development and distribution of presentations, meeting handouts and minutes, and coordination of speakers/presenters.

Notices and Newsletters

CVRWMG staff will work with community leaders to identify appropriate methods for notifying members of DAC/EJ communities of the current state of the Valley's water-related resources, the IRWM program, and solutions being generated to address their needs. These methods may include techniques such as notices at community gathering sites, multi-lingual newsletters, mailings, phone surveys, door-to-door surveys, or public meetings within the communities. The focus of these efforts will be to identify the critical needs of the targeted communities. Once identified, these critical needs will be translated into long-term targets for the IRWM Plan. In addition, one-on-one communication between representatives from DACs and the CVRWMG will be used to encourage participation in IRWM public meetings.

CVRWMG Coordination

One or more CVRWMG partner(s) will be identified as the liaison with DAC/EJ organizations, so it is clear how coordination and communication will occur. Additionally, if the CVRWMG and Planning Group determine that a permanent advisory group is appropriate and desired, at least one DAC/EJ representative should be designated to serve on the advisory group.

DAC Outreach Demonstration Program

The CVRWMG has identified the opportunity for more comprehensive efforts relating to DAC outreach and has submitted a DAC Outreach Demonstration Program proposal to DWR for potential funding. If funding is approved, the following additional goals will be achieved as part of the DAC Outreach effort:

- Development of a DAC Community Planning Group to represent one of the Issues Groups;
- At least five (5) DAC Workshops addressing specific community needs;
- Coordination with Community Leaders;
- Flood Control Mapping in DAC Areas;
- Preparation of a DAC IRWM Plan Element;
- DAC Outreach Demonstration Project White Paper.

Correspondence

DAC or EJ communities will have direct connection with a CVRWMG liaison and possibly an advisory group representative. Communication will be conducted mainly via telephone and email; however, office visits may be arranged as feasible. Through one-on-one communication, the CVRWMG will encourage participation by DAC representatives in IRWM public meetings.

5.7 Tribal Outreach and Coordination

This section defines local tribes and describes how they are specifically invited to participate in the IRWM planning and implementation process.

As described in *Chapter 2, Region Description*, most lands within the Coachella Valley are either private lands, public lands administered by the U.S. Bureau of Land Management, or Native American tribal lands. Major Native American reservation lands include (refer to Figure 2-16):

- Torres-Martinez Desert Cahuilla Indians Reservation, Cahuilla
- Cabazon Band of Mission Indians Reservation, Indio
- Augustine Band of Cahuilla Indians Reservation, Coachella
- Agua Caliente Band of Cahuilla Indians Reservation, Palm Springs
- Twenty-Nine Palms Band of Mission Indians Reservation, near Palm Springs
- Santa Rosa Tribal Lands, in Southern Coachella Valley
- Morongo Tribal Lands, which are located just west of the IRWMP region

Additionally, though the Morongo Band of Mission Indians Reservation does not lie directly within the Coachella Valley Region boundary, the tribe was invited to participate in regional planning efforts because it does draw from the underlying groundwater basin and has a vested interest in the Region.

The goal of engaging the Valley's tribal governments is to better understand their critical water resources issues and needs. Through targeted outreach, the CVRWMG seeks to learn more about the major water-related concerns facing the tribes such that long-term implementation of the IRWM Plan is responsive to those needs.

Tribal participants were contacted based on input from currently identified tribal representatives and the Ad-Hoc Planning Group. The five Native American tribes listed above – as well as the Morongo Band of Mission Indians, which borders the region – were targeted during outreach for the IRWM program. Additionally, meetings included the Bureau of Indian Affairs or other tribal coordinating agencies or groups as appropriate.

5.7.1 Outreach Activities

Tribal Outreach Meetings

The CVRWMG may host up to six (6) meetings with tribal representatives to better understand their critical water supply and water quality needs and to identify potential solutions. Tribal outreach meetings, however, will be based on the interest and availability of the tribal representatives. Tribal outreach meetings will inform the tribes about the IRWM program and its purpose, the local IRWM planning process, and upcoming funding opportunities. They will focus on clarifying the tribe's water resources

issues and needs, and identifying integrated project concepts that address those needs. In addition, tribal outreach meetings will carefully review the different coordination issues needed for Sovereigns in the Coachella Valley IRWM region.

Tribal outreach meetings will be coordinated with the DAC outreach meetings, as appropriate for the issues being discussed. Individual meetings with tribal leaders and staff will also be held, if needed.

Notices and Newsletters

CVRWMG staff will work with community leaders to identify appropriate methods for notifying members of the tribes of the current state of the IRWM program and timing of project submittals. These methods may include techniques such as notices at community gathering sites, newsletters, or mailings. The focus of these efforts will be to identify the tribes' critical water resources needs and how those are represented in the IRWM Plan. In addition, one-on-one communication between tribal representatives and the CVRWMG will be used to encourage participation in IRWM public meetings.

CVRWMG Coordination

One or more CVRWMG partner(s) will be identified as the liaison with tribal governments, so it is clear how coordination and communication will occur. Additionally, if the CVRWMG and Planning Group determine that a permanent advisory group is appropriate and desired, at least one tribal representative should be designated to serve on the advisory group.

Correspondence

Tribal members will have direct connection with a CVRWMG liaison and possibly an advisory group representative. Communication will be conducted mainly via telephone and email; however, office visits may be arranged as feasible. Through one-on-one communication, the CVRWMG will encourage participation by tribal representatives in IRWM public meetings.

5.8 IRWM Plan Adoption

This section describes adoption of the IRWM Plan.

A public review draft of the 2010 Coachella Valley IRWM Plan was released on November 3, 2010. A press release for this document, as well as an announcement to the stakeholder mailing list, was made available on this day. In addition, an electronic version of the public review draft IRWM Plan was made publically available on the program website (http://www.cvrwmg.org/). The 20-day public comment period for this document extended from November 3, 2010 to November 22, 2010.

The CVRWMG published notices of intent to adopt the IRWM Plan in accordance with Government Code §6066 and CWC §10543. As such, the CVRWMG published two reoccurring notices of intent to adopt the IRWM Plan in a local newspaper, and allowed for a 20-day public comment period prior to public meetings held by CVRWMG member agencies. The CVRWMG will continue to comply with these codes in all future updates of the IRWM Plan.

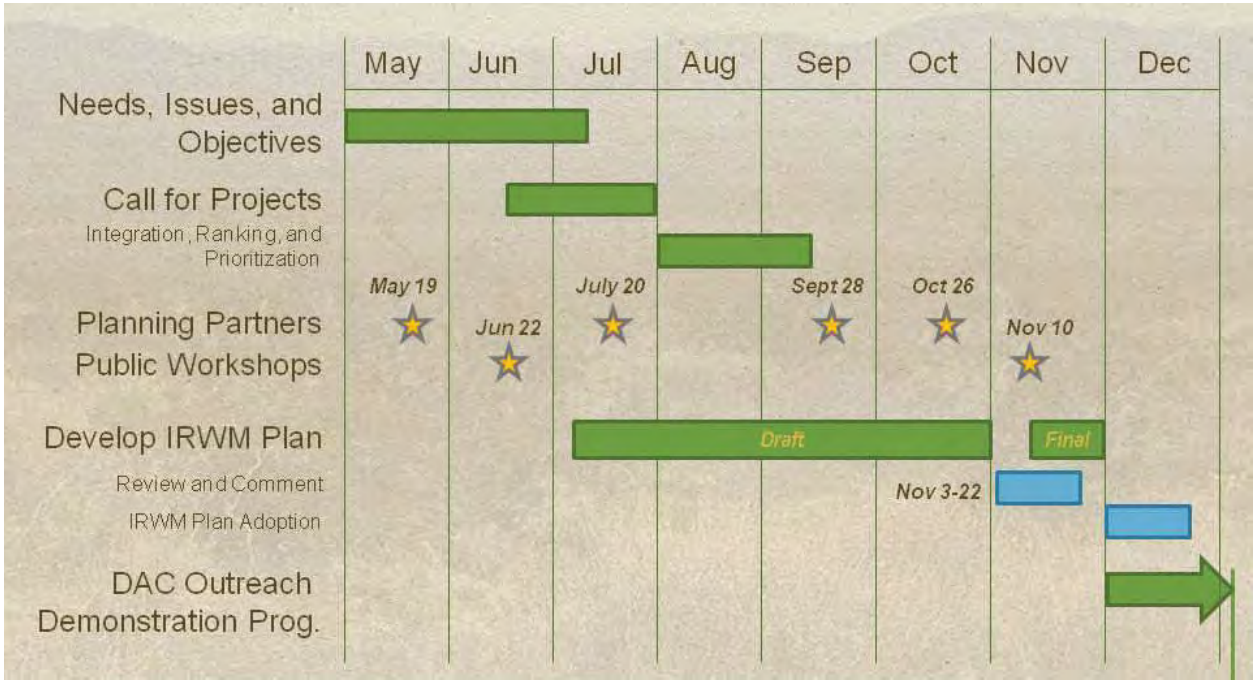
The timeline for Plan preparation and adoption can be seen below in **Figure 5-4**. The Planning Partners and members of stakeholder groups have provided information, projects, and comments in an ongoing process leading up to the public draft.

The CVRWMG agencies will consider approval of the final IRWM Plan as follows:

- The Coachella Water Authority Board of Directors will adopt the Plan at a public meeting on December 8, 2010 at 6:00 p.m. at 1515 6th Street, Coachella CA 92236,
- The Coachella Valley Water District Board of Directors will adopt the Plan at a public meeting on December 14, 2010 at 9:00 a.m. at 85-995 Avenue 52, Coachella CA 92236,
- The Desert Water Agency Board of Directors will adopt the Plan at a public meeting on December 7, 2010 at 8:00 a.m. at 1200 Gene Autry Trail South, Palm Springs CA 92264,
- The Indio Water Authority Board of Directors will adopt the Plan at a public meeting on December 7, 2010 at 4:00 p.m. at 100 Civic Center Mall, Indio CA 92201, and
- The Mission Springs Water District Board of Directors will adopt the Plan at a public meeting on December 20, 2010 at 3:00 p.m. at 66575 Second Street, Desert Hot Springs CA 92240.

In addition, each of the project proponents listed in the upcoming Proposition 84-Round 1 implementation grant application, the City of Cathedral City and Pueblo Unido, will adopt the IRWM Plan in December 2010. Project proponents listed in future IRWM grant applications for Coachella Valley will also adopt the IRWM Plan prior to application submittal.

Figure 5-4: 2010 Timeline for Coachella Valley IRWM Plan



5.9 Long-Term Implementation of IRWM Plan

This section describes how the governance structure helps ensure implementation of the IRWM Plan in the long-term.

The CVRWMG is committed to long-term water resources sustainability and IRWM planning efforts, and to continuously work together with the community to maintain and implement the IRWM Plan. This commitment is evidenced by the base premise in the MOU (see **Appendix E**): *"the partners anticipate the potential need for future agreements on specific projects or programs and with other affected agencies to further coordinate long term water supply planning."*

Evidence of the regional commitment to long-term sustainable IRWM planning includes the significant efforts undertaken to date:

- Negotiation and approval of the MOU to establish the CVRWMG and develop the IRWM Plan,
- Coordination and planning for the IRWM Plan and other programs (such as the Mission Creek-Garnet Hill Water Management Plan collaborative effort), and
- Commitment of cooperative funding of IRWM planning (including development of this IRWM Plan and submittal of a Planning Grant Proposal for the IRWM Plan Update).

In addition, the CVRWMG is committed to ongoing planning efforts not limited to the following:

- Submitting an Implementation Grant Proposal to implement the priority projects identified in this IRWM Plan,
- Preparing a 2012 IRWM Plan Update for the Coachella Valley, and
- Continuing IRWM programs that are valuable to the region and sustainable.

Fortified by the relationships established through the IRWM effort, the CVRWMG is committed to working together on water supply and water quality programs which extend through the 20-year planning horizon. The CVRWMG partners collaborate on various sustainable water supply and treatment programs, including regional surface water treatment or conservation/efficiency programs. The partners have also recognized that conversion of septic systems to sewer or other methods of groundwater treatment is a regional priority that can be implemented in collaborative ways. Finally, all CVRWMG agencies are focused and committed to long term basin management to assure future groundwater supplies to meet Valley needs.

5.9.1 Updating or Amending the IRWM Plan

In accordance with the MOU and the Groundrules, the CVRWMG has identified the following mechanisms for addressing new information that might suggest modifications to the Plan (**Appendix E**). The changes would be developed in the same process as the existing Plan and include Planning Partner, Issues Groups and stakeholder consensus.

Non-Substantive Changes – Non-substantive changes may be made to the IRWM Plan to correct errors or make changes which do not modify the initial intent or implementation of the Plan upon consensus of the CVRWMG and recommendation of the Planning Partners.

Additional Information Availability by Addendum – Addendums will be developed by the CVRWMG to provide additional information gathered from stakeholders, expanded scientific understanding, or other

information that updates or expands the IRWM Plan without changing intent or implementation of the Plan upon consensus of the CVRWMG and recommendation of the Planning Partners.

Informal Updates and Substantive Changes – Within the authority provided by the MOU, informal substantive changes may be made by concurrence of the five CVRWMG agencies (**Appendix E**). Such changes should be vetted and recommended by the Planning Partners.

Formal Updates – The Coachella Valley IRWM Plan will be formally updated every five years, or in accordance with DWR's IRWM planning cycle. Formal updates to the IRWM Plan must be based on a stakeholder-driven, consensus based process involving the Planning Partners, Issues Groups, and general public. Formal updates must include a public review period with changes incorporated in accordance with the judgment of the CVRWMG partners. Formal updates to the Coachella Valley IRWM Plan must be adopted by the CVRWMG agencies governing bodies at a noticed public meeting.

Online Project Database

The Coachella Valley IRWM project list is continuously updated on the online project database as projects are completed, new projects are added, or changes are made to projects. Project changes can be made by the project proponents as new funding opportunities arise. **Appendix B** contains the Coachella Valley IRWM project list as of September 30, 2010. However, the project list is a living list and will be continuously updated as the Coachella Valley IRWM program continues forward.

Table 5-6: Coachella Valley IRWM Stakeholder List

Agency	Contacted	Stakeholder List	Planning Partner
Cities			
City of Cathedral City	✓	✓	✓
City of Coachella	✓	✓	✓
City of Desert Hot Springs	✓	✓	✓
City of Indian Wells	✓	✓	✓
City of Indio	✓	✓	✓
City of La Quinta	✓	✓	✓
City of Palm Desert	✓	✓	✓
City of Palm Springs	✓	✓	✓
County of Riverside			
Riverside County Transportation and Land Management Agency	✓	✓	
Riverside County Department of Health	✓	✓	
Riverside County Regional Park District	✓	✓	
Riverside County Economic Development Agency	✓	✓	
Riverside County Flood Control and Water Conservation District	✓	✓	✓
Supervisor Benoit's office	✓	✓	✓
Supervisor Ashley's office	✓	✓	✓
Community Councils	✓		
Bermuda Dunes Community Council	✓	✓	
Desert Edge Community Council	✓	✓	✓
Desert Palms Community Council	✓	✓	
Indio Hills Community Council	✓	✓	
Mecca Community Council	✓	✓	
North Shore Community Council	✓	✓	
Oasis Community Council	✓	✓	
Sky Valley Community Council	✓	✓	
Thermal Community Council	✓	✓	
Thousand Palms Community Council	✓	✓	
Vista Santa Rosa Community Council	✓	✓	
Elected Officials	✓		
Congresswoman Mary Bono Mack	✓		
Senator John Benoit	✓		
Senator Denise Moreno Ducheny	✓		
Assemblyman Brian Nestande (64th Dist.)	✓		
Assemblyman Manuel Perez (80th Dist.)	✓		✓
Resource Agencies	✓		
California Department of Fish and Game	✓	✓	
California Department of Water Resources	✓	✓	✓
Colorado River Regional Water Quality Control Board	✓	✓	✓
U.S. Bureau of Indian Affairs	✓	✓	✓
U.S. Bureau of Land Management	✓	✓	
Special Interests	✓		
Big Morongo Preserve	✓		
Bighorn Research Institute	✓	✓	
Building Industry Association	✓	✓	

Table 5-6: Coachella Valley IRWM Stakeholder List

Agency	Contacted	Stakeholder List	Planning Partner
Center for Natural Land Management (fringed toed lizard preserve)	✓	✓	
Coachella Valley Archaeological Society	✓	✓	
Coachella Valley Association of Governments	✓	✓	✓
Coachella Valley Conservation Commission	✓	✓	
Coachella Valley Mosquito and Vector Control	✓	✓	
Coachella Valley Mountains Conservancy	✓	✓	
Coachella Valley Parks and Recreation District	✓	✓	
Coachella Valley Resource Conservation District	✓	✓	
Deep Canyon Desert Research	✓	✓	
Desert Alliance for Community Empowerment	✓	✓	✓
Friends of the Desert Mountains	✓	✓	✓
Groundwater Guardians	✓	✓	
Hi-Lo Golf Course Superintendents Association	✓	✓	
League of Women Voters	✓	✓	
Sierra Club	✓	✓	
Wildlands Conservancy	✓	✓	
Tribes			
Agua Caliente Band of Cahuilla Indians	✓	✓	✓
Augustine Band of Mission Indians	✓	✓	✓
Cabazon Band of Mission Indians	✓	✓	✓
Morongo Band of Mission Indians	✓	✓	✓
Torres-Martinez Desert Cahuilla Indians	✓	✓	✓
Twenty-Nine Palms Band of Mission Indians	✓	✓	✓
Inter-tribal Council	✓	✓	
School Districts			
Coachella Valley Unified School District	✓	✓	
Desert Sands Unified School District	✓	✓	
Palm Springs Unified School District	✓	✓	
Other Water/Wastewater Companies			
Myoma Dunes Mutual Water Company	✓	✓	
Valley Sanitary District	✓	✓	✓
Private Pumpers and Large Irrigators			
Agricultural pumpers	✓	✓	
Home Owners' Associations	✓	✓	
Golf courses	✓	✓	
Nurseries	✓	✓	
Disadvantaged Community Organizations	✓		✓
California Rural Legal Assistance Foundation	✓		✓
Environmental Justice Coalition for Water	✓		✓
Poder Popular	✓		✓
Pueblo Unido CDC	✓		✓
Rural Community Assistance Corporation	✓		✓







6 Resource Management Strategies

*This chapter addresses the **Integration Standard** by describing how the CVRWMG intentionally creates a system where integration can occur, as well as the **Resource Management Strategy Standard** by defining the diversification of water management approaches in the Region.*

6.1 IRWM Integration Approach

This section outlines the integration principles and methods used during development of the IRWM Plan.

Integration is paramount in making certain that the planning process for this region results in projects that have the greatest benefit to the Coachella Valley. It is critical that the process include the integration of four key areas: stakeholders/institutions, resources, projects, and strategies. The following sections describe the types of integration that are occurring in the planning of projects for this region.

6.1.1 Stakeholder/Institutional Integration

Any successful regional planning effort requires the participation and input from many diverse groups of stakeholders as it builds shared ownership into the planning process. It is critical that IRWM plans contain governance structures and processes that enable diverse groups of stakeholders to participate in all levels of a planning effort. Regional planning efforts rely on collaborative efforts and projects must develop in a manner that balances interests of stakeholders regardless of their ability to contribute financially. Structures and processes to find this balance have been included in all stakeholder involvement portions of this plan and include public workshops to discuss IRWM planning milestones, direct contact with known stakeholders, discussion of projects and integration opportunities with stakeholders, and stakeholder buy-off on key decisions. The Planning Partners play a critical role in the planning process as they serve in an advisory capacity to the CVRWMG, reviewing and contributing to the identification of water management issues, the development of regional goals and objectives, the project solicitation, review, and selection process, and the Plan implementation framework.

Collaboration between stakeholders in the planning process has the added benefit of building trust overtime, allowing for greater collaboration at the project level. Greater collaboration on projects results in a project with broader buy-in, increasing project viability. Additionally, having many different "voices" involved will ensure that more of Valley's water management needs are heard and addressed. For more information regarding collaboration and integration, please refer to *Chapter 5 Stakeholder Involvement, Section 5.3 Structure and Organization,* which describes the various structures of the Coachella Valley IRWM planning process that allow for the integration process to occur.

6.1.2 Resource Integration

Several agencies working together have significantly more resources than one does alone, hence the integration of resources has the ability to enhance the outcome of any project. Resource integration – which may include sharing data, technical expertise, or infrastructure – is critical to the success of water management projects for this region. Using the stakeholder outreach methods described above, the region has encouraged all project teams to collaborate between experts, staff, and infrastructure from multiple agencies, resulting in regional water management projects that utilize the best possible combination of resources amongst the agencies and thus yield the best possible results. Entities having differing strengths collaborating on projects have a higher probability of developing solutions that most creatively address the issues and concerns of the region.

6.1.3 Project Integration

The IRWM planning process brings together various groups in order to discuss and better understand the shared needs and opportunities of the region. Local water and wastewater agencies, flood control agencies, planning entities, and open space, recreation, and habitat preservation interests all collaborate to discuss integrated water management objectives and compile a list of implementation projects. During this process, inter-agency collaboration and input allow for the review of local project objectives, their comparison to regional needs, and subsequently the expansion or revision of projects to enhance benefits and effectiveness through identification of regional project partnership opportunities.

Through stakeholder discussions of projects, entities have the opportunity to join together and collaborate on a number of projects rather than duplicate efforts. Additionally, interrelationships between projects can be utilized to implement individual projects as integrated efforts, in order to maximize the potential benefits and minimize the potential impacts of these projects for the region. Implementation of individual projects as integrated groups is beneficial because it utilizes resources and facilities within individual agencies to augment systems and provide benefits that can be shared throughout multiple agencies within the region. Additionally, project collaboration and integration will result in cost savings as it minimizes the duplication of efforts and resources that would occur had those projects been implemented separately.

Projects can also be integrated geographically, such as upstream and downstream within a watershed or by combining multiple projects throughout a subregion. Geographic integration of projects has the ability to maximize benefits to the region, save duplicative administrative costs, and prevent accidental conflicts that arise when multiple single-purpose management strategies are implemented in proximity. For example, project proponents seeking to improve flood protection in the mid-watershed may inadvertently increase flood velocities and subsequently result in erosion or scour of habitat restoration areas downstream. Development of an integrated watershed project would recognize these potential conflicts and plan for mitigation of downstream impacts.

6.1.4 Strategy Integration

The resource management strategies considered as part of this IRWM Plan (see Table 6-2 below) may be combined to effectively address the regional goals established in *Chapter 4, Objectives*. By implementing resource management strategies that complement one another, the participating water resources management entities can help ensure that each goal is fully addressed. While single resource management strategies may address particular aspects of a regional goal, combining multiple resource management strategies will establish a comprehensive, multi-faceted solution that will stand up to circumstances that might otherwise compromise the integrity of a single-pronged solution. By integrating resource

management strategies to achieve regional goals, multiple economic, environmental, and long-term water security benefits for the region can be achieved.

6.2 Resource Management Strategies

This section describes all RMS covered in the California Water Plan 2009 Update (DWR 2009).

A comprehensive range of resource management strategies (RMS) were considered in order to achieve the goals and objectives identified for the Coachella Valley IRWM region. This section:

- identifies the RMS considered within this IRWM Plan;
- documents the selection process of the RMS; and
- describes each RMS and any relevant efforts within the Coachella Valley IRWM region (if any).

This section describes all RMS covered in the *California Water Plan 2009 Update* (DWR 2009), assesses the thirteen IRWM Plan objectives outlined in *Chapter 4, Objectives*, and then determines how the resource management strategies from the *California Water Plan 2009 Update* (DWR 2009) can work together to achieve them.

6.2.1 Resource Management Strategies

The Coachella Valley IRMW Plan considered each RMS listed in the *California Water Plan Update 2009* as stated by *Proposition 84 and Proposition 1E IRWM Guidelines* (DWR 2010). The *California Water Plan Update 2009* identified seven categories of RMS applicable to water management in California.

Table 6-1 presents the seven categories of RMS considered for the Coachella Valley IRWM Plan. These strategies include all the resource management approaches identified by the *California Water Plan Update 2009*, as well as the Education and Outreach strategy which was identified by Coachella Valley stakeholders. A variety of approaches to water management must be considered to fully address the regional goals and objectives of the Coachella Valley IRWM region. Though all the RMS identified by the *California Water Plan Update 2009* were considered not all are appropriate for meeting Coachella Valley's IRWM plan goals and objectives. RMS not considered appropriate for the Coachella Valley include: crop idling for water transfers, dewvaporation or atmospheric pressure, desalination, fog collection, irrigated land retirement, rainfed agriculture, and waterbag transport/storage technology.

6.2.2 Objectives Assessment

Table 6-2 presents the RMS and how they contribute to meeting each of the IRWM Plan regional objectives, including an additional strategy identified during the development of this Coachella Valley IRWM Plan. The table illustrates which strategies can be integrated to achieve a specific objective. Most objectives have multiple strategies that can be integrated to form a successful project to fulfill one or multiple regional goals. Descriptions of each RMS, including those not appropriate for the Coachella Valley IRWM plan, can be found in *Section 6.4: Overview of Resource Management Strategies*.

Table 6-1: All Resource Management Strategies Considered

Reduce Water Demand	Improve Flood Management
Agricultural Water Use Efficiency	Flood Risk Management
Urban Water Use Efficiency	**Practice Resources Stewardship**
Improve Operational Efficiency and Transfers	Agricultural Lands Stewardship
Conveyance- Delta	Economic Incentives (Loans, Grants and Water Pricing)
Conveyance- Regional/Local	Ecosystem Restoration
System Reoperation	Forest Management
Water Transfers	Recharge Area Protection
Increase Water Supply	Water-Dependent Recreation
Conjunctive Management and Groundwater Storage	Watershed Management
Desalination	**Other Strategies**
Precipitation Enhancement	Crop Idling for Water Transfers*
Recycled Municipal Water	Dewvaporation or Atmospheric Pressure *
Surface Storage- CALFED	Desalination *
Surface Storage- Regional/Local	Fog Collection *
Improve Water Quality	Irrigated Land Retirement *
Drinking Water Treatment and Distribution	Rainfed Agriculture *
Groundwater Remediation/Aquifer Remediation	Waterbag Transport/Storage Technology *
Matching Quality to Use	Education and Outreach **
Pollution Prevention	
Salt and Salinity Management	
Urban Runoff Management	

* RMS not appropriate for the Coachella Valley IRWMP region

** RMS identified by Coachella Valley Stakeholders

Source: DWR 2009

Table 6-2: Resource Management Strategies that Achieve IRWM Plan Objectives

IRWM Plan Objectives	Resource Management Strategies												
	Agricultural Lands Stewardship	Agricultural Water Use Efficiency	Conjunctive Mgmt and Groundwater Storage	Conveyance –Delta	Conveyance—Regional/Local	Desalination	Drinking Water Treatment & Distribution	Economic Incentives	Ecosystem Restoration	Flood Risk Management	Forest Management	Groundwater /Aquifer Remediation	Land Use Planning and Management
A. Provide reliable water supply for residential and commercial, agricultural community and tourism needs.		●	●	●	●	●	●	●				●	
B. Manage groundwater levels to manage and reduce overdraft, manage perched water and minimize subsidence.	○	●	●			○	○	○				●	○
C. Secure reliable imported water supply, including restoring/improving reliability of State Water Project supply and securing other imported water supplies.			○	●	●	○	○	○				○	
D. Maximize local supply opportunities, including water conservation, water recycling and source substitution, and capture of infiltration of runoff.	○	●	●			●		●		○			○
E. Protect groundwater quality and improve, where feasible.	●	●	●			○		○	○	○		●	●
F. Preserve and improve surface water quality by maintaining integrity of agricultural drainage systems, protecting the quality of natural runoff used for potable supply, and reducing pollution in storm water runoff.	●	●				●		●	○	○			●
G. Preserve water-related local environment and restore, where feasible.	●								●	○			●
H. Manage flood risks, including current acute needs and needs for future development.	○				○		○			●			○
I. Optimize conjunctive use of available water resources.			●	○	○		○			○			○
J. Maximize stakeholder involvement and stewardship in water resource management.	○	○	○	○	○	○	○	●	○	○	○	○	●
K. Address water-related needs of local Native American culture.	○	○	○	○	○	○	●	●	○	●	○	●	●
L. Address water and sanitation needs of disadvantaged communities, including those in remote areas.	○	○	○	○	○	○	●	●	○	●	○	●	●
M. Maintain affordability of water.	○	○	○	○	○	○	●	●	○	○	○	●	●

● Resource management strategy primarily and directly supports attainment of the IRWM Plan objective

o Resource management strategy indirectly helps to achieve the IRWM Plan objective

Table 6-2: Resource Management Strategies that Achieve IRWM Plan Objectives (cont.)

IRWM Plan Objectives	Resource Management Strategies														
	Matching Water Quality to Use	Pollution Prevention	Precipitation Enhancement	Recharge Area Protection	Recycled Municipal Water	Salt and Salinity Management	Surface Storage—CALFED	Surface Storage—Regional/Local	System Reoperation	Urban Runoff Management	Urban Water Use Efficiency	Water Transfers	Water-Dependent Recreation	Watershed Management	Other Strategies
A. Provide reliable water supply for residential and commercial, agricultural community and tourism needs.	●			●	●	●	●	●	●		●	●			
B. Manage groundwater levels to manage and reduce overdraft, manage perched water and minimize subsidence.	●			●	●	●			○		●	●		●	
C. Secure reliable imported water supply, including restoring/improving reliability of State Water Project supply and securing other imported water supplies.				○		●	●	●	○			○			
D. Maximize local supply opportunities, including water conservation, water recycling and source substitution, and capture of infiltration of runoff.	●	●		○	●	●		●	○	●	●	○		○	
E. Protect groundwater quality and improve, where feasible.	●	●		●	○	●			○	●	●	○		●	
F. Preserve and improve surface water quality by maintaining integrity of agricultural drainage systems, protecting the quality of natural runoff used for potable supply, and reducing pollution in storm water runoff.	●	●		○		○				●	●			●	
G. Preserve the water-related local environment and restore, where feasible.		○				○				○				●	
H. Manage flood risks, including current acute needs and needs for future development.		○		○						●				○	
I. Optimize conjunctive use of available water resources.				○				○	○						
J. Maximize stakeholder involvement and stewardship in water resource management.	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
K. Address water-related needs of local Native American culture.	○	○	○	○	○	●	○	○	○	●	○	○	○	○	○
L. Address water and sanitation needs of disadvantaged communities, including those in remote areas.	○	○	○	○	○	●	○	○	○	●	○	○	○	○	○
M. Maintain affordability of water.	○	○	○	○	○	●	○	○	○	○	○	○	○	○	○

● Resource management strategy primarily and directly supports attainment of the IRWM Plan objective

o Resource management strategy indirectly helps to achieve the IRWM Plan objective

6.3 Documenting the Process

This section considers and documents which RMS will help achieve the IRWM Plan objectives.

The identification of which RMS are included in this IRWM Plan is based on a review of all 32 resource management strategies identified by the *California Water Plan Update 2009* and the *Proposition 84 and Proposition 1E IRWM Guidelines*. The CVRWMG, Planning Partners, and stakeholders have determined that 26 RMS, including one identified by stakeholders, were selected to be included in the Coachella Valley IRWM Plan as they are either currently being utilized or will be utilized in the management of water resources in the IRWM region.

The process of identifying RMS that address the regional goals and objectives identified for the Coachella Valley IRWM Plan consisted of an evaluation of all strategies by the CVRWMG, Planning Partners, and stakeholders. The evaluation consisted of reviewing and discussing all 32 RMS required by the *Proposition 84 and Proposition 1E IRWM Guidelines* and how applicable each strategy is in meeting the Coachella Valley IRWM Plan objectives. *Section 6.4 Overview of Resource Management Strategies*, below, provides the reasoning for incorporation of each RMS into the Coachella Valley IRWM Plan.

6.4 Overview of Resource Management Strategies

This section presents the RMS considered for the IRWM Plan.

The RMS in **Table 6-2** encompasses the Coachella Valley's water management approach for meeting the IRWM Plan's regional objectives. This section describes these strategies in further detail and provides examples (if any) of current efforts in the Coachella Valley IRWM region that apply to each strategy.

The RMS described within the following sections are consistent with the Region Description (herein *Chapter 2, Region Description*), Plan Objectives (herein *Chapter 4, Objectives*), and Governance (herein *Chapter 5, Stakeholder Involvement*) requirements set forth in the IRWM Grant Program Guidelines (DWR 2010). In addition, each section below acknowledges where the RMS are currently being implemented in accordance with the Region's identified issues and needs (*Chapter 3, Issues and Needs*).

6.4.1 Reduce Water Demand

Agricultural Water Use Efficiency

Agricultural water use efficiency can achieve reductions in the amount of water used for agricultural irrigation. This strategy could increase the Coachella Valley IRWM region's net water savings, improve water quality, provide environmental benefits, improve flow and timing, and increase energy efficiency.



CVRCD Mobile Lab Providing Irrigation Strategies

Several strategies recommended by the *California Water Plan Update 2009* to achieve agricultural water savings and benefits include:

- improving irrigation system technology and management of water, both on-farm and at the irrigation district level to minimize water losses;

- adjusting irrigation schedules to decrease the amount of water applied;
- installing remote monitoring to allow districts to measure flow, water depth and improve water management and controls; and
- developing community educational conservation activities to foster water use efficiency.

Coachella Valley Efforts

A few select examples of current agriculture water use efficiency strategies employed by the Coachella Valley IRWM region are listed below.

- **Coachella Valley Water Management Plan**. This plan includes an aggressive conservation program promoting the use of scientific irrigation techniques to improve agricultural water use efficiency. This includes a strong support for continued studies on optimal irrigation and drainage techniques for the Coachella Valley. At present, more than 50 percent of irrigated acreage is irrigated by drip system.
- **Coachella Valley Resource Conservation District (CVRCD) Mobile Lab**. Since 1985, the mobile lab program, created by the CVRCD/Natural Resource Conservation Service (NRCS), utilizes technologies to conduct on-site system evaluations that measure agricultural water use efficiency. Based on these on-site evaluations, the mobile lab team suggests modifications in the irrigation system to increase irrigation efficiency, reduce water loss, increase crop health, and decrease water, power, and fertilizer costs.
- **Daily Local Agricultural Weather Forecast**. Local weather forecasting services are provided to growers, including evapotransporation estimates, rain, wind and temperature to better manage irrigation water application.
- **Prohibition on Tailwater**. Local district regulations prohibit tailwater runoff.

Urban Water Use Efficiency

Due to Coachella Valley's growing population and consequently expanding urban development, it is vital that urban water use efficiency strategies are adopted to reduce pressure on the region's groundwater supply. Urban water use efficiency strategies can reduce water demand through technological and behavioral improvements by decreasing indoor and outdoor residential, commercial, institutional, and industrial water use.



Re-Landscaping in City of La Quinta With Water Efficient Plants

Several approaches recommended by the *California Water Plan Update 2009* to increase urban water use efficiency include:

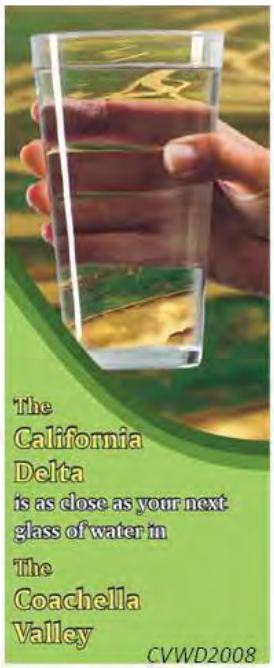
- implementing programs such as Best Management Practices (BMPs);
- reviewing the Urban Water Management Plan to ensure 20 percent water use reductions are achieved by 2020;
- installing water efficient landscapes;

- encouraging gray water and rain water capture to increase water conservation and improve water quality;
- increasing public outreach and encouraging community involvement; and
- funding incentive programs for small districts and economically DACs.

Coachella Valley Efforts

At present, various aggressive measures to increase urban water use efficiency in the Coachella Valley IRWM region are underway. A select few examples of these strategies are listed below.

- **Valley-wide Model Landscape Ordinance.** Most Valley cities, Riverside County, and water districts have adopted a Valley-wide Model Landscape Ordinance which sets a limit on the amount of water used for landscaping based on evapotransporation and irrigation efficiency appropriate for desert climates.
- **Tiered Conservation Water Rates.** The majority of Valley water users are on a tiered water rate, whereby use above that needed for basic living and desert appropriate landscape irrigation is billed in increasing multiples of the base water rate.
- **Water Wise Landscape Rebates and Discounts**. CVWD and City of La Quinta started a citywide Landscape Water Management Program to assist residents to reduce landscape water use and help eliminate sprinkler runoff down city streets by providing rebates and discounts. The IWA has a similar program for the City of Indio.
- **Xeriscape Demonstration Gardens**. To demonstrate low-water-use plants, CVWD maintains a xeriscape demonstration garden at its Coachella headquarters and at the Palm Desert facility. MSWD also has an 8,000 square foot water efficient demonstration garden adjacent to its administration building, featuring a variety of drought-resistant trees, shrubs and groundcover native to the local area. Brochures are distributed to provide explanation of each plant, specific environmental requirements, and to enable interested members of the public to take a self-guided tour of the garden. DWA's Operations Center has a demonstration garden with signage to identify common and botanical names of plants. DWA has also sponsored and participated in the creation of several other demonstration gardens within the service area.



CVWD Brochure Encouraging Water Conservation

- **Water Conservation Programs**. DWA, IWA, and CVWD have irrigation controller programs. DWA also conducts water audits, has a hotel conservation program, and has an education/outreach program for water conservation. The MSWD website also provides residents with resources for improving indoor and outdoor water efficiency, and educational activities and literature for children (https://www.mswd.org/conservation.aspx).

6.4.2 Improve Operational Efficiency and Transfers

Conveyance- Delta

Sacramento-San Joaquin Delta water is of high demand and critical to sustaining the State's economy. The Delta conveyance system supplies water to the San Francisco Bay Area, Central Valley, and Southern California. Careful management of Delta water is essential for meeting water quality standards and water supply needs throughout the state. Activities in the Coachella Valley IRWM region that affect or relate to water demands from the Delta conveyance system will require thoughtful consideration of the Delta ecosystem and how it will be impacted. Consideration of Delta restoration efforts and the preservation of native habitat and other native species are essential when selecting Delta conveyance projects/strategies. Several benefits associated with Delta conveyance strategies include: maintaining or increasing water supply reliability, protecting water quality for aquatic and riparian, and maintaining in-stream flows.

Several delta conveyance strategies identified by the *California Water Plan Update 2009* include:

- establishing performance metrics that record quantity of water deliveries for agricultural and urban users;
- utilizing Delta Vision Task Force and Bay-Delta Conservation Plan recommendations to increase operational flexibility and conveyance reliability to benefit water supply and aquatic ecosystems; and
- developing strategies that maintain channel capacity in the Delta.

Coachella Valley Efforts

The long-term reliability of the SWP and associated conveyance systems is critical to meeting water demands in the Valley.

- **SWP Extension Project Development Plan**. CVWD and DWA began a formal planning effort regarding the feasibility of constructing an aqueduct to connect the Coachella Valley to the SWP in August 2007 with Phase 1 of the SWP Extension Project Development Plan.

Conveyance- Regional/Local

The Coachella Valley IRWM region relies on the Coachella Canal (a branch of the All-American Canal) and the Colorado River Aqueduct for replenishing groundwater supplies, as well as numerous local conveyance infrastructures (water supply and recycled water pipelines) to deliver water. Improving operational efficiency and transfers will require improvements in water supply reliability and conveyance infrastructure. Several benefits of improving regional/local conveyance infrastructure include: maintaining/increasing water supply reliability, protecting water quality, augmenting current water supplies, and providing water system operational flexibility.

Several strategies identified by the *California Water Plan Update 2009* for improving regional/local conveyance of water supplies include:

- improving aging infrastructure, increasing existing capacities, and/or construction of new conveyance facilities;
- replacing or improving canal structures to improve an irrigation district's ability to manage and control water in the district and reducing spillage; and

- constructing alternative water conveyance pipelines to improve water supply reliability.

Coachella Valley Efforts

Examples of current regional/local conveyance strategies employed by the Coachella Valley IRWM region are listed below.

- **Coachella Canal Lining Project**. This project constructed a new 34.8 mile section of concrete waterway to replace earthen sections of the Coachella Canal to increase water conservation and preserve water supplies.
- **Highway 86 Pipeline Project**. This project constructed a 30-inch diameter pipeline to bring drinking water to the Oasis and Valerie Jean communities. The goal of this new pipeline is to bring reliable, high-quality drinking water and improve water service to the Coachella Valley IRWM region.
- **Mid-Valley Pipeline Project.** CVWD recently completed this project which entailed the installation of a $75 million non-potable distribution system to expand its recycled water/Colorado River water system. This will replace the use of groundwater for irrigation at approximately 50 golf courses. It is estimated this project will reduce groundwater pumping by 50,000 AFY.
- **DWA Transmission Main CIP.** The DWA General Plan suggested that a Belardo Road Pipeline be installed in 2008; however due to budget restraints, the project was postponed. There is a need to install infrastructure to increase the efficiency of the distributions system. This installation of pipeline will connect two sections of 24" pipeline allowing DWA to move water from north to south as intended in the general plan. Currently the water must flow through smaller pipelines, increasing head loss and reducing flow capacity.



Coachella Canal Lining Project

System Reoperation

System reoperation strategies change existing operation and management procedures for existing reservoirs and conveyance facilities to increase water related benefits from these facilities. Changes in water demands and changing climate would require consideration of reoperation of existing facilities to increase project yield or address climate change impacts. System reoperation strategies will require making changes to how projects operate to best meet the changing needs of the Coachella Valley IRWM region. Some of the potential benefits of system reoperation strategies include: increasing water supply reliability, additional flexibility to respond to extreme hydrologic events, and improving the efficiency of existing water uses.

Several system reoperation strategies identified by the *California Water Plan Update 2009* include:

- establishing a baseline hydrology and enhanced description of present water management system components;
- considering possible climate change effects in reoperation projects; and

- collaborating between federal, state, and local agencies on system reoperation studies.

Coachella Valley Efforts

Examples of system reoperation strategies employed by the Coachella Valley IRWM region are listed below.

- **Water-Ordering Procedures**. The CVWD's Colorado River irrigation distribution system restructured its irrigation water-ordering procedures allowing water to be turned on and off at any time to increase efficiency and operational flexibility for irrigators in the Coachella Valley. Previously, the CVWD procedures required orders to be placed in advance and turn-on and turn-off's allowed only at certain times of the day.
- **Lake Cahuilla Operations**. CVWD operates Lake Cahuilla to regulate storage for the Coachella Canal. The lake helps balance daily water orders by supplying or storing the difference in amounts of water released by USBR several days before arriving in the Coachella Valley.

Water Transfers

Water Transfers are temporary or long-term change in the point of diversion, place of use, or purpose of use due to transfer or exchange of water or water rights (DWR 2009) in response to water scarcity. Benefits to establishing water transfers include improving economic stability and environmental conditions for receiving areas. Compensation for water transfers can fund beneficial projects/activities for the IRWM region, reduce water rates, and/or improve facilities.

Several water transfer strategies identified by the *California Water Plan Update 2009* include:

- developing and implementing groundwater management plans, monitoring programs,
- allowing community participant for identifying and responding to conflicts caused by transfer,
- refining current methods on identifying and quantifying water savings for transfers using crop idling, crop shifting, and water use efficiency measures, and
- improving coordination and cooperation among the local, state, and federal agencies to facilitate sustainable transfers

Coachella Valley Efforts

The Coachella Valley has employed various water transfer strategies including:

- **MWD SWP Exchange Agreement**. CVWD and DWA have an agreement with MWD to trade their SWP Table A allotments for an exact amount of MWD's Colorado River water. The Coachella Valley taps into the Colorado River Aqueduct (CRA) where it crosses the Whitewater River, and is then diverted to the Whitewater Spreading Area to replenish groundwater. The CRA also crosses the Whitewater River near Desert Hot Springs adjacent to Mission Creek where it is diverted to the Mission Creek Spreading Area to replenish groundwater.
- **Mission Creek-Garnet Hill Water Management Plan**. A groundwater management plan is in development for the Mission Creek and Garnet Hill Subbasins through the collaborative work of CVWD, DWA and MSWD. The Plan will provide the Mission Creek/Garnet Hill Basin Management Committee an adaptive, long-term vehicle for managing the subbasins, while facilitating conjunctive use operations and ongoing monitoring in coordination with water transfers and exchange agreements.

- **Berrenda Mesa Water Transfer**. This strategy involved the transfer of 16,000 AFY of unused SWP from the Berrenda Mesa Water District (BMWD). This water transfer allows the region to acquire a total of 16,000 AFY which would go through the existing exchange agreement with the MWD for an equal amount of Colorado River Water released to the Coachella Valley.
- **Kern County Water Purchase.** DWA partnered with CPV Sentinel LLC to purchase 8,350 acre feet of water to ensure adequate water supply for a proposed power plant. CPV Sentinel is in the process of permitting and building a power generating facility south of Desert Hot Springs and north of Palm Springs. In order to avoid any potential impacts to existing water supplies, CPV has teamed up with DWA to secure additional imported water supplies to meet the replenishment needs of the power generation project. DWA facilitated and CPV funded the purchase, which is the first of several planned to ensure water supplies for the proposed facility. Water was transferred from North Kern County Water Storage District via the California Aqueduct to MWD. DWA exchanged this water with MWD for Colorado River water with deliveries to DWA's Mission Creek Spreading Basins.

6.4.3 Increase Water Supply

Conjunctive Management and Groundwater Storage

The reliability of the Coachella Valley's water supplies can be improved through conjunctive use of both surface and groundwater supplies. Conjunctive Management and Groundwater Storage refers to the coordinated and planned use and management of both surface water and groundwater resources to maximize the availability and reliability of water supplies in a region to meet various management objectives. The conjunctive management and groundwater storage strategy seeks to increase water supply reliability and groundwater sustainability. Several benefits of utilizing conjunctive management and groundwater storage strategies include: improving water supply reliability and sustainability, reducing groundwater overdraft and land subsidence, protecting water quality, and improving environmental conditions.

Several conjunctive management and groundwater storage strategies identified by the *California Water Plan Update 2009* include:

- implementation of monitoring, assessment, and maintenance of baseline groundwater levels,
- encouraging local water management agencies to coordinate with tribes and other agencies involved in activities that might affect long term sustainability of water supply and water quality, and
- local groundwater monitoring and management activities and feasibility studies to increase the coordinated use of groundwater and surface water.



Groundwater Recharge Areas at the Thomas E. Levy Groundwater Replenishment Facility

Coachella Valley Efforts

Conjunctive management and groundwater storage strategies being considered by the Coachella Valley IRWM region are listed below.

- **Groundwater Recharge Areas**. Four groundwater recharge areas are located in the Coachella Valley IRWM region: the Whitewater Spreading Area, Mission Creek Spreading facility, Thomas E Levy (Dike No. 4) recharge facility, and the Martinez Canyon Pilot Recharge Project. For detailed information on the recharge areas see *Chapter 2: Region Description, Section 2.2.2 Water Systems and Distribution, Groundwater*.
- **Stormwater Capture.** Preparation of the Mission Creek-Garnet Hill Water Management Plan has identified the opportunity for capturing stormwater runoff from the Little San Bernardino Mountains for recharge into the Mission Creek Subbasin. Such recharge has the possibility to provide positive impacts to the water supply and to offset water quality impacts of recharge water, through dilution.
- **Groundwater Storage**. MWD stores available surplus water in the CVGB. Thus far it has been a successful conjunctive use program that had been able to store water when it is available either through direct recharge or in-lieu use and recovered through exchanges effectively from the basin during drought periods. MWD benefits by increasing its dry-year water supply and the Coachella Valley benefits from MWD financed facilities and higher water levels. This program allows the MWD the right to withdraw 100,000 to 150,000 AFY of stored water over a ten year cycle.

Desalination

Desalination has been identified as a potential solution for increasing water supplies and reducing groundwater overdraft for the Coachella Valley IRWM region. However, desalination requires complicated technologies and is a high energy consuming technology. Desalination offers many potential benefits including: increases water supply and reliability during drought periods, reduced dependency on imported supplies by developing a local supply source, protection of public health, and facilitates more recycling and reuse, given the lower salinity of the source.

Several recommendations identified by the *California Water Plan Update 2009* to facilitate desalination strategies include:

- Desalination projects should be given the same funding opportunities as other water supply and reliability projects,
- Ensure most economical and environmentally appropriate desalination technology is utilized,
- Project sponsors need to ensure planning of desalination projects is a collaborative process that engages key stakeholders, the general public, and permitting agencies.

Coachella Valley Efforts

Desalination strategies being considered by the Coachella Valley IRWM region are listed below.

- **CVWD Desalination Pilot Project**. CVWD recently received a grant from DWR's Proposition 50 Water Desalination Proposal. The proposal requested funds for a pilot desalination project to compare reverse osmosis with solar still "dewvaporation" of agricultural drainage runoff within the Coachella Valley. CVWD will receive $596,000 from the program and will match the same for a total pilot project cost of approximately $1.2 million. The plan is to have 11,000 AFY of agriculture drain water be desalted to a quality equivalent to canal water and delivered for irrigation use by 2030.

Precipitation Enhancement

Precipitation enhancement strategies seek to artificially stimulate clouds to produce more rainfall or snowfall than would naturally occur. The benefit of this strategy is primarily to increase water supply. Several recommendations identified by the *California Water Plan Update 2009* for implementing precipitation enhancement projects include:

- seeking State support for development and funding of new projects;
- collecting data and evaluations of existing California precipitation enhancement projects to perform research on the effectiveness of the technology; and
- investigating the potential of augmenting Colorado River Water supply through cloud seeding.

Coachella Valley Efforts

Precipitation enhancement strategies implemented by the Coachella Valley IRWM region are listed below:

- **Colorado River Watershed Precipitation Enhancement.** CVWD, through participation in the Colorado River Six Agency Committee (the six California water agencies with contracts for Colorado River water), funds cloud seeding programs for enhancement of snow-pack in areas tributary to the Colorado River.

Recycled Municipal Water

One way to offset current and future water demands for the Coachella Valley IRWM region is to treat and reuse recycled wastewater. Recycled municipal water strategies should seek to increase the usefulness of water by reusing a portion of the existing water supply.

The use of recycled water in the Coachella Valley IRWM region began in 1965 mainly for the irrigation of golf courses (see Figure 2-4 for a map of the current recycling plants in the IRWM region). Since 1965, recycled water use has increased from 500 AFY to 14,000 AFY at present (CVRWMG 2009). Increasing recycled water use can be a potential significant local resource that could be used to help reduce groundwater overdraft and imported water demand.



Installation of 54-inch Mid-Valley Pipeline for Delivering Recycled Water

For the Coachella Valley IRWM region, expanding recycled water use can provide the following benefits/potential uses:

- additional water source for surface irrigation (primarily golf courses and greenbelt areas), a source of nutrients for crops or landscape plants,
- reduction of excess nutrient discharge into surface waters,
- increased groundwater recharge,
- cooling of industrial and commercial applications,
- impoundments for recreation, fish hatcheries, and landscape ponds, and
- for toilet flushing, fire fighting, soil compacting, mixing concrete, among many other uses

Several recycled municipal water strategies identified by the *California Water Plan Update 2009* and *Water Recycling 2030: Recommendations of California's Recycled Water Task Force* include:

- increasing funding availability for water reuse/recycling facilities and infrastructure and;
- creating education curriculum for public schools and institutions of higher learning to educate on recycled water;
- engaging the public in an active dialogue and encouraging participation in the planning process of water recycling projects,
- providing resources (i.e. funding) to agencies that will perform comprehensive analysis of existing water recycling projects to estimate costs, benefits, and water deliveries, and
- assessment of water recycling technology to determine least costly and environmentally appropriate technology based on location and need.

Coachella Valley Efforts

Examples of water recycling strategies employed by the Coachella Valley IRWM region are listed below.

- **Mid-Valley Pipeline Project**. CVWD recently completed this project which entailed the installation of a $75 million non-potable distribution system to expand its recycled water/Colorado River water system. This will replace the use of groundwater for irrigation at approximately 50 golf courses. It is estimated this project will reduce groundwater pumping by 50,000 AFY.
- **Water Reclamation Plants.** The Coachella Valley IRWM region has four water reclamation plants: WRP-7, WRP-9, WRP-10, and DWA. Further detailed information on each of the plant can be found in *Chapter 2: Region Description, Section 2.2.4.: Recycled Water*. Combined, the facilities produce 28.9 MGD of secondary treated water and 20.7 MGD of tertiary treated water.

  Further, MSWD and IWA are currently preparing for development of their recycled water capabilities. MSWD has included treatment of influent to tertiary levels in design for the next expansion of Horton Wastewater Treatment Plant. IWA is planning for development of a water reclamation plant in cooperation with VSD.



Sacramento-San Joaquin Delta

Surface Storage- CALFED

Potential benefits from CALFED surface storage include releases of new storage and system flexibility such that other facilities' operations can be modified without reducing current benefits. The additional water storage can be used to improve ecosystem functions, conditions for target species, improve water quality, and supply reliability for water users.

The Coachella Valley primarily benefits from surface storage in the Delta. Thus, projects that support aquatic and riparian ecosystem restoration in the Delta and its tributaries, water conservation, improving water quality would benefit the Coachella Valley IRWM region.

Several CALFED surface storage strategies identified by the *California Water Plan Update 2009* include:

- Decreasing demand of imported water through water conservation programs
- Engaging stakeholders, potential projects participants, tribes, the public, and agencies in identifying, evaluating, and quantifying potential projects that address the CALFED surface storage goals and their effects (positive and negative).
- Developing alternatives and potential future scenarios that incorporate alternative delta conveyance, operations, and possible climate change effects to allow potential participants to assess their interest in specific projects.
- Developing mechanisms that provide assurance projects are being operated in a manner consistent with the objectives of CALFED surface storage.

Coachella Valley Efforts

Although CALFED surface storage is important for assuring water supply reliability for the Coachella Valley IRWM region, there are no CALFED storage efforts underway by local agencies.

Surface Storage- Regional/Local

Though the majority of water used in the IRWM region is primarily groundwater, the region's imported water supply is held in Lake Cahuilla for system regulation prior to recharge into the aquifer. Projects that address this strategy focus on regional and local surface storage alternatives/expanding surface storage capacity. Several additional benefits of expanding regional/local surface storage include: improved flood management, ecosystem management, emergency water supply, river and lake recreation, capture of surface water runoff, and water supply reliability against catastrophic events and droughts.



Lake Cahuilla Regional Park

Several regional/local surface storage strategies identified by the *California Water Plan Update 2009* include:

- development of a comprehensive methodology for analyzing project benefits and costs by local agencies,
- continued studies, research, and dialogue to identify a common set of tools for determining cost and benefits of surface storage projects,
- adaptively manage operations of existing surface storage facilities,
- rehabilitation and/or enlargement of existing surface storage infrastructure, and
- developing water purchasing agreements to buy water from other agencies that own storage reservoirs with substantial water supplies.

Coachella Valley Efforts

An example of a regional/local surface storage strategy employed by the Coachella Valley IRWM region is listed below.

- **Lake Cahuilla**. In 1968, the CVWD built Lake Cahuilla (approximately 135-acres) to provide a place to store Colorado River water, to meet changing needs, and avoid wasteful spills.

6.4.4 Improve Water Quality

Drinking Water Treatment and Distribution

Providing a reliable supply of safe drinking water is critical for protecting the public health. Though the Coachella Valley IRWM region provides high-quality drinking water that needs almost no treatment, to ensure the public's health is protected, public water systems must continue developing and maintaining adequate water treatment and distribution facilities. Several benefits of drinking water treatment and distribution strategies include: improving public health, reducing water distribution delivery problems, and ensuring delivery of high-quality drinking water.

Several drinking water treatment and distribution strategies identified by the *California Water Plan Update 2009* include:

- Working closely with CDPH to quantify the total needs for water system infrastructure improvement and replacement;
- regionalizing and consolidating of public water systems;
- developing incentives to allow water systems to reduce waste of limited water resources;
- researching and developing of new treatment technologies;
- providing additional funding for water supply, water treatment, and infrastructure projects to ensure safe and reliable supply of drinking water for individuals and communities;
- public water systems joining the California WARN program which provides mutual aid and assistance more quickly that through SEMS; and
- creation of source control and reduction programs to address pharmaceuticals and personal care products.

Coachella Valley Efforts

Drinking water treatment and distribution strategies employed by the Coachella Valley IRWM region are listed below.

- **CVRWMG Drinking Water Systems**. All of the water purveyors that constitute the CVRWMG have water systems that provided a total of approximately 674,950 AFY throughout the Region in 2010. For specific information regarding the potable water systems of each CVRWMG agency, please refer to *Chapter 2 Region Description, Section 2.4.1 Water Supply*.
- **Water Treatment Technology**. In 2009, Envirogen Technologies was contracted to improve the drinking water treatment system for residents in the Desert Oasis mobile home park. These new improvements are meant to improve the water quality of water delivered to the park and create a better quality of life for the residents. One of the major improvements to the drinking water treatment system is the addition of coagulation-filtration technology that will aid in removing source contaminants, such as Arsenic.
- **Monitoring**. Water purveyors in the Coachella Valley IRWM region monitor drinking water regularly according to state (CDPH) and federal (USEPA) regulations.
- **Nitrate Remediation**. In cooperation with the CDPH and through funding from the American Recovery and Reinvestment Act, MSWD has resolved nitrate contamination issues for Whispering Sands Mobile Home Park. Significant engineering challenges had to be overcome in order to connect the Park to the District's potable water system.

Groundwater Remediation/Aquifer Remediation

Groundwater is a valuable local resource. However, portions of aquifers have degraded water quality that does not support beneficial use of groundwater. Groundwater Remediation/Aquifer Remediation strategies should seek to improve the quality of degraded groundwater for beneficial use. Groundwater contamination can come from a multitude of sources such as: heavy metals, salts, organic and inorganic pollutants, nitrates, arsenic, pesticides, septic systems, urban and agricultural activities. Several benefits of adopting groundwater remediation/aquifer remediation strategies include: availability of additional water supplies, avoiding purchasing alternate water supplies, and storage of excess surface water supplies in remediated aquifers.

Several groundwater remediation/aquifer remediation strategies identified by the *California Water Plan Update 2009* include:

- limiting potentially contaminating activities in recharge areas;
- identifying historic commercial and industrial sites with contaminated discharges and responsible parties to remediate sites;
- implementing source water protection measures; and
- establishing and supporting funding for detecting emerging contaminants by commercial laboratories and installation of wellhead treatment systems.

Coachella Valley Efforts

Groundwater remediation strategies employed by the Coachella Valley IRWM region are listed below.

- **Recycled Water Program**. The primary use of recycled water in the Coachella Valley is for turf irrigation. Studies with the University of California Turf Grass Research Center have shown turf to be effective in removing nitrogen from recycled irrigation water. When recycled water is applied to turf grass, nitrogen is taken up by the plant, greatly reducing what would otherwise percolate into the groundwater basin. Golf course managers in the Valley account for nitrogen in recycled water by reducing the application of chemical fertilizers.
- **East Valley Groundwater Assessment**. The Rural Community Assistance Corporation (RCAC) conducted four drinking water system assessments in community systems located within mobile home parks of small groundwater systems used to supply drinking water. This assessment found arsenic to be a major water quality problems. One of the recommendations provided by the RCAC for improving water quality was to utilize groundwater remediation technology at the point of use.
- **Septic to Sewer Conversion**. MSWD, DWA, and the cities of Palm Springs and Cathedral City have converted a large number of septic systems to municipal sewer in order to protect the underlying aquifer from nitrate contamination.
- **Remediation for Uranium**. Due to high uranium levels, MSWD has removed a production well (900 GPM) from service and placed wellhead treatment on a second production well (2000 GPM). The second well will also be removed from the potable water distribution system when a replacement is constructed.

Matching Quality to Use

Matching water quality to use is directly linked to four other resource management strategies: Pollution Prevention, Recycled Municipal Water, Salt and Salinity Management, and Groundwater/Aquifer

Remediation because maintaining water to its highest quality allows for greater potential uses of the water. Matching quality to use strategies recognize that water quality should suitably match its intended use such that water quality constituents do not adversely affect the intended use of the water. Several benefits of maintaining and matching water quality to use include: reduction of disinfection byproducts in delivered drinking water sources, opportunities for blending water sources through improvements in treated water quality, potential to reduce energy use due to the avoidance of needing to treat water to higher quality, and avoiding costly treatment procedures.

Several strategies for matching water quality to use identified by the *California Water Plan Update 2009* include:

- managing water supplies to optimize and match water quality to the highest possible use and to the appropriate technology;
- encouraging upstream users to minimize the impacts of non-point urban and agricultural runoff and treated wastewater discharges;
- supporting the development of salt management plans;
- reviewing projects to determine the potential impacts from wastewater elimination into local streams; and
- supporting research into solutions to the potential conflicts between ecosystem restoration projects and the quality of water for drinking water purposes.

Coachella Valley Efforts

Projects and programs that match quality to use in the Coachella Valley IRWM region are listed below.

- **CVWD Desalination Project**. As summarized in the Desalination section above, this project is currently being planned by the CVWD and one of its main purposes is to treat and reuse agricultural drain water at a quality appropriate for agricultural irrigation.
- **Uses of Non-Potable Water.** MSWD wells with high uranium that cannot be part of the potable distribution system will not be abandoned. They may be called into service to provide construction water in anticipation of future building activity or to provide water for industrial uses such as power plants.
- **Coachella Valley Salt and Nutrient Management Plan Strategy**. Through a collaborative effort, the CVRWMG and other stakeholders will be developing a salt and nutrient management plan strategy for the Coachella Valley IRWMP region. Plan completion is anticipated in 2013.
- **Regional Recycled Water Use**. The primary use of recycled water in the Coachella Valley is for turf irrigation. When recycled water is applied to turf grass, nitrogen is taken up by the plant, greatly reducing what would otherwise percolate into the groundwater basin.

Pollution Prevention

Pollution prevention strategies are vital for protecting and improving water quality at its source and reducing the need for costly water treatment options. Preventing pollution throughout the watershed ensures water supplies can be used, and reused for a broad number of uses by downstream water users. Several benefits of implementing pollution prevention strategies include:

- reducing the need and cost of other water management and treatment strategies;
- protecting surface water quality to increase opportunities for water contact recreation, water sources for desalination plants, and maintaining suitable habitat for wildlife; and

- preventing further degradation of surface and groundwater quality.

Several pollution prevention strategies identified by the *California Water Plan Update 2009* include:

- developing proper land management practices that prevent sediment and pollutants from entering source waters;
- establishing drinking water source and wellhead protection programs to protect drinking water sources and groundwater recharge areas from contamination;
- identifying communities relying on groundwater contaminated by anthropogenic sources for drinking water and take appropriate regulatory action; and
- addressing improperly destroyed, sealed and abandoned wells that can serve as potential pathways for groundwater contaminants.

Coachella Valley Efforts

Examples of current pollution prevention strategies employed by the Coachella Valley IRWM region are listed below.



City of Indio Pollution Prevention Materials Identify Over-Irrigation as Violation of NPDES Permit

- **Whitewater River Watershed MS4 Program.** RCFCWCD, the County of Riverside, CVWD, and the cities of Cathedral City, Coachella, Desert Hot Springs, Indian Wells, Indio, La Quinta, Palm Desert, Palm Springs, and Rancho Mirage have joined forces to implement the NPDES permit and encourage business and the general public to employ BMPs to prevent water pollution. This program has seven subprograms for improving stormwater management and preventing water pollution:
  - *Illicit Connection/Illegal Discharge (IC/ID) Program*- is designed to detect and eliminate improper discharges to the municipal storm drain system. The program includes BMPs to manage stormwater runoff and non-stormwater discharge, training for municipal staff, and an outreach component.
  - *Commercial/Industrial Program*- is designed to conduct source identification and outreach to reduce discharge of pollutants from both commercial businesses and industrial operations.
  - *New Development/Redevelopment and Construction Activities*- focuses on integrating stormwater management measures into current development review processes within the Permittees' Planning and Public Works Departments.
  - *Municipal Agency Activities*- targets improving municipal operations and activities throughout the watershed. Employee training activities are a key aspect of stormwater management at the municipal agency level.
  - *Residential Program*- focuses on public education, encouraging watershed awareness, individual responsibility, and offering practical alternatives for citizens to properly dispose of household hazardous waste (HHW).

- *Public Education Program*- is a media campaign to develop and increase public awareness of urban runoff issues on a regional scale.
- *Water Quality Monitoring*- focuses on increasing water quality sampling and analysis throughout the watershed to characterize runoff and establish baseline data.

- **Surface Water Protection**. DWA has an extensive security program in place to protect surface water supplies from pollution.

Salt and Salinity Management

Accumulation of salt in the soil can impair crop productivity, particularly in arid regions such as Coachella Valley, thus salinity management is a critical concern for local farmers. Salinity management strategies should understand the dynamics of salt movement and seek to establish or improve its management in the Coachella Valley IRWM region. Several potential benefits of establishing or improving salt and salinity management strategies include: protecting water resources and improving water supplies, securing, maintaining, expanding, and recovering usable water supplies, and avoiding future significant costs of treating water supplies and remediating soils.

Several salt and salinity management strategies identified by the *California Water Plan Update 2009* include:

- developing a regional salinity management plan, and interim and long-term salt storage, salt collection, and salt disposal management projects;
- monitoring to identify salinity sources, quantifying the level of threat, prioritizing necessary mitigation action, and working collaboratively with entities and authorities to take appropriate action;
- reviewing existing policies to address salt management needs and ensure consistency with long-term sustainability;
- collaborating with other interest groups to optimize resources and effectiveness;
- identifying environmentally acceptable and economically feasible methods for closing the loop on salt; and
- funding for research and projects- prioritized funding based on greatest needs.

Coachella Valley Efforts

An example of a current salt and salinity management strategy employed by the Coachella Valley IRWM region is listed below.

- **Tile Drain System.** Portions of the CVGB have a shallow confining layer of clay which creates a perched water table. An extensive system of collector drains has been installed to drain the soil below the root zone and allow the removal of accumulated salts in the soil. Draining the perched groundwater layer reduces the downward migration of surface contaminants to underlying drinking water aquifers.
- **Mobilized Salinity Assessment Platform (Salt Sniffer)**. CVRCD assists farmers in salinity management by conducting on-site detailed assessments of soil salinity content on individual fare source management strategies utilizing the Mobilized Salinity Assessment Platform (Salt Sniffer). The salt sniffer measures salinity levels of fields using electromagnetic field sensors and using a GPS it records salinity levels and locations as it passes over the ground. Detailed maps can then be created of the vertical and horizontal salinity patterns which can help farmers analyze and

manage irrigation and drainage problems and variation in crop production rates due to salinity. Usually, CVRCD annually performs 12 surveys with the Salt Sniffer.

- **Coachella Valley Salt and Nutrient Management Plan Strategy**. Through a collaborative effort, the CVRWMG and other stakeholders will be developing a salt and nutrient management plan strategy for the Coachella Valley IRWMP region. Plan completion is anticipated in 2013.

Urban Runoff Management

Urban runoff management strategies should manage both storm water and dry weather runoff. To successfully manage urban runoff agencies need to incorporate other resource management strategies such as pollution prevention, land use planning and management, watershed management, urban water use efficiency, recycled municipal water, recharge area protection, and conjunctive management. Several potential benefits of urban runoff management strategies include: minimizing soil erosion and sedimentation problems, reducing surface water pollution, protecting natural resources, protecting and augmenting groundwater supplies, and improving flood protection.

Several urban runoff management strategies identified by the *California Water Plan Update 2009* include:

- coordinating efforts with agencies, stakeholders, and the public to decide how urban runoff management should be integrated into work plans;
- encouraging public outreach and education concerning funding and implementation of urban runoff measures;
- designing recharge basins to minimize physical, chemical, or biological clogging;
- working with community to identify opportunities to address urban runoff management;
- providing incentives for the installation of low impact development features on new and existing developments; and
- emphasizing source control measures and strong public education/outreach efforts as being the most effective way to manage urban runoff in this highly arid region.

Coachella Valley Efforts

- **Valley-wide Model Landscape Ordinance**. The Model Landscape Ordinance adopted by most Valley agencies prohibits irrigation systems that allow overspray to the streets. A non-irrigated buffer zone is required between the curb and walks to prevent water going to the street.
- **Tiered Conservation Water Rates**. The majority of Valley water users are on a tiered water rate whereby use above that needed for basic living and desert appropriate landscape irrigation is billed in increasing multiples of the base water rate. This is a disincentive to allowing run-off.
- **Dry Weather Investigations**. Caltrans conducted weekly field investigations of Caltrans facilities in the CVSC to document dry weather runoff, if any, that Caltrans activity contributes. To prevent any future dry weather discharges, it was recommended Caltrans inspect and monitor their irrigation systems. Additionally, it was recommended that Caltrans should work with local governing agencies to make property owners aware of BMPs to reduce urban runoff pollution.

6.4.5 Improve Flood Management

Flood Risk Management

The Coachella Valley IRWM region is subject to severe floods and alluvial-fan flash flooding. Managing of flood risk in the IRWM region is currently done through a series of flood control systems that consist of debris basins, levees, storm drains, retention basins, dry wells, and stormwater channels. Reducing flood risk will require management strategies that enhance flood protection through projects and programs that assist in managing floodflows and to prepare for, respond to, and recover from floods. Several potential benefits of establishing or improving salt and salinity management strategies include:

- reducing risk to lives and property from flooding events;
- enhancing water quality using strategies that reduce sediment loads;
- increasing water supply from structural improvements and detention of floodwaters; and
- enhancing terrestrial and aquatic habitat and providing ecosystem restoration benefits through floodplain restoration and setting back levees.

Several flood risk management strategies identified by the *California Water Plan Update 2009* include:

- Structural approaches that can consist of:
  - Setting back levees
  - Modifying channels to include lining (i.e. concrete, rip rap) to improve conveyance of floodflows
  - High flow diversions into adjacent lands to temporarily store flows
  - Improved coordination of flood operations
  - Maintaining facilities to secure the long-term preservation of flood management facilities
- Land use management approaches that consist of:
  - Floodplain function restoration to preserve and/or restore the natural ability of undeveloped floodplains to absorb, hold, and release floodwaters
  - Floodplain regulation
  - Development and redevelopment policies
  - Housing and building codes
- Disaster Preparedness, Response, and Recovery for flood risk management approaches such as:
  - Information and education
  - Disaster preparedness
  - Post-flood recovery



CVWD's Stormwater Facilities Provide Flood Protection

Coachella Valley Efforts

- **Federal Flood Management Program**. Buildings and new developments are required to be designed in conformance with the National Flood Insurance Program and local ordinances

implementing the program. Planning agencies and flood agencies review developments prior to approval.

- **CVWD Stormwater Facilities**. CVWD provides flood protection for 590 square miles of the IRWM region. Within the boundaries, there are 16 stormwater protection channels and several dikes and levees that have been designed and built to collect rapidly moving floodwaters moving onto the valley floor. CVWD is actively involved in securing funding for further flood control protection and improvements on the Valleys stormwater system.

6.4.6 Practice Resources Stewardship

Agricultural Lands Stewardship

Agricultural lands stewardship is the practice by land managers of conserving and improving land for various conservation purposes as well as protecting open spaces and rural communities. This strategy should allow landowners to maintain their farms and ranches rather than being forced to sell their land due to pressures from urban development. Several potential benefits of agricultural lands stewardship management strategies include: protecting environmentally sensitive lands, recharging groundwater, improving water quality, providing water for wetland protection and restoration, increasing carbon sequestration within soil, and reducing costs of flood management.

Several agricultural land stewardship strategies identified by the *California Water Plan Update 2009* include:

- stabilizing streambanks to slow bank erosion and filter drainage water from the fields;
- installing windbreaks (i.e. trees and/or shrubs) along field boundaries to help control soil erosion, conserve soil moisture, improve crop protection among many other benefits;
- performing conservation tillage to increase water infiltration and soil water conservation and reduce erosion and water runoff; and
- encouraging irrigation tailwater recovery to help capture and reuse irrigation runoff water to benefit water conservation and off-site water quality.

Coachella Valley Efforts

- **Farmer Education Meetings**. CVRCD, along with NRCS, DWR, University of California Cooperative extension, CVWD and County of Riverside, coordinates and carries out workshops that teach farm owners, managers, and irrigators concepts in irrigation water and salinity management as well as promote new technology to help the conservation effort.

Economic Incentives (Loans, Grants and Water Pricing)

Economic incentives can influence water management, amount of water use, time of use, wastewater volume, and source of supply. The types of incentives include low interest loans, grants, and water rates and rate structures. Free services, rebates, and use of tax revenues to partially fund water services have a direct effect on the prices paid by water users. Several potential benefits of establishing or improving salt and salinity management strategies include: promoting efficient water management practices and encouraging the adoption/improvement of water efficient/ on-site water recycling technologies.

Several urban runoff management strategies identified by the *California Water Plan Update 2009* include:

- instituting loans and grant programs that support better regional water management;

- adopting policies that promote long-run water use efficiency;
- developing modeling tools for economic analyses of economic incentives as well as guidelines and ranking criteria for grant and loan awards; and
- exploring innovative financial incentives.

Coachella Valley Efforts

- **Water Audits and Irrigation Controllers**. CVWD and DWA provide water audits for farms, golf courses, and homeowner associations. Significant savings on water use have been realized through these audits, as they bring wasteful water use to the attention of the user and provides recommendations for greater efficiency. The CVRWMG agencies also provide irrigation controllers at discounted rates to encourage landscape conversions.
- **HOA Irrigation Loans** CVWD sets aside $500,000 to issue loans to homeowner associations at a 3% interest over a five year period loan for updating and modifying irrigation systems.
- **Tiered Conservation Water Rates**. The majority of Valley water users are on a tiered water rate whereby use above that needed for basic living and desert appropriate landscape irrigation is billed in increasing multiples of the base water rate.
- **MSWD Financial Assistance Program.** Since the 1970s, MSWD has formed six sewer assessment districts to facilitate the abatement of septic systems and connection to the municipal wastewater collection system. Through MSWD financial assistance programs, customers can finance connection fees and abatement costs, with repayments made on their monthly bill. The program provides positive results by reducing septic discharge to the aquifer; as well, the District has experienced no debt write-off.
- **USDA Conservation Programs**. This is a cost-share program through the NRCS that is specific to the conservation of water and soil on agricultural land. The program funds a percentage of the cost for the installation of conservation projects and the remaining portion of the cost of the project is funded by the program applicant. The NRCS office in Indio provides assistance to farmers within the Coachella Valley. For 2004 and 2005, the Indio NRCS office signed 25 EQIP contracts with Coachella Valley farmers, which includes the allocation of $350,000 of funds for water and soil conservation projects.

Ecosystem Restoration

Ecosystem restoration strategies are vital for improving our modified natural landscapes and biological communities. Restoration of aquatic, riparian, and floodplain ecosystems are of primary concern as those are most directly affected by water and flood management actions and likeliest to be affected by climate change. Several potential benefits of establishing ecosystem restoration strategies include: improves water quality and quantity for wildlife, aquatic species, and human consumption, and increases diversity of native species and biological communities.

Several ecosystem restoration strategies identified by the *California Water Plan Update 2009* include:

- increasing the use of setback levees and floodwater bypasses;
- creating programs that support and fund the identification of stream flow needs;
- establishing biological reserve areas that connect or reconnect habitat patches;
- expanding riparian habitat;
- devising climate change adaptation plans that benefit ecosystems, water, and flood management;

- reproducing natural flows in streams and rivers;
- controlling non-native invasive plant and animal species; and
- filtering of pollutants and recharging aquifers.

Coachella Valley Efforts

- **CVMSHCP and Water Management Planning.** Sensitive habitat areas that are key to the CVMSHCP can be found throughout the Valley. Additionally, the Mission Creek Subbasin is a significant water source for the Plan, as well as the primary source of water for MSWD customers. To keep those two factors in balance, the Mission Creek-Garnet Hill WMP is being developed with minimizing environmental impacts as one of its four Plan objectives. MSWD participates in the Reserve Management Oversight Committee, which is charged with providing direction for monitoring and management of the CVMSHCP reserve lands.

Forest Management

Forest management strategies should focus on activities that are designed to improve the availability and quality of water for downstream users on both publicly and privately owned forest lands. Water produced by forest has an economic value that equals or exceeds that of any other forest resource (CWP 2009). Several potential benefits of establishing forest management strategies include: interception of rainfall, reduction of urban runoff, energy-efficient shade during hot weather, reduce flooding and increase dry-season base flows, and protection from surface erosion and filtering pollutants.

Several forest management strategies identified by the *California Water Plan Update 2009* include:

- establishing long-term monitoring to understand hydrologic changes resulting from possible climate change effects through the installation of stream gages, precipitation stations, water-quality and sediment monitoring stations, and long-term monitoring wells;
- increasing research efforts into identifying effective BMPs for forest management and the effects of wildfires;
- assessing sediment sources and erosion processes in managed and unmanaged forested watersheds;
- increasing multi-party coordination of forest management;
- improving communication between downstream and upstream water users; and
- developing public education campaigns for water users.

Coachella Valley Efforts

Although local water purveyors currently have no responsibility to manage the San Gorgornio forested areas that drain to the Valley, protection of those headlands is important for ensuring high quality surface runoff supplies.

Recharge Area Protection

Recharge areas provide the primary means of replenishing groundwater. Strategies to protect recharge areas ensure the continual capability for the area to recharge rather than become covered by urban infrastructure and prevent pollutants from entering groundwater. Protecting recharge areas requires the implementation of urban runoff management strategies, groundwater remediation strategies, and conjunctive management strategies. The Coachella Valley primarily depends on groundwater for local

water supplies. Several potential benefits of establishing ecosystem restoration strategies include: protecting and maintaining high-quality groundwater, increased amount of groundwater storage, reduction of urban runoff, and some removal of microbes and chemicals through percolation.

Several recharge area protection strategies identified by the *California Water Plan Update 2009* include:

- expanding research into surface spreading and the fate of chemicals and microbes in recharge water;
- increasing funding for the identification and protection of recharge areas;
- creating education and media campaigns to increase public awareness and knowledge on the importance of recharge areas and relevancy to groundwater;
- requiring source water protection plans; and
- developing methods for analyzing the economic benefits and costs of recharge areas.


The Coachella Valley has four groundwater recharge areas, including one at Windy Point.

Coachella Valley Efforts

- **Groundwater Recharge Areas**. The IRWM region operates four groundwater recharge areas: the Whitewater Spreading Area, Mission Creak Spreading Facility, Thomas E. Levy Recharge Facility, and Martinez Canyon Pilot Recharge Project. The process used to select these recharge areas aims at maximizing recharge area protection by considering factors such as development densities and pollution generation, including avoidance of septic systems and industrial activities. In addition, the CVRWMG agencies monitor groundwater near recharge areas to ensure that the recharge areas retain their effectiveness, and to assess groundwater quality within recharge areas. For detailed information see *Chapter 2: Regional Description, Section 2.2.2: Water Systems and Distributions, Groundwater, Recharge Areas.*

Water-Dependent Recreation

Water-dependent recreation strategies are vital to ensuring people today and in the future can enjoy water recreation activities. Maintaining and protecting water-dependent activities such as fishing, swimming, birding, boating, among many others is economically, environmentally, socially beneficial as well as improve human health. Other potential benefits of water-dependent recreation strategies include:

- providing visitors and residents a variety of fun activities and healthy outdoor activities;
- refreshing and relaxing the mind and body;
- providing a chance for exercise and relaxation, water-dependent recreation; and
- increasing economic benefits through the creation of jobs, programs, and services surrounding the water recreation industries from both residents and visitors.

Several water-dependent strategies identified by the *California Water Plan Update 2009* include:

- using existing data and new surveys to determine recreational needs;

- partnering with schools to provide drowning prevention programs primarily aiming at youth from urban and low income families;
- developing partnerships with universities to coordinate monitoring of public recreation use, equipment, and emerging water recreation trends;
- developing a procedure to incorporate climate change assessments within all infrastructure planning, budgeting, and project development;
- researching, identifying, and mitigating impacts of stream flows that prevent Native Americans from participating in their traditional cultural activities; and
- developing invasive species preventative measures.

Coachella Valley Efforts

- **Lake Cahuilla**. There are various recreational opportunities available to residents and visitors in and/or around Lake Cahuilla, these include: boating, water sports, fishing, horseback riding, hiking, camping, and picnicking.
- **Whitewater Preserve**. Whitewater Preserve is a 2,851 acres parcel owned by the Wildlands Conservancy which features the Whitewater/Mission Creek drainage. The trailhead is 4.5 miles from Interstate 10 on Whitewater Canyon Road.



Lake Cahuilla's fishing and recreational activities are overseen by the County of Riverside.

- **Hot Mineral Water.** The Desert Hot Springs Subbasin provides highly desirable hot mineral water that fuels the Desert Hot Springs spa industry and about 50 RV/mobile home parks in the Desert Crest area. MSWD supports the local Hoteliers Association's efforts to promote and enjoy the hot water resource. The population served by the mobile home parks constitutes a DAC and is characterized by fixed incomes, compromised health, and advanced age. Adding to the complexity is the transient, seasonal nature of the population. MSWD's outreach to these communities includes public information campaigns and efforts to benefit the communities whenever possible as land use projects are developed.

Watershed Management

Watershed management strategies increases and sustains a watershed's ability to provide for the diverse needs of the communities that depend on it. Managing at the watershed scale has proven effective in coordinating and integrating the management of numerous physical, chemical, and biological processes. Watershed management provides a basis for greater integration and collaboration among those policies and actions. Several potential benefits of adopting watershed management strategies include:

- maintaining, restoring, or enhancing the many functions in the natural systems within a watershed;
- maintaining reliable quantities of clean water and agriculture;
- avoiding costs by reducing flood or fire damages; and
- increasing or maintaining biological diversity.

Several watershed management strategies identified by the *California Water Plan Update 2009* include:

- creating a scientifically valid tracking and reporting method to document changes in the watershed;
- assessing the performance of projects and programs;
- providing watershed information to better inform local land use decision makers on how to maintain and improve watershed functions; and
- using watershed approaches in which all RMS strategies are coordinated.

Coachella Valley Efforts

The Coachella Valley's IRWM region is part of the Whitewater River watershed. An example of a current watershed management strategy underway in the IRWM region is listed below.

- **Coachella Valley Preserve Tamarisk Control**. The Nature Conservancy implemented a tamarisk control effort in the Coachella Valley Preserve to protect and restore critical watershed functions. Non-native tamarisk was drying up springs that provided water supply to native wildlife. Removal of tamarisk was accomplished by volunteers and California Conservation Corps crews, and has restored natural habitats and water flows to the preserve.

6.4.7 Other Strategies

The *California Water Plan Update 2009* and the *Proposition 84 and Proposition 1E IRWM Guidelines* (DWR 2010) identified other potential RMS that can aid in meeting water management goals and objectives however these strategies are currently limited in their capacity for addressing long-term regional water planning needs. These strategies consist of crop idling for water transfers, dewvaporation or atmospheric pressure desalination, fog collection, irrigated land retirement, rainfed agriculture, and waterbag transport/storage technology. Due to their limited ability to address Coachella Valley's IRWM plan goals and objectives these RMS were not selected for inclusion in the IRWMP.

Crop Idling for Water Transfers

Crop idling is a strategy that removes lands from irrigation and makes water available for transfer. Several of the potential benefits from implementing this strategy includes: enhancing water supplier reliability by making water available for redistribution, enhancing water quality, protecting and restoring fish and wildlife, and helping farm communities (as well as urban areas) infuse money into the local economy while increasing the reliability of water supply for urban consumers.

Several crop idling strategies identified by the *California Water Plan Update 2009* includes:

- developing necessary coordination structures to satisfy agency policy requirements;
- consulting with agencies and entities that will be leading crop idling programs; and
- understanding the local community impact and third party impacts to develop and implement necessary actions for maintaining economic stability of local communities and mitigating socioeconomic impacts.

Coachella Valley Efforts

With a crop production value in 2010 of over $575 million dollars which generates more than an equal amount of secondary economic activity, agriculture is a significant economic driver is the Coachella Valley. Almost all crops grown yield a value in excess of $1,000 per acre and many yield between

$10,000 and $20,000 per acre. Because few low value crops are grown, crop idling is not a feasible RMS for the Coachella Valley IRWM region.

Dewvaporation or Atmospheric Pressure Desalination

The dewvaporation or atmospheric pressure desalination strategy would heat brackish water until deposits of fresh water as dew are collected from the opposite side of a heat transfer wall. The heat sources for this strategy can be derived from multiple sources (i.e. fuel, solar, waste heat) and the energy required for evaporation can be supplied by the energy released from the dew formation.

Though dewvaporation technology is still being developed in California, Arizona State University (ASU) currently has a dewvaporation pilot project underway. The potential benefits of this technology include the ability to provide small amounts of water in remote locations (basic tests have produced up to 150 gallons per day) and the ability to reclaim salt water at relatively low costs.

Coachella Valley Efforts

Dewvaporation or atmospheric pressure desalination is not currently being planned or explored in the Coachella Valley IRWM region because it is not a feasible RMS for the Valley. Due to local climatic conditions, the Valley experiences very low amounts of dew, making dewvaporation or atmospheric pressure desalination unlikely water sources for the Region.

Fog Collection

Fog collection is a form of precipitation enhancement that has yet to be used in California though it does occur naturally along coastal vegetation. Though there is interest to use this strategy for increasing domestic water supplies in dry areas, such as California desert regions, this strategy is more appropriate for regions near the ocean.

The potential benefits of fog collection primarily include increasing water supplies. For example, a fog collection project in Chile yielded about 2,800 gallons per day from about 37,700 square feet of collection net. However, this strategy produces limited volumes of water supply.

Coachella Valley Efforts

Due to climactic conditions in Coachella Valley, which results in negligible amounts of fog, fog collection is not currently being planned or explored in the Coachella Valley IRWM region.

Irrigated Land Retirement

Irrigated land retirement is the removal of farmland from irrigated agriculture and increasing water availability for redistribution for other uses. The total water that can be made available for each retired acre can be 2 to 3.5 AFY assuming lands receive their water allocation. The potential benefits from retiring irrigated land includes: enhancing water supply reliability, enhancing water quality, protecting and restoring fish and wildlife resources, reducing drainage volume and associated costs due to drainage disposal.

Strategies for facilitating irrigated land retirement programs identified by the California Water Plan Update 2009 include:

- evaluating and ensuring urban areas receiving water made available from land retirement have exhausted all means of water conservation;
- making all land retirement programs voluntary;

- studying local community and third party impacts from land retirement such as from reduced agricultural production inputs, reduced farm income, and habitat restoration; and
- developing and implementing necessary actions for maintaining the economic stability of local communities and mitigating socioeconomic impacts.

Coachella Valley Efforts

Irrigated land retirement is not currently being planned or explored in the Valley. As explained above with crop idling, high agricultural productivity and resulting economic outputs from the agricultural industry in Coachella Valley make this RMS infeasible for the Coachella Valley IRWM region.

Rainfed Agriculture

The rainfed agriculture strategy is when all crop consumptive water use is provided directly by rainfall on a real time basis. Several of the potential benefits associated to rainfed agriculture include increases in water supply (though limited), improved post harvest/pre-planting soil management for winter crops, and decrease in soil erosion due to increases in soil moisture. However, due to the unpredictability of rainfall frequency, duration, and amount this strategy highly uncertain and risky. Additionally, the quantification of any potential water savings from rainfed agriculture, though small, will not be possible due to lack of available information.

Strategies for implementing rainfed agriculture programs identified by the *California Water Plan Update 2009* include:

- developing new technologies, management, and efficient water management practices for rainfed agriculture;
- providing technical and financial assistance for implementing rainfed agriculture technologies and management practices; and
- developing cooperative efforts to link rainfed agriculture runoff and water banking and conjunctive use activities and groundwater recharge.

Coachella Valley Efforts

With an average rainfall of 4-inches per year, and some years having no rainfall, agriculture is not possible without irrigation. Rainfed agriculture is not currently being planned or explored in the Valley.

Waterbag Transport/Storage Technology

The waterbag transport/storage technology involves diverting water in areas that have unallocated freshwater supplies, storing the water in large inflatable bladders, and towing them to an alternate coastal region. Currently, this strategy is not used in California though there have been various proposal for this technology worldwide. Several of the potential benefits associated to waterbag transport/storage technology includes: improvements in drought preparedness and water quality, reductions in groundwater overdraft, and provides environmental, energy and water supply benefits.

Coachella Valley Efforts

The Coachella Valley is an inland valley surrounded by mountains. Because the area lacks access to an ocean port, waterbag transport/storage technology is not currently being planned or explored in the Valley.

Education and Outreach

The education and outreach RMS was added by Coachella Valley stakeholders during the development of the IRWM Plan. This RMS is important because it improves awareness and support for local water management efforts.

Education and outreach programs are essential strategies for improving community involvement in water planning activities and increasing community awareness of watershed ecosystems and functions. Establishing education and outreach programs provide opportunities for community members to participate in water conservation and water quality protection activities such as ecosystem restoration and water quality monitoring projects. Several potential benefits of education and outreach strategies include: early identification of environmental problems in project developments and reduction of legal, environmental, and project costs from early and effective community engagement.

Several education and outreach strategies identified by the *California Water Plan Update 2009* include:

- developing community based surveys to identify effective education programs that will foster water use efficiency;
- incorporating an education and outreach component within each applicable RMS; and
- using media, newspaper, brochures, flyers, and the web to communicate education and outreach efforts and relevant water conservation and water quality protection information to the community.

Coachella Valley Efforts

Various education and outreach programs to promote water conservation and water quality protection are currently underway in the Coachella IRWM region. Examples of these existing education and outreach strategies are listed below.

- **Water Conservation Education**. The CVRWMG agencies reach out to thousands of children annually to educate on water conservation. There are multiple components to CVWD's programs, including in-class presentation and science fair promotion and sponsorship. MSWD is a Groundwater Guardian affiliate and shares the mission of public outreach to protect groundwater through class room programs and field trips in the watershed. DWA just completed a 2-year outreach conservation campaign. IWA has an ongoing outreach program that reaches school children in grades K-6.
- **Water Efficient Landscaping Guide Book**. CVWD staff along with Erick Johnson, one of California's leading desert landscape experts, published *Lush and Efficient: a Guide to Coachella Valley Landscaping* to provide Coachella Valley residents information on choosing desert plants and how to irrigate properly. Other CVRWMG agencies also produce literature encouraging water conservation, use of desert plants for landscaping, etc.
- **Living Wisely.** MSWD funds the Living Wisely program in conjunction with the electric and gas utility to promote conservation through water and energy efficient in-home practices. MSWD also has an active program to partner with homeowner's associations in identifying water conservation opportunities through plant selection and irrigation practices.
- **EYE Program**. In its fifth year, the Environmental Youth Experience (EYE) Program is conducted on a regional basis with high school youth. Students gather in the fall to explore and identify projects that have conservation and environmental benefits but are combined with service

to their communities. In spring, the students gather again to report on their project successes and experiences. MSWD is a lead community partner in EYE's success.

- **Riverside County Fair**. CVWD and IWA staff a water/conservation exhibit at the Riverside County Fair held in February of each year.

6.5 Adapting Resource Management Strategies to Climate Change

This section includes an evaluation of the adaptability of water management systems in the region to climate change.

The variability of location, timing, amount, and form of precipitation in California, suggested as a result of climate change, could present some uncertainty to the availability of future SWP's delivery capabilities and future SWP deliveries. DWR has determined that the Sierra snowmelt is shrinking and that melting is occurring earlier, shifting runoff from the spring further into the winter and causing winter flooding. Changes in precipitation pattern and quantity throughout the Southwest may also impact potential water supply availability from the Colorado River. Concerns about climate uncertainty have resulted in the need to adapt existing flood management and water supply systems in response to changing conditions.

The *2009 SWP Delivery Reliability Report* (DWR 2009) is intended to help local agencies, cities, and counties that use SWP water to develop adequate and affordable water supplies for their communities now and in the future. The information provided in this report can be used by local agencies in preparing or amending their water management plans and identifying the new facilities or programs that may be necessary to meet future water demands. A new feature of the *2009 SWP Delivery Reliability Report* is the estimation of possible reduction of SWP delivery reliability due to future climate changes and sea level rises. As vulnerability tools and assessments are developed, additional adaptation strategies will be identified to address the potential region-specific impacts of climate change.

Achievable "no regret" management practices for tackling climate change concerns that Coachella Valley can employ include:

- continued investment in local water conservation;
- diversification of local water supply portfolio;
- practicing integrated flood management;
- increasing conjunctive use of available water supplies;
- protecting and restoring water-related ecosystems;
- increasing water reuse and recycling;
- monitoring local and regional activities;
- tracking related legislation;
- investigating water supply/energy relationships and coordinating with larger water utilities; and
- following the State's required adaptation strategies and legislation.

In order to further address these predictions, the region may attempt to incorporate some of the strategies outlined in the *2009 California Climate Adaption Strategy Handbook* (CNRA 2009). The document summarizes the best known science on climate change impacts in seven specific sectors and provides recommendations on how to manage against those threats.

The *2009 California Climate Adaption Strategy Handbook* defines climate change adaptation as adjustments to the natural or human systems due to actual or expected climate changes in an effort to minimize harm or take advantage of beneficial opportunities (CNRA 2009), while climate change mitigation aims at directly reducing the sources of climate change, such as GHGs. To effectively address the impacts of climate change, both climate change adaptation and mitigation strategies should complement each other.

RMS that are implemented to manage water resources can also address climate change adaptation and/or mitigation. **Table 6-3** was extracted from the *California Water Plan Update 2009*; it categorizes resource management strategies and identifies GHG reduction opportunities associated with each RMS.

Finally, project-level CEQA analysis will include detailed climate change analysis, including generation and mitigation of GHG emissions. In preparing project-level GHG emissions analysis, project proponents should estimate GHG emissions from the project; establish significance criteria; identify those project components that may support carbon sequestration; and, if applicable, explain how the project may help in adapting to potential effects of climate change. Further, DWR will be a responsible agency for such project-level CEQA analysis, and project proponents shall follow the guidelines established by DWR with respect to project-level GHG analysis.

Table 6-3: Resource Management Strategies and GHG Reduction Opportunities

Management Objectives	Resource Management Strategy	GHG Reduction Opportunities
Reduce Water Demand	Agricultural Water Use Efficiency Urban Water Use Efficiency	Reduce dependency on energy to transport water resources
Improve Operational Efficiency and Transfers	Conveyance – Delta Conveyance – Regional/local System Reoperation Water Transfers	Decrease emissions by reducing operational efficiency/ transfer vehicle use and energy required for operations/transfers
Increase Water Supply	Conjunctive Management & Groundwater Desalination Precipitation Enhancement Recycled Municipal Water Surface Storage – CALFED Surface Storage – Regional/local	Localize water use, reduce imported water from far distances which require energy and GHG emissions
Improve Water Quality	Drinking Water Treatment and Distribution Groundwater Remediation/Aquifer Remediation Matching Quality to Use Pollution Prevention Salt and Salinity Management Urban Runoff Management	Stabilize water cycles by conserving water systems to their natural state
Improve Flood Management	Flood Risk Management	Controlling flooding so recharge can be redirected efficiently to prevent droughts will reduce a regions dependency on energy-intensive water importation in dry seasons
Practice Resources Stewardship	Agricultural Lands Stewardship Economic Incentives (Loans, Grants and Water Pricing) Ecosystem Restoration Forest Management Recharge Area Protection Water-Dependent Recreation Watershed Management	Provide opportunities for carbon sequestration, reforestation, curb climate changes by restoring/maintaining land surfaces
Other	Crop Idling for Water Transfers Dewvaporation or Atmospheric Pressure Desalination Fog Collection Irrigated Land Retirement Rainfed Agriculture Waterbag Transport/Storage Technology	Reduce energy requirements and GHG emissions from decreased demand of imported water.
Strategy Identified by Stakeholders	Education and Outreach	Reduce energy requirements and GHG emissions through water conservation education programs that decrease imported water demands.

Source: http://www.waterplan.water.ca.gov/cwpu2009/index.cfm







7 Project Evaluation and Prioritization

*This chapter addresses the **Project Selection Process Standard** which ensures the process used for submitting, reviewing, and selecting projects is documented and understandable for regional stakeholders and the public.*

In order to identify water resources management projects for implementation, the CVRWMG set forth an open "Call for Projects" for consideration in the IRWM Plan. Organizations from across the region submitted a total of 68 projects addressing a wide variety of water supply, water quality, flood management, and habitat protection needs. While all of these projects are considered to be important to effectively manage water resources in the region, a prioritization process has been established to help manage the project list and to determine which projects best meet regional needs. The prioritization process will allow a ranking of projects for implementation using a transparent and defensible method and will encourage the development of projects that are best suited for meeting the identified needs of the Coachella Valley.

7.1 Regional Priorities

Implementation priorities are those actions necessary to address immediate areas of need that have been identified through CVRWMG and Planning Partner meetings and public workshops. Meeting these priorities will continue to move implementation of the IRWM Plan forward and ensure that the Plan is representative of the region's needs and responsive to key regional issues. The CVRWMG, with Planning Partners guidance, will be responsible for IRWM Plan implementation responsibilities.

In September 2010, the CVRWMG and Planning Partners identified seven short-term priorities for the Coachella Valley IRWM program. These short-term priorities are intended to direct the activities of the local IRWM program for the next three to five years. These implementation actions will move the Coachella Valley IRWM Region toward more integrated planning and will help the CVRWMG fully characterize and address critical water management needs.

Near-term IRWM Plan implementation will focus on the regional priorities identified through our facilitated consensus-based process. The *Coachella Valley IRWM Planning Grant Proposal* submitted by the CVRWMG in September 2010 addresses several of the regional priorities; others will be addressed through implementation projects or other program activities.

Priority 1: Address Water Quality in DACs

During the issues identification process with regional stakeholders, critical drinking water quality issues were raised by East Valley DACs. The CVRWMG is committed to developing a more thorough understanding of and identifying solutions for the groundwater quality issues in the Region's DACs. Task 2-1 in the *Planning Grant Proposal* involves a technical evaluation to begin exploring these issues right away. Tackling this critical need head-on will address two of DWR's Statewide Priorities: "Protect Surface Water and

Groundwater Quality" and "Ensure Equitable Distribution of Benefits". The Region's *Proposition 84-Round 1 Implementation Grant Proposal* includes a short-term arsenic treatment project to ensure that known mobile home communities who currently experience arsenic contamination are provided clean, safe drinking water as soon as possible.

Priority 2: Manage Flood Risk

Due to the Valley's susceptibility to flash flooding, the CVRWMG is committed to identifying and improving regional participation in flood protection programs. Task 2-3 in the Planning Grant Proposal includes development of an Integrated Flood Management Plan to address local flooding risks. This planning effort directly addresses emergency preparedness, flood protection, floodplain ecosystems, and low impact development techniques that comprise DWR's Statewide Priority "Practice Integrated Flood Management".

Priority 3: Improve Relationships with Tribes

Establishing new relationships between the IRWM program and local tribes will improve regional groundwater management. As demonstrated by establishment of the Native American Tribes Issues Group and Task 1-4 in the *Planning Grant Proposal*, the CVRWMG is committed to using the IRWM program as a forum for coordination and collaboration with the Valley's tribes. This consultation will help the Region attain DWR's Statewide Priority "Improve Tribal Water and Natural Resources".

Priority 4: Address Emerging Regulations

Recent changes in the regulatory environment – including the passage of AB1420 and SBX7-6, the State Board's Recycled Water Policy, and ongoing Total Maximum Daily Load (TMDL) efforts – have and will affect water management activities of the CVRWMG. The CVRWMG is committed to working together to address common interests and solutions to these new regulations. Task 2-2 in the *Planning Grant Proposal* involves development of a planning strategy for the Salt and Nutrient Management Plans required by the Recycled Water Policy. DWR's Statewide Priority "Protection Surface Water and Groundwater Quality" specifically promotes salt and nutrient planning as a component of an IRWM Plan. Task 2-4 in the *Planning Grant Proposal* involves development of a monitoring strategy for Groundwater Elevation Monitoring in compliance with SBX7-6.

Priority 5: Encourage Septic to Sewer Conversion

Because of their impacts on groundwater quality in the Valley, the CVRWMG is committed to implementing septic-to-sewer conversion projects through the IRWM program. Various conversion projects throughout the Valley may be coordinated under a larger, more efficient program to address DWR's Statewide Priority "Protect Surface and Groundwater Quality". The Region's *Proposition 84-Round 1 Implementation Grant Proposal* includes several septic-to-sewer projects that address critical groundwater quality issues related to nitrate contamination.

Priority 6: Address Reduced Reliability

Developing a better understanding of the State's SWP priorities and issues affecting reliability will help the Region coordinate its efforts and resources towards improving future supply reliability. In the meantime, the CVRWMG is committed to encouraging water conservation and source substitution projects to reduce demand on the imported water supply. For example, the CVRWMG recognizes the importance of expanding the region's recycled water systems to offset potable water demand. With this emphasis on water conservation and recycling, the CVRWMG will implement DWR's Statewide Priority

"Drought Preparedness" within the Valley. The Region's *Proposition 84-Round 1 Implementation Grant Proposal* includes a regional water conservation program to address the potential for reduced reliability and to achieve compliance with the State's 20x2020 Plan.

Priority 7: Create the Data Management System

The CVRWMG is committed to creating a Data Management System (DMS) that will help to manage water resources data and project performance. Over the next few years, the CVRWMG will expand the program website (www.cvrwmg.org) and online project database to provide additional functionality to the region's stakeholders. Refer to *Chapter 9, Framework for Implementation, Section 9.3 Data Management* for additional detail on the proposed DMS.

Implementation of these priorities will help to ensure that IRWM Plan implementation proceeds in a coordinated manner, the benefits of Plan implementation extend throughout the Region, and the Region makes inroads toward achieving the goals of this IRWM Plan.

7.2 Project Selection Process

This section describes the Project Selection Process, which includes three components: procedures for submitting a project to the IRWM Plan; procedures for review of projects to implement the IRWM Plan; and procedures for communicating the list(s) of selected projects.

Throughout the IRWM planning process, the CVRWMG has engaged stakeholders across multiple areas of water resources management to identify priorities for the region and to prioritize projects for implementation. As described below, the Planning Partners played an integral role in reviewing and selecting projects that best achieve the regional goals and objectives. This section presents the process for prioritization and selection of IRWM projects, including:

- Procedures for submitting projects to the IRWM Plan;
- Procedures for reviewing and prioritizing projects submitted to the IRWM Plan; and
- Procedures for selecting and communicating the final project list.

7.2.1 Project Submittal Process

The CVRWMG developed the project submittal process in May 2010. This process involves three major steps: solicitation, prioritization, and selection. Solicitation can be described as a "Call for Projects" that help meet the region's established goals and objectives. This step's objective is to compile a comprehensive list of water-related projects for the region. Any individual(s) that represent a public agency or non-profit organization with common water interests and needs can submit a project to the IRWM program via the project website (www.cvrwmg.org). An online project database was developed to assist in the management of project information (http://irwm.wrime.com/cvirwm/login.php). The database provided stakeholders with access to project information based on username/login functionality. Stakeholders accessed the online project database from the project website, entered and edited their project information, and submitted the projects for consideration in the IRWM Plan.

At a minimum, each project submitter must provide basic information about their project, including a project description, contribution to IRWM objectives, water-related benefits, estimated costs, status, and project details. The IRWM project website allows this project information to be reviewed, organized, and regularly updated by the CVRWMG and project proponents. Access to project summaries is available to all interested parties with the intention of improving transparency. **Figure 7-1** includes screenshots of the CVRWMG projects website and the online project database.

Project solicitation was discussed at the Planning Partners meetings held on May 19, 2010 and July 20, 2010, as well as at the DAC and Tribal Outreach meetings held on May 20, 2010 and July 28, 2010. Project solicitation was also announced and discussed at a Public Workshop held on June 23, 2010. At this time, the CVRWMG partners extended an offer to all project submitters to assist with input of their projects.

An open house was held for DAC representatives and other interested stakeholders on July 28, 2010 with computers available to help project proponents in entering project information into the database. Access to the online project submittal forms can be made available to those who do not have computer access. In addition, the CVRWMG may provide technical support to DAC and other representatives who are able to develop project materials on their own, in order to assist entities in submitting thorough project information.

Notices were sent on via email, advertisements on the website, and other media sources in order to reach all possible interested parties. A deadline for project submittals was set for Friday July 30, 2010 in order to receive, screen, and rank all projects for inclusion within the IRWM Plan.

In order to facilitate review and organization of the project submittals, the IRWM project website provides the option of printing or exporting a detailed list of all projects submitted. The CVRWMG used this project list in discussions of submitted projects with the Planning Partners and other stakeholders.

Figure 7-1 CVRWMG Project Submittal Website



The online project database is open at all times for receipt of new implementation projects as well as editing and revision of current implementation projects. As new funding opportunities arise, the CVRWMG will issue a new "Call for Projects" with a deadline appropriate for that funding application. Project concepts, ideas, and/or needs were accepted into the project submission process in order to identify needs within the region; however, these types of submittals were not considered for IRWM-related grant funding.

7.2.2 Project Review and Prioritization Process

After the July 30, 2010 deadline, projects submitted through the open "Call for Projects" were reviewed, ranked, and prioritized using a two-step screening and scoring approach. **Figure 7-2** below illustrates the overall process for screening of projects for the IRWM program.

As shown in this **Figure 7-2,** projects were first evaluated for consistency with the regional objectives. Projects that did not meet any regional objectives were excluded from the IRWM Plan. Projects that were

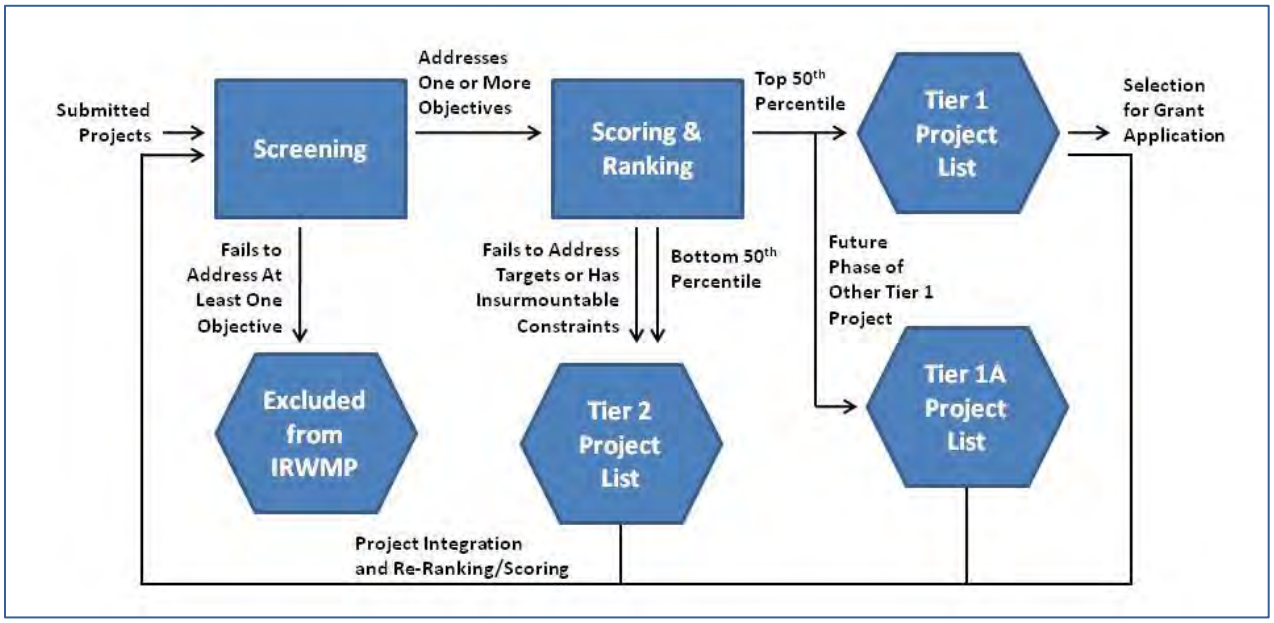
found to meet at least one objective passed the screening process and moved on to the next step of the project review process: scoring and ranking.

To evaluate and prioritize projects as part of the IRWM planning process, the scoring and ranking process takes into account three fundamental components:

- Principles of IRWM planning,
- Priorities of the Coachella Valley region,
- Feasibility of projects to proceed.

The relative priority of each criterion is established by its ability to contribute to the overall goals and objectives established for the Coachella Valley Region as illustrated in **Table 7-1**. Scoring for each submitted project was based on the responses provided in the online project database. In addition, the CVRWMG reviews each project individually for accuracy before they are ranked within the online project database.

Figure 7-2: Prioritization Process Overview



Through a consensus process, the CVRWMG and Planning Partners established the relative importance of each of these criteria. The approach to scoring projects and the relative importance of each criterion is presented in **Table 7-2.** Project scoring was developed to identify projects that:

- Address multiple IRWM Plan objectives;
- Integrate multiple resource management strategies;
- Address a Statewide Priority;
- Link to other projects;
- Involve more than one partner;
- Optimize water supply reliability;
- Protect or improve water quality;
- Manage flood risks;

- Optimize conjunctive use of surface and groundwater supplies;
- Directly benefit disadvantaged communities; and
- Identified in existing plans.

Each project was evaluated with respect to the criteria presented in **Table 7-2.** Based on the outcome of this evaluation, each project was assigned a score for each criterion for a total maximum score of 180. Projects were then be ranked with the highest-scoring project ranked by number one. The top 50th percentile of projects (i.e., all project above the median) were considered Tier 1 projects that strongly contribute to the attainment of regional goals and objectives. Further, all future phases of Tier 1 projects were considered Tier 1A, such that only the ready-to-proceed Tier 1 projects were identified as regional priorities. The bottom 50th percentile (i.e., all projects below the median) were considered Tier 2 projects that are necessary to manage water in the region, but not considered priorities under IRWM planning.

Tier 1 projects listed within the online project database will be moved forward for consideration in various IRWM funding applications.

On August 11, 2010, the CVRWMG participated in an Integration Workshop to review and discuss the complete list of submitted projects. The purpose of this meeting was to facilitate the pairing of similar projects to fulfill the integration requirements of the IRWM Plan (please see *Chapter 6 Resource Management Strategies, Section 6.1 IRWM Integration Approach* for a more detailed explanation of integration). The CVRWMG agreed that project integration and selection should occur with near-term regional and agency-wide benefits in mind. The focus of this IRWM Plan is to identify and address immediate needs that benefit the Coachella Valley.

After much discussion, several integration opportunities among the submitted projects were identified. The opportunities for greater project efficiencies were highlighted and projects that did not address IRWM Plan goals and objectives were noted. The CVRWMG noted that not all prioritized projects will be regional in scope; solutions could entail grouping projects into 'packages' or prioritizing individual projects based on critical water supply or water quality needs. Integration suggestions made by the five CVRWMG agencies at the meeting were transmitted to the project proponents for consideration. Project proponents were given two additional weeks to make any changes or updates to integrated projects in the online project database.

Stakeholder Input

Stakeholders have the ability to provide input and feedback on projects through the online project database, during project review sessions, at Planning Partners meetings, and through participation in project selection workgroups. The project selection process for Proposition 84-Round 1 funding was finalized at public meetings of the Planning Partners held on September 28, 2010 and October 26, 2010.

Table 7-1: Project Prioritization Criteria and Relationship to IRWM Goals and Objectives

Goals	Objectives	1. DWR IRWM Principles					2. Priorities of the Coachella Valley					3. Feasibility
		Addresses Multiple IRWM Plan Objectives	Integrates Multiple Resource Management Strategies	Addresses a Statewide Priority*	Linked to Other Projects	Involves More than One Partner	Optimizes Water Supply Reliability	Protects or Improves Water Quality	Manages Flood Risks	Optimizes Conjunctive Use of Surface and Groundwater Supplies	Directly Benefits Disadvantaged Communities	Identified in Existing Plan
1. Optimize water supply reliability.	A. Provide reliable water supply for residential and commercial, agricultural community, or tourism needs.	X	X	X	O	O	X	X			O	X
	B. Manage groundwater levels to reduce overdraft, manage perched water, and minimize subsidence.	X	X		O	O	X	X		O	O	X
	C. Secure reliable imported water supply, including restoring/improving reliability of State Water Project supply and securing other imported water supplies.	X	X		O	O	X	X		O	O	X
	D. Maximize local supply opportunities, including water conservation, water recycling and source substitution, and capture and infiltration of runoff.	X	X	X	O	O	X	X	O		O	X
2. Protect water quality.	E. Protect groundwater quality and improve, where feasible.	X	X	X	O	O	X	X		O	O	X
	F. Preserve and improve surface water quality by maintaining integrity of agricultural drainage systems, protecting the quality of natural runoff used for potable supply, and reducing pollution in stormwater runoff.	X	X	X	O	O	X	X		O	O	X

Goals	Objectives	1. DWR IRWM Principles					2. Priorities of the Coachella Valley					3. Feasibility
		Addresses Multiple IRWM Plan Objectives	Integrates Multiple Resource Management Strategies	Addresses a Statewide Priority*	Linked to Other Projects	Involves More than One Partner	Optimizes Water Supply Reliability	Protects or Improves Water Quality	Manages Flood Risks	Optimizes Conjunctive Use of Surface and Groundwater Supplies	Directly Benefits Disadvantaged Communities	Identified in Existing Plan
3. Provide stewardship of our water-related natural resources.	G. Preserve water-related local environment and restore, where feasible.	X	X	X	O	O		O			O	X
	H. Manage flood risks, including current acute needs and needs for future development.	X	X	X	O	O	X	X	X		X	X
4. Coordinate and integrate water resource management.	I. Optimize conjunctive use of available water resources.	X	X		O	O	X	O		X	O	X
	J. Maximize stakeholder involvement and stewardship in water resource management.	X			X	X	X	X	O	O	X	X
5. Ensure cultural and social sustainability of water in the Valley.	K. Address water-related needs of local Native American culture.	X	X	X	O	O	X	X			O	X
	L. Address water and sanitation needs of disadvantaged communities.	X	X	X	O	O	X	X			X	X
	M. Maintain affordability of water.	X			O	O	X	O		O	O	X
	Relative Ranking/Importance to Achieving IRWM Goals and Objectives	**A**	**A**	**B**	**C**	**C**	**B**	**B**	**B**	**B**	**B**	**A**

X = directly related
O = indirectly related
Proposed initial weighting: A = 25% (addresses 7+objectives), B=12.5% (achieves 2-6 objectives), C=6.25% (achieves <2 objectives directly).
* Statewide Priorities are:

- Drought preparedness
- Use and reuse water more efficiently
- Climate change response actions
- Expand environmental stewardship
- Practice integrated flood management
- Protect surface water and groundwater quality
- Improve tribal water and natural resources Ensure equitable distribution of benefits

Table 7-2: Project Scoring Guide

Component	Criterion	Scoring Procedure[1]	Points Assigned	Weighting	Subtotal
1. Principles of IRWM Planning	A. Addresses Multiple IRWM Plan Objectives	Score based on # of objectives addressed	4+ objectives = 20 pts 3 objectives = 15 pts 2 objectives = 10 pts 1 objective = 5 pts	11%	70
	B. Integrates Multiple Resource Management Strategies	Score based on # of strategies employed	8+ strategies = 20 pts 6-7 strategies = 15 pts 4-5 strategies = 10 pts 2-3 strategies = 5 pts	11%	
	C. Addresses a Statewide Priority	Score is based on Yes/No response	Yes = 10 pts No = 0 pts	6%	
	D. Linked to Other Projects	Score is based on Yes/No response	Yes = 10 pts No = 0 pts	6%	
	E. Involves More than One Partner	Score is based on Yes/No response	Yes = 10 pts No = 0 pts	6%	
2. Priorities of the Coachella Valley	A. Optimizes Water Supply Reliability	Score is based on Yes/No response	Yes = 20 pts No = 0 pts	11%	100
	B. Protects or Improves Water Quality	Score is based on Yes/No response	Yes = 20 pts No = 0 pts	11%	
	C. Manages Flood Risks	Score is based on Yes/No response	Yes = 20 pts No = 0 pts	11%	
	D. Optimizes Conjunctive Use of Surface and Groundwater Supplies	Score is based on Yes/No response	Yes = 20 pts No = 0 pts	11%	
	E. Directly Benefits Disadvantaged Communities	Score is based on Yes/No response	Yes = 20 pts No = 0 pts	11%	
3. Project Feasibility	A. Identified in Existing Plan	Score is based on Yes/No response	Yes = 10 pts No = 0 pts	6%	10
				Total	180

7.2.3 Project Selection Factors

The following subsections outline the project selection factors identified by DWR and used by the CVRWMG in the project selection process. Refer to *Chapter 6 Resource Management Strategies, Section 6.5 Adapting Resource Management Strategies to Climate Change* for more information regarding climate change adaptation and mitigation.

Contribution to IRWM Plan Objectives

As described above, one of the primary scoring criterion used for the project review process is to degree to which a project contributes to the regional objectives. The various projects submitted for this IRWM Plan were scored (Criterion 1A and 2A-E) based on how well each project contributes to the objectives, up to a maximum of 120 points. The established IRWM Plan Objectives are listed below:

A. Provide reliable water supply for residential and commercial, agricultural community, and tourism needs.
B. Manage groundwater levels to reduce overdraft, manage perched water, and minimize subsidence.
C. Secure reliable imported water supply, including restoring/improving reliability of State Water Project supply and securing other imported water supplies.
D. Maximize local supply opportunities, including water conservation, water recycling and source substitution, and capture and infiltration of runoff.
E. Protect groundwater quality and improve, where feasible.
F. Preserve and improve surface water quality by maintaining integrity of agricultural drainage systems, protecting the quality of natural runoff used for potable supply, and reducing pollution in stormwater runoff.
G. Preserve water-related local environment and restore, where feasible.
H. Manage flood risks, including current acute needs and needs for future development.
I. Optimize conjunctive use of available water resources.
J. Maximize stakeholder involvement and stewardship in water resource management.
K. Address water-related needs of local Native American culture.
L. Address water and sanitation needs of disadvantaged communities, including those in remote areas.
M. Maintain affordability of water.

The IRWM Plan also provides measurable targets for each IRWM Plan objective. These measurable targets provide a way to assess each submitted project's contribution to the regional goals and objectives established by the Valley's stakeholders. Each project's contribution to the IRWM Plan objectives will be measured and monitored during project implementation. On an annual basis, the CVRWMG will coordinate with project proponents to evaluate the status of each IRWM project and develop a summary of implementation progress for stakeholder review. By reporting each project's contribution to the measurable targets, the IRWM Annual Reports will provide the region with an understanding of how the Valley's water management issues and needs are being addressed each year through IRWMP. Projects which are undergoing planning, engineering, and construction will be updated to provide a comprehensive picture of their progress.

Appendix B provides a cross-walk of the submitted projects (as of September 30, 2010) and the Coachella Valley IRWM Plan objectives.

Relationship to RMS

The implementation projects included in **Appendix B** incorporate a wide range of resource management strategies (RMS) to achieve the region goals and objectives (see *Chapter 6 Resource Management Strategies* for a detailed discussion). Each RMS identified in the *California Water Plan Update 2009*, as well as others identified by Valley stakeholders, can contribute to the IRWM Plan goals and objectives.

Table 6-2 (in *Chapter 6, Resource Management Strategies*) presents Coachella Valley's regional objectives and their correlation to the RMS. Project submittals are required to identify both the regional goals and objectives and the specific RMS employed by each implementation project. The diversification of management strategies across the Valley's implementation projects will ensure that all critical water management needs are addressed without fail.

Appendix B provides a cross-walk of the submitted projects (as of September 30, 2010) and the RMS included within this Plan.

Statewide Priorities

The Statewide Priorities identified by DWR in their IRWM Grant Program Guidelines (August 2010) include a broad range of project types that address current water management issues. These Statewide Priorities are presented in **Table 7-3**. The Statewide Priorities were considered during development of the Coachella Valley's goals and objectives. However, regional needs and issues were of primary importance.

Appendix B provides a cross-walk of the submitted projects (as of September 30, 2010) and the Statewide Priorities.

Of the eight aforementioned priorities set forth by DWR, CVRWMG and the Planning Partners considered one priority, Climate Change Response Actions, separately from the other Statewide Priorities in the project review process. For specific information on how this priority was considered, please refer to the sections below.

Technical Feasibility

The CVRWMG and Planning Partners considered the technical feasibility of submitted projects during the review process. Technical feasibility is related to the knowledge of the project location; knowledge of the water system at the project location; or the material, methods, or processes proposed to be employed in the project. Technical feasibility of each project submittal was assessed through the following fields in the online project database: list regulatory permits; list CEQA/NEPA documents; list feasibility study(s); and describe need for project.

A list of regulatory permits will demonstrate how the project has developed. Dates of permitting will show how long the project has been underway and give the CVRWMG an idea of how much funding is required in order to complete the project. Greater understanding of the project will be achievable if permitting documentation is accounted for in the project prioritization process.

Table 7-3: Statewide Priorities

Statewide Priority	Description
Drought Preparedness	Proposals that contain projects that effectively address long-term drought preparedness by contributing to sustainable water supply and reliability during water shortages. Drought preparedness projects do not include drought emergency response actions, such as trucking of water or lowering well intakes. Desirable proposals will achieve one or more of the following: o Promote water conservation, conjunctive use, reuse and recycling o Improve landscape and agricultural irrigation efficiencies o Achieve long-term reduction of water use o Efficient groundwater basin management o Establish system interties
Use and Reuse Water More Efficiently	Proposals that include projects that implement water use efficiency, water conservation, recycling and reuse to help meet future water demands, increase water supply reliability and adapt to possible climate change. Desirable proposals include those with projects that: o Increase urban and agricultural water use efficiency measures such as conservation and recycling o Capture, store, treat, and use urban stormwater runoff (such as percolation to usable aquifers, underground storage beneath parks, small surface basins, domestic stormwater capture systems, or the creation of catch basins or sumps downhill of development) or projects outlined in PRC §30916 (SB 790) o Incorporate and implement low impact development (LID) design features, techniques, and practices to reduce or eliminate stormwater runoff
Climate Change Response Actions	Water management actions that will address the key Climate Change issues of: o Adaptation to Climate Change – Proposals that contain projects that when implemented address adaptation to climate change effects in an IRWM region. Desirable proposals include those that: • Advance and expand conjunctive management of multiple water supply sources o Use and reuse water more efficiently o Water management system modifications that address anticipated climate change impacts, such as rising sea-level, and which may include modifications or relocations of intakes or outfalls o Establish migration corridors, re-establish river-floodplain hydrologic continuity, re-introduce anadromous fish populations to upper watersheds, and enhance and protect upper watershed forests and meadow systems o Reduction of Greenhouse Gas (GHG) Emissions – Proposals that contain projects that reduce GHG emissions compared to alternate projects that achieve similar water management contributions toward IRWM objectives. Desirable proposals include those that: • Reduce energy consumption of water systems and uses • Use cleaner energy sources to move and treat water o Reduce Energy Consumption – Proposals that contain projects that reduce not only water demand but wastewater loads as well, and can reduce energy demand and GHG emissions. Desirable proposals include: • Water use efficiency • Water recycling

Table 7-3: Statewide Priorities

Statewide Priority	Description
	• Water system energy efficiency • Reuse runoff
Expand Environmental Stewardship	Proposals that contain projects that practice, promote, improve, and expand environmental stewardship to protect and enhance the environment by improving watersheds, floodplains, and instream functions and to sustain water and flood management ecosystems.
Practice Integrated Flood Management	Proposals that contain projects that promote and practice integrated flood management to provide multiple benefits including: o Better emergency preparedness and response o Improved flood protection o More sustainable flood and water management systems o Enhanced floodplain ecosystems o LID techniques that store and infiltrate runoff while protecting groundwater
Protect Surface Water and Groundwater Quality	Proposals that include: o Protecting and restoring surface water and groundwater quality to safeguard public and environmental health and secure water supplies for beneficial uses o Salt/nutrient management planning as a component of an IRWM Plan
Improve Tribal Water and Natural Resources	Proposals that include the development of Tribal consultation, collaboration, and access to funding for water programs and projects to better sustain Tribal water and natural resources.
Ensure Equitable Distribution of Benefits	Proposals that: o Increase the participation of small and disadvantaged communities in the IRWM process. o Develop multi-benefit projects with consideration of affected disadvantaged communities and vulnerable populations o Contain projects that address safe drinking water and wastewater treatment needs of DACs o Address critical water supply or water quality needs of California Native American Tribes within the region

Source: *Proposition 84 & Proposition 1E IRWM Grant Program Guidelines* (DWR 2010)

Providing proof of CEQA and NEPA documents will identify a project's environmental circumstances which can help pinpoint a project's technical feasibility. According to Section 21001 of the CEQA Guidelines, the CEQA environmental review process in intended to:

- Develop, maintain and enhance a high quality environment;
- Provide California's residents with clean air and water, and with historical, scenic, natural and pleasing visual amenities;
- Prevent the elimination of fish and wildlife species and communities for present and future generations;
- Provide long-term environmental protection plus a decent home and living environment to its citizens;

- Create and maintain harmony between people and nature so that short and long-term social and economic benefits can be gained;
- Develop standards and procedures designed to provide environmental protection;
- Consider short and long-term economic and technical costs and benefits when approving development proposals;
- Foster intergovernmental coordination and cooperation; and
- Enhance public participation in government planning and decision making.

CEQA/NEPA documentation will include project background, methods, goals, data, environmental risks, and other components that will help project proponents gauge the technical feasibility of their projects. Per Section 15262 of the CEQA Guidelines, this IRWM Plan qualifies as a planning study and does not have a legally binding effect of the participating agencies. As such, programmatic environmental analysis under CEQA is not required.

The existence of a technical feasibility study will provide greater efficiency in project selection. The feasibility study will provide CVRWMG with an evaluation of the potential impacts of the proposed project. The analysis will help CVRWMG determine how likely the project will achieve regional and statewide goals and objectives.

A list of projects needs can provide significant guidance for project selections. As described later in the chapter, if project needs touch upon critical issues of the regions (i.e. DAC/tribal lands water quality, environmental justice) then, greater consideration will be taken. This information was considered both during project review and scoring, as well as during consideration of projects for specific funding applications.

Projects submitted as part of this IRWM Plan are expected to be in varying stages of implementation, including planning, feasibility study, design and engineering, restoration, and construction. Several implementation projects may be considered "technical feasibility studies" to prepare for future construction projects that meet the Valley's water management needs. Additionally, several projects may be land acquisition projects that would not require a demonstration of technical feasibility.

Appendix B provides a description of the technical feasibility of the submitted projects (as of September 30, 2010). They will be demonstrated in either the form of 1) published feasibility studies, master plans, pre-design studies and/or 2) by successful implementation and operation of other similar projects.

Critical Issues in DACs

As described above, the project selection process considered if a project helps to address critical water supply and water quality needs of DACs within the IRWM region. The various projects submitted for this IRWM Plan were scored (Criterion 1A and 2E) based on how well each project contributes to addressing DAC needs, up to a maximum of 40 points. The "Call for Projects" was opened for any public agency or non-profit organization, including DACs, who wanted to submit water projects within the Coachella Valley region. *Chapter 5, Section 5.6, Disadvantaged Communities Outreach* provides an overview of DAC geography and demographics. *Chapter 3, Issues and Needs, Section 3.1.8 Issues Groups* includes an explanation of important water and wastewater issues pertinent to Coachella Valley DACs.

The affordability of water, improvement of water quality, and lack of water and wastewater infrastructure are among the main concerns in DACs. All implementation projects that address these concerns were given allocated points in the scoring process.

A total of 30 submitted projects (approximately 44%) addressed critical DAC needs. The CVRWMG provided local representatives from DAC organizations – primarily the East Valley collaborative between Pueblo Unido CDC, Poder Popular, and CRLF – with technical support in developing project information for submittal to the IRWM Plan.

Appendix B provides a cross-walk of the submitted projects (as of September 30, 2010) and their benefits to DACs in the Coachella Valley.

Critical Issues on Tribal Lands

There are six Native American tribes located in or near the Coachella Valley region, as shown in Figure 2-16: Tribal Lands (see *Chapter 2, Region Description*). Tribes were included and participated in the "Call for Projects" during development of this IRWM Plan. As explained in *Chapter 3 Issues and Needs* Coachella Valley tribal lands suffer from a lack of adequate water and wastewater infrastructure and high costs associated with improving it. There is a lack of basic water and wastewater infrastructure on some tribal lands in the East Valley. For instance, private sewer facilities are undersized or inadequate in low percolation areas.

Of the 68 submitted projects, one was submitted by a tribal government; this project promotes wetland expansion in Desert Cahuilla located on the northwest shore of the Salton Sea. Further, several additional IRWM projects – specifically those improving local groundwater conditions – provide benefits to tribal governments.

Appendix B provides a cross-walk of the submitted projects (as of September 30, 2010) and their benefits to tribes in the Coachella Valley.

Environmental Justice Considerations

Environmental justice is defined in California law (Government Code section 65040.12) as "the fair treatment of people of all races, cultures, and incomes with respect to the development, adoption, implementation, and enforcement of environmental laws and policies." Environmental justice in water management includes:

- Supporting community health, as well as a clean and safe environment,
- Diversifying the decision-making process by calling for involvement of all people and communities,
- Encouraging a more equitable distribution of economic benefits,
- Empowering communities themselves to take action towards improving their environment,
- Increasing awareness, understanding and effective cooperation within and among communities, and,
- Ensuring the right of all people to equal and fair treatment under the laws and regulations of the United States.

IRWM Plan projects that support water supply diversity and water quality improvement ensure equitable water supply reliability, quality, safety, and economic benefits for all water users within the Valley, regardless of ethnicity or economics. Disadvantaged communities (along with the region's population as a whole) will benefit from floodplain management projects that address current flooding issues.

Stakeholder outreach programs (see *Chapter 5 Stakeholder Involvement*) used to develop this IRWM Plan support the inclusion of DACs located within the region's municipalities and unincorporated areas. The CVRWMG will also have frequent Planning Partners meetings in which all DACs will be invited.

Planning Partners include the County of Riverside, CVIRWM area cities, DAC representatives, Tribal staff, and other invited water-related organizations.

As described above, 30 of the submitted IRWM Plan projects address environmental justice by (1) creating safe and reliable water supply for disadvantaged communities, (2) improving water quality within disadvantaged communities, and/or (3) reducing flood risks within disadvantaged communities.

Project Costs and Financing

Estimated costs and project implementation information presented within this IRWM Plan (see *Chapter 9, Framework for Implementation, Section 9.5 Finance*) were derived from project proponents, so costs for all projects presented herein should be considered preliminary planning estimates. Project costs will be subject to refinement and adjustment in future plan updates and in future grant funding applications.

Project information on benefits, impacts, technical feasibility, and schedules were also provided by project proponents. Additional analysis of submitted project information will be required as part of future funding prioritization efforts to (1) confirm the submitted project information, and (2) to ensure consistency in the methods used to develop the project information.

Appendix B provides a cross-walk of the submitted projects (as of September 30, 2010) and their minimum and maximum project costs, grant funding needed, local cost share, and annual operations and maintenance costs.

Economic Feasibility

As part of the project selection process, the economic feasibility of each project was considered. Project proponents were asked to submit information about minimum and maximum project costs, grant funds requested, estimated local match amount, match type, and annual operations and maintenance costs. Completing this information indicates that the project proponents has developed a complete scope and budget necessary for project implementation. Further, additional information on cost effectiveness and certainty of local cost share was requested from project sponsors during deliberation of the funding application package.

A full economic-benefits analysis will be developed as part of the IRWM implementation grant application process. According to DWR's Economic Analysis Guidebook, the objective of economic analysis is to determine if a project represents the best use of resources over the analysis period (that is, the project is economically justified). The test of economic feasibility is passed if the total benefits that result from the project exceed those which would accrue without the project by an amount in excess of the project costs, according to the guidebook. For more information regarding the economic feasibility, please refer to *Chapter 9 Framework for Implementation, Section 9.5.1 Sources and Certainty of Funding.*

Project Status

Project status, also known as "readiness to proceed," is completed in the project database by the project proponents. This field is considered during project prioritization; however, readiness to proceed is not necessarily a reason for project exclusion from an IRWM Plan. As the planning horizon for an IRWM Plan is 20-years, even a conceptual project should be considered as it may be projected to have benefits that would be worth realizing by implementing the project or by developing an alternate, integrated, or modified project.

Project status may have to be reconsidered as implementation projects are matched with sources of grant funding. Funding sources may want projects completed within certain time limits. However, it is also true

that some funding sources may cover planning or developmental phases of a project. The CVRWMG will keep in mind conditions of the specific funding opportunities and will communicate this information to all project proponents during the "Call for Projects" and subsequent project selection processes.

Appendix B provides a cross-walk of the submitted projects (as of September 30, 2010) and readiness to proceed with near-term funding opportunities.

Strategic Considerations

Integrating similar projects – based on geographic or RMS similarities – have and will be considered by the CVRWMG, Planning Partners, and other stakeholders before proceeding with project selection. The CVRWMG has taken full advantage of the principals of IRWM planning by combining or modifying local projects into regional projects or 'packages.'

At the CVRWMG Integration Workshop held on August 11, 2010 and a Planning Partners meeting on September 28, 2010, brainstorming sessions occurred and the resulting suggestions for integration were communicated to project proponents. For example, project proponents have collaborated to integrate multiple septic conversion projects, water quality related projects, and/or water recycling projects. Recommendations that projects within geographic proximity be combined were also communicated and implemented.

The online project database requested information from project sponsors on identifying linkages with other projects. **Appendix B** provides a cross-walk of the submitted projects (as of September 30, 2010) and various strategic considerations.

Climate Change Adaptation

For additional detail on climate change considerations, please refer to *Chapter 2, Region Description, Section 2.8 Climate Change* and/or *Chapter 6 Resource Management Strategies, Section 6.5 Adapting Resource Management Strategies to Climate Change.* Climate change concerns are acknowledged and incorporated into long-term planning related to water supply, water quality, and flood management in the Valley. The CVRWMG recognizes that climate change could affect future water supply availability and reliability. Therefore, the CVRWMG will consider projects that aim to conserve and manage future sustainability of the region's water supply.

Appendix B provides a cross-walk of the submitted projects (as of September 30, 2010) and climate change adaptation strategies.

Climate Change Mitigation

The CVRWMG recognizes the relationship between energy consumption, GHG emissions, and water resources management. Consideration is given in the project selection process to projects that incorporate GHG emission reduction strategies. GHG reduction methods such as CARB strategies (please see *Chapter 2, Region Description, Section 2.8.1 Legislative and Policy Context)*, participation in the California Climate Action Registry, and carbon sequestration (where practical) are recommended to agencies and organizations participating in IRWM planning.

Appendix B provides a cross-walk of the submitted projects (as of September 30, 2010) and climate change mitigation efforts.

7.3 List of Selected Projects

This section describes how the submitted project list(s) will be stored, maintained, and shared.

Periodic updates of the Coachella Valley IRWM project list must be made to ensure current projects are considered for each new funding opportunity. Updating the project list will allow new projects to be added, as regional conditions or the State's regulatory setting changes. This will also allow project proponents to update and revise their project submittals as necessary. The online project database developed for this IRWM Plan will remain open and available to project proponents for updates, additions, and revisions over time. As new funding opportunities arise, the CVRWMG will communicate new project submittal deadlines and other relevant information.

The Coachella Valley IRWM project list – as of September 30, 2010 – is included in **Appendix B** of this Plan. After that date, the updated project list will be accessible through the online project database (http://www.cvrwmg.org/projects.php). The online project database allows project proponents to update project information, review other projects and identify integration opportunities, and add additional features so the projects provide multiple benefits. This online project database allows the project list to remain "live", always available for review and update. The Coachella Valley IRWM Plan does not require re-adoption following changes to this project list.

When the CVRWMG identifies each new funding opportunity, it will work with the Planning Partners to review, score and rank, and select projects for the funding application. All grant applications will be submitted to the Planning Partners for review and approval prior to submission to the CVRWMG governing bodies and grant agency.

Modification Process

Chapter 5, Stakeholder Involvement presents an overview of the CVRWMG's governance structure overseeing Plan implementation. The CVRWMG will similarly be responsible for conducting periodic IRWM Plan reviews and updates. The list of projects to be considered for implementation identified in this section will be subject to review and revision as part of the periodic Plan updates. Over time, it is expected that some projects included in this Plan will be implemented, and other projects not currently included in this Plan will be added to for the project database for implementation (see *Chapter 5, Stakeholder Involvement, Section 5.9.1 Updating or Amending the IRWM Plan* for more information).

7.4 Grant Funding Proposal Prioritization

This section describes how the submitted project list(s) will be prioritizes for future grant funding proposals.

Projects selected for grant funding packages will be selected using a funding proposal prioritization process that goes beyond the IRWM prioritization process presented above. The prioritization process presented above described the prioritization process used to identify top implementation projects. While this process ranked projects based on ability to address Regional objectives and other criteria, the process does not identify specific groups of projects for which funding should be sought. The reason for this is twofold:

1. Prioritizing projects for a specific funding proposal in the Plan would limit the versatility of the prioritization process for use in identifying projects for future funding opportunities; and
2. As this IRWM Plan is intended to be a living document, the prioritization process presented in this Plan should remain flexible, such that it may be adapted to changing regional needs.

A supplemental prioritization process must be implemented to identify appropriate projects from the implementation project list to be included in future funding proposals as they arise. The details of this process are fluid, and should reflect the specific needs and requirements of the given funding opportunity.

As each new funding opportunity arises, the CVRWMG shall convene a Workgroup made up of CVRWMG members, Planning Partners, and/or other appropriate stakeholders to review and evaluate the IRWM Plan project list against the funding solicitation. During this evaluation process, the following criteria will likely be used identifying high priority projects:

- **Grant Program Preferences:** Funding programs frequently outline specific goals and objectives. Projects selected for inclusion in a funding proposal should conform to the details of the specific funding program.
- **Regionalism**: Some projects may have only local beneficiaries, while other projects may benefit stakeholders throughout the entire Region. Projects with Region-wide benefits may be preferable to those with only local beneficiaries when applying for funding as a region.
- **Cost-Effectiveness:** As the cost of doing business continues to increase, agencies are challenged to identify cost-effective solutions. Both short- and long-term cost-effectiveness, as well as potential externalized costs to the public, may be a factor for consideration in funding proposal prioritization.
- **Readiness to Proceed**: Some funding opportunities require projects to be at a specific point in development, such as design or construction, while other opportunities may be targeted toward planning-level projects.

As appropriate, the CVRWMG will incorporate these and other prioritization criteria to narrow the pool of high priority projects from the Plan-level prioritization to develop funding proposals. These criteria may be applied in multiple ways. Some prioritization criteria are essential to a project's success in achieving the Region's objectives and/or being eligible for funding. The specific criteria used, and precise method for applying the criteria, will be determined on a case-by-case (i.e., funding opportunity by funding opportunity) basis using a consensus-based approach among the Workgroup.

All projects included in the IRWM Plan have been determined to contribute to achieving the regional objectives, and therefore provide benefits to the Region. As a result, if projects included in the implementation project list do not address the specific criteria set forth for a given funding opportunity, appropriate projects may be added as the IRWM planning process moves forward.







8 Agency Coordination

*This chapter addresses the **Coordination Standard**, as well as the **Relation to Local Water Planning Standard** and the **Relation to Local Land Use Planning Standard**.*

8.1 Agency Coordination

This section discusses the process by which local project proponents and stakeholders can coordinate their IRWM related activities and efforts; coordination with neighboring IRWM efforts; and coordination with other State and federal agencies.

This IRWM Plan is developed in accordance with IRWM planning guidance developed by DWR (August 2010). During Plan development, the CVRWMG coordinated with the State through DWR staff participation in CVRWMG business meetings, Planning Partners and Issue Group meetings, and public workshops. Implementing the IRWM Plan will require coordination between the CVRWMG and project proponents and a number of state and federal agencies, including regulatory agencies, land management agencies, and resource agencies. The CVRWMG will also coordinate with local land use agencies in implementing the program and preparing future Plan updates.

8.1.1 Coordination of Activities within IRWM Region

The IRWM planning process is intended to coordinate and share information concerning water supply and water quality, planning programs and projects, and to improve and maintain overall communication among the partners involved. The CVRWMG has gained support for the IRWM program through a proactive approach that implements public outreach and distributes information widely. The CVRWMG has initiated a stakeholder outreach process to help support the development and adoption of an IRWM Plan. This outreach process is discussed in greater detail in *Chapter 5, Stakeholder Involvement*. Specifically, Chapter 5 contains detailed information regarding stakeholder coordination, public involvement, participants involved in the IRWM planning process, outreach efforts, and outreach specifically pertaining to disadvantaged communities and tribal lands.

The IRWM planning process will provide a mechanism for:

- Coordinating, refining, and integrating existing local water resources planning efforts within a comprehensive, regional context;
- Identifying specific regional priorities for implementation projects; and
- Generating funding support for the local plans, programs, projects, and priorities of existing agencies and stakeholders.

Outreach mechanisms used to improve general awareness of the Coachella Valley IRWM program and provide means for all interested parties to stay engaged during the planning process and plan implementation are mentioned

below. The *Public Outreach and Communications Plan* (see **Appendix C**) is organized into the following components:

- Stakeholder Coordination and Public Involvement
- Disadvantaged Communities Outreach
- Tribal Outreach and Coordination

The Coachella Valley IRWM program enables local project sponsors to upload their proposed projects and programs to the online project database (http://cvrwmg.org/projects.php). The CVRWMG website also hosts all IRWM program deliverables and meeting agendas, materials, and notes for use by regional stakeholders. Through these mechanisms, Valley stakeholders have opportunities to combine activities and/or eliminate redundant efforts.

8.1.2 Neighboring and/or Overlapping IRWM Efforts

Agencies that may have existing or developing IRWM planning efforts that are adjacent to the Coachella Valley IRWM region include (see **Figure 8-1**):

- Borrego Valley IRWM Plan, led by Borrego Water District (BWD)
- Imperial Valley IRWM Plan, led by Imperial Irrigation District (IID)
- Mojave IRWM Plan, led by Mojave Water Agency (MWA)
- Santa Ana Watershed Project Authority (SAWPA) IRWM Plan, involving San Gorgonio Pass Water Agency (SGPWA)
- Salton Sea Authority (SSA) Conceptual Plan

Hydraulic connections do not exist between the Coachella Valley Groundwater Basin and aquifers of the aforementioned agencies, making their planning efforts different from Coachella Valley's IRWM program. Therefore, it is appropriate that these agencies' IRWM efforts remain separate from Coachella Valley's IRWM program.

Since the stakeholders do not overlap and the surrounding planning regions are distinctly separate, the Coachella Valley IRWM governance structure has not yet established means of formal communication with the adjacent RWMGs. However, neighboring RWMG and IRWM representatives have been invited to attend public meetings and workshops on the Coachella Valley IRWM Plan, and representatives from the Anza Borrego and Mojave regions have attended. Formal discussion with neighboring RWMG is expected to occur in upcoming IRWM Plan Update timeframe.

Borrego Valley IRWM Plan

BWD serves the desert community of Borrego Springs and is located in the Borrego Valley, an isolated region of San Diego County, 85 miles northeast of San Diego, California, and 60 miles southwest of Coachella, California. It is geographically separated from the Coachella Valley IRWM region by the Santa Rosa Mountains, the Coyote Mountains, and the Coyote Creek Fault. BWD is the water service provider for the area and provides potable water to approximately 2,000 residential and commercial customers via deep wells and a pressurized distribution system. BWD also provides sewer service, flood control and gnat abatement to the community of Borrego Springs.



Adjacent IRWM Efforts

Figure 8-1

- Colorado River Aqueduct
- Coachella and All American Canals
- Whitewater River Stormwater Channel
- Interstate Hwys.
- Lakes
- Dry Lakes
- Coachella Valley IRWM Region
- Funding Area

Adjacent IRWM Planning Regions

- Borrego Valley
- Mojave
- San Diego
- Santa Ana Watershed Project Authority
- Upper Santa Margarita
- Imperial

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Date Updated: July 2010
Made By: DNF
Department: RMC Water & Environment

BWD's sole source of water is groundwater from the Borrego Valley Aquifer which has been in overdraft for approximately 60 years. In 2002, the BWD Board of Directors adopted a groundwater management plan to address the overdraft and associated issues. BWD is actively developing an IRWM Plan and has undertaken an extensive stakeholder process. A hydraulic connection does not exist between the Coachella Valley Groundwater Basin and the Borrego Valley Aquifer, and the two planning areas are separated by prominent geographical features. BWD's stakeholder groups do not overlap with Coachella Valley stakeholder groups. Because the two planning regions are so distinctly separate, it is appropriate that the two planning efforts should remain separate as well.

Imperial Valley IRWM Plan

IID supplies water for the Imperial Valley, located at the southerly end of the Salton Sea in Imperial County. The Imperial Valley is geographically separated from the Coachella Valley IRWM region by the Salton Sea. With more than 3,000 miles of canals and drains, IID is the largest irrigation district in the United States, and delivers up to 3.1 million acre-feet of IID's Colorado River water allotment annually to nearly one-half million irrigated acres. Of the water IID transports, approximately 97 percent is used for agricultural purposes. The remaining three percent of its water deliveries supply seven municipalities, one private water company and two community water systems as well as a variety of industrial uses and rural homes and businesses. IID's water supplies are independent of the Coachella Valley's water supplies. The Imperial Valley does not have a viable groundwater aquifer.

A hydraulic connection does not exist between the Coachella Valley Groundwater Basin and the Imperial Valley, and the two planning areas are separated by a prominent geographical feature, the Salton Sea. The stakeholder groups do not overlap. It is appropriate, that because the issues of the two planning regions are so distinctly separate, that the two planning efforts should remain separate as well. Please refer to Exhibit 13 of the RAP (available at www.cvrwmg.org); letter dated April 28, 2009, from Mike King, Water Department Manager of the Imperial Irrigation District.

Mojave IRWM Plan

MWA is located in the Mojave Desert in San Bernardino County. Formed in 1960, MWA is responsible for managing groundwater resources in the Mojave River Basin and Morongo Basin, and providing alternate water sources to the region as needed to ensure a sustainable supply of water for present and future use. Only the southern portion of MWA is located within the Colorado River Funding Region. The region's southern most boundary extends to the Yucca Valley area approximately 30 miles north of Palm Springs.

MWA is geographically separated from the Coachella Valley Groundwater Basin by the San Bernardino and Little San Bernardino Mountains except for a small portion of their boundary that overlaps the CVRWMG Management Region in the unpopulated mountains south of the Warren Valley subbasin (Bulletin 118). MWA is responsible for implementing its service area adjudication. Most of the area served by MWA is experiencing severe groundwater overdraft. Since 1991, the MWA has been importing SWP water from the California Aqueduct to recharge the groundwater basins from which local water companies and other well owners derive water for all uses: domestic, agricultural, industrial and recreational. MWA has a 4,900 square mile service area and is governed by a seven-member elected Board of Directors.

The groundwater basins of MWA are not connected to the Coachella Valley Aquifer and their imported water supplies are independent of the Coachella Valley's imported water supplies. The two planning areas are geographically separated by the San Bernardino and Little San Bernardino Mountains. The stakeholder groups do not overlap. It is appropriate, that because the issues of the two planning regions

are so distinctly separate, that the two planning efforts should remain separate as well. Please refer to Exhibit 11 of the RAP (available at www.cvrwmg.org); letter dated April 21, 2009, from Norman T. Caouette, Assistant General Manager of the Mojave Water Agency.

SAWPA IRWM Plan

SGPWA is located east of and adjacent to the Coachella Valley IRWM region and is only partially within the Colorado River Funding Area. Formed in 1961, SGPWA is a regional water agency that imports SWP water into the Pass area, sells water to local water retailers, and helps protect groundwater basins within its region that extends from Calimesa to Cabazon through the cities of Calimesa, Beaumont, and Banning and the Riverside County areas form Cherry Valley to Cabazon. SGPWA is a water wholesaler governed by a five-member Board of Directors elected to four-year terms.

The groundwater basins of SGPWA are separated from the Coachella Valley Groundwater Basin by geological features near Fingal Point, and their water supplies are independent of the Coachella Valley's imported water supplies. The two planning areas are separated by a political boundary and do not share customers. The stakeholder groups do not overlap. SGPWA is mostly outside of the Colorado River Funding Area and is actively participating in the SAWPA IRWM Plan.

SSA Conceptual Plan

SSA is a joint powers agency chartered by the State of California by a Joint Powers Agreement on June 2, 1993 for the specific purpose of ensuring continued beneficial uses of the Salton Sea. The SSA is composed of CVWD, IID, County of Imperial, County of Riverside, and the Torres-Martinez Desert Cahuilla Indians. The SSA was formed to work with State agencies, Federal agencies, and the Republic of Mexico to develop programs that would continue beneficial use of the Salton Sea. In June of 2006, after years of in-depth study and analysis, the SSA adopted the Executive Summary of the Salton Sea Authority Conceptual Plan as the superior alternative to provide wildlife habitats, improve water quality, protect air quality, and provide economic and recreational benefits to the region.

The Executive Summary of the SSA Conceptual Plan identifies the unique and complicated issues of the Sea and provides a cost estimate for the chosen alternative of $2.2 billion over a period of approximately 20 years. Currently the primary goal of the SSA is to work with state and federal agencies to provide funding for the chosen alternative. The issues of the Salton Sea are unique and implementation of the chosen alternative would overwhelm the resources for all other IRWM Plan goals and priorities; therefore, it is appropriate that any Salton Sea Authority planning efforts remain separate from the Coachella Valley IRWM effort.

8.1.3 Coordination with State, Federal, and Local Agencies

Key input to this IRWM Plan has been provided to the CVRWMG through a series of coordinating Planning Partner meetings and contacts with DWR staff. Government agencies which have direct or significant water-related missions have been invited to participate in the Planning Partners meetings. Local agencies such as the County of Riverside, RCFCWCD, VSD, U.S. Bureau of Indian Affairs, CVAG, and Colorado River RWQCB have an advisory role as Planning Partners.

Local Agencies

As the regional planning authority within the Coachella Valley, CVAG was involved in this IRWM Plan as a member of the Planning Partners. In addition, this Plan was developed with input from various public works departments of cities throughout the Coachella Valley Region.

State Agencies

The Colorado River RWQCB is the primary state water quality regulatory authority within the Region, and is responsible for protecting beneficial uses and establishing and enforcing water quality standards within the Region. This IRWM Plan was developed in coordination with RWQCB staff as part of the Planning Partners, and targets achieving compliance with RWQCB water quality standards, stormwater discharge standards, non-point source regulations, and wastewater/recycled water regulations. Continued coordination with the RWQCB will be required to implement the IRWM Plan, and the RWQCB will be invited to continue participation in the Planning Partners.

DWR establishes a framework for statewide water resources management within the *California Water Plan Update 2009*. Regional IRWM planning represents one of the key initiatives of the *California Water Plan Update 2009*. As such, DWR administers the State's IRWM Grant Program and has developed Statewide IRWM Grant Program Guidelines (August 2010). This IRWM Plan meets the Plan Standards established by DWR in the IRWM Grant Program Guidelines. The CVRWMG coordinated with DWR in developing the Plan through DWR staff participation in CVRWMG business meetings, Planning Partner and Issue Group meetings, and public workshops. Continued coordination with DWR will occur to implement the Plan and seek sources of funding to assist in financing proposed IRWM projects.

Implementation of the Coachella Valley IRWM Plan and priority projects may also require coordination with several additional State agencies, including:

- **California Environmental Protection Agency (CalEPA).** CalEPA oversees and coordinates public health and environmental regulation within six State of California departments: Air Resources Board, Department of Pesticide Regulation, Department of Toxic Substances Control, Integrated Waste Management Board, Office of Environmental Health Hazard Assessment, and the State Board.
- **Department of Fish and Game (CDFG).** CDFG oversees implementation of the federal Endangered Species Act and regulates activities that may impact endangered species and their habitats.
- **California State Parks.** California State Parks operates a number of state beaches, state parks, and coastal preserves and recreational areas within the Region.
- **California Department of Forestry.** California Department of Forestry is charged with fire fighting, resource management (including administering state and federal forestry assistance programs), and protecting and enhancing California's forest lands.
- **California Department of Transportation (Caltrans).** Caltrans is responsible for planning, maintaining, and constructing surface transportation facilities including highways, roads, bike paths, bridges, and rail transportation facilities. Caltrans addresses land use, air, and water quality impacts of such surface transportation facilities.
- **California Natural Resources Agency (CNRA).** CNRA manages the California Adaptation Strategy process, which summarizes the best known science on climate change impacts and provides recommendations on how to manage against potential climate change threats.
- **California State Lands Commission**. The State Lands Commission oversees lands held in public trust. In this capacity, the Commission manages a variety of public lands, including submerged lands under tidal and navigable waterways. The Commission is also involved in securing and maintaining public access to public lands.

Federal Agencies

Implementation of the Coachella Valley IRWM Plan and priority projects may require coordination with multiple federal agencies as well. Federal agencies that regulate water management planning and/or land management within the Region include:

- **U.S. Environmental Protection Agency (USEPA):** USEPA, through powers delegated to the Regional Board, implements the Clean Water Act and oversees Regional Board and State Board's implementation of federal NPDES permits, water quality standards, water quality enforcement, and water quality certification programs.
- **U.S. Fish and Wildlife Service (USFWS).** USFWS oversees implementation of the federal Endangered Species Act and regulates activities that may impact endangered species and their habitats.
- **U.S. Army Corps of Engineers (USACE).** The USACE has regulatory authority over all work within navigable waters, and regulates such projects through the issuance of permits. Additionally, the USACE reviews and approves Special Area Management Plans (SAMPs). With this background, the USACE can provide valued input to the Region's water management planning process.
- **U.S. Geological Survey (USGS).** USGS collects and analyzes regional hydrologic data, and coordinates with local agencies to perform special water resources studies.
- **U.S. Bureau of Land Management (BLM).** BLM manages federal lands within the Region, including lands proposed as future Wilderness Areas.
- **U.S. Forest Service (USFS).** USFS manages the San Bernardino National Forest, which comprises a significant portion of the upstream reaches of the larger watersheds of the Region.
- **Natural Resources Conservation Service.** The Natural Resource Conservation Service, a division of the U.S. Department of Agriculture, provides technical and financial assistance in a variety of areas related to the conservation of soil, water, and other natural resources.
- **U.S. Bureau of Reclamation (USBR).** USBR is involved in a variety of water resources management areas central to the IRWM Plan, including water supply, the reclamation of land and water resources, surface water storage, desalination, recreation, agricultural land stewardship, and water rights. USBR also administers funding for the Reclamation Wastewater and Groundwater Study and Facilities Act (Title XVI, Public Law 102-575).
- **U.S. Bureau of Indian Affairs.** The Bureau of Indian Affairs administers and manages lands held in trust for the Region's Native American Tribes.

Federal regulatory agencies will be invited to provide input to the Region's IRWM planning process. Coordination between the CVRWMG, project sponsors, and these agencies will be required to address regulatory compliance and permitting issues.

8.2 Relation to Local Water Planning

*This section complies with the **Relation to Local Water Planning Standard**, to ensure the IRWM Plan is congruent with local plans, and that the Plan includes current, relevant elements of local water planning and water management issues common to multiple local entities in the Region.*

Local water planning activities in the Coachella Valley are mainly conducted by the five CVRWMG partners: CWA, CVWD, DWA, IWA, and MSWD. These agencies coordinate regularly at both management and staff levels by participating in Joint Board meetings, CVRWMG business meetings, and other specialized efforts like Water Agencies of the Desert Region (WADR), a staff level inter-agency group that provides coordinated public outreach. Additionally, some partners meet periodically in joint session with local land use agencies (see *Section 8.3 Relation to Local Land Use Planning* below). The CVRWMG partners also provide each other with on-going opportunities to review and comment on the plans and studies described in this section. As applicable, the IRWM Plan incorporates water management issues and climate change adaptation and mitigation strategies from these local plans.

Additional water planning activities are carried out by other agencies as follows:

- The nine Coachella Valley cities and the County of Riverside have jurisdiction over local drainage within their service area boundaries. Local drainage is typically routed to existing regional facilities. Where regional facilities are not available, local drainage flows to dry wells or retention basins.
- RCFCWCD has regional flood control jurisdiction within its service area boundary in the Desert Hot Springs and Palm Springs areas of the Coachella Valley. CVWD has regional flood control jurisdiction for the rest of the Region. CVWD and RCFCWCD each have included the impacts of these flows in the design capacities of their regional facilities and each utilize their own permit approval processes for accepting local drainage.
- The City of Palm Springs and Valley Sanitary District are responsible for wastewater collection and treatment within their service area boundaries. The City of Palm Springs delivers treated effluent to DWA for recycling and distribution to golf courses, parks, medians, and other areas for irrigation.

In addition to the Coachella Valley IRWM planning effort, several key water planning efforts are underway in the Region:

- Coachella Valley Water Management Plan (CVWMP), which involves CVWD, City of Coachella, IWA, and DWA.
- Mission Creek-Garnet Hill Water Management Plan (Mission Creek-Garnet Hill WMP), which involves CVWD, DWA, and MSWD.
- Urban Water Management Plan (UWMP) 2010 Updates are being prepared by each of the five water purveyors.
- IWA's Water Resources Development Plan (see *Section 8.2.3 Additional Planning Efforts* under "IWA" for further discussion).

The CVRWMG is closely coordinating these efforts with the IRWM Plan development to ensure that Plan content is consistent, updates are incorporated, and that strategies synchronized. These and other

related water planning efforts are briefly described in the following sections and are listed in **Table 8-1 (below)**.

The CVWMP, Mission Creek-Garnet Hill WMP, IRWM Plan, and UWMPs provide the basis for development of accurate and consistent Water Supply Assessments for the region. They also provide the opportunity for developing partnerships between agencies and stakeholders for other water management activities such as water recycling, source substitution, recharge programs, and conservation. CVWD is working to coordinate its planning efforts and ensure consistency between the Mission Creek-Garnet Hill WMP and the CVWMP Update.

8.2.1 Water Supply Planning and Groundwater Management

Effective, integrated, and consistent water planning and management is imperative to ensuring water supply reliability in the Valley. The CVRWMG is committed to ongoing coordination between the IRWM program and other regional planning efforts.

The following water supply and groundwater planning documents provided the foundation for *Chapter 2, Region Description* and *Chapter 3, Issues and Needs* of this IRWM Plan. The IRWM Plan is consistent with and reflects the technical assessments and conclusions provided within these plans; the technical evaluations in these plans provided a basis for establishment of the regional priorities. Updates to these plans will be incorporated by the CVRWMG into future IRWM Plan updates. Planning documents listed below are the most current and relevant studies completed by the agencies.

Coachella Valley Water Management Plan

In 2002, CVWD adopted the CVWMP and certified the final Program Environmental Impact Report (PEIR) (CVWD 2002). The goal of the 2002 Plan is to assure adequate quantities of safe, high-quality water at the lowest cost to Coachella Valley water users by stabilizing groundwater overdraft, maximizing conjunctive use opportunities, and minimizing adverse economic and environmental impacts. The CVWMP evaluates all the water demands and supplies in the Whitewater River Subbasin through 2040 for all water users including urban and agricultural, and golf, and provides a preferred alternative for meeting demands. The CVWMP evaluates long-term risks to water supplies such as, reduced SWP reliability, reduced Colorado River supplies, and provides contingencies for addressing these risks. The elements of the preferred alternative are, imported water supplies, recharge and source substitution, and conservation for urban, agricultural and golf course water users. The Plan identifies projects and programs that implement the plan elements.

In the months following September 2002, the CVWD Board of Directors and DWA Board of Directors adopted the "Coachella Valley Final Water Management Plan" (CVWD 2002). The CVWMP is periodically updated. The first update will be available in January 2011, and will include additional evaluations of climate change, water quality, and groundwater monitoring. Public meetings are conducted periodically to solicit input on plan development.

The City of Coachella, CVWD, IWA, and DWA have public water systems that rely on groundwater in the CVWMP planning area. Each of these agencies has relied on the data provided in the CVWMP for development of their UWMPs. These agencies have provided input on the plan and participate in some of the CVWMP projects and programs or have developed similar programs that implement elements of the plan. Further, the CVWMP considers buildout projections on tribal reservation lands in order to have a complete understanding of current and future impacts on the groundwater basin. CVWD coordinated with tribal representatives to incorporate tribal buildout projections into CVWMP modeling and analysis.

Mission Creek-Garnet Hill Water Management Plan

The Mission Creek and Garnet Hill subbasins of the CVGB lie north of the Banning Fault and outside the area included in the CVWMP. CVWD and MSWD have public water systems that rely on groundwater from the Mission Creek Subbasin, and MSWD has production facilities in the Garnet Hill Subbasin. CVWD and DWA have groundwater replenishment authority for this region, and conduct an active recharge program utilizing SWP water delivered by MWD's Colorado River Aqueduct via an Exchange Agreement. In December 2004, MSWD, CVWD, and DWA signed a Settlement Agreement, in which the agencies agreed to jointly prepare a Water Management Plan for the Mission Creek and Garnet Hill Subbasins. The purpose of the Mission Creek and Garnet Hill WMP is to manage the water resources to reliably meet demands and protect water quality in a sustainable and cost-effective manner. The four main objectives of the plan are:

- to meet water demands reliability,
- protect water quality,
- minimize environmental impacts, and
- deliver an affordable water supply.

Development of the Mission Creek-Garnet Hill WMP was initiated in August 2009 and is expected to be completed in 2011. Public meetings are conducted periodically to solicit input on plan development. CVWD, DWA, and MSWD will be able to utilize the data provided in the Mission Creek-Garnet Hill WMP in development of their UWMPs and will participate in programs that implement the elements of the plan. The General Managers of MSWD, CVWD, and DWA meet quarterly to discuss development of this plan and other water management issues. CVWD is also working to coordinate its planning efforts and ensure consistency between the Mission Creek-Garnet Hill WMP and the CVWMP Update. The plan will also evaluate the effects of climate change.

Engineer's Reports on Water Supply and Replenishment Assessment

Since 1973, CVWD and DWA have used Colorado River water exchanged for SWP water to replenish groundwater in the Upper Whitewater River Subbasin. In 2002, they began a similar replenishment program in the Mission Creek Subbasin. In 2004, CVWD began a replenishment program in the Lower Whitewater River Subbasin using Colorado River water delivered via the Coachella branch of the All American Canal (Coachella Canal). Each year both CVWD and DWA produce an Engineer's Reports that summarize their replenishment activites in each of these subbasins. The reports provide total estimated groundwater pumping and recharge water deliveries for the year, and provide a summary of each agency's total estimated costs to manage the replenishment programs. The reports also provide a calculation of the replenishment assessment rate per AF for the upcoming fiscal year for each area of benefit. Each of the CVRWMG partners are major groundwater pumpers and participate in these replenishment assessment programs. Other participants include agricultural pumpers, golf courses, and fish farms that pump more than 25 AFY within CVWD's boundary or more than 10 AFY within DWA's boundary.

The General Managers of CVWD, DWA, and MSWD meet quarterly to discuss water supply planning activities for the Mission Creek and Garnet Hill Subbasin. An East Valley Joint Powers Authority (JPA) meets periodically to discuss the East Valley replenishment program and to review the proposed assessment for the following year. Members of the JPA include CWA, CVWD, IWA, Cities, Tribes, and representatives from the agricultural industry that are affected by the rate.

Urban Water Management Plans

Each of the CVRWMG partners has an approved UWMP. These Plans define their current and future water use, sources of supply, source reliability, and existing conservation measures. The CVWMP is used as a reference for development of UWMPs within its study area. When the Mission Creek-Garnet Hill WMP is complete, it will also become a reference Plan for UWMPs within its study area.

Water Supply Assessments

Water Supply Assessments (WSAs) are evaluated by the water purveyors in the region to determine if sufficient water supplies exist long-term to sustain proposed development when the proposed development is 500 residential units or more or a large commercial project as defined in Water Code §10912(a). Generally, before a city or county determines what level of CEQA analysis is required for a proposed project, it requests that a WSA either be prepared by water purveyor or be prepared by the project proponent and subsequently approved by the water purveyor. The WSA includes a determination by the water service provider whether its total projected supplies will enable it to meet the projected water demands of the proposed project in normal, single-dry and multiple-dry years during a 20-year projection, in addition to all other existing and planned future uses.

In this Region, the CVRWMG partners prepare and/or evaluate WSAs for approval within their own service areas based on data presented in their UWMPs. Regional coordination on the current and future water planning effort described in this section will ensure that WSAs are consistent and that long-term water supply programs are carried out to ensure that projected water demands are met.

State Water Project Extension Project Development Plan

CVWD and DWA began a formal planning effort regarding the feasibility of constructing an aqueduct to connect the Coachella Valley to the SWP in August 2007 with Phase 1 of the SWP Extension Project Development Plan. The project partners include CVWD, DWA, MWD, MWA, and SGPWA. Phase 1 considered agency needs, pipeline corridors and alignments, engineering and environmental constraints, facilities requirements and costs. Through that effort, two of the four possible alignments were found to be infeasible. Phase 2 was authorized in September 2008 and focused on the other two possible alignments: the North Pass Alignment and the Modified North Pass Alignment.

The SWP Extension Project Development Plan identified a number of potential water resources management opportunities. It examined construction, reliability and operations of a possible extension, as well as alternative options for optimizing water supply in the Coachella Valley. This in-depth planning effort is near completion; however efforts will likely slow as SWP Contractors grapple with reliability in the project.

8.2.2 Non Potable Water Supplies

Agricultural Water Management

The CVRWMG Management Region has one agricultural Irrigation District known as Improvement District No. 1 (ID1). ID 1 was formed by the United States Bureau of Reclamation (USBR) for the purpose of funding the contract repayment obligations for the original construction and the operation and maintenance of the Coachella Canal, protective works (flood protection dikes and channels), irrigation distribution system and drainage system. The canal, protective works, and distribution system are owned by the USBR and maintained by CVWD. The drainage system is owned and maintained by CVWD. CVWD delivers an average of approximately 270,000 AFY of canal water for agriculture. In addition

agriculture uses approximately 100,000 AFY of groundwater. Agricultural groundwater pumpers pay a replenishment fee and participate in the Lower Valley Replenishment program. In the CVWMP, CVWD has identified source substitution programs to reduce agricultural groundwater use by making canal water more available. In addition the CVWMP has identified conservation programs that improve irrigation efficiency for agriculture. An Agricultural Water Management Plan has not been adopted.

CVWD conducts monthly Grower's Meetings with agricultural community to encourage dialog between growers and CVWD regarding water issues. Growers also participate in the East Valley JPA, a group of affected users that meets periodically to discuss the East Valley replenishment assessment program.

Recycled Water and Canal Water

CVWD and DWA have ongoing recycled water programs. Recycled water in the region is used primarily for golf course irrigation. As described within *Chapter 2 Region Description, Section 2.2.4 Recycled Water*, DWA collaborates with the City of Palm Springs for collection, treatment, and distribution of recycled water. In addition, IWA and VSD recently entered into an MOU for a joint effort to develop a water reclamation facility for recycled water use to include landscape irrigation.

The Mid-Valley In-Lieu Program Draft Concept Paper (Bookman-Edmonston, 2004) proposes a delivery system for both recycled water and Colorado River water (The Mid-Valley Pipeline) to serve approximately 50,000 AFY of non-potable water to about 50 golf courses. CVWD completed Phase 1 of the Mid-Valley Pipeline in 2008. This project will maximize the use of recycled water and will reduce groundwater pumping by as much as 50,000 acre-ft/year. CVWD also has a Non-Potable Operations Manager who meets regularly with existing and future users to promote dialog and participates in the local golf organizations, like Hi-Lo Desert Golf Course Superintendents' Association.

Other Non Potable Water

The 2002 CVWMP recommends that a drain water desalination program be developed by 2015 with a 4,000 AFY facility. The facility would be expanded to 11,000 AFY capacities by 2025. Water would be taken for desalination from the agricultural drainage system and would be delivered to the Coachella Canal distribution system for non-potable use. A Brackish Groundwater Treatment Pilot Study and Feasibility Study (CVWD 2008c and 2008d) was completed in 2008.

8.2.3 Additional Water Planning Efforts

Regional Flood Control

Regional flood control is handled by two agencies in the Coachella Valley: RCFCWCD and CVWD. RCFCWCD is responsible for the western portion of the Coachella Valley, including the Palm Springs area west of the Whitewater River and the Desert Hot Springs Area north of the Whitewater River (refer to Figure 2-7: Stormwater Management in *Chapter 2, Region Description*). CVWD is the flood control agency for the cities east of Palm Springs and extending as far south as the Salton Sea.

Each district is responsible for identifying flood hazards, flood warning and early detection, regulating drainage and development in floodplains, regional flood control facility planning and development, and operation and maintenance of completed regional flood control facilities. The agencies work cooperatively to ensure consistent application of flood control and floodplain standards Region-wide.

Emergency Response Planning

Each of the CVRWMG partners is a member of the Riverside County Operational Area (RCOA), an intermediate level of the State emergency services organization, consisting of Riverside County and all political subdivisions within the county area. The Coachella Valley is designated as an operational area for the coordination of emergency activities and to serve as a communications link in the system of communications between the State's emergency operation centers and operational areas. The RCOA has an Emergency Operations Plan (EOP) that addresses the planned response to extraordinary emergency situations. The EOP establishes a framework for implementation of the California Standardized Emergency Management System (SEMS) and the National Incident Management System (NIMS) for Riverside County. The EOP facilitates multi-agency multi-jurisdictional coordination, particularly between Riverside County and local governments including water purveyors.

All of the partners in the CVRWMG have done extensive emergency response planning; however, for security purposes, those documents are confidential. The CVRWMG partners have collaborated to improve water system reliability in extraordinary emergency situations by constructing distribution system connections. These connections may be opened in instances where an agencies water supply has been compromised by a natural disaster. Connections exist between CVWD's and MSWD's water distribution systems and CVWD's and IWA's water distribution systems. CVWD and DWA are also considering a connection in the future. The CVRWMG partners have been engaged in discussion of mutual aid and emergency communications.

Ongoing efforts are underway by the Office of Emergency Services (OES) to have every water purveyor join the California Water and Wastewater Agency Response Network (CalWARN). CVWD is a member of CalWARN.

NPDES Permitting

The Colorado River RWQCB regulates the National Pollutant Discharge Elimination System (NPDES) program for the Coachella Valley Region. The NPDES program regulates point source discharge of wastewater to surface waters of the Region so that the highest quality and beneficial uses of these waters are protected and enhanced. Regulation is by issuance of a regional NPDES Municipal Separate Storm Sewer System (MS4) permit, which is updated every five years. The permits contain effluent limitations which ensure the protection of the quality of the receiving waters.

Since the early 1990's, NPDES MS4 permitting for the Coachella Valley Region has been pursued and maintained collaboratively, by County of Riverside, RCFCWCD, CVWD, and ten incorporated cities: Banning, Cathedral City, Coachella, Desert Hot Springs, Indian Wells, Indio, La Quinta, Palm Desert, Palm Springs and Rancho Mirage (the Permittees). The Permittees jointly submitted the first application for an NPDES MS4 permit on June 11, 1992 to the Colorado River RWQCB; the RWQCB adopted the initial permit for the Whitewater River watershed on May 22, 1996. Following submittal of a Report of Waste Discharge to the RWQCB, a second permit (No. 01-077) was subsequently adopted on September 5, 2001. Permit No. 01-077 incorporates the Permittees proposed Stormwater Management Plan (SWMP) which was developed during the initial Permit term, along with additional management programs that were subsequently developed. On May 21, 2008, the RWQCB adopted the Region's third term permit (Order Number R7-2008-0001). This new permit seeks to improve programs established in the previous term.

As a Principal Permittee, RCFCWCD regularly conducts activities to coordinate the efforts of the other Permittees and facilitate compliance with the NPDES MS4 permit. These activities include chairing monthly meetings of the Permittees NPDES advisory committee (Desert Task Force); administration of

area-wide programs such as public education, household hazardous waste collection, hazardous material spill response, stormwater sample collection and analysis; and on-going program development and preparation of the Annual Report to the RWQCB.

California Statewide Groundwater Elevation Monitoring (CASGEM)In November 2009, the State legislature amended the Water Code with SBx7-6, which mandates a statewide, locally-managed groundwater elevation monitoring program to track seasonal and long-term trends in groundwater elevations in California's groundwater basins (as identified in DWR Bulletin 118). To achieve that goal, DWR developed the California Statewide Groundwater Elevation Monitoring (CASGEM) program. DWR will administer the CASGEM program through providing public outreach; creating and maintaining the CASGEM website and online data submittal system; and, supporting local entities through the process of becoming a Monitoring Entity and preparing Monitoring Plans.

In October 2010, DWR released draft CASGEM Groundwater Elevation Monitoring Guidelines and draft CASGEM Procedures for Monitoring Entity Reporting. CWC§ 10927 defines the types of entities that may assume responsibility for monitoring and reporting groundwater elevations as part of the CASGEM program. The CVRWMG will coordinate to identify and choose the prospective Monitoring Entity (or Entities) for the Coachella Valley.

Parks and Recreation

Much work has been done in the hills and mountains surrounding the Coachella Valley to develop hiking and riding trails. Policies for the management of these trails were recently developed as part of the preparation of the CVMSHCP. In 2001, in response to a need for trails on the Valley floor, CVAG oversaw the preparation of a Non-Motorized Transportation Plan which proposed a grid of bike trails and sidewalk trails that utilized the rights-of-way of the Whitewater River and Coachella Canal. In the CVAG Plan, the Whitewater River Trail served as the spine of the bikeway system, as well as providing a recreational trail for walkers and, potentially, equestrians.

The County of Riverside Department of Public Health, in collaboration with several trails and bicycle groups, identified and developed the Coachella Valley Urban Trails and Bikeways Map of safe routes for riders and hikers in the Coachella Valley (http://www.cvcta.org/existingtrails.htm). These trails and bikeways maps are included in General Plans for all local jurisdictions and trails maps have been prepared for inclusion in the Riverside County General Plan Update. A key element of these plans was the identification of potential trails along the Whitewater River and the Coachella Canal.

In 2007, as a next step in planning the trail system in the Coachella Valley, the Desert Recreation District and the Riverside County Regional Parks and Open Space District commissioned studies related to identification of trail alignments along, and trail connections to, the Whitewater River, Coachella Canal, and the Dillon Road corridors.

The Coachella Valley Community Trails Alliance, a nonprofit organization, was formed in 2006 to plan and advocate for a regional trail system in the Coachella Valley. The Community Trails Alliance envisions a regional trail system that will connect the entire Coachella Valley through a broad-based alliance of formal and working partners. Formal partners who have submitted written statements of support are CVWD and CWA. Working partners – who have partnered with the CVCTA on trails advocacy and development – include Riverside County Parks and Open Space District, CVAG, Desert Alliance for Community Empowerment, College of the Desert, and the cities of Cathedral City, Coachella, Desert Hot Springs, Indio, La Quinta, Palm Desert, Palm Springs, and Rancho Mirage.

Future Regional Planning Efforts

The CVRWMG has identified four future water planning efforts that will be coordinated by the partners and will include input from the Planning Partners and stakeholders. These efforts, contingent on grant funding, are described as follows:

- *DAC Water Quality Evaluation* to provide near-term solutions to critical arsenic and other drinking water contaminants in DAC communities and to provide a basis for the development of longer-term solutions;
- *Salt and Nutrient Management Planning Strategy* to establish a framework for how the region's stakeholders can work together on development of Salt and Nutrient Management Plan;
- *Integrated Flood Management Plan* to integrate flood management planning in the Valley, to promote development of integrated flood management solutions Valley-wide, and to develop near-term integrated flood management solutions;
- *Groundwater Elevation Monitoring Strategy* to establish a framework for coordinating groundwater elevation monitoring, analysis, and reporting to DWR in compliance with SBx7-6.

Individual Planning Efforts by Agency

Each of the CVRWMG conducts ongoing planning efforts that are specific to its service area such as distribution system master planning, and project specific feasibility and environmental impact studies. Public review and comment is solicited when appropriate. A list of current studies is shown in **Table 8-1**.

CVWD

CVWD has completed several pilot programs and studies which support the implementation of source substitution programs proposed in the CVWMP to maximize the Coachella Valley Region's water supplies. These studies, which include the Mid-Valley In-Lieu Program Concept Paper, the Brackish Groundwater Treatment Pilot Study, and the Surface Water Treatment Study, are described further below.

The Mid-Valley In-Lieu Program Concept Paper (CVWD 2004), prepared by Bookman-Edmonston, proposed integrating the use of Colorado River water from the Coachella Canal with CVWD's recycled water program via the Mid-Valley Pipeline. The Mid-Valley Pipeline is a distribution system to deliver Colorado River water to the mid-Valley area for use with CVWD's recycled water for golf courses and open space irrigation. This source substitution project will reduce groundwater pumping for these uses. Construction of the first phase of the Mid-Valley Pipeline from the Coachella Canal in Indio to WRP-10 (6.6 miles in length) was completed in 2009. Implementation of later phases will expand the Mid-Valley Pipeline to serve approximately 50 golf courses in the Rancho Mirage-Palm Desert-Indian Wells area that currently use groundwater as their primary source of supply with a mixture of Colorado River water and recycled water.

The Brackish Groundwater Treatment Pilot Study (CVWD 2008c), prepared by Malcolm-Pirnie, demonstrated that reverse osmosis technology can effectively be used to treat agricultural drainage water for reuse as non-potable water. It also demonstrated that bank filtration can effectively be used as a pretreatment method.

Based on the results of the Brackish Groundwater Treatment Pilot Study, Malcolm-Pirnie completed a Surface Water Treatment Study for Canal water in 2008 (CVWD 2008d). This study investigated three

alternative treatment approaches for meeting the Surface Water Treatment Rule and reverse osmosis to improve the salinity of Colorado River water delivered for urban use.

DWA

DWA engages in several annual planning efforts, as well as several more specific efforts. Annually, DWA produces and distributes Water Quality Reports according to State regulations. The reports detail DWA's water quality monitoring efforts in accordance with EPA standards. The reports are then distributed to DWA customers. In addition, DWA has an Urban Water Management Plan that was last adopted in 2005, and is currently undergoing an update.

Engineer's Reports for the Mission Creek and Whitewater River subbasins are also completed annually. The reports describe groundwater in the basins, and specifically define the need for artificial recharge for groundwater replenishment.

In 2008, DWA conducted the Desert Water Agency GPS Control Survey April 2008 and Facilities Benchmarks 1962-1994, to study land subsidence. The purpose of this study was to establish a current baseline of horizontal control and vertical control at DWA well sites with existing survey control measurements, and to establish horizontal and vertical control moments at DWA well sites that did not have previous measurements. The study was also used to examine possible ground subsidence within DWA's service area by comparing newly established vertical baseline data with historical data. The study found that no subsidence has occurred.

DWA has also engaged in a variety of security and risk-related assessments, however those planning efforts are confidential to ensure water system security.

IWA

In August 2008, IWA adopted a Water Resources Development Plan that focuses on review of water management alternatives concerning diversification of water resources. This diversification includes recycling "used" resources and conserving available resources. Viable water management alternatives were identified and screened. An integral aspect for many of the water management alternatives involves the development of partnerships and regional cooperation. Water use efficiency strategies and recycled water use is an integral part of the plan. Depending on the timing and quantities of "new" water anticipated from high priority alternatives and the timing of future demands, further studies on the use of treated canal water will be undertaken.

MSWD

MSWD is currently preparing for development of its recycled water capabilities. Included in the design for the next expansion of the Horton Wastewater Treatment Plant is the treatment of influent to tertiary levels. All environmental processes to permit the Horton expansion have been completed. Updates to MSWD Water Master Plan have been developed in conjunction with local developers and city planners for those areas expecting targeted and significant growth. Further, MSWD has developed landscape guidelines to assure growth from both in-fill and specific plans include water–efficient landscaping and irrigation. The guidelines were developed in close consultation with land use agencies and the District provides plan check services needed to implement guidelines.

Table 8-1: Local Water Plans and Studies in Coachella Valley IRWM Region

Plan/Project	Agency	Category
2002 Desert Water Agency Site Risk Assessment	DWA	All
2003 Security Vulnerability Risk Assessment of the Desert Water Agency Using the Vulnerability Self Assessment Software Tool	DWA	Potable Water
2005 Urban Water Management Plans	CVWD, CWA, DWA, IWA, MSWD	Potable Water
2006 CWA Section 303(d) List of Water Quality Limited Segments	RWQCB	All
2006 Water Quality Control Plan for Colorado River Basin - Region 7	RWQCB	All
2007 Final Recirculated Coachella Valley MSHCP		Habitat
2008 Domestic Water System General Plan	DWA	Potable Water
2008 Engineer's Report for Benefit Assessment - Whitewater Watershed	RCFCWCD	Flood/Stormwater
2008 Water Resources Development Plan	IWA	Water Resources
2010 Urban Water Management Plan	IWA	Potable Water
Annual Water Quality Reports	CVWD, CWA, DWA, IWA, MSWD	All
Brackish Groundwater Treatment Pilot Study and Feasibility Study	CVWD	Non-Potable Water
Brackish Groundwater Treatment Pilot Study, 2008	CVWD	Non-Potable
California's Groundwater Bulletin 118: Coachella Valley Groundwater Basin, Indio Subbasin	DWR	Groundwater
City of Coachella 2006 Water Master Plan Update	CWA	Water Resources
Coachella Valley Water Management Plan, 2002	CVWD	Water Resources
Colorado River Basin -- 2005 Watershed Management Initiative	RWQCB	All
Comprehensive Wastewater Facilities Strategic Plan	MSWD	Wastewater
Desert Hot Springs Water Recycling Appraisal Study	MSWD	Recycled Water
Engineer's Report on Water Supply and Replenishment Assessment - Lower Whitewater River Subbasin Area of Benefit	CVWD	Groundwater
Engineer's Report on Water Supply and Replenishment Assessment - Mission Creek Subbasin Area of Benefit	CVWD	Groundwater
Engineer's Report on Water Supply and Replenishment Assessment - Upper Whitewater River Subbasin Area of Benefit	CVWD	Groundwater
Engineer's Report on Water Supply and Replenishment Assessment – Mission Creek Subbasin Area of Benefit	DWA	Groundwater
Engineer's Report on Water Supply and Replenishment Assessment—Whitewater Subbasin Area of Benefit	DWA	Groundwater
Groundwater Flow Model of the Mission Creek Subbasin, Desert Hot Springs, California	MSWD	Groundwater

Plan/Project	Agency	Category
Groundwater Input to the Alluvium Basin of the Mission Springs Water District	MSWD	Groundwater
Groundwater Quality Data in the Coachella Valley Study Unit (GAMA), 2007	MSWD	Groundwater
Desert Water Agency GPS Control Survey April 2008 and Facilities Benchmarks 1962-1994	DWA	Groundwater
Mid-Valley In-Lieu Program Concept Paper, 2004	CVWD	Non-Potable
Northeast Quadrant Water Master Plan	MSWD	Groundwater
Northwest Quadrant Water Master Plan Update, 2008	MSWD	Potable Water
Preliminary Water Balance for the Mission Creek Groundwater Subbasin	MSWD	Groundwater
Recycled Water Treatment Facility Conceptual Design, 2010	IWA	Wastewater/Recycled
Salton Community Services District Sewer System Management Plan 2010	SCSD	Wastewater
Sanitation System Master Plan Final Draft, 2009	CVWD	Wastewater/Recycled
Sewer System Management Plan (SSMP), Needs Assessment	CVWD	Wastewater
Surface Water Treatment Study, 2008	CVWD	Potable Water
Surface Water Treatment Facility Conceptual Design, 2010	IWA	Potable Water
Water Master Plan Update	IWA	All
Water Recycling Feasibility Study	MSWD	Recycled Water
Total Maximum Daily Load and Implementation Plan for Bacterial Indicators, Coachella Valley Stormwater Channel	RWQCB	All
Urban Water Conservation and Efficiency Master Plan, 2010	IWA	Water Resources
Water Management Plan for Mission Creek and Garnet Hill Subbasins (under development)	CVWD, DWA, MSWD	Groundwater

8.3 Relation to Local Land Use Planning

*This section complies with the **Relation to Land Use Planning Standard**, which requires an exchange of knowledge and expertise between land use and water resource managers; examines how RWMGs and land use planning agencies currently communicate; and identifies how to improve planning efforts between the RWMGs and land use planning agencies.*

The local land use planning agencies in the Coachella Valley Region consist of nine cities and the County of Riverside. These agencies are responsible for managing growth and development in the Coachella Valley to ensure a healthy and sustainable economy long into the future. They make decisions and seek stakeholder input utilizing the land use planning tools discussed in this section. Public involvement in local land use planning helps define the community's vision of future growth and development. Water agency involvement ensures that the water planning goals of the region are supported by local communities and are harmonious with the future growth plans. For example, MSWD's Board of Directors meets periodically in joint session with the City of Desert Hot Springs City Council to ensure consistency in planning efforts.

8.3.1 Linkages Between Water Management and Land Use Planning

The following sections describe how local land use planning decisions relate to water management. As applicable, the CVRWMG will use the information shared and collaborated with regional land use planning agencies to help adapt water management systems to potential climate change impacts.

General Plans

General Plans are prepared by the Valley Cities and the County, as required by state law. General Plans represent each community's comprehensive and long-term view of its future. General Plans provide a blueprint for growth and development. The General Plans must address the City's physical development, such as general locations, appropriate land use mixtures, timing and extent of land uses, and supporting infrastructure including water, sewer, and stormwater infrastructure.

General Plans are periodically updated and General Plan Advisory Committees are appointed to serve as the primary means of citizen involvement in the formulation of the draft General Plans. General Plan Advisory Committees provide a means for local water planners to have input on General Plan development.

City Councils and Planning Commissions use the goals and policies of General Plans as a basis from which to make land use decisions. General Plans in this region include goals for water and sewer service such as the following:

- Provision of water, sewer, and utility facilities which safely and adequately meet the needs of the City at build out.
- Conservation of the quality and quantity of the groundwater basin.
- Establishment of a City-wide sewer system.

The five water agencies participate in General Plan development to ensure that water management goals are accurately represented, and to ensure that the water-related needs of future development have been considered in the land use planning process. Water-related needs include supporting long-term programs that ensure adequate quantities of safe drinking water and water for outdoor irrigation; making sure that developed areas are safe from flood hazards; and that water, sewer, and flood control infrastructure are incorporated into future development.

Specific Plans

Specific Plans establish a link between General Plan policies and individual development proposals in a defined area. They are important in water planning because they specify allowable land uses, describe existing infrastructure, and identify future infrastructure needs and costs. They can result in policies specific to infrastructure master planning and financing to ensure that facilities are not undersized or otherwise insufficient. The Coachella Valley Cities follow specific plan processes that provide opportunities for water agencies, the general public, as well as residents located within planning areas, to assist in the planning of their particular communities. Local water agencies provide input and enforce development policies to ensure that the water-related needs of specific plan areas are addressed. By being included in the Specific Plan review process, water agencies are able to help developers quantify their water infrastructure needs and costs, plan their land uses to address flood hazard mitigation requirements, and provide Water Supply Assessments.

Multiple Species Habitat Conservation Plan

The purpose of the Coachella Valley Multiple Species Habitat Conservation Plan (CVMSHCP) is to provide a regional approach to balanced growth that will help conserve the Coachella Valley's natural heritage and allow for economic development by providing comprehensive compliance with federal and state laws to protect endangered species. The CVMSHCP permanently conserves 240,000 acres of open space and 27 threatened plant and animal species across the Coachella Valley. It allows for more timely construction of infrastructure, including water infrastructure, essential to improving the Coachella Valley.

The CVMSHCP was prepared by the Coachella Valley Association of Governments (CVAG) and the Coachella Valley Mountains Conservancy. Current signatories to the CVMSHCP include Riverside County, the cities of Cathedral City, Coachella, Indian Wells, Indio, La Quinta, Palm Desert, Palm Springs, Rancho Mirage, CVWD and Imperial Irrigation District. The Coachella Valley Conservation Commission (CVCC), a joint powers authority of elected representatives from signatory agencies, oversees and manages the CVMSHCP.

The CVMSHCP is currently undergoing a Major Plan Amendment, which would bring the City of Desert Hot Springs and MSWD into the Plan as permittees. The Amendment process will include public review, as well as coordination with federal and State wildlife agencies. The process is expected to be completed in 2011.

Other Development Approval Processes

Additional land use planning tools such as Subdivision maps (dividing land into smaller lots), and Conditional Use Permits, Variances, Building and other Permits for individual development provide water planners with opportunities to work with planning agencies to approve water smart developments. For instance, CVWD participates in Riverside County's monthly Land Development Committee meetings to share comments on projects with the County and developers. This provides an opportunity for CVWD to identify and address local flood hazards and enforce water demand management measures.

8.3.2 Current Relationships Between Water Managers and Land Use Planners

In the Coachella Valley, two of the five water agencies, CWA and IWA, are a branch of City government and report to City Councils. Thus their domestic water planning activities are an integral part of their respective City's land use planning processes. In addition to its role as domestic water service provider, the City of Coachella is also responsible for wastewater collection and local drainage. Likewise, the City of Indio is responsible for local drainage and works closely with its wastewater provider, Valley Sanitary District.

CVWD, DWA, and MSWD, while not associated with city government, work closely with the municipalities in their service areas to ensure quality coordination in land use planning. CVWD provides water service, wastewater management, and recycled water service to 1,000 square miles in central Riverside County (refer to Figure 1-2 in *Chapter 1, Introduction*), including the cities of Cathedral City, Rancho Mirage, Palm Desert, and La Quinta. DWA provides water supply and recycled water to Desert Hot Springs, parts of Cathedral City, outlying county areas, and most of Palm Springs. MSWD provides water and wastewater service to the City of Desert Hot Springs and nearby unincorporated areas.

Planning Partners

The IRWM planning process – particularly through the Planning Partners meetings – provides a forum for the five water purveyors to engage the land use planning agencies in water planning, to hear their water-related needs and perspectives, and to integrate them into a comprehensive water planning document that

represents the challenges and the goals of the Region. In Planning Partners meetings, the CVRWMG will promote water management priorities that meet various water supply and water quality objectives while still being compatible with existing and planned future land use designations.

CVWD

CVWD coordinates with land use planners within its service area on topics related to water and sanitation services. Most of the Cities in CVWD's service area have adopted CVWD's Model Landscape Ordinance which sets water budgets for new development to encourage less turf and more drought tolerant landscaping. Also, CVWD partners with cities on programs like "Smart Controller" rebates where citizens can have efficient irrigation clocks installed at reduced cost.

CVWD is currently a participant on the Riverside County General Plan Advisory Committee for the Riverside County General Plan Update. This allows CVWD to have input on flood hazard mitigation planning and water supply planning goals. Also, CVWD participates in Riverside County's monthly Land Development Committee meetings to share comments on projects with the County and developers.

CWA

The Coachella City Council also serves as Board of Directors for CWA. CWA staff attends the Coachella Water Authority/City Council meetings on a regular basis, and participates in the City's land use and planning activities. CWA staff reviews and provides input for all land development projects within CWA's service boundaries.

The Coachella City Council also serves as Board of Directors for Coachella Sanitation District. All master planning for water supplies, wastewater collection and treatment, and stormwater management is done in coordination with the City's Public Works and Planning departments.

DWA

DWA works closely with land use planners in its service area on topics related to water supply and recycled water use. DWA conducts plan checks for new development, and participates in the preparation and approval of water supply assessments.

The City of Palm Springs operates a sewer system within its municipal boundaries, but DWA works with the City to obtain effluent for water recycling. The Palm Springs Office of Sustainability and DWA work together to encourage sustainable water use in the City.

DWA works closely with the cities of Palm Springs and Cathedral City on the Model Landscape Ordinance in order to encourage native landscaping. The City of Cathedral City and DWA also partner on a Smart Irrigation Controller Program to offer devices at no-cost to Cathedral City residents. The City of Palm Springs has also partnered with DWA to offer devices to its residents, but on a more limited basis.

IWA

IWA staff meets regularly with City of Indio land use planners and attends scheduled Planning Commission meetings, as needed, to coordinate water supply and wastewater activities.

MSWD

MSWD's land use planning coordination includes the City of Desert Hot Springs, Riverside County, and the City of Palm Springs, as well as the Desert Edge Community Council. The District's Water Efficient Landscape Guidelines have been incorporated into the landscape ordinance of the City of Desert Hot

Springs and MSWD staff provides landscape plan check services for tract development and in-fill projects.

8.3.3 Future Efforts to Establish Proactive Relationships

The swift pace of development in the Coachella Valley in recent years has made it essential for water planners and land use planners in the Valley to work together through the development approval process. As a result, land use planning agencies have become more informed regarding regional water challenges. *Section 8.2, Relation to Local Water Planning* identifies ways that the water planning agencies have reached out to one another and relevant stakeholders to coordinate on local water planning issues. In addition, coordination related to land use planning is equally important and will be addressed in the following ways:

- The CVRWMG is committed to purposeful, collaborative, and informed coordination with the land use planning agencies within the Valley.
- As General Plans for local cities and the County are updated in the future, it is important that water planners are involved to ensure that the water planning goals of the Region are represented in and supported by land use and development plans.
- In Specific Plans, it is also important that water planners are involved early in the process to ensure that developers have a thorough understanding of available water supplies, flood hazards, and the infrastructure costs and needs of their developments.
- As development approvals are processed, coordination with water planners through development of WSAs are essential for ensuring adequate water supplies to meet future demand.
- This review and approval process by local utilities (water supply, wastewater, storm drainage, and flood control) should also occur during development of project-level CEQA documentation.

As above, the ongoing IRWM program will provide the Region's water and land use planners with an established forum to engage in discussions about water management topics. The quarterly Planning Partners meetings, which include both water managers and land use planners, are designed to discuss regional water issues and concerns. This improved interaction between water managers and land use planners will advance implementation of the IRWM Plan by keeping the group informed about critical issues and needs.







9 Framework for Implementation

*This chapter addresses the following topics related to Plan implementation: the **Impacts and Benefits Standard**, climate change mitigation strategies, the **Data Management Standard**, the **Plan Performance and Monitoring Standard**, and the **Finance Standard**.*

9.1 Impacts and Benefits

This section contains a discussion of potential impacts and benefits of Plan implementation.

The CVRWMG acknowledges that implementation of the Coachella Valley IRWM Plan would potentially result in regional and localized impacts and benefits that must be addressed as part of the IRWM planning process. The sections below give an overview of proposed impacts and benefits, which will be analyzed in detail as part of the Proposition 84 grant application process, and with subsequent environmental review that will be completed prior to construction of any project or program put forth in this Plan.

9.1.1 Overview of Benefits

The proposed Coachella Valley IRWM water management strategies and the priority projects are expected to produce regional benefits that include water quality improvement, enhancement of water supply reliability, ecosystem improvement, flood control enhancement, enhanced scientific and public understanding of water-related issues, improved water management coordination, and greater conservation efforts. The proposed projects will help achieve the designated IRWM Plan goals of:

- Optimizing water supply reliability,
- Protecting or improving water quality,
- Providing stewardship of water-related natural resources,
- Coordinating water resource management, and
- Ensuring cultural, social, and economic sustainability of water in the Coachella Valley.

As described in *Chapter 7, Project Evaluation and Prioritization* the implementation projects included in the project list incorporate a wide range of RMS to achieve the IRWM Plan goals and objectives. The projects would thus result in many long-term regional and inter-regional benefits. **Table 9-1** summarizes the benefits associated with IRWM Plan implementation. **Appendix B** describes the benefits associated with Coachella Valley projects.

Collectively, the proposed projects will result in: water management coordination, water supply reliability, water quality improvement, groundwater improvements, flood control enhancement, ecosystem improvement, enhanced

public safety, enhanced recreation and public access, public education and environmental awareness, and economic benefits.

Table 9-1: Summary of Potential Long-Term Benefits for Proposed Projects

Project Type	Project Component	Potential Long-Term Benefit
Groundwater	Groundwater Supply Development	Increased groundwater storage Water supply reliability Water quality improvement (reversal of Salton Sea and perched water intrusion) Reduced land subsidence and/or fissuring Economic benefits
	Conjunctive Use	Increased groundwater storage Water supply reliability Water quality improvement (reversal of Salton Sea and perched water intrusion) Reduced land subsidence and/or fissuring Water management coordination Economic benefits
	Brackish Groundwater Demineralization	Water supply reliability Avoided costs of imported water supply
Potable Water Supply	Conveyance Facilities	Reduced groundwater pumping Water supply reliability
	Storage Facilities or Storage Operations	Reduced groundwater pumping Water supply reliability
	Treatment Facilities	Reduced groundwater pumping Water supply reliability Water quality improvement Economic benefits
	Salinity Management	Water quality improvement Water supply reliability (long-term sustainability of groundwater basin) Economic benefits
Conservation	Outreach and Education	Water supply reliability Public education and environmental awareness
	Economic Incentives	Water supply reliability Avoided costs of imported water supply Avoided costs of water supply infrastructure Economic benefits
Wastewater	Conveyance Facilities	Water supply reliability Source substitution
	Treatment Facilities	Water supply reliability Source substitution Water quality improvement Avoided costs of imported water supply Economic benefits

Table 9-1: Summary of Potential Long-Term Benefits for Proposed Projects

Project Type	Project Component	Potential Long-Term Benefit
	Septic to Sewer Conversion	Water quality improvement (long-term sustainability of groundwater basin) Economic benefits
Recycled Water	Conveyance Facilities	Water supply reliability Source substitution Increased nutrient levels for landscape irrigation
	Treatment Facilities	Water supply reliability Source substitution Water quality improvement Economic benefits
	Salinity Management	Water quality improvement Water supply reliability (long-term sustainability of groundwater basin) Economic benefits
Urban Runoff Management	Stormwater Capture and Recharge	Increased groundwater storage Water supply reliability Reduced land subsidence and/or fissuring Avoided costs of imported water supply Economic benefits
	Diversion to Sewer	Water quality improvement Flood control enhancement Increased recycled water capacity
	Pollution Prevention	Water quality improvement
Flood Management	Storm Drains or Channels	Flood control enhancement Increased groundwater recharge Avoided costs of flood damage Economic benefits
Ecosystem Restoration and Protection	Land Conservation	Water quality improvement Flood control enhancement Habitat protection and restoration Education and stewardship opportunities
	Invasive Species Removal	Water quality improvement Flood control enhancement Habitat protection and restoration
	Restoration/Revegetation	Water quality improvement Erosion and sediment reduction Flood control enhancement Habitat protection and restoration
Water-Based Recreation	Reservoir Recreation	Enhanced recreation and public access
	Parks, Access and Trails	Enhanced recreation and public access

Water Management Coordination

The IRWM process will allow for increased water management coordination among agencies in evaluating and selecting priority projects from the project list. Several of the projects will directly support increased water management coordination through:

- Projects that document and evaluate regional data management and coordination needs,
- Source identification studies that identify specific water quality problems that may require inter-agency or regional resolution, and
- Feasibility studies that identify and assess future water management options.

Several key water management coordination efforts were included in the *Coachella Valley IRWM Planning Grant Proposal*, including the "DAC Water Quality Assessment", the "Salt and Nutrient Management Planning Strategy", and the "Groundwater Elevation Monitoring Strategy". These efforts are all regional collaborative efforts to better manage water resources within the Valley.

Water Supply Reliability

The reliability of the Region's water supply system will be enhanced by projects that: (1) provide for greater water supply diversity and greater local water supply, and (2) increase the flexibility, capacity, and redundancy of the Region's water supply infrastructure. Selected projects will address water supply reliability as it is a top goal for the Region. Projects that improve water supply diversity and increase the contribution of local sources within the Region's water supply portfolio include:

- water conservation projects,
- water supply pipelines and water systems,
- water system tie-ins, interconnections, and diversion structures,
- projects that support water transfers,
- construction of groundwater treatment and extraction facilities,
- increasing water storage, conveyance, or treatment capacity,
- brackish groundwater desalination,
- upgrading wastewater treatment plants to produce recycled water,
- recycled and other non-potable water projects,
- water conservation, landscape water use efficiency, or incentive programs,
- improve agricultural drainage, water reuse, or management, and
- water quality protection projects that improve the usability and treatability of existing water supplies.

The "Eastern Coachella Valley Water Supply Project" lays out planning and designs that will lay out the most cost effective distribution system and may result in plans and specifications for construction. This project will primarily support water supply to many mobile home parks in the Eastern Coachella Valley. "BDCP and DHCCP" is a proposed project that deals with water transfers from the Sacrament Bay Delta. This project intends to provide new conveyance links between existing storage and treatment facilitates in order to better the region's water supply reliability. Another project that works toward water supply reliability is the "IWA Recycled Water Program". This proposed project has potential benefits that will address many regional water supply concerns by promoting groundwater recharge (replenishment) and

increasing reliability of the water supply. Last, the "Siting Studies, EIR and Design of Colorado River Water Treatment Facility for Municipal Use Project" will present geographic diversity of water treatment to make reliable sources of domestic water for the East Valley possible.

Water Quality Improvement

Protecting and improving water quality is one of the goals of this IRWM Plan. Different types of projects can contribute to water quality improvements, including:

- pollution prevention and stormwater controls,
- building or upgrading wastewater treatment plants/technologies,
- groundwater quality monitoring and assessment,
- conversion of septic systems to municipal sewers,
- construction of sewer collection and interceptor facilities,
- capture and treatment of stormwater/urban runoff,
- salinity management, and
- other point source identification and control projects.

Implementation of proposed pollution prevention and stormwater management projects would also reduce the volume of urban runoff discharged to surface waters. Water conservation projects and recycled water projects could also reduce the quantity of municipal wastewater discharged to the CVSC.

"The Master Drainage Plan Implementation Project" will provide a permanent solution to reducing the amount of nitrates, bacteria, viruses and Total Dissolved Solids (TDS) migrating towards the Coachella Valley's underground aquifers, which provide the drinking water supply in the region. "Pierce Community Infrastructure - Regional Water Treatment Facility (North)," addresses the concerns of the East Valley, whose well systems are experiencing high levels of arsenic and fluoride. This project will look to construct a treatment mechanism or facility that will provide safe and reliable drinking water to existing mobile home parks in the vicinity. These two different types of projects (one planning and one construction) vary in scope but both aim to improve the region's water quality. Other types of projects such as habitat preservation or land conservation projects will also provide water quality benefits.

Groundwater Improvements

Due to the Region's reliance on groundwater supplies and the current overdraft condition in the CVGB, implementation of groundwater improvements is a priority of this Plan. Groundwater improvement programs may include projects to:

- Enhance conjunctive management and groundwater storage,
- Aquifer storage and recovery,
- Stormwater capture and recharge,
- Installation of groundwater recovery wells,
- Construction of new and/or rehabilitation of spreading grounds,
- Improvements in groundwater monitoring, and
- Hydrogeologic investigations and groundwater modeling.

"The Fargo Canyon Spreading Facility Project" would assist in groundwater replenishment through spreading facilities which will support the Fargo Canyon Sub-Area aquifer. The "Well Pumping Plants 44

and 45 of the Palm Springs Main Well Field" consists of construction of two wells, followed by the construction and operation of associated pumping plants. Both of these projects are important to the provision of adequate water supplies to Valley customers.

Flood Control Enhancement

In the late 1970's, severe flood damage occurred to homes and businesses in several of the Valley's cities. As a result, flood control infrastructure was constructed in the early 1980's with the help of USACE and local funding. There are still several areas of the Valley that lack flood control facilities and are vulnerable to devastating alluvial and riverine flooding. To evade possible economic consequences and human fatalities from extreme flooding events, it is important for the CVRWMG to address flood hazards by carefully considering projects that improve flood control in the Valley. Flood control enhancement may be provided by project components that involve:

- Stormwater collection, diversion, or capture,
- Improve levee systems (i.e. floodwalls, raising levee heights, setback levees, etc.),
- Floodplain protection or management,
- Porous pavement or weather-based irrigation replacement projects, and
- Construction of regional flood control infrastructure.

The project entitled "Implementation of Projects in East Wide Channel, Long Canyon and Tributaries Master Plan" will improve upon current detention dams, levees and reservoirs near the mouths of Long Canyon and West Wide Canyon potentially making stormwater collection/capture more efficient. The project will also include improvements to channels that could create greater porosity in channels or make the flow of flood waters more manageable. Other proposed flood control projects include the "Ramon Road Corridor - Improve Flood Protection, Tahquitz Creek Levee Reconstruction", and "Implementation of Projects for Cathedral City Master Plan."

Ecosystem Improvement

With a decrease in the total acreage of available habitat in Coachella Valley, the range and mobility of species has been adversely affected due to urban development. Proposed projects that deal with conservation and restoration have the ability to enhance the Region's ecosystems and protect endangered and threatened species. The following types of projects are considered:

- Land conservation and preservation projects that would sustain existing habitats and provide important wildlife linkages and corridors,
- Water quality protection projects that result in surface water quality improvement and improved compliance with water quality standards,
- Watershed erosion and sediment management,
- Stormwater management and pollution prevention, including BMPs,
- Debris cleanup and habitat restoration,
- Creation of wetlands, buffers, or other habitat, and
- Invasive species removal and control.

The proposed project, "Construct Wetland, Riparian, and Pupfish Habitat for CVMSHCP and Natural Community Conservation Plan," will provide regional benefits regarding ecosystem improvement.

Enhanced Public Safety

Public safety and property protection will be enhanced by water management projects that:

- Manage flood flows and risks in urbanized areas,
- Address source water control and protection,
- Reduce bacterial pollution, and
- Decrease the potential for recreational-related public safety impacts.

Additionally, fire-fighting and public sanitation will be improved through water supply projects that improve the reliability and flexibility of the Region's water supply infrastructure (including treatment, conveyance, and storage facilities) to reliably deliver water and/or water supply projects that increase supply reliability through source diversity and use of local water sources.

The "Implementation of Total Maximum Daily Load Best Management Practices" project will provide solutions to prevent non-storm urban runoff flows from entering the CVSC, thereby improving public health and safety.

Enhanced Recreation and Public Access

Recreational opportunities that exist in the Coachella Valley region include parks, lakes, and community centers. Continuous population growth and development may result in a greater demand for recreational resources for additional residents. Coachella Valley watercourses that provide recreational opportunities include Lake Cahuilla. The native habitats surrounding the lake provide recreational activities such as hiking trails, bird watching, and fishing. Enhancing recreation and public access will require efforts that:

- Will increase lands available for recreation (through land preservation or conservation),
- Control invasive species, and
- Improve water quality.

The "Construct Wetland, Riparian, and Pupfish Habitat for CVMSHCP and Natural Community Conservation Plan" project will promote enhanced opportunities for recreation through conservation and habitat protection.

Public Education and Environmental Awareness

Many water conservation and water quality protection projects include public education/environmental awareness components. Such programs are directed toward encouraging public support and awareness to:

- Promote and increase water conservation,
- Discourage illegal dumping of trash and litter in watercourses, and
- Encourage appropriate water management practices, including appropriate collection and disposal of hazardous liquid wastes.

Submitted projects which include public education and environmental awareness components include IWA's "Smart Water Conservation Programs Project", "Desert Hot Springs Community Gardens Project," and "DMMs for CVRWMG Partners Project". All three of these projects will utilize a variety of education and outreach methods to increase water conservation throughout the Valley.

Economic Benefits

Implementing the proposed projects will result in economic benefits to the Region, including:

- Avoiding potentially economically significant impacts to the regional economy (business, industry, and agriculture) associated with water supply interruption,
- Tourism economic benefits associated with water quality improvement and enhanced recreational opportunities,
- Economic benefits associated with enhanced public safety and flood protection, erosion and sediment control, and
- Benefits to the regional economy and labor associated with constructing and maintaining proposed IRWM facilities.

Another direct economic benefit of the IRWM Plan is that the planning process allows for implementing agencies and organizations to maximize existing resources by: (1) eliminating duplication or overlap among regional projects, (2) pooling resources to resolve common environmental or regulatory challenges, and (3) coordinating the development of regional data management systems that can be used to improve project evaluation and effectiveness. Additionally, the IRWM Plan process allows regional agencies to more effectively secure outside funding.

While all of the projects within the IRWM Plan will play a role in benefitting the economy by improving water management issues within the Valley, specific projects such as the "Desert Edge Geothermal Water Conservation and Preservation Project" will have direct economic benefits. The Desert Edge project will improve the groundwater quality of hot water springs that currently function as regional tourist attractions, thereby potentially increasing the economic output of tourism in the region.

9.1.2 Overview of Impacts

Negative impacts that may be associated with the proposed IRWM projects are similar to any other water infrastructure project and include (1) short-term, site-specific impacts related to site grading and construction, and (2) long-term impacts associated with project operation. Construction-related impacts associated with implementing physical facilities may include, but are not limited to, traffic, noise, biological resources, public services and utilities, cultural resources, and aesthetics.

Table 9-2 summarizes potential impacts associated with the implementation of key project elements within priority projects. **Appendix B** describes the potential negative impacts associated with Coachella Valley projects. Operation of proposed IRWM projects may result in the following impacts:

- effects of groundwater supply projects on groundwater-dependent vegetation,
- the treatability and quality of water from new supply sources,
- effects of recreation on raw water supplies within surface water reservoirs,
- surface conveyance and surface storage operations and associated impacts on riparian habitat,
- effects of flood control projects on erosion, sedimentation, and water quality,
- waste discharge issues associated with sludge, brine management and brine disposal, and
- increased wastewater residuals (biosolids) generation associated with upgraded water, recycled water and wastewater treatment.

Project-specific and/or programmatic environmental compliance processes per the California Environmental Quality Act (CEQA) and, if applicable, the National Environmental Policy Act (NEPA)

will evaluate the significance of the impacts. Impacts concluded as being significant must be mitigated to a level of non-significance (unless the lead agency makes findings of overriding consideration). In addition, project proponents seeking Proposition 84 grant funding shall also notify tribal entities prior to the adoption of CEQA or NEPA documentation, where traditional tribal lands are within the area of the proposed project (PRC §75102).

Table 9-2: Summary of Potential Long-Term Impacts for Proposed Projects

Project Type	Project Component	Potential Long-Term (Non-Construction) Impact
Groundwater	Groundwater Supply Development	Water quality degradation (if poorer quality) Disturbance of groundwater-dependent vegetation Groundwater availability and reliability (if additional pumping)
	Conjunctive Use	Water quality degradation (if poorer quality) Disturbance of groundwater-dependent vegetation Groundwater availability and reliability
	Brackish Groundwater Demineralization	Disturbance of groundwater-dependent vegetation Receiving water quality (brine disposal)
Potable Water Supply	Conveyance Facilities	Land use compatibility (rights-of-way) Disturbance of habitat and endangered species
	Storage Facilities or Storage Operations	Land use compatibility (rights-of-way) Disturbance of habitat and endangered species
	Treatment Facilities	Energy (power consumption) Land use compatibility (rights-of-way) Receiving water quality (if NPDES discharge)
Conservation	Outreach and Education	Reduced discharges to Salton Sea wetlands
	Economic Incentives	Reduced discharges to Salton Sea wetlands
Wastewater	Conveyance Facilities	Land use compatibility (rights-of-way) Disturbance of habitat and endangered species
	Treatment Facilities	Energy (power consumption) Disturbance of habitat and endangered species (if NPDES discharge) Receiving water quality (if NPDES discharge) Receiving water quality (brine disposal)
	Septic to Sewer Conversion	Additional sewer collection and treatment facilities
Recycled Water	Conveyance Facilities	Land use compatibility (rights-of-way) Disturbance of habitat and endangered species Groundwater quality degradation Surface runoff and surface water quality degradation
	Treatment Facilities	Energy (power consumption) Land use compatibility (rights-of-way) Receiving water quality (if NPDES discharge)
	Salinity Management	Receiving water quality

Table 9-2: Summary of Potential Long-Term Impacts for Proposed Projects

Project Type	Project Component	Potential Long-Term (Non-Construction) Impact
Urban Runoff Management	Stormwater Capture and Recharge	Groundwater quality degradation
	Diversion to Sewer	Additional sewer collection and treatment facilities
	Pollution Prevention	None
Flood Management	Storm Drains or Channels	Land use compatibility (rights-of-way) Disturbance of habitat and endangered species Sedimentation and erosion Economic impacts
Ecosystem Restoration and Protection	Land Conservation	Economic impacts
	Invasive Species Removal	Disturbance of habitat and endangered species Sedimentation and erosion
	Restoration/Revegetation	Disturbance of habitat and endangered species Sedimentation and erosion
Water-Based Recreation	Reservoir Recreation	Reservoir water quality degradation Additional potable water treatment facilities
	Parks, Access and Trails	Disturbance of habitat and endangered species Sedimentation and erosion

9.1.3 Benefits and Impacts of Plan Implementation

Regional Impacts and Benefits

Projects proposed as part of this IRWM Plan help implement recommendations presented in the various water supply planning documents from throughout the Coachella Valley. Implementation of proposed water conservation, groundwater, water transfer, desalination, and recycled water projects within the Region are projected to reduce groundwater overdraft within the next 20 years. Implementation of the IRWM Plan will ideally conserve and diversify water supply portfolios in the region. Groundwater and potable water supply projects that provide water supply reliability benefits would benefit DACs and tribal entities by improving access to drinking water supplies, improving groundwater basin management, improving groundwater and surface water quality, and providing economic benefits by reducing the costs in comparison to alternative water supplies (e.g., hauling). Projects related to arsenic treatment within drinking water supplies specifically pertain to DAC water-related issues within the East Valley.

Potential impacts of IRWM Plan implementation could affect neighboring communities through a variety of construction-related impacts, including dust, noise, and traffic generation. Potential impacts to DACs and tribes may include increased costs associated with the provision of water infrastructure, and other construction-related impacts that apply throughout the region. Negative impacts have been described by project sponsors on the online project database and are included in **Appendix B**. Other impacts may be identified further along in the environmental review process. Therefore, as the projects progress, careful consideration will be taken prior to full implementation.

Impacts to disadvantaged and tribal communities will be kept at a minimum. **Appendix B** contains a project-level analysis of the potential impacts and benefits to DACs. In addition, the *Public Outreach and Communication Plan* (see **Appendix C**) seeks to engage DACs to further involve them in the planning process and to avoid any possible impacts.

Inter-Regional Impacts and Benefits

Inter-regional benefits could potentially include increased water supply reliability (through transfers and conjunctive use arrangements with outside entities), groundwater and surface water quality improvement (particularly for discharges to the Salton Sea), flood control enhancement, ecosystem improvement, and economic benefits throughout the larger Coachella-Imperial subregion. However, the construction-related impacts listed within *Section 9.1.2 Overview of Impacts* would likely not be inter-regional impacts, because they are focused within the Coachella Valley.

In addition, the IRWM Plan could result in inter-regional benefits associated with the reduced need for future additional imported water supply from the Sacramento-San Joaquin Delta. The CVRWMG is committed to addressing future water demands by increasing water conservation and water use efficiency, expanding capture and infiltration of stormwater runoff, securing reliable (non-SWP) water supplies, optimizing conjunctive use, expanding recycled water capacity, and desalinating agricultural drain water (refer to *Chapter 4 Objectives, Section 4.1.1 Determining Objectives* for more information).

9.2 Climate Change Mitigation/GHG Reduction

This section describes how Plan implementation can help to mitigate climate change by reducing energy consumption and ultimately reducing GHG emissions.

The proposed Coachella Valley IRWM RMS and the priority projects are expected to mitigate climate change by including energy-savings measures, best management practices, and other energy and GHG emissions saving features whenever feasible. *Chapter 6, Resource Management Strategies, Section 6.5, Adapting Resource Management Strategies to Climate Change* discusses further considerations related to climate change, including **Table 6-3**, which contains information regarding various resource management strategies and their potential role in reducing GHG emissions.

Adaption to and mitigation for climate change were both factors included for consideration as part of evaluating projects submitted to the online project database. Project sponsors were asked to provide information about how their project mitigates for associated possible climate change impacts (e.g., GHG reduction strategies), and how their project adapts to future possible changes in climate (e.g., through project design). This information is available to the CVRWMG, Planning Partners, stakeholders, and members of the public through the online project database.

This IRWM Plan is not an appropriate document for analyzing project-level GHG emissions, given that project design, and other project details for priority projects have not yet been vetted. As required by CEQA, all projects will undergo project-level GHG emissions analyses when they are evaluated as part of the environmental review process. Such project-level GHG emissions analysis will estimate GHG emissions from the project; establish significance criteria; identify those project components that may supply carbon sequestration; and, if applicable, explain how the project may help in the adaptation to possible effects of Climate Change.

9.3 Data Management

*This section fulfills the **Data Management Standard** and describes efficient use of available data, stakeholder access to data, and that data generated by IRWM implementation activities can be integrated into existing State databases.*

In preparation of the Coachella Valley IRWM Plan and in continued efforts of regional coordination, the collection and distribution of water management data is essential. The compilation of reports, records, intelligence, statistics and facts between the CVRWMG partners, as well as stakeholders, was vital to compiling the information necessary to create the IRWM Plan.

As the CVRWMG moves forward in regional planning and project implementation, the need for data management will continue to develop. As regional goals and priorities are addressed, the partners will share the responsibility and benefits of continued information gathering and sharing.

As described in earlier chapters of the IRWM Plan, data will be gathered at the project level to assess the performance goals and objectives. This will aid the region in gauging success and progress through regional planning, as well as assist in creating a learning curve for future implementation. Regional monitoring data will also be collected and disseminated to support regional planning updates. The five partners are currently engaged in a variety of monitoring efforts.

The CVRWMG envisions creation of a Data Management System (DMS) to support integrated regional planning within the region. Currently, the IRWM program website (www.cvrwmg.org) has a library of reports, studies, and information used during preparation of the IRWM Plan. In the future, the CVRWMG envisions creation of a more in-depth library allowing public access and dissemination of documents and plans. The www.cvrwmg.org library will contain documents prepared by the CVRWMG, as well as useful planning documents prepared by other agencies. Data will be organized by type and relation then by date of creation. Public access to the data will involve downloading documents in PDF format. A "contact us" feature will allow users to request data that is not online or inform the CVRWMG of data that is available but not accessible.

The process for collecting, organizing and sharing data is described in this chapter. In addition, the CVRWMG has identified data gaps and needs for the region which may be addressed through IRWM planning. Note that for security and legal purposes, not all of the data within the DMS may be publicly available.

9.3.1 Overview of Data Needs

In order to effectively manage water, many varieties of data are needed including information about water quality, quantity, demographics, climate patterns, treatment, habitat locations, costs, infrastructure and legal agreements. The CVRWMG partners have accumulated much of this data individually or in partnerships. Through this regional planning effort, that data is being pooled.

Groundwater Data

Groundwater is currently the largest source of water supply for the Coachella Valley IRWM Region. The five water purveyors, as well as Myoma Dunes Water Company and other private pumpers, share the Coachella Valley Groundwater Basin and pump potable water from wells. Each agency is responsible for data collection from those wells, including groundwater quality information. Each agency also keeps well level information as a method of groundwater monitoring. Results of that monitoring are reported both to

customers, through annual Consumer Confidence Reports, and regulatory agencies. Results are also incorporated into other reporting and planning efforts by the agencies.

Collecting groundwater data is vitally important in the Coachella Valley IRWM Region to ensure adequate water quality and supply. In order to efficiently manage the groundwater basin, agencies must closely monitor this data and use it to evaluate future needs.

As the region develops an efficient Data Management System (DMS), each agency will share that data, as appropriate and publicly available, for use in regional planning. Much of this data has already been compiled to create the IRWM Plan; however, future planning will require a more thorough compilation of data management.

Surface Water Data

Surface waters of the Coachella Valley IRWM region consist of the Whitewater River Stormwater Channel (WRSC) and principal tributaries to the WRSC, including the San Gorgonio River, Snow Creek, Falls Creek, Chino Creek, Mission Creek, Morongo Creek, Tahquitz Creek, Andreas Creek, Palm Canyon Wash, Deep Canyon Creek, and the Palm Valley Channel. DWA receives about 5% of its water supply (or 2,500 AFY) through surface water sources, including Chino Creek, Snow Creek, and Falls Creek. These creeks are all tributary to the Whitewater River. DWA monitors this supply and data regarding this surface water is included in annual Water Quality Reports. Surface water data is important to DWA as surface water is part of the domestic supply. Data is used to ensure quality and supply of drinking water within the agency.

As the region develops an efficient DMS, each agency will share that data, as appropriate and publicly available, for use in regional planning. Much of this data has already been shared to create the IRWM Plan; however, future planning will require a more thorough compilation of data management.

Flood Control Data

RCFCWCD and CVWD are the Region's flood control districts. They operate and maintain a series of regional flood control facilities throughout the Valley. These two agencies monitor and report data regarding flood control. Flood control data is used to ensure safety within the community. Flood control is important for development and building within the region. Some areas of the region do not have adequate flood control and collection of this data will allow the CVRWMG to identify gaps that need to be identified and addressed.

As the region develops an efficient DMS, each agency will share that data, as appropriate and publicly available, for use in regional planning. Much of this data has already been shared to create the IRWM Plan; however, future planning will require a more thorough compilation of data management.

Habitat Data

Within the Coachella Valley IRWM Region is the CVMSHCP. The plan, developed by CVAG and approved by both CDFG and USFWS, is used to ensure preservation of protected land while protecting the Valley's ability to grow. The CVRWMG could use data that is available on the CVMSCHCP website (http://www.cvmshcp.org/) in the future planning efforts. Habitat data is important to the region for planning efforts to maintain a balance of urban growth and sustainable environmental practices.

As the region develops an efficient DMS, each agency will share that data, as appropriate and publicly available, for use in regional planning. Much of this data has already been shared to create the IRWM Plan; however, future planning will require a more thorough compilation of data management.

Demographic Data

The CVRMWG has relied heavily on Riverside County and U.S. Census data for demographic information about the region. Statistical data has helped identify regional needs, as well as help target DAC areas. Information such as the *Geographic Areas Reference Manual* from the US Census Bureau is used to understand demographics of the region which help the CVRWMG assess regional needs and priorities.

As the region develops an efficient DMS, each agency will share that data, as appropriate and publicly available, for use in regional planning. Much of this data has already been shared to create the IRWM Plan; however, future planning will require a more thorough compilation of data.

Feasibility Studies and Planning Efforts

Feasibility studies are essential for project implementation. Existing and planned projects will have accompanying feasibility and planning documents that the CVRWMG can use in its own planning efforts. As needs arise, the group will compile those studies, specifically for implementation grant submissions. Project proponents and developers are responsible for developing their own feasibility studies. Often these studies include a water supply assessment. Planning efforts include a vast array of data including agency general and master plans, as well as planning efforts from other agencies within the region. For example, all five water purveyors that constitute the CVRWMG will be completing 2010 updates of their UWMPs, with IWA having already completed and finalized their plan in May 2010.

As planning efforts related to the CVIRWM Plan, studies and plans will be collected in and incorporated into the DMS. The vast amount of planning efforts within the region prevent the DMS from including all but will allow for collection of some as related to water management needs in the region.

As the region develops an efficient DMS, each agency will share that data, as appropriate and publicly available, for use in regional planning. Much of this data has already been shared to create the IRWM Plan; however, future planning will require a more thorough compilation of data.

Historical Agency Information

Each agency has historical data about water quality, quantity, infrastructure, agreements and contracts and climate that could prove useful in future regional planning. The group will continue to compile that data. Local historical societies have additional data that could be incorporated in the region's DMS. Historical information has a variety of uses within the region that could aid the CVIRMG in future planning.

As the region develops an efficient DMS, each agency will share that data, as appropriate and publicly available, for use in regional planning. Much of this data has already been shared to create the IRWM Plan; however, future planning will require a more thorough compilation of data management.

Environmental Impact Reports

The information contained in both program and project-level Environmental Impact Reports (EIRs) for water management infrastructure has potential to be useful to the CVRWMG's planning efforts. As needed, the group will collect those reports to incorporate that data in the data management system. Just as planning and feasibility data is vast in the region, EIRs exist for numerous projects and agencies throughout the region. EIRs will be included in the DMS as needed for the progress of future water management planning.

As the region develops an efficient DMS, each agency will share that data, as appropriate and publicly available, for use in regional planning. Much of this data has already been shared to create the IRWM Plan; however, future planning will require a more thorough compilation of data management.

9.3.2 Data Collection Techniques

Knowledge of existing data has led to collection of much of what the CVRWMG has used during the IRWM planning process; however a great deal of data discovery has and will continue to occur in an effort to compile information about the region's water management systems.

The CVRWMG plans, reports, statistics and information, described above in *Section 8.3.2 Technical Analysis*, were compiled to create a matrix of existing data early in the IRWM planning process. The matrix was shared with the water purveyors and led to the presentation of additional data sources made available. As that data has been shared by the partners, the collection has become reference for the Coachella Valley IRWM Plan.

The CVRWMG partners have shared their data electronically, through hard copy reports, and through other efficient methods such as spreadsheets. Information that was gathered via hard copy has been scanned and is now being store electronically for inclusion in the regional DMS.

9.3.3 Stakeholder Contributions

It has long been recognized by the CVRWMG that the stakeholders in the region possess a great deal of data that the regional planning effort could use. The CVRWMG has been of the mind that stakeholder contributions could prevent duplication of efforts and research and that those contributions would be vital to planning process.

Through extensive stakeholder outreach, the group was able to obtain significant data, as well as discover new reports, materials, and information that the group was unaware of, but that was useful in development of the IRWM Plan. For example, during outreach to the East Valley's DAC representatives, Poder Popular provided a copy of the *Coachella Valley Water Systems Assessment* (Rural Communities Assistance Corporation 2010), which evaluates four drinking water and wastewater systems in local DACs.

Stakeholders in the Coachella Valley IRWM Region have been forthcoming with their data and the region has been able to add a wide variety of information to the online library based on those contributions. All stakeholders have access to program files, as well as regional planning documents and studies, through the library located on the CVRWMG website.

9.3.4 Responsible Entity

The CVRWMG is the responsible entity for the DMS within the region. The region may develop an ad-hoc subcommittee to guide development and management of the DMS, as needs arise. At this time, one point person is assigned to maintain the program library (found at www.cvrwmg.org). All parties are responsible for uploading their data to the existing file sharing program. As the DMS is further refined, the duties of maintenance, data collection, quality control, and dissemination will be further refined based on need.

9.3.5 Quality Assurance/Quality Control (QA/QC) Measures

A great deal of the reporting and monitoring currently conducted within the region is monitored by regulatory bodies and held to standards that meet the policies of those bodies. For instance, Water

Quality Reports are required annually by the U.S. EPA; for data such as these, the CVRWMG will merely serve as a clearinghouse and will not conduct additional quality assurance/quality control (QA/QC).

Data that is collected for regional planning that is unregulated by a State or federal agency will be vetted for accuracy on an as-needed basis.

9.3.6 Regional Data Sharing

Technology has already led to a great deal of efficiency in data collection for the CVRWMG. During the Region Acceptance Process, the CVRWMG used a group website to share files, maps, and data that could be used in completing the application. During IRWM Plan preparation, the CVRWMG relied on both email and a file sharing website to disseminate data to each other for purposes of creating the Plan.

The most useful technology for sharing has been the region's website, www.cvrwmg.org, which houses a library of data that is accessible not only to the management group, but also to stakeholders. Information on the library is publicly available and can be accessed any time. For those stakeholders without internet or email access, information that is available on the CVRWMG website can be provided to stakeholders upon request.

9.3.7 Statewide Data Sharing

The partners in the CVRWMG adhere to regulatory guidelines of data management by providing the necessary data into State databases. Projects implemented under the IRWM Plan will provide necessary data to the following State databases:

- *Water Data Library* – DWR maintains the State's Water Data Library (WDL) which stores data from various monitoring stations, including groundwater level wells, water quality stations, surface water stage and flow sites, rainfall/climate observers, and water well logs. Information regarding the WDL can be found at: http://wdl.water.ca.gov/.
- *Surface Water Ambient Monitoring Program* – The SWRCB created the Surface Water Ambient Monitoring Program (SWAMP). SWAMP has developed standards required for any group collecting or monitoring surface water quality data, using funds from Propositions 13, 40, 50, and 84. More information on the SWAMP is available at: http://www.swrcb.ca.gov/water_issues/programs/swamp.
- *Groundwater Ambient Monitoring and Assessment Program* – Groundwater Ambient Monitoring and Assessment (GAMA) provides a comprehensive assessment of water quality in water wells throughout the State. The California Aquifer Susceptibility Assessment combines age dating of water and sampling for low-level volatile organic compounds to assess the relative susceptibility of public supply wells throughout the State. The Voluntary Domestic Well Assessment provides sampling of water quality in domestic wells, which will assist in assessing the relative susceptibility of California's groundwater to contaminants. Because water quality in individual domestic wells is unregulated, the program is voluntary and focuses, as resources permit, on specific areas of the State. Constituents analyzed include nitrate, total and fecal coliform bacteria, methyl tert-butyl ether, and minerals. Additional information on the GAMA program is available at: http://www.swrcb.ca.gov/gama.
- *California Environmental Information Catalog* – The California Natural Resources Agency maintains the California Environmental Information Catalog (CEIC), which is a Statewide metadata clearinghouse for geospatial data. The online directory is used for reporting and discovery of information resources for California. Participants include cities, counties, utilities,

State and federal agencies, private businesses, and academic institutions that have spatial and other types of data resources. The CEIC is accessible at: http://gis.ca.gov/catalog/.

- *Integrated Water Resources Information System* – DWR maintains the Integrated Water Resources Information System (IWRIS), which is a data management tool for water resources data and not a database. IWRIS is a web based GIS application that allows entities to access, integrate, query, and visualize multiple sets of data simultaneously. Information on IWRIS is available at: http://www.water.ca.gov/iwris/.
- *California Environmental Resources Evaluation System* – California Environmental Resources Evaluation System (CERES) is an information system developed by the California Natural Resources Agency to facilitate access to a variety of electronic data describing California's rich and diverse environments. The goal of CERES is to improve environmental analysis and planning by integrating natural and cultural resource information from multiple contributors and by making it available and useful to a wide variety of users. CERES is available at: http://ceres.ca.gov/.

The CVRWMG partners will continue to follow the regulatory data management requirements, as well as use the State DMS's above as examples in further development of the regional system.

9.4 Plan Performance and Monitoring

*This section complies with the **Plan Performance and Monitoring Standard** by including performance measures and monitoring to document progress toward meeting Plan objectives.*

This Coachella Valley IRWM Plan includes a Plan Performance and Monitoring framework to ensure that the Region (1) meets the IRWM Plan goals and objectives; (2) implements all projects included in this IRWM Plan; and (3) monitors each project to ensure compliance with all applicable rules, laws, and permit requirements. Part of the Plan Performance and Monitoring framework involves the Coachella Valley IRWM Plan undergoing periodic review. This process involves assessing the effectiveness of the IRWM Plan implementation and adjusting the Plan implementation accordingly. This section describes the methods for assessing the Coachella Valley IRWM Plan and project performance and identifies project-specific monitoring plans.

9.4.1 Plan Performance

The Coachella Valley IRWM Plan will be assessed at both the Plan and project levels. The IRWM Plan is framed around regional goals and objectives that contribute to the overall vision of water resources management within the Coachella Valley. Plan and project performance assessments are vital for evaluating how effectively they are achieving the regional goals and objectives. The methods that are to be used in assessing the project and plan performance are described below.

Evaluating Project Performance

Project proponents submitting implementation projects are considered the "Responsible Agency" for each project or program included in the IRWM Plan. The Responsible Agency is responsible for overseeing project implementation, providing ongoing assessment of project performance, and overseeing conformance with grant funding requirements. Each project proponent is responsible for implementing the project, developing the project-specific monitoring strategies, and overseeing monitoring activities. Additionally, the CVRWMG will coordinate reporting on project performance and assuring each project reports its progress toward identified performance measures. Projects that are included in the IRWM Plan, but not grant-funded, are encouraged to follow a similar monitoring and reporting program.

As projects are implemented in the Region as part of this Plan, project outcomes will be monitored and the results from this monitoring will be used to guide future project implementation. If project monitoring reveals that a project is progressing as planned and regional changes do not necessitate revisiting project implementation, then changes to project sequencing are not anticipated. However, if project monitoring reveals that a project is not producing the anticipated result, the CVRWMG will notify the project proponent that it must identify and implement corrective actions. Alternatively, the project proponent may determine that the appropriate action is to stop the project temporarily or permanently to allow another project to proceed in its place.

Based on information provided by project proponents, the CVRWMG will prepare an Annual Report summarizing the progress of each individual project completed via IRWM grant funding and evaluate the projects to determine their progress towards achieving the performance metrics. The Annual Reports will be distributed to the public through the Region's www.cvrwmg.org website, newsletters, and e-mails. Once a grant contract is awarded, project proponents will provide quarterly reports to CVWD (who is authorized to submit and enter into contracts for grant funding on behalf of the region) describing project progress, performance with respect to stated performance metrics, and project deliverables and invoices. These quarterly reports and required project completion reporting will be used to develop the CVRWMG's Annual Reports on the IRWM program.

The performance measures to be used in measuring implementation performance for each identified project are presented in **Appendix D**. These performance measures are intended to serve as measurable benchmarks for establishing success of projects following implementation. As projects become further developed, these metrics may evolve to better capture the performance of projects with respect to meeting project objectives.

Evaluating Plan Performance

The CVRWMG is the Responsible Agency in charge of evaluating the performance of the Plan in regards to achieving goals and objectives. The assessment will be done annually by the CVRWMG. The Annual Reports will include assessment of the overall progress toward achieving the regional priorities identified in *Chapter 7, Project Evaluation and Prioritization Section 7.1 Regional Priorities*. The Annual Reports will be prepared for public distribution through the www.cvrwmg.org website, newsletter, and e-mails. Additionally, the CVRWMG will be responsible for compiling and managing all IRWM Plan data and information in the proposed DMS (see *Section 9.3, Data Management* above) for compliance with State funding requirements.

Table 4-1 in *Chapter 4, Objectives* presents the designated Plan goals, objectives, and targets established for measuring progress in achieving the objectives, and parameters for measuring their success. The CVRWMG will further develop the thresholds of success for the parameters shown in Table 4-1 as part of an adaptive management process.

9.4.2 Project-Specific Monitoring Plans

Project proponents are responsible for implementing project-specific monitoring plans to ensure projects are on track to meeting the individual Plan targets. All projects shall be monitored to comply with applicable regulations, laws, and permit requirements. **Table 9-3** contains a list of required contents for a project-specific monitoring plan. As projects become further developed, monitoring strategies may evolve to better address any problems encountered during monitoring. All project proponents that receive grant funding will generate project progress reports and will be submitted to CVWD with quarterly invoices. **Appendix D** presents preliminary information on each of the projects' monitoring plans. Project proponents will be required to submit monitoring plans before grant funding reimbursements may begin.

Table 9-3: Required Contents of Project-Specific Monitoring Plans

Required Contents of Project-Specific Monitoring Plans
• Clearly and concisely (in a table format) describe what is being monitored for each project
• Measures to remedy or react to problems encountered during monitoring
• Location of monitoring
• Monitoring frequency
• Monitoring protocols/methodologies, including who will perform the monitoring
• DMS or procedures to keep track of what is monitored, including how the data collected will be or can be incorporated into Statewide databases
• Procedures to ensure the monitoring schedule is maintained and that adequate resources (budget) are available to maintain monitoring of the project throughout the scheduled monitoring timeframe

9.5 Finance

*This section complies with the **Finance Standard** and ensures that financing of the IRWM Plan has been considered at a programmatic level by the CVRWMG. The potential funding sources for projects and programs that implement the IRWM Plan are also considered.*

Development of the Coachella Valley IRWM Plan included both programmatic and project-level assessment of financing by the CVRWMG. Programmatic financing was considered by the CVRWMG during development of their MOU (see **Appendix E**) and also during formalization of the current governance structure. Project-level financing is presented and accessible to stakeholders, Planning Partners, Issues Groups, and the general public through the online project database used to collect and manage projects submitted as part of this Plan. The project database requires submittal of information regarding current and expected financing of projects.

9.5.1 Sources and Certainty of Funding

The following section discusses financing in the context of multiple potential funding sources, and therefore explains how project proponents will attempt to achieve desired funding for their projects through this IRWM process and through other sources.

IRWM Plan Funding

The five water purveyors that constitute the CVRWMG funded preparation of this IRWM Plan. Each agency contributed an equal share of money to fund a consultant team to assist CVRWMG staff members in Plan preparation. In addition, each member agency allocated staff time and resources to developing the Plan, and to participate in stakeholder outreach efforts. Ongoing IRWM planning efforts will be funded by a combination of the *Coachella Valley IRWM Planning Grant Proposal* and matching funds via the continued CVRWMG investment. The CVRWMG is committed to the long-term continuance of the Coachella Valley IRWM program as a regional water supply planning effort.

Because the IRWM project list is a living list, which will change over time, the potential funding sources in **Table 9-4** are presented generally. Beyond paying for development of the Plan itself, the CVRWMG are committed to ensuring that the Plan is properly implemented. **Table 9-4** below outlines potential funding mechanisms that could be utilized by the CVRWMG and various project proponents to secure funds for on-going project implementation.

Project and Program Funding

As described within *Chapter 7, Project Evaluation and Prioritization*, a description of the potential sources of funding that will be utilized for projects and programs that implement the IRWM Plan was derived from project proponents as part of the project submittal process. Project proponents were required to submit the entire project budget, the amount of funds requested as part of the IRWM process, the estimated local match, and the annual operations and maintenance costs of their project or program. Operation and maintenance costs for projects and programs shall be covered by the project proponents' operating budgets. Operating budgets are generally secured by proponents through their rate structures, as defined by asset management planning.

Appendix B provides a cross-walk of the submitted projects (as of September 30, 2010) and aforementioned funding considerations. **Table 9-4** below outlines potential funding mechanisms that could be utilized by the CVRWMG and various project proponents to secure funds for on-going project implementation.

Certainty of Funding

Chapter 7, Project Evaluation and Prioritization provides information regarding the readiness for projects to proceed with regards to Proposition 84, Proposition 1E, and other factors. In addition, **Appendix B** provides a cross-walk of the submitted projects (as of September 30, 2010) and their security with regards to local cost share. While not all funding has been fully secured for projects submitted as part of this IRWM Plan, the CVRWMG has considered financing of the Plan and implementation projects and programs. As discussed within *Chapter 7, Project Evaluation and Prioritization*, the CVRWMG took into consideration whether or not projects had been identified within an existing planning document as part of the scoring and ranking process. With this criterion, the CVRWMG recognized that accepting a project or program into a formalized planning document is one of the first steps to securing funding. In addition, **Table 9-4** below lists various outside funding mechanisms, and analyzes their certainty/longevity.

Table 9-4: IRWM Plan Potential Funding Mechanisms

Activity Description	Funding Source	Funding: Certainty/Longevity
IRWM Program Management	CVRWMG Member Agencies via MOU	Commitment through IRWM Plan Update in December 2012.
IRWM Plan Update 2012 • Ongoing outreach –Planning Partners, DACs, Tribes, Public Workshops • DAC Water Quality Evaluation • Salt/Nutrient Planning Strategy • Integrated Flood Management • Groundwater Monitoring Strategy	DWR via Prop 84 IRWM Planning Grant	Contingent on success in grant programs.
Implementation of Projects/Programs Through Prop 84 IRWM Implementation Grants	DWR via Prop 84 IRWM Implementation Grant	Contingent on success in grant programs.
Implementation of Stormwater and Flood Management Projects/Programs Through Prop 1E IRWM Implementation Grants	DWR via Prop 1E IRWM Implementation Grant	Contingent on success in grant programs.
Implementation of Projects/Programs Through Capital Improvements Program (CIP) Budgets	Local CIP Budgets	Contingent on CIP budgets adopted by implementing agencies.
Implementation of Projects/Programs Through Assessment Districts	Assessment District Funds	Secure through the lifetime of the relevant Assessment District.
Implementation of Projects/Programs Involving Water Quality Protection for Wastewater Treatment, Nonpoint Source Pollution Control, and Watershed and Estuary Management	Clean Water State Revolving Fund (CWSRF) Loan	Secure through the lifetime of American Recovery and Reinvestment Act (ARRA).
Implementation of Projects/Programs That Improve Drinking Water Systems	Drinking Water State Revolving Fund (DWSRF) Loan	Secure through the lifetime of ARRA.
Implementation of Projects/Programs That are Authorized Under Title XVI	USBR Title XVI	Secure through the lifetime of ARRA.
Implementation of Projects/Programs Addressing Flood Control, Navigation, and Environmental Issues	Water Resources Development Act (WRDA)	Secure through 2012.
Implementation of projects or programs that have flood management components as consistent with Proposition 1E requirements	The Disaster Preparedness and Flood Protection Bond Act of 2006 (Prop1E)	Secure through the lifetime of Proposition 1E.
Operations and Maintenance of Implementation Projects	Operating Budgets/ Enterprise Funds of Project Proponents	Contingent on rate structure adopted by Project Proponents







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Appendix A: Stakeholder Meeting Notes

This appendix contains meeting notes from the following stakeholder meetings:

- Public Workshop that was held on June 22 and November 10, 2010
- DAC Issues Group meetings that took place on May 20, July 28, and September 21, 2010,
- Tribal Issues Group meeting held on May 20, 2010, and
- Planning Partners meetings held on May 19, July 20, and September 28, 2010.

Coachella Valley Integrated Regional Water Management (IRWM) Program

Public Workshop #2

Tuesday June 22, 2010
1:30 – 3:30 p.m.

Rancho Mirage Public Library
71100 Hwy 111, Rancho Mirage CA

DRAFT NOTES

Meeting Objectives:

A. Create a common understanding of the Coachella Valley IRWM program, including schedule, key milestones, and stakeholder involvement.

B. Obtain feedback on regional water resource issues that can be addressed in the IRWM planning process.

C. Discuss draft IRWM Plan goals and objectives which respond to the identified issues.

D. Provide information about project solicitation, including explanation of the purpose/need for a project database.

E. Share/capture other relevant thoughts and ideas for future discussion.

1. Welcome and Introductions

Tom West, RMC Water and Environment, welcomed everyone to the Coachella Valley IRWM public workshop and reviewed the meeting objectives. Introductions were made around the room.

2. What is IRWM Planning?

Tom West provided an overview of IRWM planning, which is a regional approach for addressing water management issues preferred by the California Department of Water Resources (DWR) and the State Water Resources Control Board. IRWM planning is important because it 1) fosters agency collaboration, 2) supports effective water management, 3) enables stakeholder participation, and 4) positions the region for funding.

The Coachella Valley IRWM program is being led by the five water purveyors, collectively known as the Coachella Valley Regional Water Management Group (CVRWMG): Coachella Water Authority, Coachella Valley Water District, Desert Water Agency, Indio Water Authority, and Mission Springs Water District. The Planning Partners – who will serve in an advisory role for IRWM Plan development – are currently being identified and may include representatives from the County of Riverside, cities, disadvantaged communities, tribes, and natural resource groups. Work-to-date includes submittal of a Region Acceptance Process application to DWR to qualify as an IRWM

region (April 2009); a public workshop (October 2009); hire of a consultant team to support preparation of the IRWM Plan; and several planning meetings to identify key issues and next steps (May 2010).

The IRWM Plan will 1) Identify water resource needs, issues, and conflicts; 2) Establish regional goals and objectives for water management; 3) Identify water management projects that contribute to Plan goals; and 4) Define how regional coordination is enhanced by Plan implementation. DWR's IRWM Plan requirements were presented and a sample IRWM Plan outline was provided.

The proposed timeline for IRWM Plan development includes identification of needs, issues, and objectives through July; project integration, ranking, and prioritization through August; and preparation of the draft IRWM Plan through October. Following a public review and comment period, the final IRWM Plan will be completed and adopted in December 2010.

The IRWM program provides grant funding opportunities through Propositions 84 and 1E. Proposition 84 will direct $36 million to the Colorado River Funding Area, where it will be distributed competitively among four IRWM regions (Coachella Valley, Borrego, Imperial, and portions of Mojave). The Proposition 84 funds are anticipated to be released in three rounds over the next few years. Project activities eligible for IRWM funding should reduce water demand, improve operational efficiency and transfers, increase water supply, improve flood management, improve water quality, or practice resource stewardship. Proposition 1E will provide $300 million Statewide for stormwater and flood management projects, to be distributed on a competitive basis.

Additional IRWM activities in Coachella Valley include a Disadvantaged Communities (DAC) Outreach Demonstration Program and a Planning Grant application for support of additional IRWM planning activities. Stakeholders can stay informed about the IRWM program through public workshops at key milestones, the www.cvrwmg.org website, newsletters and press releases, online project database, and stakeholder email list.

3. Water Resource Issues

Tom West asked the workshop participants to break up into Issue Groups to brainstorm the various water resource issues in Coachella Valley. The Issue Groups included: Water Supply/Conservation, Groundwater, Wastewater/Recycled Water, Stormwater/Flood Control, and Natural Resources.

Questions asked of each Issue Group included the following:

- What are the key water management issues facing the Valley? Why are these issues important to you or to the region?
- Where are the water management conflicts that need to be resolved?
- Are some issues more important than others? Please place a star next to your top 3 priority issues.

Appendix A contains the recorded notes from each Issue Group.

4. IRWM Plan Goals and Objectives

Tom West facilitated a group discussion about what goals and objectives should be established for the IRWM program. The suggested goals included: 1) Optimize water supply reliability; 2) Protect water quality; 3) Provide stewardship of our water-related natural resources; 4) Coordinate and integrate water resource management; and 5) Ensure cultural and social sustainability of water in the Valley.

Discussion and suggestions included:

- Primary purpose of the IRWM Plan should be to establish an ongoing process to manage water in the Coachella Valley. Suggestion to add a new Objective #5 related to an ongoing water management process.
    - Note that CVRWMG will be developing a Mission Statement to explain the overall purpose of the IRWM program.
- Suggestion to add a new Goal #6 addressing the water and sanitation needs of disadvantaged communities.
    - Need to make water and sanitation more sustainable in disadvantaged communities through package plants, conservation, and training/education.

5. Project Solicitation

Tom West explained that project solicitation is the process of compiling a comprehensive list of implementation projects in the region. Compiling this list allows the CVRWMG and stakeholder to prioritize projects for grant funding and inclusion within the IRWM Plan. IRWM projects are defined by the concept of integration, where multiple water management strategies are integrated together to achieve IRWM Plan goals and objectives.

Projects submitted by Friday July 30, 2010 may be included in the IRWM Plan. Projects may be submitted after the deadline for consideration in future rounds. As each new grant cycle arises, announcements will go out to update or submit projects for consideration.

Local project sponsors can submit their projects through the online project database, which is accessed through the www.cvrwmg.org website. Once project sponsors create a user account, they can add, edit, and submit projects to the database. The submittal forms request information about project description, budget, and project feasibility. Project sponsors can also view all other submitted projects and identify potential project partners. Finally, to facilitate partnerships, the database allows for the sharing of projects by multiple users.

6. Next Steps

Tom West reviewed the next steps involved in the Coachella Valley IRWM program and thanked all participants for attending:

- Call for Projects is open through July 30, 2010
- Planning Partners will draft goals/objectives, prioritization criteria, and regional priorities
- Public Workshop #3 will be held in October to review drafts
- Draft IRWM Plan released for public review in November

Appendix A: Issue Groups

***All bullet points are listed in order of importance/priority, with the number of stars applied by workshop participants listed.*

Water Supply / Conservation Issue Group

- Bay Delta Fix ******
- East Valley Water System (pipelines) Cost-Benefit ****
- Reliability ****
- Land Use ***
- Overdraft **
- Groundwater Protection
- Cost
- Outreach to Landscapers
- Recycled water
- Desalination
- Privatization

Groundwater Issue Group

- Unincorporated areas, health issues **********
    - Thermal Oasis, Mecca
    - Cost of water supply and quality/treatment (arsenic)
- Groundwater overdraft ****
- Quality of recharge supply (Colorado River) ****
    - High quality water is being recharged with inferior water
    - Shallow wells/water table
- Partnerships for water quality treatment ***
- Salton Sea *
- Overlaps with all of the other issues!
- Infrastructure and communication among agencies
- Central water system
- Shared management
- Water testing based on demand and purpose

Wastewater /Recycled Water Issue Group

- Need for septic to sewer conversions **********
- Agency agreements for geographic efficiency – Opportunities for collaboration/regionalism of wastewater / recycled water systems. *****
    - Strategic location based on supply.
    - Conflict – Recycled water availability is not where demand is.

- Recycling of agricultural return flows *
    - Not eligible by RWQCB (food crops)
    - Focus on golf course irrigation and ground water recharge
- Remote farm worker communities – Inefficient to extend municipal water and sewer systems. *
    - Solution = Decentralized systems
- Cooperation between purveyors for water management. *
- Regulatory setting – NPDES and Salt/Nutrient management
- East Valley – Septic contamination of aquifer and agriculture irrigation
    - Poor percolation due to clay later
    - Solution = Recycling! Would also reduce pumping.
- Incentives/subsidies or regulations for using recycled water
- Reluctance to aid DACs from water agencies
- Standards and regulations

Stormwater / Flood Management Issue Group

- Water Quality ****
    - Beneficial Uses
    - TMDLs (CVSC) *
- Stormwater Capture ***
- Flood Protection Plan **
- Alluvial /flood mapping *
- Address lack of resources
- Flood mitigation and MHPs in rural East Valley

Natural Resources Issue Group

- Perched groundwater ****
- Public access to trails and flood control ***
- Nuisance water in the east Valley ***
- Combining recharge with recreation *
- Potable water for recreation *
- Potable water for development past Mecca *
- Sewer for development past Mecca (currently hauling) *
- Thousand Palms flood control
- Overlap of regulatory needs (mapping)
- Flood control past Avenue 66
- Regulatory issues regarding drainage
- M.S.H.C.P.
- Cultural resources in Coral Mountain Area

Coachella Valley Integrated Regional Water Management (IRWM) Program

Public Workshop #3

Wednesday November 10, 2010
1:30 – 3:30 p.m.

Residence Inn Palm Desert
38305 Cook Street, Palm Desert, CA
Mariposa Ballroom

DRAFT NOTES

Meeting Objectives:

A. Keep participants up-to-date on the Coachella Valley IRWM program, including schedule and key milestones.

B. Present Public Review Draft IRWM Plan, including region description, goals and objectives, stakeholder involvement, project evaluation, and implementation.

C. Share/capture other relevant thoughts and ideas for future discussion.

1. Welcome and Introductions

Tom West, RMC Water and Environment, welcomed everyone to the Coachella Valley IRWM public workshop and reviewed the meeting objectives. Introductions of CVRWMG members and elected officials were made around the room.

2. What is IRWM Planning?

Tom West provided an overview of IRWM planning, which is a regional approach for addressing water management issues preferred by the California Department of Water Resources (DWR) and the State Water Resources Control Board. IRWM planning is important because it 1) fosters agency collaboration, 2) supports effective water management, 3) enables stakeholder participation, and 4) positions the region for funding.

The Coachella Valley IRWM program is being led by the five water purveyors, collectively known as the Coachella Valley Regional Water Management Group (CVRWMG): Coachella Water Authority, Coachella Valley Water District, Desert Water Agency, Indio Water Authority, and Mission Springs Water District.

One of the reasons for completing the Coachella Valley IRWM Plan is to position the region to receive Proposition 84 grant funding from DWR. Prop 84 makes $1 billion available for IRWM planning and projects, $36 million of which was allocated for the Colorado River Funding Area (which includes Imperial, Borrego, and portions of Mojave regions). Grant funding is competitive within each Funding Area. Funding for Prop 84 is divided into three rounds. We are currently in Round 1, and grants for this funding cycle

are due by January 7, 2011. Round 2 has been somewhat defined, and is anticipated to occur during 2011, and Round 3 is anticipated at a later date in the future.

IRWM planning considers many aspects of water management, including: reducing water demand, improving operational efficiency and transfers, increasing water supply, improving flood management, improving water quality, and practicing resource stewardship.

The Coachella Valley IRWM program was designed to be open process, and as such, all interested stakeholders and members of the general public were invited to participate in developing the IRWM Plan. Many aspects of the Coachella Valley IRWM program ensure that it is an open process where all interested parties are at the table. Such aspects include public workshops, development of stakeholder groups such as the Planning Partners and Issues Groups, and creation of a stakeholder e-mail list to keep all interested parties informed. The Planning Partners, who play an advisory role for IRWM Plan development, include the County of Riverside, local City representatives, Coachella Valley Association of Governments, Regional Water Quality Control Board, natural resources representatives, disadvantaged community (DAC) representatives, and tribal representatives.

Work-to-date includes submittal of a Region Acceptance Process application to DWR to qualify as an IRWM region (April 2009); two public workshops (June 2010 and October 2009); meetings held with Planning Partners, DACs, and tribes to receive feedback on IRWM Plan; DAC Demonstration Program ($500K) submitted to DWR; Planning Grant Proposal ($1M) submitted to DWR; and Implementation Grant ($4M) package selected and proposal is under development.

The Public Review Draft IRWM Plan was released for public review on November 3, 2010. Following a public review and comment period, the Final IRWM Plan will be completed and adopted in December 2010.

3. Public Review Draft IRWM Plan

Tom West described the contents of the Public Review Draft IRWM Plan: Introduction, Region Description, Issues and Needs, Objectives, Resource Management Strategies, Project Evaluation and Prioritization, Agency Coordination, Framework for Implementation, and References. The IRWM Plan also contains the following appendices: Stakeholder Meeting Notes, Coachella Valley IRWM Projects, Public Outreach and Communications Plan, Project Performance Measures, Memorandum of Understanding among the CVRWMG, and Letters of Support from Planning Partners.

The Plan was developed first by identifying key water management issues within the Region, then developing IRWM Plan goals and objectives. Next steps included developing project evaluation and prioritization methods, then creating a framework for implementing the Plan.

The organizational structure set in place for the Coachella Valley IRWM Plan includes a bottom-up approach that starts with stakeholders, which develop into specific Issues Groups (currently there is a DAC Issues Group and a Tribal Issues Group). Both of these groups provide information and feedback to the Planning Partners, who are advisory to the CVRWMG.

The Public Review Draft IRWM Plan can be located online at www.cvrwmg.org/library.php. In addition, the Public Review Draft IRWM Plan is available at the offices of each CVRWMG agency and at multiple public libraries in the Valley, including: Palm Desert, Mecca, Coachella, Cathedral City, Palm Springs, Indio, Desert Hot Springs, Rancho Mirage, and La Quinta.

All interested parties are invited to comment on the IRWM Plan by Monday November 22, 2010 at 3 p.m. All comments can be sent via e-mail to Rosalyn Stewart (rstewart@rmcwater.com), or mailed to Rosalyn Stewart at 4225 Executive Square, Suite 750, San Diego, CA 92037. Each comment should include the commenter name and organization and the comment location (page #, section, subsection, and text location).

4. Next Steps

Tom West reviewed the next steps involved in the Coachella Valley IRWM program and thanked all participants for attending:

- Today (November 10th): Open House until 3:30 p.m.
- Comment period through Monday November 22nd at 3pm
- Final IRWM Plan released on November 30th
- CVRWMG Board Adoption of Final IRWM Plan in December 2010
- Submittal of $4M Implementation Grant Proposal to DWR by January 7, 2011

Ongoing activities for 2011 are anticipated, pending receipt of Planning Grant funding from DWR. Such activities include ongoing outreach (CVRWMG coordination, Planning Partners coordination, DAC outreach and technical support, tribal outreach and coordination, and public involvement) and technical evaluations (DAC water quality evaluation, salt and nutrient management planning strategy, integrated flood management planning, and groundwater elevation monitoring strategy), in addition to technical IRWM Plan Update tasks.

5. Comments

Tom West asked the audience if there were any additional questions or comments.

- *Q: Given the amount of Prop 84 funding available in the State, why is the allocation for Coachella Valley only $36 million. Was there a lack of effort to get more money dedicated to the Region initially?*

  A: The legislature developed a formula for allocating funds based on land area and population. However, it is true that the best thing to do is to be organized, and the Region will be more prepared for the next round of funding.

- *Q: It seems as if the IRWM boundary includes Borrego, is that true?*

  A: No, Borrego is not within the Coachella Valley IRWM Region boundary, but the CVRWMG has been in contact with them, and is making an effort to coordinate with their IRWM program.

- *Q: I noticed that the Salton Sea is not included within the Coachella Valley IRWM Region. Why is that? Why are we not addressing Salton Sea issues?*

  A: It was decided early-on that the Coachella Valley IRWM Plan would not include the Salton Sea due to complexity of issues there and the fact that they

have their own set of plans. However, as with Borrego, the CVRWMG is collaborating and supporting water planning efforts in the Salton Sea.

- *Q: Could you give me an example of the process that is undertaken when an issue arises?*

  A: Yes, an example is arsenic issues that were brought up with respect to groundwater quality. This issue was brought to the attention of the CVRWMG by stakeholders. The CVRWMG then discussed what they could potentially do to address this problem. Their response was two-fold: first, they formed a DAC Issues Group, and second they created a DAC Demonstration Program that would help develop a better understanding of the issue. In general, there is no one way to deal with an issue, and the IRWM process is flexible to deal with a variety issues as deemed most appropriate.

- *Q: What happens if one of the projects submitted for the implementation or planning grants does not get funded? Will they be prioritized in the next funding round?*

  A: There is no set seniority for projects within the IRWM Plan. Each project is considered on its own merits, and is compared to the various project solicitation packages (PSPs) set forth by DWR. The CVRWMG looks at the funding that is available, and ranks projects based on their merit that is determined within the project evaluation/prioritization process set forth in the IRWM Plan.

Coachella Valley Integrated Regional Water Management Program
Planning Group

Wednesday May 19, 2010
1:30 – 3:30 p.m.

Colorado River Regional Water Quality Control Board
73-720 Fred Waring Drive, Suite 100
Palm Desert, CA 92260

DRAFT NOTES

Attendees:

Planning Group	CVRWMG
Doug Wylie, Colorado River RWQCB	Arden Wallum, MSWD
Robert Perdue, Colorado River RWQCB	Marilyn McKay, MSWD
Lynda Kerney, Riverside County	Mark Krause, DWA
Bob Lyman, Riverside County	Katie Ruark, DWA
Mike Gialdini, Riverside County	David Tate, DWA
Mike Shelter, Riverside County	Dan Parks, CVWD
Yvonne Parks, City of Desert Hot Springs	Patti Reyes, CVWD
	Paul Giera, IWA
	Andrea Riesgo, IWA
	Tom West, RMC
	Rosalyn Stewart, RMC
	Daniel Cozad, IPM

Meeting Objectives:

A. Create a common understanding/expectations of the Coachella Valley IRWM program, including schedule, key milestones, and stakeholder involvement.

B. Obtain feedback on regional water resource issues to make sure issues are covered and articulated appropriately.

C. Confirm involvement in and commitment to future meetings and to providing input to IRWM Plan development. Confirm key points of contact. Identify other potentially important participants.

D. Share/capture other relevant thoughts and ideas for future discussion.

Meeting Notes:

Introduction to IRWM Program

Tom West, RMC Water and Environment, provided an overview of the State's IRWM program and its goals/objectives, upcoming Prop 84 funding opportunities, and the activities considered relevant to IRWM planning. He provided an overview of the CVRWMG and the Coachella Valley

IRWM region. Finally, he reviewed the proposed work plan and schedule for development of the Coachella Valley IRWM Plan.

- IRWM is a primary mechanism for communication of water-related needs to the State Department of Water Resources, regulators, etc.
- County recommends discussion with other 3 IRWM efforts in the Colorado River Funding Area to limit competition and allocate Prop 84 funding ($36M)
    - Mojave IRWM Plan has been adopted. They straddle the Lahontan and Colorado River Funding Areas and could potentially apply for funding from both.
- Is there a need to develop governance with stakeholders or form an advisory committee? Can this Planning Group serve to advise Plan development?

Issues Identification

Rosalyn Stewart, RMC Water and Environment, provided an overview of the water-related issues identified to date through a review of local water management plans and studies. She invited additional feedback and clarification on the issues.

Regional Demands

- How are population projections coordinated by water purveyors?
    - Some agencies question the SCAG projections for 3 million by 2020. Much of new growth in Riverside County is expected to occur in Coachella Valley.
    - 100,000 roofs over the next 10-15 years (brand new projections via Compass process) – driven by affordable housing component
- DWR looks for planning coordination with land use agencies.

Water Quality

- Concern in Lower Valley regarding heavy metals (arsenic) in groundwater. Affordable housing (in particular mobile housing) uses this groundwater supply; some residents buy bottled water.
    - Riverside County Environmental Health and EPA (tribal lands) are both monitoring.
    - Size of system is key to management (<14 regulated by County vs. 15-200 both State and County vs. >200 regulated by State).
    - CDPH focuses on drinking water. RWQCB focuses on surface and groundwater.
    - 50 PPM and above in Torres/Martinez reservation. System treatment cost is high. Resources are significantly limited.
    - Arsenic MCL was recently decreased to 6 PPM – created a sudden groundwater quality issue.
- Organizations addressing water quality – DACE (Desert Alliance for Community Empowerment), USDA Rural Development Office, CDPH grants, Torres/Martinez Tribes with RCAC, Pueblo Unido
- Fluoride and other contaminants are also of concern.
- Salinity issues associated with regenerative water softeners and recharge activities.
- Bacteria TMDL is being developed for the Coachella Valley Stormwater Channel (sources = illegal discharges from housing/recreation). Agencies responsible for management measures include CVWD, RCFCWCD, and cities.

- High uranium concentrations in MSWD service area.
- Septic systems create water quality issues related to health and safety.
- Need for municipal drainage system when agricultural uses transition to urban development (drains are only ag-based.)
    - This issue is addressed through the NPDES MS4 program for developments.
    - Drainage system is key for maintaining salt balance in the region. Need drainage improvements within the unincorporated areas.

Water Supply

- Groundwater availability, source substitution, and water conservation are issues
- Irrigators are anticipating the Mid-Valley Pipeline because of declines in groundwater levels and associated pumping costs.
- Because of geology in Valley, West Valley subbasins may continue to appear in overdraft when the rest of Valley conditions appear to be getting better.
    - Mecca area is returning to artesian conditions (due to changes at fish farm) and well hydrographs are returning to mid-80s levels.
- Lower Valley faces greater subsidence risk/condition. Subsidence risk must be balanced with liquefaction due to earthquakes.
- Suggestion to capture additional surface runoff for recharge. Collaborate w/RCFCWCD to develop stormwater capture facilities.
- Have not looked into identifying recycled water systems “zones” to cost-effectively use recycled water supplies (strategic partnerships among agencies)
    - Opportunity to exchange supply based on location of treatment facilities and customers (i.e., golf courses).
    - Recycled water energy costs are similar to potable water treatment.
    - Localized recycled water treatment plants can be developed for big irrigators both within and outside Districts.
    - Challenge in East Valley related to recycled water = no customers.
    - While agriculture could be a demand, there are big concerns about perception of using recycled water on food crops.
- Matching Quality to Use – Should place emphasis on source substitution for non-potable uses (e.g. Mid-Valley Pipeline)
    - Golf courses, parks, schools, agriculture can all use non-potable supply

Flooding

- Flood managers may not get as much interaction with land use planning agencies to ensure provision of facilities in development review.
- Whitewater River Stormwater Channel needs levee stabilization.
- Flooding issues in Thousand Palms. USACE is proposing system of levees to go east into the Rio del Sol to Warner.
    - East of Washington is key area of concern.

- Current lack of flood control in East Valley prevents higher density development and associated water demands. Affordable housing demands may drive flood control.
- Need planning for East Valley flooding – South Valley Implementation Plan was begun but abandoned.
- MSHCP requirements and alluvial flooding issues making development very difficult for the City of Desert Hot Springs.
- Mission Springs area is in need of a flood master plan. A County Master Drainage Plan (MDP) or Area Drainage Plan (ADP) not being done for the Coachella Valley.
- Hwy 111 between Palm Springs and Cathedral City (Eagle Canyon) also experience flooding.
    - Flooding across the Whitewater River Stormwater Channel closes Palm Springs roadways (Vista Chino-Gene Autry and others).

Regional Priorities

- Priorities to be addressed in IRWM Plan → Water Supply
    - Coachella Valley economy is driven by: 1) recreation/resorts, 2) agriculture, and 3) construction/development – All of which need water supply
    - Emphasis on development and ease of complying with WSAs + UWMPs.
- Prioritization should distinguish between urgent and important. Highest priority is the need to provide and protect water supplies.
- Suggestion to combine multiple projects together for greater benefits. Create regional programs for supply/quality reliability.
    - May be good approach for: A) septic conversion or B) arsenic remediation.
- Climate change – Not a key issue, but needs to be addressed per DWR's IRWM Plan Standards.
- Salt/Nutrient Management may be incorporated as part of the Planning Grant.

Stakeholder Outreach

Tom West provided a summary of the proposed stakeholder and public outreach strategy, including several more meetings of this Planning Group to guide development of the IRWM Plan. He also described the Disadvantaged Communities Outreach Demonstration Project proposal that the CVRWMG has submitted to DWR for additional funding.

- Agricultural interests should be involved – Farm Bureau or others

Coachella Valley Integrated Regional Water Management Program
Planning Partners

Tuesday July 20, 2010
1:30 – 3:30 p.m.

Colorado River Regional Water Quality Control Board
73-720 Fred Waring Drive, Suite 100
Palm Desert, CA 92260

DRAFT NOTES

Action items are shown in italics.

Attendees:

Planning Partners

Anna Vargas, Poder Popular
Anthony Madrigal, 29 Palms Band of Mission Indians
Bill Bayne, City of Cathedral City
Bud Kopp, City of Rancho Mirage
Buford Crites, Friends of the Desert Mountains
Dave Barakian, City of Palm Springs
David Saldivar, Augustine Band of Cahuilla Indians
Doug Wylie, Colorado River RWQCB
G. Patrick O'Dowd, WDYoung
Greg Young, Cocopah
Jason Uhley, Riverside County Flood Control and Water Conservation District
Jennifer Hernandez, California Rural Legal Assistance Foundation
Jennifer Wong, Department of Water Resources
Kim Snyder, Bureau of Indian Affairs
Les Ramirez, Augustine Band of Cahuilla Indians
Margaret Park, Agua-Caliente Band of Cahuilla Indians
Marshall Cheung, 29 Palms Band of Mission Indians
Mike Gialdini, Riverside County
Rex Sharp, Valley Sanitary District
Robert Perdue, Colorado River RWQCB
Roland Ferrer, Torres Martinez Desert Cahuilla Indians
Yvonne Parks, City of Desert Hot Springs

CVRWMG

Andrea Riesgo, IWA
Dan Parks, CVWD
Daniel Cozad, IPM
David Tate, DWA
Gary Lewis, IWA
Katie Ruark, DWA
Marilyn McKay, MSWD
Mark Krause, DWA
Patti Reyes, CVWD
Rosalyn Stewart, RMC
Tom West, RMC

Meeting Objectives:

A. Keep participants up-to-date on the Coachella Valley IRWM program.

B. Review and confirm feedback from the June 22 Public Workshop on draft IRWM Plan goals and objectives.

C. Discuss the open Call for Projects and draft project prioritization criteria to be used to evaluate implementation projects.

D. Discuss the draft detailed IRWM Plan outline.

E. Identify future agenda items for Planning Partners meetings.

Meeting Notes:

Update on IRWM Planning and Schedule

Tom West, RMC Water and Environment, provided an update on the State's IRWM program and its upcoming Prop 84 funding opportunities. He provided an overview of the schedule for development of the Coachella Valley IRWM Plan, including future Planning Partners meetings.

- What is the deadline for submitted projects? Deadline for submitting projects for the draft IRWM Plan and Prop 84 Round 1 funding is July 30, 2010. There will be another opportunity to submit projects before Rounds 2+3 of Prop 84 grant cycle and concurrent with the DAC Outreach Demonstration Program.
- Who is responsible for drafting the IRWM Plan? CVRWMG is the body responsible for preparing the draft IRWM Plan, in collaboration with the Planning Partners.

IRWM Plan Goals and Objectives

Rosalyn Stewart, RMC Water and Environment, presented the draft Goals and Objectives that were discussed at the June 22 Public Workshop. Two suggestions raised at the workshop were discussed with group. CVRWMG recommends no changes because in DWR's prioritization structure, objectives (not goals) are the key for measuring progress.

Call for Projects – Open through July 30, 2010

Tom West reviewed the Call for Projects timeline and emphasized the importance of submitting projects into the database. The submitted projects will be included in the IRWM Plan to communicate to DWR and others the water management needs in the Valley. The submitted projects will also be considered for Prop 84 Round 1 funding, which may bring up to $4 million to the region.

- Can a project under construction apply for funding? Yes, although grant funding is not intended to replace existing CIP spending, but rather future phases of work.
- How much IRWM grant funding is available through Prop 84? $36 million has been earmarked for the Colorado River Funding Area (which also includes the Imperial Valley and Borrego Valley regions).
- Are there safeguards built into the 'sharing' functionality of the project database? There are no safeguards built in, so share your projects only with trusted partners. Anyone who shares the project can edit and resubmit.
- Can the sharing functionality be turned off? Yes, you can turn off a sharing partner.
- Will RMC help to refine project information? Yes, once the short list of projects has been identified for Prop 84 Round 1, RMC will help will help expand project descriptions.

- Will City Managers and CVAG be informed about progress on the IRWM Plan? *Yes, CVRWMG agrees to give briefing to CVAG on IRWM Plan progress (last Mondays).*
- Concern expressed about July 30th deadline and the inability for DACs to fully complete their project submittals. Project concepts can be included in the project database at this time in order to meet timeline. Also, CVRWMG is hosting an open house on July 28th to help DACs enter their projects into the database.
- Who is the agency to administer grants? CVRWMG has chosen CVWD to administer IRWM grant funding (planning and implementation). All project proponents who are included with the grant application will contract with CVWD.
- Who selects projects for the grant applications? The project selection process is not defined yet. It will be based partially on the project prioritization criteria discussed today.
- *RMC to provide Planning Partners with link to DWR's IRWM Grant Program Guidelines and Proposal Solicitation Packages (PSPs).*
- *RMC to send final submitted list of projects to the Planning Partners in August.*

Draft Project Prioritization Criteria

Rosalyn Stewart presented the draft project prioritization criteria for the IRWM Plan. The criteria are based on three basic principles: 1 DWR's Principles of IRWM Planning; 2 Priorities of the Coachella Valley; and 3 Project Feasibility.

- Suggestion to reduce weighting of 1C Addresses a Statewide Priority, 1D Linked to Other Projects, and 1E Involves More Than One Partner.
- Suggestion to reformat 2 Priorities of the Coachella Valley to provide maximum points if only 1 priority is accomplished.
- Suggestion to consider project readiness and amount of funding match. However, these factors may be better considered in project selection for grant applications.
- Suggestion to reduce weighting for 3 Project Feasibility.

Detailed IRWM Plan Outline

Tom West presented the draft detailed outline for the IRWM Plan and invited any comments or suggestions from the Planning Partners.

Next Steps

Tom West identified the topics for our next two Planning Partners meetings:

- September 28 Planning Partners → Project Ranking, Focus on Implementation
- October 26 Planning Partners → Review of Admin Draft IRWM Plan

Coachella Valley Integrated Regional Water Management Program
Planning Partners

Wednesday September 28, 2010
1:30 – 3:30 p.m.

Coachella Valley Association of Governments
73-710 Fred Waring Drive, Room 115
Palm Desert, CA 92260

NOTES

Attendees:

Planning Group

Anna Vargas, Poder Popular
Barbara Hall, Sky Valley Chamber
Bill Bayne, City of Cathedral City
Cindy Nance, Desert Edge Community Council
Dave Barakian, City of Palm Springs
David Saldivar, Augustine Band of Cahuilla Indians
Debi Livesay, Torres Martinez Desert Cahuilla Indians
Jennifer Wong, Department of Water Resources
Jose Cortez, Colorado River RWQCB
Margaret Park, Agua-Caliente Band of Cahuilla Indians
Megan Beaman Carlson, California Rural Legal Assistance Foundation (via phone)
Mike Gialdini, Riverside County
Miriam Torres, Environmental Justice Coalition for Water
Sergio Carranza, Pueblo Unido CDC
Yvonne Parks, City of Desert Hot Springs

CVRWMG

Anders Wistrom, IWA
Marilyn McKay, MSWD
Mark Krause, DWA
Katie Ruark, DWA
David Tate, DWA
Dan Parks, CVWD
Patti Reyes, CVWD
Tom West, RMC
Daniel Cozad, IPM

Meeting Objectives:

A. Keep participants up-to-date on the Coachella Valley IRWM program.
B. Review numerical ranking of submitted project list and brainstorm implementation priorities for Prop 84-Round 1 cycle.
C. Discuss long-term organizational structure for Coachella Valley IRWM program.
D. Identify future agenda items for Planning Partners meetings.

Meeting Notes:

Welcome and Introductions

Tom West, RMC Water and Environment, welcomed the Planning Partners, who did self introductions. The group reviewed the agenda.

Cindy Nance, Desert Edge Community Council, asked why the project list was different from last week's. RMC has incorporated some of the clarifications since last week and pulled out projects that support new development.

Update on IRWM and Planning Schedule

Tom West provided an overview of the IRWM program schedule, including: IRWM Plan development, the Planning Grant proposal, and the Implementation Grant proposal.

Planning Partners questioned the schedule and what adoption of the IRWM Plan means to them and their boards. CVRWMG explained that the Planning Partners do not have to adopt the Plan by December; however, the group is looking for letters of support.

> *[Correction: Any agencies/organizations whose projects are included in the Implementation Grant Proposal must also adopt the IRWM Plan by the end of December 2010.]*

There was some concern about the quick turnaround on the Screen Check Draft IRWM Plan. CVRWMG explained that comments will also be accepted during the public comment period, but that they wanted to give the Planning Partners an early review opportunity. The Screen Check Draft IRWM Plan will be distributed electronically.

Planning Partners asked if their comments were incorporated into the Planning Grant Proposal. CVRWMG said that while all comments did not all make it into the proposal, they can be worked into the proposed Work Plan before a contract is signed with DWR.

> *[Correction: Comments received by Friday September 24th were incorporated into the Planning Grant Proposal. RMC responded to all commenters with status.]*

The Final IRWM Plan will be released November 30, 2010. The CVRWMG boards will then adopt the Plan in December 2010.

There will be more funding available in Prop 84-Round 2 which will likely be mid-2011. Prop 1E funding will also be available in the spring of 2011.

Review and Discuss Ranked Project List

Tom West explained that the submitted project list was updated and re-exported. The scores should not be considered best to worst, as they are simply used to put projects into tiers. We may remove the scores within the IRWM Plan document.

- The projects are color coded for integration purposes. Several themes emerged from the project list – arsenic treatment, septic-to-sewer conversion, water conservation, and stormwater management.
- The short-term arsenic treatment project has been added.

<u>Priorities for Implementation</u>

Planning Partners asked if there is still an opportunity to add to the project list. There is always an opportunity to add, the database is always open, but for this round we are moving forward with what we have now. For additional projects, Planning Partners should be thinking about Round 2 and Prop 1E funding. There will be more time in the future to fund additional projects.

Planning Partners said that they are looking at the total grant funds requested. CVRWMG will be discussing that issue, as well as funding match availability; those factors will be taken into account when choosing projects. CVRWMG is working on putting together a package of projects based on the total amount of money available, the readiness to proceed, and the connection with DWR's priorities.

Part of the rush is because no one else in the Colorado River Funding Area will have completed an IRWM Plan in time to receive Round 1 funding, meaning that CVRWMG will not be competing against anyone else in the Funding Area.

The CVRWMG screened out projects that supported new development, because:

- Cities and agencies have similar policies in that developers pay fees to meet their needs, i.e. new development has a set funding source.
- Partners said it is logical to meet the needs of existing communities first.

The Desert Edge Community is dependent on new development. There was some discussion of being willing to consider new projects if they are able to pick up DACs along the way, but timing of that could be challenging. Suggestion to look at SCAG region priorities, which are clustered, and perhaps encourage the direction of growth in line with those priorities.

While the region won't get funding to meet the needs of all these projects, having projects in the IRWM Plan may lead them to be able to get funding elsewhere.

Opportunities for Project Integration

Combining projects into programs may also help with additional funding. For Round 1, CVRWMG is looking at a package that includes water conservation, arsenic treatment, and septic-to-sewer programs. Putting together sub-committees or groups to unite on these needs might be a good idea.

CVRWMG will spend the next three weeks looking at sets of projects and will bring back a package to the Planning Partners at the next meeting. Planning Partners will see the projects a week before. The group can then give the CVRWMG feedback – the challenge of the Planning Partners is balancing the needs of the agency they represent with the needs of the region.

Planning Partners said some of the flood control projects were not color coded blue. They will send Rosalyn Stewart of RMC Water and Environment feedback on that. There was a request that this could be printed in black and white, maybe with a column indicating what category it is.

There was a question about how water conservation helps everyone as DACs rarely benefit from conservation programs that agencies offer. CVRWMG hopes that the DAC Demonstration Program outreach will help address the best ways to reach DACs for conservation purposes.

Discuss Long-Term Organizational Structure

Daniel Cozad provided a brief overview of the proposed organizational structure for the IRWM Plan. At this time, the region is developing many pieces of the IRWM program all at once, but in the future it will be done at a slower pace.

There is no voting in the Coachella Valley IRWM organizational structure. All decisions are made by agreement and consensus. If anyone has concerns about the organizational structure, they should send them to Daniel Cozad of Integrated Planning and Management.

Suggestion that the CVRWMG create a seat for DACs, tribes, etc. in the Planning Partners – there already are DACs and tribes at the table. Also, there are a lot of meetings planned and groups need funding to be able to attend them all. Group should consider these factors in the meeting schedule.

Next Steps

Tom West summarized next steps in the planning process. Responses to the project list must be sent in within a week; the group will re-examine flood projects. The next Planning Partners meeting is on Tuesday October 26th and will address the Screen Check Draft IRWM Plan.

Coachella Valley Integrated Regional Water Management Program
Disadvantaged Communities (DAC) Outreach

Thursday May 20, 2010
8:30 – 10:30 a.m.

Coachella Valley Water District
85-995 Avenue 52
Coachella, CA 92236

DRAFT NOTES

Attendees:

DAC Workgroup

Sergio Carranza, Pueblo Unido
Miriam Torres, EJCW
Jennifer Hernandez, CRLAF
Rita Sonnenberg, Desert Edge
Betty Leehan, Desert Edge
Cindy Nana, Desert Edge
Anna Vargas, Poder Popular
Jose Huerfa, Poder Popular
Anna Aljabiry, DWR

CVRWMG

Marilyn McKay, MSWD
Mark Krause, DWA
David Tate, DWA
Katie Ruark, DWA
Dan Parks, CVWD
Patti Reyes, CVWD
Paul Giera, IWA
Andrea Riesgo, IWA
Tom West, RMC
Rosalyn Stewart, RMC
Daniel Cozad, IPM

Meeting Objectives:

A. Create a common understanding/expectations of the Coachella Valley IRWM program, including schedule, key milestones, and stakeholder involvement.
B. Obtain feedback on regional water resource issues to make sure issues are covered and articulated appropriately.
C. Confirm involvement in and commitment to future meetings and to providing input to IRWM Plan development. Confirm key points of contact. Identify other potentially important participants.
D. Share/capture other relevant thoughts and ideas for future discussion.

Meeting Notes:

Patti Reyes, Coachella Valley Water District, welcomed the group and thanked them for attending. Daniel Cozad, Integrated Planning and Management, introduced the meeting agenda and facilitated the discussion.

Introduction to IRWM Program

Tom West, RMC Water and Environment, provided an overview of the State's IRWM program and its goals/objectives, upcoming Prop 84 funding opportunities, and the activities considered relevant to IRWM planning. He provided an overview of the CVRWMG and the Coachella Valley IRWM region. Finally, he reviewed the proposed work plan and schedule for development of the Coachella Valley IRWM Plan.

- Clarification that region may not be eligible for Round 1 Implementation Grant funding because we don't have an adopted IRWM Plan yet.

Issues Identification

Daniel Cozad provided an overview of the water-related issues identified to date through a review of local water management plans and studies. He invited additional feedback and clarification on the issues important to DACs.

<u>Water Supply</u>

- Affordability of water and wastewater is key issue for DACs. How can DAC needs be addressed without increasing rates?
    - Water rate increases are a disproportionate burden on DACs. Ongoing operational costs for water management at issue.
    - Issue is complicated by other income and affordability issues, such as housing.
- Water supply is critical to DAC communities – both adequate affordable supply, as well as water quality that meets current potable water standards.
- Supplies vary from trucked water to shallow agricultural or drinking water wells. However, all of these may have maintenance issues.
    - Because many communities are remote (sited due to proximity to agricultural employment and/or land affordability), cost to extend municipal service is generally prohibitive.
    - Local technical solutions need to be developed, although some special treatment costs can also be high.
    - Need for a "master plan"-type evaluation was identified for developing a potential program of solutions. However, some small systems maintain desire to be independent.
- Concern that groundwater pumping is not being adequately monitoring re: overdraft. Questioned how supply projections are developed.
- In Desert Edge, mineral water wells (hot) corrode pumps/pipelines.
- Drinking water supply needs to be available to communities' w/contaminated wells.
    - Access to hauled water in mobile home parks. Grocery store water machines run out in summer.
- Some wells in East Valley are above perched aquifer and are not suitable for drinking.

<u>Water Quality</u>

- Water quality in drinking water is most important to DACs. Groundwater quality issues include fluoride, arsenic, and TDS/minerals.
- Arsenic issues in East Valley groundwater supply. Levels exceeding MCL – residents displaying acute symptoms.

- RCAC has completed a groundwater monitoring study in East Valley mobile home parks – Anna to provide copy.

- Enforcement of water quality regulation is complicated by the overlapping jurisdictions, state, tribal, and county and the unpermitted status of some water systems.
- Pueblo Unido is working w/CVWD to address water supply and sewage at municipal scale. However, many DACs not within urban areas – farm workers in rural areas need clean water.
- Rural water treatment systems (new technologies) and training are needed in these rural/remote areas.
- Many illegal mobile home parks in East Valley – Riverside County Dept of Environmental Health (DEH) and Economic Development Agency (EDA) need to be involved in solutions.
    - Root is regional housing affordability issues. But County is reluctant to address housing issues; mobile home parks often formed by extended families who purchase 1 plot land.
    - County DEH does enforce monitoring for <u>permitted</u> water systems.
- Suggestion to establish regional water quality lab for testing of well drinking supplies and distribution of information to residents.
- Concern about pharmaceuticals/ Contaminants of Emerging Concern (CECs) in septic systems at Desert Edge (retirement communities) – how is septic leaching affecting groundwater quality?

<u>Wastewater</u>

- Sewer management is a critical issue with several aspects:
    - Inadequate or undersized facilities in some areas.
    - Septic systems located in low percolation areas (e.g., high groundwater and clay soil in East Valley).
    - Septic in areas that may contaminate high quality groundwater or hot water sources.
- Septic to sewer conversion efforts are underway, but costs/difficulty may be high.
- Municipal services hookup is complicated due to the rural and agricultural nature of some areas. Affordability further complicates regular municipal services.
- Septic issues in mobile home parks (both legal and illegal) in Desert Edge – Few parks are reliably disposing of their septic tanks. Operations and maintenance are inconsistent between different parks.
    - Illegal mobile homes parked on the desert are dumping their septic on the ground. No policing of septic disposal.
- High density mobile home parks (24 parks with ~5-10,000 elderly residents) in Desert Edge contain seasonal populations and reduce wastewater disposal affordability.
- Hot water basin is not suitable for drinking. CVWD does monitor basin to establish water levels/pumping.
    - Suggestion that the IRWM Plan define monitoring conducted throughout Valley.
    - MSWD has done some nitrate testing to understand movement of sewer contaminants from hot basin toward cold basin.

- Project concept → Septic-to-sewer conversion for mobile home parks.
    - Need to determine how mobile home parks can finance sewer hook-up given affordability issues.

Flooding

- Flooding issues in Oasis and Thousand Palms. FEMA has mapped the 100-Yr floodplain.
    - Ave 76 + Pierce is key area of concern.
    - Thousand Palms had solutions in development with Army Corps, but funding has been an issue.

Monitoring Needs

- Need to coordinate with County DEH, water agencies, and systems:
    - Understanding of current groundwater monitoring and results
    - Understanding of current stormwater monitoring and results
    - Groundwater monitoring in rural areas
    - Groundwater monitoring in hot water areas
    - Water supply (level) monitoring for managing overdraft

Stakeholder Outreach

Tom West provided a summary of the proposed stakeholder and public outreach strategy, including several more meetings of this Planning Group to guide development of the IRWM Plan. He also described the DAC Outreach Demonstration Project proposal that the CVRWMG has submitted to DWR for additional funding.

- Suggestion to focus outreach on East Valley to understand issues.
    - But meeting like today wouldn't attract residents. Need to have simple agenda, focus on project needs.
    - Schedule outreach meetings in the evenings for community feedback.
    - Need Spanish translator (possibly Native translation too) for DAC projects.
- Other participants for IRWM program → La Quinta MHP, North Palm Springs, Mountain View MHP, West Garnet MHP, County EDA + EPH, community town councils.
- Suggestion to host Town Hall meetings for Community Councils north of I-10. However, seasonal population is already gone for this summer.
    - Linda Kearny from Supervisor Benoit's office has contact for Community Councils.
- DAC Outreach Demonstration Project – Scope of work will be distributed once final review and approval by DWR is complete.

Coachella Valley Integrated Regional Water Management Program
Disadvantaged Communities (DAC) Outreach

Wednesday July 28, 2010
1:30 – 3:30 p.m.

Coachella Valley Water District
85-995 Avenue 52
Coachella, CA 92236

DRAFT NOTES

Attendees:

DAC Workgroup

Anna Vargas, Poder Popular
Cindy Nance, Desert Edge Community Council
Jennifer Hernandez, California Rural Legal Assistance Foundation
John Rodriguez, ICUC
Megan Beaman, California Rural Legal Assistance Foundation
Sergio Carranza, Pueblo Unido
Yvonna Cazares, Environmental Justice Coalition for Water

CVRWMG

Andrea Riesgo, IWA
Dan Parks, CVWD
Daniel Cozad, IPM
David Tate, DWA
Goldy Thach, RMC
Katie Ruark, DWA
Marilyn McKay, MSWD
Rosalyn Stewart, RMC
Tom West, RMC

Meeting Objectives:

A. Keep participants up to date on efforts and confirm understanding
B. Develop areas of common interest/priorities leading to IRWM Plan goals and objectives
C. Ensure outreach efforts are optimized, given deadlines and needs
D. Identify and understand DAC related projects

Meeting Notes:

Update on IRWM Planning and Schedule

Rosalyn Stewart, RMC Water and Environment, provided an update on the State's IRWM program and its upcoming Prop 84 funding opportunities. She announced that the final IRWM Grant Program Guidelines and PSP have been released by DWR. Three regions in the Colorado River Funding Area are competing for $4 million in Prop 84 Round 1 funding.

We are preparing an IRWM Plan that: 1) identifies local needs and issues, 2) establishes regional goals, 3) identifies projects to achieve the regional goals, and 4) determines how to integrate projects to achieve these goals. She provided an overview of the schedule for development of the Coachella Valley IRWM Plan, which must be adopted by the CVRWMG in order for the region to be eligible for this funding.

- Who the IRWM Plan must be approved by? The IRWM Plan must be approved by the 5 Boards/Councils of the CVRWMG agencies before the end of December 2010.

IRWM Plan Goals and Objectives

Rosalyn Stewart presented the draft Goals and Objectives that were discussed at the June 22 Public Workshop. Two suggestions raised at the workshop were discussed with group. CVRWMG recommends no changes because in DWRs prioritization structure, objectives (not goals) are key for measuring progress.

- Suggestion to clarify between the different types of issues associated with groundwater quality – i.e., septic, arsenic, hot pools.
    - The IRWM Plan will have a chapter listing the various issues facing the Valley. The objectives will address what we want to achieve (good groundwater quality) and the metrics will measure how we got there (# septic-to-sewer conversions, # new municipal water connections, etc).
- Providing water and sewer to remote areas will encourage further community-building, which can also encourage economic development/value.
- Suggestion to add "economic" into Goal 5: Ensure the cultural, social, and economic sustainability of water in the Valley.
- What about those residents not connected to municipal water and sewer? Many of those cluster communities are so remote that extension of services would be cost prohibitive. How will these residences be addressed?
    - Same IRWM Plan objectives should be addressed for both urban and remote communities. The objective would not change; rather the approach/solutions would be different.
- These objectives will dictate which projects are best suited for upcoming funding opportunities. Think about your proposed projects; a good project will achieve multiple benefits for either an urban or remote community.
- Suggestion to add "including those in remote areas" into Objective 12: Address water and sanitation needs of disadvantaged communities, including those in remote areas.

Call for Projects – Open through July 30, 2010

Rosalyn Stewart reviewed the Call for Projects timeline and emphasized the importance of submitting projects into the database. The submitted projects will be included in the IRWM Plan to communicate to DWR and others the water management needs in the Valley. The submitted projects will also be considered for Prop 84 Round 1 funding, which may bring up to $4 million to the region.

- The Call for Projects deadline is Friday July 30th. Participants may stay for the 3-5pm open house in order to enter their projects into the database.
- After the deadline, will there be a review process and suggestions given to project proponents? Yes, the CVRWMG will review the submitted project list and contact project proponents for any additional information or with integration suggestions.
    - Reminder that July 30th deadline is for Prop 84 Round 1 funding only. Input project concepts into the database when you can, so that if it doesn't make Round 1 it will be there for Round 2.
- Will RMC help to refine project information? Yes, once the short list of projects has been identified for Prop 84 Round 1, RMC will help will help expand project descriptions.

- CRLAF supports using Prop 84 Round 1 funding to address critical drinking water needs in East Valley, particularly the arsenic contamination issue.
    - All projects will need a project sponsor comprised of a non-profit or government agency in order to meet DWR guidelines.
- Updates on outside funding opportunities:
    - MSWD: Recycled water and efficiency project; applied for $10 million federal grant.
    - CVWD: Water and sewer extensions to East County; applied for rural agricultural grants through USDA; also applied for Indian Health Services grant in collaboration with the Torres Martinez tribe.
    - DWA: Water efficiency; applied for WaterSMART grant from USBR.

DAC Representation on Planning Partners

Rosalyn Stewart explained that Miriam (Environmental Justice Coalition for Water) had suggested that Anna (Poder Popular) and Jennifer (CRLAF) attend the Planning Partners as DAC representatives. The CVRWMG wanted to raise this to the larger DAC group and confirm the group is comfortable with this recommendation.

- Will the Planning Partners determine the project prioritization and selection process or will that happen at CVRWMG Board meetings?
    - Project prioritization will occur numerically through the project database, based on the criteria the Planning Partners suggested.
- Are there other groups that need to be represented in Planning Partners? If so, speak up now so that we can include/invite them.
    - Group agrees that both CRLAF and Poder Popular are good representatives for now.
- Concern that needs in the West Valley aren't fully represented. We want that balance so needs of the West and North Valley are included.

DAC Outreach

Rosalyn Stewart explained that the DAC Outreach Demonstration Program will be through a "contract for service" for DWR. The goals of the Demonstration Program are to identify community representatives and educate groups on the IRWM program; identify DAC issues and needs; assist DACs in developing projects; and incorporating this work into the IRWM Plan.

Next Steps

Rosalyn Stewart summarized the next steps as parallel DAC Outreach meetings to support Jennifer and Anna in their work with the Planning Partners.

Coachella Valley Integrated Regional Water Management Program
Disadvantaged Communities (DAC) Outreach

Tuesday September 21, 2010
3:00 – 5:00 p.m.

Desert Water Agency
1200 Gene Autry Trail
Palm Springs, CA

DRAFT NOTES

Attendees

DAC Issues Group

Anna Vargas, Poder Popular
Cindy Nance, Desert Edge Community Council
Sergio Carranza, Pueblo Unido
Jennifer Wong, DWR

CVRWMG

Anders Wistrom, IWA
Dan Parks, CVWD
Daniel Cozad, IPM
David Tate, DWA
Gary Lewis, IWA
Katie Ruark, DWA
Marilyn McKay, MSWD
Mark Krause, DWA
Patti Reyes, CVWD
Paul Toor, CWA
Rosalyn Stewart, RMC

Meeting Objectives

A. Keep participants up-to-date on the Coachella Valley IRWM program.
B. Identify and understand DAC-focused implementation projects.
C. Review numerical ranking of submitted project list and brainstorm potential priorities for Prop 84-Round 1 cycle.
D. Ensure outreach efforts are optimized, given deadlines and needs.

Update on IRWM Planning and Schedule

Daniel Cozad, IPM, welcomed everyone to the meeting.

Rosalyn Stewart, RMC, provided a brief update on the IRWM program schedule. The Public Draft IRWM Plan will be released on November 1, 2010 for a 20-day public review period. Following incorporation of public comments, the Final IRWM Plan will be released on November 30, 2010 for adoption by the CVRWMG, Planning Partners, and project sponsors. The IRWM Planning Grant Proposal will be completed and submitted to DWR by the September 28, 2010 deadline. All comments from the DAC representatives and Planning Partners are due by the end of the week. The IRWM Implementation Grant Proposal will be prepared by the consultant team starting in October 2010. The proposal will be submitted to DWR by the January 7, 2011 deadline.

Daniel Cozad provided the group with an update on the DAC Demonstration Program. The contract is still undergoing review by DWR's legal team. Jen Wong, DWR, announced that DWR is waiting to process all five of the proposed DAC Demonstration Program contracts concurrently. Anna Vargas, Poder Popular, stated that the DAC representatives had authored a joint letter to the CVRWMG stating their support for using NGOs for the community outreach

component of the DAC Demonstration Program. Daniel confirmed that funding was included in the proposed contract for just that.

Review and Discuss Ranked Project List

Rosalyn Stewart provided an overview of the ranked project list distributed in the agenda packet. She described the color-coded project themes or packages – arsenic treatment, septic-to-sewer conversion, and water conservation – which have been suggested as the region's priorities for the Prop 84-Round 1 grant application.

The group discussed the ranked project list:

- Project selection criteria should emphasize geographic parity.
- Project selection should NOT facilitate new growth. Should focus on addressing existing deficiencies and critical water supply/wastewater needs.
- CVRWMG agencies all have policies that require developers to fund new infrastructure for growth; not an appropriate use of IRWM funds.
- Agreement by group to use "Public Benefit" as screening criteria.
- Desert Edge community shall coordinate with the County (CED office) to move septic conversion project forward.
- Lake Perris project is included in list because is improves local reliability of imported water supplies.
- Suggestion to add theme/package for stormwater management projects.
- Water conservation messaging currently geared toward DACs is generally focused on (lack of) septic capacity). However, broader water conservation messaging should be developed for DACs.
- Priority projects should be 1) ready to proceed and 2) provide greatest impact to community.

Discuss Short-Term Arsenic Treatment Project

Sergio Carranza, Pueblo Unido, provided the group with a detailed explanation of the short-term arsenic treatment project that has been developed for the region. This project would be a pilot project for development of multiple decentralized treatment systems in compliance with County DEH. Each system would have a certified operator trained by Pueblo Unido. The proposal includes 5 Point of Entry facilities at large MHPs and 200 Point of Entry facilities at residential sinks. Pueblo Unido is also planning to leverage this IRWM funding with other grant opportunities (e.g., USDA Ag Worker Rehabilitation Program).

Anna Vargas acknowledged that the proposal will implement legislation by Perez (AB 2515) that requires MHP owners to install Point of Entry treatment in MHPs greater than 15 units.

Next Steps

The DAC Issues Group will continue to meet concurrently with the Planning Partners to review and provide feedback on IRWM Plan development.

- Suggestion to provide conference call access at all future DAC Outreach meetings.
- Agreement to add Cindy Nance as Planning Partner member representing West Valley DAC issues.

Coachella Valley Integrated Regional Water Management Program
Coachella Valley Tribes

Thursday May 20, 2010
1:30 – 3:30 p.m.

Coachella Valley Water District
85-995 Avenue 52
Coachella, CA 92236

DRAFT NOTES

Attendees:

Tribe Workgroup

Belinda Ray, BIA
Cynthis Morales, BIA
Douglas Garcia, BIA
Christina Mokhtarzadeh, BIA
Margaret Park, Agua Caliente
Debi Livesay, Torres-Martinez
Lonnie Rodriguez, ??
Anthony Madrigal, Jr., 29 Palms
Michael Jackson, Cabazon
Les Ramirez, Augustine
Anna Aljabiry, DWR

CVRWMG

Arden Wallum, MSWD
Marilyn McKay, MSWD
Mark Krause, DWA
David Tate, DWA
Katie Ruark, DWA
Dan Parks, CVWD
Patti Reyes, CVWD
Paul Giera, IWA
Andrea Riesgo, IWA
Paul Toor, CWA
Tom West, RMC
Rosalyn Stewart, RMC
Daniel Cozad, IPM

Meeting Objectives:

A. Create a common understanding/expectations of the Coachella Valley IRWM program, including schedule, key milestones, and stakeholder involvement.
B. Obtain feedback on regional water resource issues to make sure issues are covered and articulated appropriately.
C. Confirm involvement in and commitment to future meetings and to providing input to IRWM Plan development. Confirm key points of contact. Identify other potentially important participants.
D. Share/capture other relevant thoughts and ideas for future discussion.

Meeting Notes:

Patti Reyes, Coachella Valley Water District, welcomed the group and thanked them for attending. Daniel Cozad, Integrated Planning and Management, introduced the meeting agenda and facilitated the discussion.

Introduction to IRWM Program

Tom West, RMC Water and Environment, provided an overview of the State's IRWM program and its goals/objectives, upcoming Prop 84 funding opportunities, and the activities considered relevant to IRWM planning. He provided an overview of the CVRWMG and the Coachella Valley IRWM region. Finally, he reviewed the proposed work plan and schedule for development of the Coachella Valley IRWM Plan.

- How does the CVRWMG perceive the tribes?
    - Sovereign nations, so separate recognition and meetings are necessary to understand water resource needs/perspectives.
    - Heard your comments at the October 2009 Public Workshop. We want to involve tribes in water management in the Valley.
- Seeking frank communication and collaboration between the CVRWMG and tribes.
- How can tribes be a partner in CVRWMG? Don't want to be second class decision-makers in IRWM effort.
    - CVRWMG still working to define governance, needs to be included in Plan. What does partnership look like?
    - Recognize the need for direct Board/Chair coordination on key milestones – planning separate policy workshop to allow for such coordination.
- Need to coordinate long-term planning activities and funding opportunities.
- Focus on resource sustainability (not 'what's in it for me' attitude).

Issues Identification

Daniel Cozad provided an overview of the water-related issues identified to date through a review of local water management plans and studies. He invited additional feedback and clarification on the issues important to the tribes.

CVRWMG has compiled information from local water management plans and State Water Plan 2009–Regional Report into the issues list. Do tribes have water management plans or other documents we can use?

<u>Demand Projections</u>

- Agencies need to recognize land use authority and population/employment projections on tribal lands.
    - Needed in order to manage regional groundwater supply.

<u>Habitat Protection/Restoration</u>

- Resource management for sustainability is important to tribes.
- Salton Sea ecosystem restoration is a key issue for Torres-Martinez tribe.
    - Concern about both volume and quality of water flowing to the Salton Sea.
    - Need to coordinate timing/volume of flows to wetlands – ag return flows, canal water, recycled water, etc.
    - State promised to develop a data management system, but to date has not done so.
- Native plants preservation – In Whitewater River channel at 29 Palms reservation, floodplain clearing (levee mgmt) by CVWD could endanger plant species.

- Need greater communication for any clearing occurring on reservations.

- Tribes were not a part of MSHCP process. CVWD has easements on tribal lands, so their activities are regulated by the MSHCP.
  - Need MOU w/tribal property owners for annual O&M activities.
  - Partnership between CVRWMG and tribes to transcend artificial boundaries.
  - Aqua Caliente have developed a habitat species plan. Other special areas on tribal lands have been mapped elsewhere. A special discussion with tribes on this issue would be helpful.
- Need to incorporate tribal open space designated on reservation lands into regional open space network.
- Culturally-significant waters on tribal lands – not mapped, but want to recognize generally in IRWM Plan.
  - Reluctance to disclose resources because they may be defaced. Need to understand resources not specific sites.
  - Culturally sensitive lands off tribal reservations in jeopardy – how to protect?

<u>Water Quality</u>

- Water quality is important – sustainability requires balancing the need for increased recharge volume of imported water with the water quality impacts of TDS and other contaminants
  - This balance should be struck with an eye toward the Valley-wide best interest
- Question whether Coachella Valley Stormwater Channel is monitored for water quality?
  - Yes, through the region's NPDES MS4 permit. WWTPs also monitor their discharges to the channel.
  - Tribal water quality data is available through the State.
- High TDS levels in recycled water – concern about recharge into deep aquifer.
  - Suggest advanced treatment before recharge occurs. Suggest considering Federal solutions/assistance to mitigate issues associated with Colorado River.
- Concern about septic leaching issues.
  - Lack of basic water/wastewater infrastructure on tribal lands (similar to DACs).
  - Inadequate or undersized facilities or systems in low percolation areas.
  - Septic in areas that may contaminate high quality groundwaters.
  - Septic to sewer conversion and costs/difficulty are increased across jurisdiction lines.
- Mobile home parks on tribal lands also facing arsenic (60-70 PPM) problems. Could potentially share solutions w/DACs.
  - Allotted lands are individually owned (not tribal) so enforcement capabilities by EHS are limited. Difficult to regulate water/ww systems.

<u>Water Supply</u>

- Affordability of water and wastewater rates are significant for some tribes. Issue of jurisdiction can be complex on tribal lands.

Region Boundaries

- RAP Map 6 – Boundaries of reservations are incorrect. Margaret to send update.
- Torres-Martinez tribal lands extend south at the Salton Sea. Request to expand RAP to include all tribal lands.

Project Development

- Tribes can provide feedback on IRWM projects – impacts and benefits to tribal resources.
- Suggestion to distribute Implementation Grant PSP criteria to tribes so they understand how their projects would be in competition w/agencies.

Stakeholder Outreach

Tom West provided a summary of the proposed stakeholder and public outreach strategy, including several more meetings of this Planning Group to guide development of the IRWM Plan. He also described the Disadvantaged Communities Outreach Demonstration Project proposal that the CVRWMG has submitted to DWR for additional funding.

Daniel Cozad returned to question raised at the beginning – "What does partnership look like?"

- Partnership – must develop and document what partnership means:
  I. Communication and consultation opportunities
  II. Mechanisms to facilitate the exchange of information and understanding of the limits of the exchange capability of all parties due to legal or cultural issues
     - Water supply and quality monitoring data
     - Development plans for the future related to water
     - Habitat and cultural land understandings
     - Tribal boundaries, jurisdictions and interests
  III. Mechanisms to facilitate cooperative feedback on draft efforts of the CVRWMG and IRWM plan document
  IV. Opportunities for project proposal, review and coordination, funding and impacts assessment
- Suggestion to explore what a written agreement between the tribes and CVRWMG to outline partnership might look like
  - Are there legal prohibitions for such an agreement? May need State Assembly approval for exceptions to enter into tribal agreements.
  - Les to research what type of agreement may be most appropriate.
  - Daniel to check into other IRWM regions re: tribal agreements + DWR Tribal Summit
- Partnership should be initiated with the IRWM timeline in mind, but without overlooking opportunity for broader cooperation of the group
- Suggestion to send CVRWMG letter to tribal chairs about their participation.
- Request to receive meeting materials in advance of future meetings.
- Request copy of contact list of CVRWMG and consultants.







Appendix B: Coachella Valley IRWM Project List

This appendix contains all submitted implementation projects for the Coachella Valley IRWM Plan, as of September 30, 2010. The following tables provide a cross-walk of the submitted projects with the following criteria:

- IRWM Plan Objectives
- Resource Management Strategies
- Statewide Priorities
- Feasibility Analysis
- Benefits to DACs and Tribes
- Strategic Considerations
- Climate Change Considerations
- Project Costs and Financing

Appendix B
Coachella Valley IRWM Project List (as of Sept 30, 2010)
IRWM Plan Objectives

#	Project Title	ID	Functional Area	Objective A: Reliable Water Supply	Objective B: Manage Groundwater Levels	Objective C: Imported Water Supply	Objective D: Local Supply Opportunities	Objective E: Groundwater Quality	Objective F: Surface Water Quality	Objective G: Local Environment	Objective H: Manage Flood Risks	Objective I: Optimize Conjunctive Use	Objective J: Stakeholder Involvement	Objective K: Native American Culture	Objective L: Disadvantaged Communities	Objective M: Affordability of Water
1	DMMs for CVRWMG Partners	223	Conservation	○	○		●	○		○			●		●	●
2	Desert Hot Springs Community Gardens	225	Conservation	○	○		●	○		○			●		○	●
3	Resource Action Programs	224	Conservation	○	○		○			○			●		●	●
4	Smart Water Conservation Programs	219	Conservation	○	○		●	○		○			●		●	●
5	Achieve 14 percent reduction in Agricutural Water Use	197	Conservation	○	○		●	○		○			●		●	●
6	Ramon Road Corridor - Improve Flood Protection	238	Flood Control				○	●	○	○	●	○				
7	Implementation of Projects in Garnet Wash and Tributaries Master Plan	194	Flood Control				○	●	○	○	●	○				
8	East Cathedral Canyon Channel Levee Restoration	202	Flood Control								●					
9	Verbena Channel	203	Flood Control				○	●	○	○	●	○				
10	Stormwater Master Plan	252	Flood Control								●					
11	Whitewater River Levee Restoration	206	Flood Control								●					
12	Flood Control and Recycling of Storm, Non Storm Run Off Water - Desert Cove Golf Course	237	Flood Control				○	○		○	●					
13	Implementation of Projects in East Wide Channel, Long Canyon and Tributaries Master Plan	195	Flood Control						○	○	●					
14	Groundwater Quality Protection and Floodplain Management - Eagle Canyon Dam and Lines 43	231	Flood Control								●			○		
15	Implementation of projects for Cathedral City Master Plan	196	Flood Control								●					
16	Implementation of projects in the Palm Springs area Master Drainage Plan	200	Flood Control								●					
17	Implement projects in the Desert Hot Springs Area Master Drainage Plan	201	Flood Control								●					
18	Tahquitz Creek Levee Reconstruction	209	Flood Control					○	○	●	●					
19	Master Drainage Plan Implementation - Ramon Road Corridor	234	Flood Control				●	●	○	○	●					
20	Palm Springs MDP line 41	204	Flood Control				○	●	○	○	●	○				●
21	Eagle Canyon Dam	205	Flood Control						●	○	●					
22	Desert Cahuilla Wetlands Expansion	228	Natural Resources							●		●	●	●		
23	Construct Wetland, Riparian, and Pupfish Habitat for CVMSHCP and Natural Community	208	Natural Resources							●	●	●	●			
24	Perris Dam Remediation Program	215	Other													
25	Cathedral City North City Specifc Plan - East Sub-Region	241	Other	●	○		○	○	○	○			○	○	○	
26	Water, Sewer and Drainage - North City Specific Plan	232	Other	●	○		○	○	○	○	○			○	○	
27	Desert Edge Geothermal Water Conservation and Preservation	244	Wastewater				○	●		●		○	●		●	
28	Little Tuscany Sewer Improvements	211	Wastewater				○	●		●		○			●	○
29	Water Recycling Efficiency and Capacity Improvement Project	187	Wastewater		○		●	○								
30	IWA Recycled Water Program	226	Wastewater	●	●		●									●
31	Groundwater Quality Protection Perez Road Sewers	229	Wastewater				○	●		●		○		●	●	
32	Groundwater Quality Protection - West Cathedral City Septic Tank Replacement	235	Wastewater				○	●		●		○			●	
33	Pierce Community Infrastructure - Sewer Sanitary Collection System (North)	249	Wastewater				○	●		●		○	●			
34	Groundwater Quality Protection South City Improvement District (SCID)	230	Wastewater				○	●		●		○		●	●	
35	Groundwater Quality Protection Project	189	Wastewater				○	●		●		○				

#	Project Title	ID	Functional Area	Objective A: Reliable Water Supply	Objective B: Manage Groundwater Levels	Objective C: Imported Water Supply	Objective D: Local Supply Opportunities	Objective E: Groundwater Quality	Objective F: Surface Water Quality	Objective G: Local Environment	Objective H: Manage Flood Risks	Objective I: Optimize Conjunctive Use	Objective J: Stakeholder Involvement	Objective K: Native American Culture	Objective L: Disadvantaged Communities	Objective M: Affordability of Water
36	**Implementation of Total Maximum Daily Load Best Management Practices**	**212**	Water Quality				●		●			●				
37	**Evaluate Stormwater Recharge Opportunities within the Desert Hot Springs MDP**	**213**	Water Quality	●	●	●	●				●					●
38	**Palm Springs Line 43 and 43a**	**242**	Water Quality				○	●	○	○	●	○				
39	**Whitewater River Region and Coachella Valley Stormwater Channel Site Specific Objective**	**210**	Water Quality						●	●		●	●			
40	**Palm Springs Unified School District - Storm Drain Outflow Transport Contamination**	**239**	Water Quality					●		●				●	●	
41	**Bridge Drainage System Design for 3 Whitewater River Bridges**	**233**	Water Quality					●			○					
42	**Identification of Septic Wastewater Plumes in the MSWD Service Area**	**220**	Water Quality					●							●	●
43	**Master Drainage Plan Implementation - Cathedral City South**	**236**	Water Quality					●						●	●	
44	**Groundwater Protection- Cathedral City Cove Drainage System 4**	**240**	Water Quality				○	●	○	○	●	○				
45	**College Of the Desert MTC Infrastructure**	**221**	Water Quality					●							●	
46	**Short Term Arsenic Treatment Program**	**254**	Water Supply	●				●		○			●		●	●
47	**Pierce Community Infrastructure – Water Extension Supply (South Section)**	**247**	Water Supply	●				●		○			●		●	●
48	**Posse Park Surface Water Treatment Plant**	**191**	Water Supply	●	○	●	●	○				●	●	●	○	
49	**Fargo Canyon Spreading Facility**	**216**	Water Supply	●	○	○	○	○			○		○			
50	**BDCP and DHCCP**	**214**	Water Supply	●	○	●	●			○	●		●	○	○	●
51	**Coachella Valley Salt and Nutrient Management Plan**	**243**	Water Supply	●			●	●	●							
52	**Recycled Water Feasibility Study**	**253**	Water Supply	○	○		○					○			○	○
53	**Eastern Coachella Valley Water Supply Project**	**207**	Water Supply	●				●		○			●	●	●	●
54	**Pierce Community Infrastructure - Regional Water Treatment Facility (North)**	**245**	Water Supply	●				●		○			●		●	●
55	**St. Anthony of the Desert - Water Treatment Facility**	**246**	Water Supply	●				●		○			●		●	●
56	**Belardo Road Pipeline Replacement**	**188**	Water Supply	●										●		●
57	**1400 Zone Facilities**	**218**	Water Supply	●											●	●
58	**Surface Water Treatment Study**	**251**	Water Supply	●	●	●									●	
59	**Mid Valley Pipeline Phase II**	**182**	Water Supply	●	○		●	○				●				
60	**Coachella Valley Groundwater Model**	**227**	Water Supply		○			○								
61	**South Mecca Plan**	**250**	Water Supply		○		○	○				○	○	○	○	
62	**Treated Agricultural Drain Water for agricultural irrigation**	**198**	Water Supply	○	○		○	○					○	○		○
63	**Siting studies, EIR and design of Colorado River Water Treatment Facility for municipal use**	**199**	Water Supply	○	○		○	○					○	○	○	
64	**Mission Creek/ Garnet Hill Subbasins Monitoring Program**	**222**	Water Supply		○			○							○	
65	**Well Pumping Plants 44 and 45 of the Palm Springs Main Well Field**	**190**	Water Supply	○												○
66	**Information Systems--a Regional Project of CVRWMG**	**193**	Water Supply	○												
67	**Groundwater Elevation Monitoring--Regional project of CVRWMG**	**192**	Water Supply	○	○											
68	**Harrison Street (Sunbird and surrounding cluster)**	**248**	Water Supply	●				●		○			●		●	●

Appendix B
Coachella Valley IRWM Project List (as of Sept 30, 2010)
Resource Management Strategies

#	Project Title	ID	Functional Area	Agricultural Land Stewardship	Agricultural Water Use Efficiency	Groundwater Management	Conjunctive Use & Groundwater Storage	Regional Conveyance	Potable Water Treatment/Distribution	Ecosystem Restoration	Env and Habitat Prtct/Impv	Floodplain Management	Groundwater Aquifer Remediation	Pollution Prevention	Water Quality Protection & Improvement	Matching Quality to Use	Recharge Area Protection	Recycled Municipal Wastewater	Regional Surface Storage	Wastewater Treatment	Reoperation & Reservoir Management	Land Use Management	Urban Runoff Management	Urban Water Use Efficiency	Water Transfers	Recreation & Public Access	Watershed Management & Planning	Stkhldr/Cmnty Involvement	W-Rsc Data Collection/Mngmnt	Enh Sci/Tec Knowledge	Salt/Salinity Management	Other Strategies	Economic Incentives	Desalination
1	DMMs for CVRWMG Partners	223	Conservation			○		○			○			○	○	●	○	●					●	●			●	●					●	
2	Desert Hot Springs Community Gardens	225	Conservation		●	○		○			○			○	○		○						○	●			●	●						
3	Resource Action Programs	224	Conservation			○		○			○			○	○		○						●	●			●	●					●	
4	Smart Water Conservation Programs	219	Conservation		●	○		○			○			○	○		○						●	●			●	●						
5	Achieve 14 percent reduction in Agricutural Water Use	197	Conservation	○	●	○		○			○			○	○		○						○				●	●						
6	Ramon Road Corridor - Improve Flood Protection	238	Flood Control				○	○			○	●		●	○								●				●	○						
7	Implementation of Projects in Garnet Wash and Tributaries Master Plan	194	Flood Control				○	○			○	●		●	○								●				●	○						
8	East Cathedral Canyon Channel Levee Restoration	202	Flood Control				○	○			○	●		●	○							●	●				●	○						
9	Verbena Channel	203	Flood Control				○	○			○	●		●	○							●	●				●	○						
10	Stormwater Master Plan	252	Flood Control									●											●				●		●	●				
11	Whitewater River Levee Restoration	206	Flood Control									●										●					●							
12	Flood Control and Recycling of Storm, Non Storm Run Off Water - Desert Cove Golf Course	237	Flood Control									○					○						○	○			●							
13	Implementation of Projects in East Wide Channel, Long Canyon and Tributaries Master Plan	195	Flood Control					○				○							○				○				●							
14	Groundwater Quality Protection and Floodplain Management - Eagle Canyon Dam and Lines 43 and 41	231	Flood Control									○											○				●							
15	Implementation of projects for Cathedral City Master Plan	196	Flood Control					○				○											○				●							
16	Implementation of projects in the Palm Springs area Master Drainage Plan	200	Flood Control					○				○							○				○				●							
17	Implement projects in the Desert Hot Springs Area Master Drainage Plan	201	Flood Control					○				○											○				●							
18	Tahquitz Creek Levee Reconstruction	209	Flood Control									●		●	○								○				●	●						
19	Master Drainage Plan Implementation Ramon Road Corridor	234	Flood Control				○				○	●		●	○								●				●	●						
20	Palm Springs MDP line 41	204	Flood Control				○	●			○	●		●	○								●			●	●	○						
21	Eagle Canyon Dam	205	Flood Control								○	○		●	○							●	●				●	●						
22	Desert Cahuilla Wetlands Expansion	228	Natural Resources and Watersheds		○					●				●				●				●				●	●	●		●				

#	Project Title	ID	Functional Area	Agricultural Land Stewardship	Agricultural Water Use Efficiency	Groundwater Management	Conjunctive Use & Groundwater Storage	Regional Conveyance	Potable Water Treatment/Distribution	Ecosystem Restoration	Env and Habitat Prtct/Impv	Floodplain Management	Groundwater Aquifer Remediation	Pollution Prevention	Water Quality Protection & Improvement	Matching Quality to Use	Recharge Area Protection	Recycled Municipal Wastewater	Regional Surface Storage	Wastewater Treatment	Reoperation & Reservoir Management	Land Use Management	Urban Runoff Management	Urban Water Use Efficiency	Water Transfers	Recreation & Public Access	Watershed Management & Planning	Stkhldr/Cmnty Involvement	W-Rsc Data Collection/Mngmnt	Enh Sci/Tec Knowledge	Salt/Salinity Management	Other Strategies	Economic Incentives	Desalination
23	Construct Wetland, Riparian, and Pupfish Habitat for CVMSHCP and Natural Community Conservation Plan	208	Natural Resources and Watersheds							●	●	●														●	●							
24	Perris Dam Remediation Program	215	Other				○	○			○	●		○													●	●						
25	Cathedral City North City Specifc Plan - East Sub-Region	241	Other					○	○			○		○			○	○				●	○	○			●							
26	Water, Sewer and Drainage - North City Specific Plan	232	Other					○	○			○		○				○				●					●							
27	Desert Edge Geothermal Water Conservation and Preservation	244	Wastewater				●				○		○	●	●		●									●	●	●						
28	Little Tuscany Sewer Improvements	211	Wastewater				●				○			●	●			○									●	●						
29	Water Recycling Efficiency and Capacity Improvement Project	187	Wastewater				●						○	○		●		●									●	●						
30	IWA Recycled Water Program	226	Wastewater													●		●		●							●							
31	Groundwater Quality Protection Perez Road Sewers	229	Wastewater				●				○			●	●			○									●	●						
32	Groundwater Quality Protection - West Cathedral City Septic Tank Replacement	235	Wastewater				●				○			●	●			○									●	●						
33	Pierce Community Infrastructure - Sewer Sanitary Collection System (North)	249	Wastewater				●				○			●	●			○									●	●						
34	Groundwater Quality Protection South City Improvement District (SCID)	230	Wastewater				●				○			●	●			○									●	●						
35	Groundwater Quality Protection Project	189	Wastewater				●				○			●	●			○									●	●						
36	Implementation of Total Maximum Daily Load Best Management Practices	212	Water Quality			○					○			●	●					●		●	●				●	●						
37	Evaluate Stormwater Recharge Opportunities within the Desert Hot Springs MDP	213	Water Quality			●	○	○					●				●						●				●	●	●					
38	Palm Springs Line 43 and 43a	242	Water Quality				○				○	●		●	○								●				●	●						
39	Whitewater River Region and Coachella Valley Stormwater Channel Site Specific Objective Evaluation	210	Water Quality													●						○				●	●	●	●	●				
40	Palm Springs Unified School District - Storm Drain Outflow Transport Contamination	239	Water Quality				●		○					●			○						●				●						●	
41	Bridge Drainage System Design for 3 Whitewater River Bridges	233	Water Quality																								●	●						
42	Identification of Septic Wastewater Plumes in the MSWD Service Area	220	Water Quality											●													●		●	●				
43	Master Drainage Plan Implementation Cathedral City South	236	Water Quality									●			●								●				●							

#	Project Title	ID	Functional Area	Agricultural Land Stewardship	Agricultural Water Use Efficiency	Groundwater Management	Conjunctive Use & Groundwater Storage	Regional Conveyance	Potable Water Treatment/Distribution	Ecosystem Restoration	Env and Habitat Prtct/Impv	Floodplain Management	Groundwater Aquifer Remediation	Pollution Prevention	Water Quality Protection & Improvement	Matching Quality to Use	Recharge Area Protection	Recycled Municipal Wastewater	Regional Surface Storage	Wastewater Treatment	Reoperation & Reservoir Management	Land Use Management	Urban Runoff Management	Urban Water Use Efficiency	Water Transfers	Recreation & Public Access	Watershed Management & Planning	Stkhldr/Cmnty Involvement	W-Rsc Data Collection/Mngmnt	Enh Sci/Tec Knowledge	Salt/Salinity Management	Other Strategies	Economic Incentives	Desalination
44	Groundwater Protection- Cathedral City Cove Drainage System 4	240	Water Quality				○				○	●		●	○									●				●	○						
45	College Of the Desert MTC Infrastructure	221	Water Quality																					●				●							
46	Short Term Arsenic Treatment Program	254	Water Supply			●			●				○	○	●	●	○											●	●			●	●		
47	Pierce Community Infrastructure – Water Extension Supply (South Section)	247	Water Supply			●			●				●	○	●	●	○											●	●					●	
48	Harrison Street (Sunbird and surrounding cluster)	248	Water Supply			●			●				○	○	●	●	○											●	●	●					
49	Posse Park Surface Water Treatment Plant	191	Water Supply			○		●	●				○		○	●				●					●			●	●						
50	Fargo Canyon Spreading Facility	216	Water Supply			○	●	●	○			○													●			●	○						
51	BDCP and DHCCP	214	Water Supply			○		●				○	○												●			●	●	●	●				
52	Coachella Valley Salt and Nutrient Management Plan	243	Water Supply													●		●										●		●	●	●			
53	Recycled Water Feasibility Study	253	Water Supply		○	○												●										●		●	●				
54	Eastern Coachella Valley Water Supply Project	207	Water Supply			●			●				●	○	●	●	○								●			●	●						
55	Pierce Community Infrastructure - Regional Water Treatment Facility (North)	245	Water Supply			●			●				●	○	●	●	○											●	●						
56	St. Anthony of the Desert - Water Treatment Facility	246	Water Supply			●			●				●	○	●	●	○											●	●						
57	Belardo Road Pipeline Replacement	188	Water Supply					●	●										○									●							
58	1400 Zone Facilities	218	Water Supply						●							●												●							
59	Surface Water Treatment Study	251	Water Supply					○	●																			●		●	●				
60	Mid Valley Pipeline Phase II	182	Water Supply			●										●		●										●							
61	Coachella Valley Groundwater Model	227	Water Supply																									●		●	●				
62	South Mecca Plan	250	Water Supply	○	○	○			○			○		○				○				●		○		○	●		●						
63	Treated Agricultural Drain Water for agricultural irrigatior	198	Water Supply		○	○			○				○			○									○		●		●			○	○	○
64	Siting studies, EIR and design of Colorado River Water Treatment Facility for municipal use	199	Water Supply				○		○																			●				○			○
65	Mission Creek/ Garnet Hill Subbasins Monitoring Program	222	Water Supply																									●		○	○				
66	Well Pumping Plants 44 and 45 of the Palm Springs Main Well Fielc	190	Water Supply				○		○																			●							
67	Information Systems--a Regional Project of CVRWMG	193	Water Supply																									●		●					
68	Groundwater Elevation Monitoring--Regional project of CVRWMG	192	Water Supply																									●		●	●				

Appendix B
Coachella Valley IRWM Project List (as of Sept 30, 2010)
Statewide Priorities

#	Project Title	ID	Functional Area	Drought Preparedness	Reuse Water More Efficiently	Expand Environmental Stewardship	Practice Integrated Flood Management	Protect Surface/Groundwater Quality	Improve Tribal Water/Natural Resources	Ensure Equitable Distribution of Benefits
1	DMMs for CVRWMG Partners	223	Conservation	○	●	●		○		
2	Desert Hot Springs Community Gardens	225	Conservation	○	●	●		○		
3	Resource Action Programs	224	Conservation	○	●	○		○		
4	Smart Water Conservation Programs	219	Conservation	○	●	○		○		●
5	Achieve 14 percent reduction in Agricutural Water Use	197	Conservation	○	●	○		○	○	
6	Ramon Road Corridor - Improve Flood Protection	238	Flood Control				●	○	●	●
7	Implementation of Projects in Garnet Wash and Tributaries Master Plan	194	Flood Control				●	○		
8	East Cathedral Canyon Channel Levee Restoration	202	Flood Control				●	○		
9	Verbena Channel	203	Flood Control				●	○		
10	Stormwater Master Plan	252	Flood Control				●			
11	Whitewater River Levee Restoration	206	Flood Control				●			
12	Flood Control and Recycling of Storm, Non Storm Run Off Water - Desert Cove Golf Course	237	Flood Control		○		●			
13	Implementation of Projects in East Wide Channel, Long Canyon and Tributaries Master Plan	195	Flood Control				●			
14	Groundwater Quality Protection and Floodplain Management - Eagle Canyon Dam and Lines 43 and 41	231	Flood Control				●			
15	Implementation of projects for Cathedral City Master Plan	196	Flood Control				●			
16	Implementation of projects in the Palm Springs area Master Drainage Plan	200	Flood Control				●			
17	Implement projects in the Desert Hot Springs Area Master Drainage Plan	201	Flood Control				●			
18	Tahquitz Creek Levee Reconstruction	209	Flood Control				●	○		
19	Master Drainage Plan Implementation - Ramon Road Corridor	234	Flood Control				●	○	○	○
20	Palm Springs MDP line 41	204	Flood Control				●	○		
21	Eagle Canyon Dam	205	Flood Control				●	●		
22	Desert Cahuilla Wetlands Expansion	228	Natural Resources		○	●			●	●
23	Construct Wetland, Riparian, and Pupfish Habitat for CVMSHCP and Natural Community Conservation Plan	208	Natural Resources			●	○			
24	Perris Dam Remediation Program	215	Other				●			
25	Cathedral City North City Specifc Plan - East Sub-Region	241	Other		○	○	○	○	○	○
26	Water, Sewer and Drainage - North City Specific Plan	232	Other						●	
27	Desert Edge Geothermal Water Conservation and Preservation	244	Wastewater			○		●		
28	Little Tuscany Sewer Improvements	211	Wastewater		○	●		●		
29	Water Recycling Efficiency and Capacity Improvement Project	187	Wastewater		●			○		●
30	IWA Recycled Water Program	226	Wastewater	○	●			●		
31	Groundwater Quality Protection Perez Road Sewers	229	Wastewater			○		●	●	
32	Groundwater Quality Protection - West Cathedral City Septic Tank Replacement	235	Wastewater			○		●	●	●
33	Pierce Community Infrastructure - Sewer Sanitary Collection System (North)	249	Wastewater			○		●		●
34	Groundwater Quality Protection South City Improvement District (SCID)	230	Wastewater			○		●	●	
35	Groundwater Quality Protection Project	189	Wastewater			○		●		
36	Short Term Arsenic Treatment Program	254	Water Quality					●		●
37	Implementation of Total Maximum Daily Load Best Management Practices	212	Water Quality			●		●		
38	Pierce Community Infrastructure – Water Extension Supply (South Section)	247	Water Quality					●		●

#	Project Title	ID	Functional Area	Drought Preparedness	Reuse Water More Efficiently	Expand Environmental Stewardship	Practice Integrated Flood Management	Protect Surface/Groundwater Quality	Improve Tribal Water/Natural Resources	Ensure Equitable Distribution of Benefits
39	Evaluate Stormwater Recharge Opportunities within the Desert Hot Springs MDP	213	Water Quality	●			○	○		
40	Harrison Street (Sunbird and surrounding cluster)	248	Water Quality					●		●
41	Palm Springs Line 43 and 43a	242	Water Quality				●	○		
42	Whitewater River Region and Coachella Valley Stormwater Channel Site Specific Objective Evaluation	210	Water Quality					●		
43	Palm Springs Unified School District - Storm Drain Outflow Transport Contamination	239	Water Quality					●	●	●
44	Bridge Drainage System Design for 3 Whitewater River Bridges	233	Water Quality						●	●
45	Identification of Septic Wastewater Plumes in the MSWD Service Area	220	Water Quality					●		
46	Master Drainage Plan Implementation - Cathedral City South	236	Water Quality				●	●		
47	Groundwater Protection- Cathedral City Cove Drainage System 4	240	Water Quality				●	○		
48	College Of the Desert MTC Infrastructure	221	Water Quality					●		
49	Posse Park Surface Water Treatment Plant	191	Water Supply	●			○		○	●
50	Fargo Canyon Spreading Facility	216	Water Supply	●			○			
51	BDCP and DHCCP	214	Water Supply	●			○	○	○	○
52	Coachella Valley Salt and Nutrient Management Plan	243	Water Supply		●			●		
53	Recycled Water Feasibility Study	253	Water Supply	○	○					
54	Eastern Coachella Valley Water Supply Project	207	Water Supply					●	●	
55	Pierce Community Infrastructure - Regional Water Treatment Facility (North)	245	Water Supply					●	●	
56	St. Anthony of the Desert - Water Treatment Facility	246	Water Supply					●		●
57	Belardo Road Pipeline Replacement	188	Water Supply	○	●				○	
58	1400 Zone Facilities	218	Water Supply		●					
59	Surface Water Treatment Study	251	Water Supply		○			○		
60	Mid Valley Pipeline Phase II	182	Water Supply	●	●			●		
61	Coachella Valley Groundwater Model	227	Water Supply	○			○			
62	South Mecca Plan	250	Water Supply	○	○	○	○	○	○	○
63	Treated Agricultural Drain Water for agricultural irrigation	198	Water Supply		○			○	○	○
64	Siting studies, EIR and design of Colorado River Water Treatment Facility for municipal use	199	Water Supply	○	○			○		
65	Mission Creek/ Garnet Hill Subbasins Monitoring Program	222	Water Supply	○				○		
66	Well Pumping Plants 44 and 45 of the Palm Springs Main Well Field	190	Water Supply	●						
67	Information Systems--a Regional Project of CVRWMG	193	Water Supply		○					○
68	Groundwater Elevation Monitoring--Regional project of CVRWMG	192	Water Supply	●						

Appendix B
Coachella Valley IRWM Project List (as of Sept 30, 2010)
Feasibility Analysis

#	Project Title	ID	Functional Area	Regulatory Permit(s)	CEQA/NEPA Documents	Feasibility Studies
12	Achieve 14 percent reduction in Agricutural Water Use	197	Conservation	none	none	none
33	Smart Water Conservation Programs	219	Conservation		CEQA is completed	
37	DMMs for CVRWMG Partners	223	Conservation			
38	Resource Action Programs	224	Conservation			
39	Desert Hot Springs Community Gardens	225	Conservation			
9	Implementation of Projects in Garnet Wash and Tributaries Master Plan	194	Flood Control			
10	Implementation of Projects in East Wide Channel, Long Canyon and Tributaries Master Plan	195	Flood Control			
11	Implementation of projects for Cathedral City Master Plan	196	Flood Control			
15	Implementation of projects in the Palm Springs area Master Drainage Plan	200	Flood Control			
16	Implement projects in the Desert Hot Springs Area Master Drainage Plan	201	Flood Control			
17	East Cathedral Canyon Channel Levee Restoration	202	Flood Control			
18	Verbena Channel	203	Flood Control			
19	Palm Springs MDP line 41	204	Flood Control	Project will be required to obtain necessary environmental permits and possibly mitigate for impacts to proposed Casy's June Beetle critical habitat.	CEQA documents ha	Project has undergone initial planning and alternative studies. Design mapping was completed in Spring of 1999.
20	Eagle Canyon Dam	205	Flood Control		A Draft EA/EIR (as a combined CEQA/NEPA document), has been prepared in accordance with the requirements.	Geophysical and biological surveys completed in 2006. Engineering drawings essentially complete. Awaiting final approval from State department of Dams. Initial Studies initiated in June 2009. Permitting studies and first draft EIR proposed October 2009.
21	Whitewater River Levee Restoration	206	Flood Control			
24	Tahquitz Creek Levee Reconstruction	209	Flood Control	Clean Water Act Section 404, Clean Water Act Section 401, Streambed Alteration Agreement	CEQA Initial Study leading to a Mitigated Negative Declaration	PAL Response for City of Palm Springs Levee, Levee ID 16, prepared for US Dept. of Homeland Security, FEMA Region IX by Nolte Associates, Inc. (August 2009); and Geotechnical Investigation Report, Tahquitz Creek Levee System, FEMA Levee Certification, Palm Springs, CA by AMEC Geomatrix, Inc. (August 24, 2009)
45	Groundwater Quality Protection and Floodplain Management - Eagle Canyon Dam and Lines 43 and 41	231	Flood Control	The project will require approval from Coachella Valley Water District and encroachment permits from the City of Cathedral City and Coachella Valley Water District.	A CEQA Categorical Exemption has been issued for this project by the City of Cathedral City.	The project was the subject of a sanitary sewer planning study completed in 2006.
48	Master Drainage Plan Implementation - Ramon Road Corridor	234	Flood Control	The project will require approval from Desert Water Agency and Coachella Valley Water District and encroachment permits from the City of Cathedral City, Coachella Valley Water District and Riverside County Flood Control. Department of Fish & Game and Corps of Engineers permits will be acquired.	All beidges will require Environmental Impact Reports	
51	Flood Control and Recycling of Storm, Non Storm Run Off Water - Desert Cove Golf Course	237	Flood Control	The project will require approval from Coachella Valley Water District and encroachment permits from the City of Cathedral City and possibly Riverside County Flood Control.	A CEQA Categorical Exemption would be issued for this project by the City of Cathedral City.	Ramon Road Drainage Study

#	Project Title	ID	Functional Area	Regulatory Permit(s)	CEQA/NEPA Documents	Feasibility Studies
52	Ramon Road Corridor - Improve Flood Protection	238	Flood Control	The project will require approval from Coachella Valley Water District, Riverside County Flood Control, Desert Water Agency and encroachment permits from the City of Cathedral City, CVWD and RCFC.	An Environemtnal Impact Report has been issued for this project by the City of Cathedral City.	Desert Cove Gold Course - Basis of Design, Final Environemtal Impact Report - Desert Cove Golf Club
66	Stormwater Master Plan	252	Flood Control	No permits are needed.		Not applicable.
23	Construct Wetland, Riparian, and Pupfish Habitat for CVMSHCP and Natural Community Conservation Plan	208	Natural Resources and Watersheds	regulatory permits may be required.		CVMSHCP
42	Desert Cahuilla Wetlands Expansion	228	Natural Resources and Watersheds			
30	Perris Dam Remediation Program	215	Other	DWR to obtain	DWR to obtain	DWR has thoroughly evaluated the best and most feasible repair options to address the seismic concerns at Perris Dam. The proposed repair plan includes upgrading the dam by replacing the foundation material and reinforcing it with a stability berm placed on top of the improved foundation. This will allow the lake to return to its previous maximum operating pool elevation after construction. Other aspects of the proposed plan include a new outlet tower and emergency outlet release facilities. □ □ DWR released the Draft EIR (DEIR) on January 11, 2010, initiating a public review period that continued through April 12, 2010. Although the public comment period has expired, an electronic copy of the DEIR may still be obtained through internet download at the link in the left hand column of this page, or by request through mail or email to the following:
46	Water, Sewer and Drainage - North City Specific Plan	232	Other	The project will require approval encroachment permits from the City of Cathedral City and Riverside County Flood Control.	An Initial Study has been completed by Riverside County Flood Control & Water Conservation District. An EIR is required for the project by the RCFC & WCD.	The project is in design by RCFC & WCD. An Environmental Impact Report is required. Hazardous Waste Clean-up is required by the City of Cathedral City prior to initiation of construction.
55	Cathedral City North City Specifc Plan - East Sub-Region	241	Other	The project will require approval from Desert Water Agency and Riverside County Flood Control and encroachment permits from the City of Cathedral City and Riverside County Flood Control.	A CEQA Categorical Exemption has been issued for this project by the City of Cathedral City.	
2	Water Recycling Efficiency and Capacity Improvement Project	187	Wastewater	The Agency will be required to obtain a discharge permit from the RWQCB for the new recycled water service to the Tribe's golf course.The State Health Dept will also oversee the cross-connection test	A CEQA exemption has been filed for the reservoir and solar expansion installation. The Agency will also file an exemption for the pumping plants.	Application to the Bureau of Reclamation.
4	Groundwater Quality Protection Project	189	Wastewater	All CEQA and NEPA have been completed and certified for the project.	All CEQA and NEPA have been completed and certified for the project.	1997 Engineer's Report
26	Little Tuscany Sewer Improvements	211	Wastewater	None.	CEQA Initial Study leading to a Mitigated Negative Declaration.	Sewer improvement plans are on file and approved by the City of Palm Springs.
40	IWA Recycled Water Program	226	Wastewater			
43	Groundwater Quality Protection Perez Road Sewers	229	Wastewater	Torres Martinez is subject to 404 and 401 permitting authority. We have these permits in place but will have to continue to pursue new permits and we continue to expand.	All NEPA docs are in place for this project at this time.	
44	Groundwater Quality Protection South City Improvement District (SCID)	230	Wastewater	The project will require approval from Desert Water Agency and encroachment permits from the City of Cathedral City and possibly Riverside County Flood Control.	A CEQA Categorical Exemption has been issued for this project by the City of Cathedral City.	The project was the subject of a sanitary sewer planning study completed in 2006.

#	Project Title	ID	Functional Area	Regulatory Permit(s)	CEQA/NEPA Documents	Feasibility Studies
49	Groundwater Quality Protection - West Cathedral City Septic Tank Replacement	235	Wastewater	The project will require approval from the Coachella Valley Water District and encroachment permits from the City of Cathedral City and possibly Riverside County Flood Control.	A CEQA Categorical Exemption would be issued for this project by the City of Cathedral City.	
58	Desert Edge Geothermal Water Conservation and Preservation	244	Wastewater			
63	Pierce Community Infrastructure - Sewer Sanitary Collection System (North)	249	Wastewater			Please refer to Coachella Valley Water Systems Assessments, March 2010 Conducted by Rural Community Assistance Corporation
25	Whitewater River Region and Coachella Valley Stormwater Channel Site Specific Objective Evaluation	210	Water Quality	N/A	An equivalent CEQA document will need to be prepared by RWQCB staff.	RWQCB adopted the TMDL which recognizes the potential need for further water quality analyses to support the proposed SSO.
27	Implementation of Total Maximum Daily Load Best Management Practices	212	Water Quality		The necessary CEQA documents will be prepared.	
28	Evaluate Stormwater Recharge Opportunities within the Desert Hot Springs MDP	213	Water Quality		Necessary CEQA documents will be completed.	Need to be developed.
34	Identification of Septic Wastewater Plumes in the MSWD Service Area	220	Water Quality			
35	College Of the Desert MTC Infrastructure	221	Water Quality			
47	Bridge Drainage System Design for 3 Whitewater River Bridges	233	Water Quality	The project will require approval from Coachella Valley Water District and encroachment permits from the City of Cathedral City, CVWD and possibly Riverside County Flood Control.	An EIR was completed for this project.	
50	Master Drainage Plan Implementation - Cathedral City South	236	Water Quality	The project will require approval from Desert Water Agency and encroachment permits from the City of Cathedral City and possibly Riverside County Flood Control.	A CEQA Categorical Exemption would be issued for this project by the City of Cathedral City.	The project was the subject of a sanitary sewer planning study completed in 2006.
53	Palm Springs Unified School District - Storm Drain Outflow Transport Contamination	239	Water Quality	The project will require approval from Coachella Valley Water District and encroachment permits from CVWD the City of Cathedral City and possibly Riverside County Flood Control.	A CEQA Categorical Exemption would be issued for this project by the City of Cathedral City.	
54	Groundwater Protection- Cathedral City Cove Drainage System 4	240	Water Quality	The project will require approval from Coachella Valley Water District and encroachment permits from CVWD and the City of Cathedral City.	A CEQA Categorical Exemption would be issued for this project by the City of Cathedral City.	
56	Palm Springs Line 43 and 43a	242	Water Quality	The project will require approval from Coachella Valley Water District and encroachment permits from the City of Cathedral City, Riverside County and CVWD.	A CEQA Categorical Exemption would be issued for this project by the City of Cathedral City.	
1	Mid Valley Pipeline Phase II	182	Water Supply	404, 401, streambed alteration, and construction permits from affected cities.	This project was included in the PEIR for the Coachella Valley Water Management Plan. An SEIR was obtained for Phase 1 and an SEIR will be needed for Phase 2.	The Mid-Valley Pipeline Final Concept Paper by GEI Consultants, October 2005, Identified 50 golf courses that could be served by a non-potable distribution system which would provide recycled municipal effluent from CVWD's Palm Desert Wastewater Reclamation Plant No. 10 and Colorado River water from the Coachella Canal.
3	Belardo Road Pipeline Replacement	188	Water Supply	None	Does not need CEQA documentation	The project was vetted and examined for feasibiltiy during the preparation of the DWA General Plan.
5	Well Pumping Plants 44 and 45 of the Palm Springs Main Well Field	190	Water Supply		A Notice of Determination was adopted by the DWA, and a Mitigated Negative Declaration and Record of Project Approval was filed with the County Clerk of Riverside County.	Desert Water Agency 2008 Domestic Water System General Plan

#	Project Title	ID	Functional Area	Regulatory Permit(s)	CEQA/NEPA Documents	Feasibility Studies
6	Posse Park Surface Water Treatment Plant	191	Water Supply	Compliance with all current federal and state treatment goals and regulations for SWTPs, Domestic Water Supply Permit Amendment (DPH Riverside district 20), CWA Section 401 Water Quality Certification (RWQCB), ACT/PTO (South Coast AQMD, Area 3), Building Permit (City of Indio)	Under the SWTP Project, the City will serve as the Lead Agency, and it intends to prepare and MND to comply with CEQA requirements.	Water Resource Development Plan (IWA), Posse Park Suface Water Treatment Plant Conceptual Design Report (IWA)
7	Groundwater Elevation Monitoring--Regional project of CVRWMG	192	Water Supply			
8	Information Systems--a Regional Project of CVRWMG	193	Water Supply			
13	Treated Agricultural Drain Water for agricultural irrigation	198	Water Supply	Permits have not been obtained and would be part of the planning process	would be prepared via the planning process	2008 feaibility study completed by Malcom -Pirnie see previous entries
14	Siting studies, EIR and design of Colorado River Water Treatment Facility for municipal use	199	Water Supply	all regulatory permits that apply must be obtained.	An EIR will most likely be required.	A surface water treatement feasibility study was successfully completed by Malcolm-Pirnie in 2008 testing alternative treatment methods and system compatibility.
22	Eastern Coachella Valley Water Supply Project	207	Water Supply	Planning and design phase will not require permits and will determine the extent of permitting necessary. Most work will be in public right-of-way.	It is most likely that this type of project will require one or a series of mitigated negative declarations.	non to date
29	BDCP and DHCCP	214	Water Supply	DWR is in the process of obtaining regulatory permits	DWR will obtain regulatory documentation	DWR is conducting studies
31	Fargo Canyon Spreading Facility	216	Water Supply	Anticipated permit requirement include but are not limited to US Corp of Engineers, California Department of Fish and Game, Regional Water Quality Control Board, CEQA, NEPA.	No current documents available	Only preliminary hydrogeolical investigation has been conducted. A full feasibilty study is anticipated as part of this project.
32	1400 Zone Facilities	218	Water Supply			
36	Mission Creek/ Garnet Hill Subbasins Monitoring Program	222	Water Supply			
41	Coachella Valley Groundwater Model	227	Water Supply			
57	Coachella Valley Salt and Nutrient Management Plan	243	Water Supply	Project will require multiple permits.	project will be subject to CEQA process.	
59	Pierce Community Infrastructure - Regional Water Treatment Facility (North)	245	Water Supply			
60	St. Anthony of the Desert - Water Treatment Facility	246	Water Supply	The construction will be done on public right-of-away avoiding the need of regulatory permits. It is anticipated that the Riverside County Transportation Department will require an encroachment permit if the crossing of roads are required.	The project is likely to require a mitigated negative declaration.	No feasibility study is needed. The scope of the work will be developed on the preliminary engineering report.
61	Pierce Community Infrastructure – Water Extension Supply (South Section)	247	Water Supply	The construction will be done on private property at St. Anthony. Regulatory permits are expected from the Riverside County.	The implementation of the water treatment facility is a component of a comprehensive rehabilitation project developed by Pueblo Unido CDC under its Agricultural Worker Housing Rehabilitation Program. Currently, a Conditional Use Permit is in process with the County of Riverside. CEQA document is generated by the Planning Department and it is likely to require a mitigated negative declaration as part of the approval process.	Feasibility study has been completed, and engineering design is in progress. Research on available municipal water was conducted with CVWD. The agency reported that is at capacity to serve new projects in the Mecca area. The only solution CVWD offered is to extend 5.5 miles of water line from Middleton Rd. along Avenue 66 to the project with a cost of $22,000,000 million dollars, making this alternative unfeasible. □ Currently, Pueblo Unido CDC has implemented an interim point-of-entry Reverse Osmosis water treatment approved by the Riverside County Environmental Health and the Department of Public Health. The interim system has offered access to families to collect drinking water at the water treatment station (please see enclosed picture), and provide an outstanding reliable and cost effective solution for drinking water. The permanent water treatment facility will have the capacity to distribute water to every household at the park with an estimated cost of 575,000 dollars.□ □ Pleas

#	Project Title	ID	Functional Area	Regulatory Permit(s)	CEQA/NEPA Documents	Feasibility Studies
62	**Harrison Street (Sunbird and surrounding cluster)**	**248**	**Water Supply**			No feasibility study is needed. The scope of work will be developed on the preliminary engineering report. The geographical location of existing water main lines simplifies and avoids the need for a feasibility study; support the readiness; and eliminates unnecessary costs. □ □ Please refer to Coachella Valley Water Systems Assessments, March 2010□ Conducted by Rural Community Assistance Corporation
64	**South Mecca Plan**	**250**	**Water Supply**	The construction will be done on public right-of-away avoiding the need of regulatory permits. It is anticipated that the Riverside County Transportation Department will require an encroachment permit if the crossing of roads are required.	The project has already adopted a mitigated negative declaration.	No feasiblity study is required. A preliminary engineering report and environmental report is complete.
65	**Surface Water Treatment Study**	**251**	**Water Supply**	Design stage only.		Design stage only
67	**Recycled Water Feasibility Study**	**253**	**Water Supply**	No permits are needed.		Not applicable.
68	**Short Term Arsenic Treatment Program**	**254**	**Water Supply**			

Appendix B
Coachella Valley IRWM Project List (as of Sept 30, 2010)
Benefits to DACs and Tribes

#	Project Title	ID	Functional Area	Address Critical WQ Issue of DAC	Address Crtical WQ Issue of DAC	Benefits DAC/EJ	Potential Impacts DAC / EJC	Addresses Needs of Native American Tribes
1	Achieve 14 percent reduction in Agricutural Water Use	197	Conservation	Yes				
2	Smart Water Conservation Programs	219	Conservation	Yes	Primary well in this pressure zone has elevated uranium levels.			
3	DMMs for CVRWMG Partners	223	Conservation	Yes	Monitors water quality impacts and status of groundwater supply.	Improve the understanding of local hydrologic and geologic conditions, especially with respect to overdraft conditions in the Mission Creek and Garnet Hill Subbasins and artificial recharge of the subbasins.		
4	Resource Action Programs	224	Conservation	Yes		UWMP DMMs demand conservation programs which will result in people using less water, which addresses issue of overdraft in the groundwater basins and works towards sustainable use and supply. Several partner agencies serve disadvantaged communities and these programs will benefit those communities.		
5	Desert Hot Springs Community Gardens	225	Conservation	Yes	This project will offset high-quality potable ground water consumption by reducing consumption in residential households thru installation of water efficient fixtures such as low flow showerheads and faucet aerators. This grant will enable MSWD to provide the efficient fixtures at no charge to our economically disadvantaged customers.	This project will offset high-quality potable groundwater consumption by reducing consumption in residential households thru installation of water efficient plumbing fixtures such as low flow showerheads and faucet aerators. This grant will enable MSWD to provide the efficient plumbing fixtures at no cost to its economically disadvantaged customers.		
6	Implementation of Projects in Garnet Wash and Tributaries Master Plan	194	Flood Control	No				
7	Implementation of Projects in East Wide Channel, Long Canyon and Tributaries Master Plan	195	Flood Control	Yes				
8	Implementation of projects for Cathedral City Master Plan	196	Flood Control	Yes	The proposed project is located near areas od disadvantaged communities in Cathedral City.			
9	Implementation of projects in the Palm Springs area Master Drainage Plan	200	Flood Control	No				
10	Implement projects in the Desert Hot Springs Area Master Drainage Plan	201	Flood Control	Yes	There are areas of disadvantaged communities within Desert Hot Springs where the projects are proposed.			
11	East Cathedral Canyon Channel Levee Restoration	202	Flood Control	No				
12	Verbena Channel	203	Flood Control	No				
13	Palm Springs MDP line 41	204	Flood Control	Yes	safely conveys floodwaters through the cities, thus reducing water quality pollution caused by land use inundation.			

#	Project Title	ID	Functional Area	Address Critical WQ Issue of DAC	Address Crtical WQ Issue of DAC	Benefits DAC/EJ	Potential Impacts DAC / EJC	Addresses Needs of Native American Tribes
14	Eagle Canyon Dam	205	Flood Control	Yes	The project will reduce downstream poln and flood damage, some of which may be disadvantaged community areas.			
15	Whitewater River Levee Restoration	206	Flood Control	0				
16	Tahquitz Creek Levee Reconstruction	209	Flood Control	No				
17	Groundwater Quality Protection and Floodplain Management - Eagle Canyon Dam and Lines 43 and 41	231	Flood Control	Yes	In response to EPA and RWCQB recommendations, the City of Cathedral City made significant entrepreneurial efforts to secure funding and implement three groundwater protection projects: Cathedral City Cove, 35th Avenue and Dream Homes Septic Tank Elimination Projects.		Negative project impacts are associated with the construction phase of the project where dust, traffic control, noise and general inconvenience may be issued to be mitigated. No serious impacts are anticipated.	The project borders three sections of Tribal land which are affected by ground water pollution to the Palm Springs sub-Basin.
18	Master Drainage Plan Implementation - Ramon Road Corridor	234	Flood Control	Yes	All three bridges are part of the Agua Caliente Band of Cahuilla Indian Reservation Roads Program		The City of Cathedral City has been declared a Disadvantaged Community (DAC). In addition, every other section of land (640 Acres) within the City limits is Indian Reservation Land. This project will not impact disadvantaged citizens.	
19	Flood Control and Recycling of Storm, Non Storm Run Off Water - Desert Cove Golf Course	237	Flood Control	Yes	Cathedral City is a disadvantaged community.		The City of Cathedral City has been declared a Disadvantaged Community (DAC). In addition, every other section of land (640 Acres) within the City limits is Indian Reservation Land. This project will not impact disadvantaged citizens.	
20	Ramon Road Corridor - Improve Flood Protection	238	Flood Control	Yes	Flood Control Protection and Economic Development	0	The City of Cathedral City has been declared a Disadvantaged Community (DAC). In addition, every other section of land (640 Acres) within the City limits is Indian Reservation Land. This project will not impact disadvantaged citizens.	
21	Stormwater Master Plan	252	Flood Control	Yes		City of Coachella is a DAC.	This is a planning project. No adverse impacts are anticipated.	
22	Construct Wetland, Riparian, and Pupfish Habitat for CVMSHCP and Natural Community Conservation Plan	208	Natural Resources and Watersheds					
23	Desert Cahuilla Wetlands Expansion	228	Natural Resources and Watersheds	No				
24	Perris Dam Remediation Program	215	Other	No				
25	Water, Sewer and Drainage - North City Specific Plan	232	Other	Yes	The Agua Caliente Band of Cahuilla Indians land is undevelopable - floodplain hazard designation		This project will not impact disadvantage citizens.	
26	Cathedral City North City Specifc Plan - East Sub-Region	241	Other	No				
27	Water Recycling Efficiency and Capacity Improvement Project	187	Wastewater					
28	Groundwater Quality Protection Project	189	Wastewater	Yes	Yes, this project is within a DAC.			
29	Little Tuscany Sewer Improvements	211	Wastewater	Yes				
30	IWA Recycled Water Program	226	Wastewater	Yes				

#	Project Title	ID	Functional Area	Address Critical WQ Issue of DAC	Address Crtical WQ Issue of DAC	Benefits DAC/EJ	Potential Impacts DAC / EJC	Addresses Needs of Native American Tribes
31	**Groundwater Quality Protection Perez Road Sewers**	229	Wastewater	Yes				
32	**Groundwater Quality Protection South City Improvement District (SCID)**	230	Wastewater	Yes	Cathedral City is a Disadvantaged Community. Project will improve water quality by eliminating septic tanks.	The City of Cathedral City has been declared a Disadvantaged Community (DAC). In addition, every other section of land (640 Acres) within the City limits is Indian Reservation Land.	This project will not impact disadvantaged citizens.	
33	**Groundwater Quality Protection - West Cathedral City Septic Tank Replacement**	235	Wastewater	Yes	Cathedral City is a Disadvantaged Community. Project directs water to recharge areas more uniformly.		This project will not impact disadvantaged citizens. Negative project impacts are associated with the construction phase of the project where dust, traffic control, noise and general inconvenience may be issued to be mitigated. No serious impacts are anticipated.	
34	**Desert Edge Geothermal Water Conservation and Preservation**	244	Wastewater	Yes	This project addresses groundwater quality throughout the Valley, including DAC areas.			
35	**Pierce Community Infrastructure - Sewer Sanitary Collection System (North)**	249	Wastewater	Yes	The Southeast Coachella Valley is facing arsenic contamination, which is concentrated in an area where predominantly low-income, farmworker residents reside in mobile home parks. Currently there are only a handful of □ mobile home parks that provide an alternate source of drinking water or treat the water for arsenic contamination.	This project is concentrated in the community of Thermal, impacting mobile home parkswhere primarily low-income, seasonal farmworkers reside.	Impacts to Disadvantaged This project will benefit some of the poorest residents of the coachella valley, providing □ them with a connection to a safe and reliable source of drinking water.	
36	**Whitewater River Region and Coachella Valley Stormwater Channel Site Specific Objective Evaluation**	210	Water Quality	Yes	The CVSC is listed as a 303(d) impaired water body for bacteria and pathogens. This study can help prove if the bacterial is naturally occurring or from outside sources.		Project benefits a receiving water serving some disadvantaged areas of the Coachella Valley.	
37	**Implementation of Total Maximum Daily Load Best Management Practices**	212	Water Quality	Yes	Implementing BMPS that prevent normal urban runoff flows from entering the CVSC or treat the flows will help reduce the loading of pollutants from the City of Coachella discharge outfalls, and enable compliance with TMDL requirements.		The projects will improve water quality within an area that contains disadvantaged communities.	
38	**Evaluate Stormwater Recharge Opportunities within the Desert Hot Springs MDP**	213	Water Quality	Yes	There are disadvantaged communities within Desert Hot Springs. Groundwater recharge projects would contribute to groundwater levels and in turn contribute to the water pumped by the Mission SPrings Water District and provided as a service to the residences located within Desert Hot Springs.		Would increase the stabilitiy of water supply to disadvantaged communities.	
39	**Identification of Septic Wastewater Plumes in the MSWD Service Area**	220	Water Quality	Yes				
40	**College Of the Desert MTC Infrastructure**	221	Water Quality	Yes				

#	Project Title	ID	Functional Area	Address Critical WQ Issue of DAC	Address Crtical WQ Issue of DAC	Benefits DAC/EJ	Potential Impacts DAC / EJC	Addresses Needs of Native American Tribes
41	**Bridge Drainage System Design for 3 Whitewater River Bridges**	233	Water Quality	Yes	Economic Development for the Agua Caliente Band of Cahuilla Indians (Sections 2 & 4) and the City of Cathedral City		The City of Cathedral City has been declared a Disadvantaged Community (DAC). In addition, every other section of land (640 Acres) within the City limits is Indian Reservation Land. This project will not impact disadvantage citizens.	
42	**Master Drainage Plan Implementation - Cathedral City South**	236	Water Quality	Yes			The City of Cathedral City has been declared a Disadvantaged Community (DAC). In addition, every other section of land (640 Acres) within the City limits is Indian Reservation Land. This project will not impact disadvantaged citizens.	
43	**Palm Springs Unified School District - Storm Drain Outflow Transport Contamination**	239	Water Quality	Yes				
44	**Groundwater Protection- Cathedral City Cove Drainage System 4**	240	Water Quality	Yes			The City of Cathedral City has been declared a Disadvantaged Community (DAC). In addition, every other section of land (640 Acres) within the City limits is Indian Reservation Land. This project will not impact disadvantaged citizens.	
45	**Palm Springs Line 43 and 43a**	242	Water Quality	Yes				
46	**Mid Valley Pipeline Phase II**	182	Water Supply					
47	**Belardo Road Pipeline Replacement**	188	Water Supply	No		Palm Springs residents in this distribution system will benefit from a more efficient distribution of domestic water.		The planned pipleline intersects tribal burial lands. DWA and the tribes will work together to ensure preservation of these lands.
48	**Well Pumping Plants 44 and 45 of the Palm Springs Main Well Field**	190	Water Supply	Yes		This project would increase the potable water supply for DACs in Cathedral City and Palm Springs.		
49	**Posse Park Surface Water Treatment Plant**	191	Water Supply	No		Construction of a regional SWTP could provide a new water supply for the City of Coachella, benefiting this DAC. Reduction in the groundwater overdraft in the Thermal Sub area will also benefit the smaller pockets of DAC's in areas such as Thermal. If groundwater storage increases in these areas, risk of constituents migration to the lower aquifer is addressed, thereby protecting water quality.		
50	**Groundwater Elevation Monitoring--Regional project of CVRWMG**	192	Water Supply	Yes	provides monitoring and reporting			
51	**Information Systems--a Regional Project of CVRWMG**	193	Water Supply	No				
52	**Treated Agricultural Drain Water for agricultural irrigation**	198	Water Supply	Yes	Project is ready for planning grants. 7,000,000 represents planning grant funds requested			
53	**Siting studies, EIR and design of Colorado River Water Treatment Facility for municipal use**	199	Water Supply	Yes	Provides a an alternative to groundwater with higher than permissible arsenic levels.			
54	**Eastern Coachella Valley Water Supply Project**	207	Water Supply	Yes				

#	Project Title	ID	Functional Area	Address Critical WQ Issue of DAC	Address Crtical WQ Issue of DAC	Benefits DAC/EJ	Potential Impacts DAC / EJC	Addresses Needs of Native American Tribes
55	**BDCP and DHCCP**	**214**	**Water Supply**	Yes	All areas of Southern California will benefit from increased reliablity.	Improving imported supply will allow for water affordability		Improved reliablilty increases supllies for all.
56	**Fargo Canyon Spreading Facility**	**216**	**Water Supply**	No				
57	**1400 Zone Facilities**	**218**	**Water Supply**	Yes				
58	**Mission Creek/ Garnet Hill Subbasins Monitoring Program**	**222**	**Water Supply**	Yes				
59	**Coachella Valley Groundwater Model**	**227**	**Water Supply**	No				
60	**Coachella Valley Salt and Nutrient Management Plan**	**243**	**Water Supply**	No				
61	**Pierce Community Infrastructure - Regional Water Treatment Facility (North)**	**245**	**Water Supply**	Yes	A sewer system linking Desert Edge to a waste water treatment plan protects the geothermal groundwater wells.			
62	**St. Anthony of the Desert - Water Treatment Facility**	**246**	**Water Supply**	Yes				
63	**Pierce Community Infrastructure – Water Extension Supply (South Section)**	**247**	**Water Supply**	Yes	The water treatment facility supply will provide reliable and safe drinking water for farm worker and low-income (disadvantaged) communities in the eastern Coachella Valley.	The water treatment facility will service farm worker and very-low income families that fall within the definition of a Disadvantage Community (DAC) with an annual median household income (MHI) that is less than 80% of the Statewide MHI. The proposed water extension supply will address the top priority which is to provide safe and reliable drinking water. Additionally, the project will create a new array of community development resources and opportunities including rehabilitation and new affordable housing, community facilities, and overall healthy environment.	The water treatment facility will greatly benefit the poorest residents of the Coachella Valley with safe and reliable drinking water.	
64	**Harrison Street (Sunbird and surrounding cluster)**	**248**	**Water Supply**	Yes		This project is concentrated in the community of Thermal, impacting mobile home parks □ where primarily low-income, seasonal farmworkers reside.		
65	**South Mecca Plan**	**250**	**Water Supply**	0				
66	**Surface Water Treatment Study**	**251**	**Water Supply**	Yes	The entire community of Mecca and its adjacent surronds are negatively impacted by higher than acceptable levels of Arsenic in the groundwater. In order to ensure safe reliable supply of drinking water for the expanding Mecca community it is essential to plan and implement expanded service in this area.	The unincorporated community of Mecca falls well within the DAC definition. All facets of the Project will enure to the benefit of the DAC and its residents, current and future.	All impacts are expected to be positive.	
67	**Recycled Water Feasibility Study**	253	**Water Supply**	No		City of Coachella is a DAC.	This is a planning project. No adverse impacts are anticipated.	
68	**Short Term Arsenic Treatment Program**	**254**	**Water Supply**	Yes	Implementation of recycled water use in the City of Coachella will reduce the cost and consumption of potable water			

Appendix B
Coachella Valley IRWM Project List (as of Sept 30, 2010)
Strategic Considerations

#	Title	ID	Functional Area	Identified in Existing Plan	Project Partners	Identify Linkages with Other Projects
1	**Achieve 14 percent reduction in Agricutural Water Use**	**197**	Conservation	This project is identified in the Coachella Valley Water Management Plan	CVWD, and other agencies who benefit from conserved water	
2	**Smart Water Conservation Programs**	**219**	Conservation	2010 Adopted IWA Urban Water Efficiency and Conservation Master Plan; 2010 Adopted IWA Master Plan	The Smart Water Conservation Plan has the ability to be implemented and practiced by all water agencies and government entities throughout the Coachella Valley. IWA encourages this project to be a regional project.	Conservation is an objective for all water purveyors. Conservation will assist in making all Coachella Valley projects more affordable and reliable.
3	**DMMs for CVRWMG Partners**	**223**	Conservation	Urban Water Management Plans	Coachella Valley Water District (CVWD) Indio Water Authority (IWA) Coachella Water Authority (CWA) Desert Water Agency (DWA)	
4	**Resource Action Programs**	**224**	Conservation		Resource Action Programs, LLC (RAP) is the program provider.	
5	**Desert Hot Springs Community Gardens**	**225**	Conservation	City of Desert Hot Springs Community Services Plan	City of Desert Hot Springs, The Toro Company	
6	**Implementation of Projects in Garnet Wash and Tributaries Master Plan**	**194**	Flood Control			
7	**Implementation of Projects in East Wide Channel, Long Canyon and Tributaries Master Plan**	**195**	Flood Control			
8	**Implementation of projects for Cathedral City Master Plan**	**196**	Flood Control			
9	**Implementation of projects in the Palm Springs area Master Drainage Plan**	**200**	Flood Control			
10	**Implement projects in the Desert Hot Springs Area Master Drainage Plan**	**201**	Flood Control			
11	**East Cathedral Canyon Channel Levee Restoration**	**202**	Flood Control		City of Cathdral City	
12	**Verbena Channel**	**203**	Flood Control			
13	**Palm Springs MDP line 41**	**204**	Flood Control	Palm Springs Master Drainage Plan.	City of Palm Springs, Cathedral City	
14	**Eagle Canyon Dam**	**205**	Flood Control	Palm Springs area Master Drainage Plan	Palm Springs, Cathedral City	Palm Springs Line 43
15	**Whitewater River Levee Restoration**	**206**	Flood Control			
16	**Tahquitz Creek Levee Reconstruction**	**209**	Flood Control		Riverside County Flood Control & Water Conservation District	Riverside County Flood Control & Water Conservation District (RCFC) is in process to certify all of the levees in Riverside County that RCFC owns, operates and maintains. Several levees owned by RCFC in Palm Springs have been identified as Provisionally Accredited by FEMA, and RCFC is in process to perform analysis and make improvements necessary to improve the levees to the criterion set forth in 44 CFR 65.10. The Tahquitz Creek levee owned by the City of Palm Springs is the only levee in the City not owned by RCFC, and this project coordinates the process to certify all levees in the City.
17	**Groundwater Quality Protection and Floodplain Management - Eagle Canyon Dam and Lines 43 and 41**	**231**	Flood Control	RCFC & WCD Initial Study	Riverside County Flood Control & Water Conservation District, Agua Caliente Band of Cahuilla Indians, City of Palm Springs, Desert Water Agency	Line 41 in the City of Palm Springs
18	**Master Drainage Plan Implementation - Ramon Road Corridor**	**234**	Flood Control		Agua Caliente Band of Cahuilla Indians, Coachella Valley Water District	

#	Title	ID	Functional Area	Identified in Existing Plan	Project Partners	Identify Linkages with Other Projects
19	**Flood Control and Recycling of Storm, Non Storm Run Off Water - Desert Cove Golf Course**	**237**	Flood Control	Desert Cove Flood Control Plan, Cathedral Canyon Drive Bridge	Coachella Valley Water District, Riverside County Flood Control & Water Conservation District, Agua Caliente Band of Cahuilla Indians	Cathedral Canyon Drive Bridge and the Date Palm Drive Bridge widening from 4 to 6 Lanes, CVWD Master Plan
20	**Ramon Road Corridor - Improve Flood Protection**	**238**	Flood Control		Coachella Valley Water District, Riverside County Flood Control & Water Conservation District, Agua Calente Band of Cahuilla Indians	CVWD Master Plan
21	**Stormwater Master Plan**	**252**	Flood Control			
22	**Construct Wetland, Riparian, and Pupfish Habitat for CVMSHCP and Natural Community Conservation Plan**	**208**	Natural Resources and Watersheds	Coachella Valley MSHCP CVWD capital improvement Budget CV Water Management Plan 2010 Update	CVWD, Fish and Game, Fish and Wildlife, possibly Torres Martinez Desert Cahuilla Indians	Linked to Flood control projects within the Coachella Valley Stormwater Channel
23	**Desert Cahuilla Wetlands Expansion**	**228**	Natural Resources and Watersheds		US EPA, US Bureau of Reclamation, State of California DWR, Audubon, Pacific Institute, Defenders of Wildlife, Sierra Club	the State of California shallow habitat complex as identified in the scoping documents by the State of California Natural Resources Fish and Game Departments.
24	**Perris Dam Remediation Program**	**215**	Other		Department of Water Resources, Coachella Valley Water District, Metropolitan Water District. This project is projected to be funded 63.3% by MWD, 32.2% by CVWD and 4.4% by DWA.	SWP storage, recreation
25	**Water, Sewer and Drainage - North City Specific Plan**	**232**	Other	The North City Specific Plan	Coachella Valley Water District, Agua Caliente Band of Cahuilla Indians, Riverside County Flood Control and Water Conservation District, Coachella Valley Association of Governments	CVWD Master Plan
26	**Cathedral City North City Specifc Plan - East Sub-Region**	**241**	Other	Cathedral City Annexation Plan from the current East City Limits to Ramon Road before LAFCO.	Coachella Valley Water District, Agua Caliente Band of Cahuilla Indians, Riverside County Flood Control and Water Conservation District, Coachella Valley Association of Governments	
27	**Water Recycling Efficiency and Capacity Improvement Project**	**187**	Wastewater		Bureau of Reclamation, Agua Caliente Band of Cahuilla Indians	
28	**Groundwater Quality Protection Project**	**189**	Wastewater	MSWD CIP, MSWD Wastewater Master Plan, Regional Water Quality Control Board Basin Management Plan, City of DHS CIP	City of Desert Hot Springs	
29	**Little Tuscany Sewer Improvements**	**211**	Wastewater		Desert Water Agency	
30	**IWA Recycled Water Program**	**226**	Wastewater	IWA 2007 Water Master Plan, May 2008 IWA 2005 Urban Water Management Plan Addendum, September 2008 IWA Integrated Water Resources Development Plan, Phase 1, January 2008 IWA Integrated Water Resources Development Plan, Phase 2, August 2008 IWA 2010 Urban Water Conservation and Efficiency Plan, April 2010 IWA 2010 Urban Water Management Plan, May 2010	TBD	
31	**Groundwater Quality Protection Perez Road Sewers**	**229**	Wastewater	Desert Water Agency South Area Master Plan	Desert Water Agency (DWA)	This project links to the Cove Sewer Project completed by the City of Cathedral City in 2009, and the proposed South City Improvement District to eliminate the last remaining septic tanks inside the City limits.
32	**Groundwater Quality Protection South City Improvement District (SCID)**	**230**	Wastewater		Agua Caliente Band of Cahuilla Indians, Coachella Valley Water District	
33	**Groundwater Quality Protection - West Cathedral City Septic Tank Replacement**	**235**	Wastewater		Desert Water Agency	In response to EPA and RWCQB recommendations, the City of Cathedral City made significant entrepreneurial efforts to secure funding and implement three groundwater protection projects: Cathedral City Cove, 35th Avenue and Dream Homes Septic Tank Elimination Projects.
34	**Desert Edge Geothermal Water Conservation and Preservation**	**244**	Wastewater		Mission Springs Water District, Coachella Valley Water District, Desert Water Agency and County of Riverside.	

#	Title	ID	Functional Area	Identified in Existing Plan	Project Partners	Identify Linkages with Other Projects
35	**Pierce Community Infrastructure - Sewer Sanitary Collection System (North)**	**249**	Wastewater		Pierce Community Infrastructure Committee, Poder Popular of the Eastern Coachella Valley, California Rural Legal Assistance Foundation, Environmental Justice Coalition on Water, San Jose Community & Bea Main Learning Center	The proposed sewer sanitary collection system will create new opportunities for rehabilitation and new affordable housing; support for the San Jose Community & Bea Main Learning Center that is currently under construction, and overall community revitalization.
36	**Whitewater River Region and Coachella Valley Stormwater Channel Site Specific Objective Evaluation**	**210**	Water Quality	This project would implement one of the requirements of the CVSC TMDL implementation plan, which is a requirement of the Water Quality Control Basin Plan of the Colorodo RWQCB.	Cities within the Coachella Valley, CVWD, and the Regional Water Quality Control Board- Colorado River Region.	
37	**Implementation of Total Maximum Daily Load Best Management Practices**	**212**	Water Quality	This project would implement one of the requirements of the CVSC TMDL implementation plan, which is a requirement of the Water Quality Control Basin Plan of the Colorodo RWQCB.	City of Coachella	Link to TMDL SSO proposed project.
38	**Evaluate Stormwater Recharge Opportunities within the Desert Hot Springs MDP**	**213**	Water Quality	Mission Springs Water District's UWMP.	Mission Springs Water District	Desert Hot Springs Master Drainage Plan
39	**Identification of Septic Wastewater Plumes in the MSWD Service Area**	**220**	Water Quality	MSWD Wastewater Master Plan; Transport of Contaminants from Wastewater Disposal Systems Near Mission Creek Subbasin		
40	**College Of the Desert MTC Infrastructure**	**221**	Water Quality		Riverside County Economic Development Agency	
41	**Bridge Drainage System Design for 3 Whitewater River Bridges**	**233**	Water Quality	Coachella Valley Association of Governments Transportation Project Priority Study; Cathedral City and Palm Springs General Plans, Agua Calient Caliente Band of Cahuilla Indians Federal List of Indian Reservation Roads	Agua Caliente Band of Cahuilla Indians, City of Palm Springs, Riverside County Flood Control and Water Conservation District, Coachella Valley Water District, Army Corps of Engineers	
42	**Master Drainage Plan Implementation - Cathedral City South**	**236**	Water Quality			
43	**Palm Springs Unified School District - Storm Drain Outflow Transport Contamination**	**239**	Water Quality	Cathedral City 1994 Master Drainage Plan (Which is out of date) due to development.	Cathedral City, Coachella Valley Water District, Palm Springs Unified School District, Cathedral City Elementary School	Master Drainage Plan - Cathedral City South, 35th Dssessment District sewer installation and septic system elimination by the year 2012
44	**Groundwater Protection- Cathedral City Cove Drainage System 4**	**240**	Water Quality	Cove Phase 1 Sewer and Storm Drain Installation, Cove Phase 2 Sewer and Storm Drain Installation, Cove Storm Drain System1 1 through 12.	CVWD, Riverside County Flood Control	
45	**Palm Springs Line 43 and 43a**	**242**	Water Quality	Palm Springs Master Drainage Plan	Cathedral City, Palm Springs	Palm Springs Line 41, Eagle Canyon Dam
46	**Mid Valley Pipeline Phase II**	**182**	Water Supply	This project is listed in the Coachella Valley Water Management Plan.		
47	**Belardo Road Pipeline Replacement**	**188**	Water Supply	Desert Water Agency General Plan	Desert Water Agency	
48	**Well Pumping Plants 44 and 45 of the Palm Springs Main Well Field**	**190**	Water Supply	Desert Water Agency 2008 Domestic Water System General Plan		
49	**Posse Park Surface Water Treatment Plant**	**191**	Water Supply	The IWA's Resource Development Plan and the 2010 UWMP both identify a SWTP to serve existing and future growth in the City of Indio. The 2002 Coachella Valley Water Management Plan discusses municipal use of Coachella Canal water within the ID-1 boundary, requiring one or more surface water treatment facilities with a capacity of at least 30MGD to be brought on-line in the 2020-2030 timeline. The City of Coachella's Water Master Plan also identifies a future SWTP needed to serve future growth.	Should plant be expanded to serve a regional need, potential project partners would include CVWD and the City of Coachella.	
50	**Groundwater Elevation Monitoring--Regional project of CVRWMG**	**192**	Water Supply		Coachella Water Authority, Coachella Valley Water District, Desert Water Authority, Indio Water Agency, Mission Springs Water District	
51	**Information Systems--a Regional Project of CVRWMG**	**193**	Water Supply		Coachella Valley Water District, Desert Water Agency, Indio Water Authority, Coachella Water Authority, Mission Springs, Water District	

#	Title	ID	Functional Area	Identified in Existing Plan	Project Partners	Identify Linkages with Other Projects
52	**Treated Agricultural Drain Water for agricultural irrigation**	**198**	Water Supply	Coachella Valley Water Management Plan CVWD Capital Improvement Program	Agricultural stakeholders and other stakeholders who may benefit from new water supplies	
53	**Siting studies, EIR and design of Colorado River Water Treatment Facility for municipal use**	**199**	Water Supply	Coachella Valley Water Management Plan CVWD Capital Improvement Program	Potentially City of Indio and City of Coachella	
54	**Eastern Coachella Valley Water Supply Project**	**207**	Water Supply		County of Riverside, possibly California Rural Legal Assistance, Riverside County Economic Development Agency, Torres Martinez Desert Cahuilla Indians	
55	**BDCP and DHCCP**	**214**	Water Supply		Department of Water Resources, Coachella Valley Water District.	It is linked to other east valley arsenic programs
56	**Fargo Canyon Spreading Facility**	**216**	Water Supply			
57	**1400 Zone Facilities**	**218**	Water Supply	MSWD Water Master Plan, FY2011 CIP Budget		
58	**Mission Creek/ Garnet Hill Subbasins Monitoring Program**	**222**	Water Supply			
59	**Coachella Valley Groundwater Model**	**227**	Water Supply		Members of CVIRWM group	
60	**Coachella Valley Salt and Nutrient Management Plan**	**243**	Water Supply		Coachella Valley Water District, Desert Water Agency, Mission Springs Water District, Indio Water Authority, and Coachella Water Authority.	
61	**Pierce Community Infrastructure - Regional Water Treatment Facility (North)**	**245**	Water Supply		Pierce Community Infrastructure Committee Poder Popular of the Eastern Coachella Valley (Poder Popular) California Rural Legal Assistance Foundation (CRLAF) California Rural Legal Assistance (CRLA, Inc) Environmental Justice Coalition on Water (EJCW) Coachella Valley Water District (CVWD) San Jose Community & B.M. Learning Center	
62	**St. Anthony of the Desert - Water Treatment Facility**	**246**	Water Supply		Poder Popular of the Eastern Coachella Valley (Poder Popular) California Rural Legal Assistance Foundation (CRLAF) Environmental Justice Coalition on Water (EJCW) California Rural Legal Assistance (CRLA Inc) Coachella Valley Water District (CVWD)	The proposed water treatment facility supply is a component of a comprehensive rehabilitation program to include the construction of a community park with multi-purpose facility and child care center; and will create new opportunities for community revitalization.
63	**Pierce Community Infrastructure – Water Extension Supply (South Section)**	**247**	Water Supply		Pierce Community Infrastructure Committee Poder Popular of the Eastern Coachella Valley (Poder Popular) California Rural Legal Assistance Foundation (CRLAF) Environmental Justice Coalition on Water (EJCW) Centro Medico Oasis San Jose Community & B.M. Learning Center	The issue of arsenic contamination is pervasive in the Eastern Coachella Valley, impacting The proposed water extension supply will create new opportunities for rehabilitation and new affordable housing; support for the Centro Medico Oasis which is the only primary care clinic in the area; Oasis Fire Station; an small grocery store and overall community revitalization.
64	**Harrison Street (Sunbird and surrounding cluster)**	**248**	Water Supply		Poder Popular of the Eastern Coachella Valley (Poder Popular) California Rural Legal Assistance Foundation (CRLAF) Environmental Justice Coalition on Water (EJCW) California Rural Legal Assistance Inc (CRLA) Coachella Valley Water District (CVWD)	The issue of arsenic contamination is pervasive in the Eastern Coachella Valley, impacting mostly low-income, disadvantaged residents of the area. There is also potential for septic system leaks contaminating groundwater, and major leakages creating health hazards in the community.
65	**South Mecca Plan**	**250**	Water Supply	Mecca Community Council area (file attached)	Coachella Valley Water District	To be provided
66	**Surface Water Treatment Study**	**251**	Water Supply			
67	**Recycled Water Feasibility Study**	**253**	Water Supply		Indio Water Authority, City of La Quinta	
68	**Short Term Arsenic Treatment Program**	**254**	Water Supply	RCAC Study	Poder Popular of the Eastern Coachella Valley (Poder Popular) California Rural Legal Assistance Foundation (CRLAF) California Rural Legal Assistance (CRLA, Inc) Environmental Justice Coalition on Water (EJCW)	Municipal connections to water and sewer are primary and some septic to sewer conversion

Appendix B
Coachella Valley IRWM Project List (as of Sept 30, 2010)
Climate Change Considerations

#	Project Title	ID	#REF!	How project will adapt to long-term climate change	How project will mitigate its contribution to climate change
1	Achieve 14 percent reduction in Agricutural Water Use	197	Conservation		
2	Smart Water Conservation Programs	219	Conservation		
3	DMMs for CVRWMG Partners	223	Conservation		
4	Resource Action Programs	224	Conservation	UWMP DMMs demand conservation programs which will result in people using less water, which addresses issue of overdraft in the groundwater basins and works towards sustainable use and supply	
5	Desert Hot Springs Community Gardens	225	Conservation		
6	Implementation of Projects in Garnet Wash and Tributaries Master Plan	194	Flood Control		
7	Implementation of Projects in East Wide Channel, Long Canyon and Tributaries Master Plan	195	Flood Control		
8	Implementation of projects for Cathedral City Master Plan	196	Flood Control		
9	Implementation of projects in the Palm Springs area Master Drainage Plan	200	Flood Control		
10	Implement projects in the Desert Hot Springs Area Master Drainage Plan	201	Flood Control		
11	East Cathedral Canyon Channel Levee Restoration	202	Flood Control		
12	Verbena Channel	203	Flood Control		
13	Palm Springs MDP line 41	204	Flood Control		
14	Eagle Canyon Dam	205	Flood Control		
15	Whitewater River Levee Restoration	206	Flood Control		
16	Tahquitz Creek Levee Reconstruction	209	Flood Control		
17			Flood Control		
18	Groundwater Quality Protection and Floodplain Management - Eagle Canyon Dam and Lines 43 and 41	231	Flood Control		
19	Master Drainage Plan Implementation - Ramon Road Corridor	234	Flood Control		
20	Flood Control and Recycling of Storm, Non Storm Run Off Water - Desert Cove Golf Course	237	Flood Control		
21	Ramon Road Corridor - Improve Flood Protection	238	Flood Control		
22	Stormwater Master Plan	252	Flood Control	N/A	The project will reduce the City of Coachella's energy cost for pumping, because it will provide a local source of potable water for development in the eastern portion of the City's service area and prevent the need to pump large quantitities of groundwater from the developed area of the City to points east.
23	Construct Wetland, Riparian, and Pupfish Habitat for CVMSHCP and Natural Community Conservation Plan	208	Natural Resources and Watersheds		
24	Desert Cahuilla Wetlands Expansion	228	Natural Resources and Watersheds		

#	Project Title	ID	#REF!	How project will adapt to long-term climate change	How project will mitigate its contribution to climate change
25	Perris Dam Remediation Program	215	Other		
26	Water, Sewer and Drainage - North City Specific Plan	232	Other		
27	Cathedral City North City Specifc Plan - East Sub-Region	241	Other		
28	Water Recycling Efficiency and Capacity Improvement Project	187	Wastewater		The project will also increase energy efficiency, through the installation of solar power generating modules. The solar power created will be used to offset power costs, reduce the electrical grid demand and carbon footprint of the recycled water plant.
29	Groundwater Quality Protection Project	189	Wastewater		
30	Little Tuscany Sewer Improvements	211	Wastewater		
31	IWA Recycled Water Program	226	Wastewater		
32	Groundwater Quality Protection Perez Road Sewers	229	Wastewater		
33	Groundwater Quality Protection South City Improvement District (SCID)	230	Wastewater	Climate change will have little impact on this sewer project.	
34	Groundwater Quality Protection - West Cathedral City Septic Tank Replacement	235	Wastewater		
35	Desert Edge Geothermal Water Conservation and Preservation	244	Wastewater		
36	Pierce Community Infrastructure - Sewer Sanitary Collection System (North)	249	Wastewater	Collaborative efforts would take place to continue educating families on water use efficiency and water conservation practices.	
37	Whitewater River Region and Coachella Valley Stormwater Channel Site Specific Objective Evaluation	210	Water Quality		
38	Implementation of Total Maximum Daily Load Best Management Practices	212	Water Quality		
39	Evaluate Stormwater Recharge Opportunities within the Desert Hot Springs MDP	213	Water Quality		
40	Identification of Septic Wastewater Plumes in the MSWD Service Area	220	Water Quality	Conservation extends the availability of current and future water resources effectively helping to adapt to long-term climate change and future water shortages.	As groundwater levels lower pumps must work harder to pump the water to the surface. This increases the energy needed to move the water. Also, emissions from the pumps increase as they work longer and harder. Conservation can help stabilize groundwater levels avoiding the need for more energy and higher emissions.
41	College Of the Desert MTC Infrastructure	221	Water Quality		
42	Bridge Drainage System Design for 3 Whitewater River Bridges	233	Water Quality		
43	Master Drainage Plan Implementation - Cathedral City South	236	Water Quality		
44	Palm Springs Unified School District - Storm Drain Outflow Transport Contamination	239	Water Quality		
45	Groundwater Protection- Cathedral City Cove Drainage System 4	240	Water Quality		Completed project will have minimal contribution to climate change.
46	Palm Springs Line 43 and 43a	242	Water Quality		
47	Mid Valley Pipeline Phase II	182	Water Supply		This project uses high efficiency VFD pumping equipment and will move water in off peak hours. Golf courses will be expected to comply with Conservation Goals adopted in the Coachella Valley Water Management Plan

#	Project Title	ID	#REF!	How project will adapt to long-term climate change	How project will mitigate its contribution to climate change
48	Belardo Road Pipeline Replacement	188	Water Supply	The new pipeline can prevent water loss therefore preserving the supply and minimizing the amount required for pumping from the basin. Therefore, the new, more efficient pipeline will not only save water but reduce energy needs by reducing that need for pumping groundwater.	The pieple will reduce energy needs by reducing the need for pumping groundwater.
49	Well Pumping Plants 44 and 45 of the Palm Springs Main Well Field	190	Water Supply		High efficiency water pumps and electric motors will be selected for the pumping plant. The increased efficiency will reduce electrical demand for supplying water.
50	Posse Park Surface Water Treatment Plant	191	Water Supply		In the IWA Conceptual Design report discusses the installation of a solar system at the facility.
51	Groundwater Elevation Monitoring--Regional project of CVRWMG	192	Water Supply		
52	Information Systems--a Regional Project of CVRWMG	193	Water Supply		
53	Treated Agricultural Drain Water for agricultural irrigation	198	Water Supply		
54	Siting studies, EIR and design of Colorado River Water Treatment Facility for municipal use	199	Water Supply		
55	Eastern Coachella Valley Water Supply Project	207	Water Supply		
56	BDCP and DHCCP	214	Water Supply	The conveyence plans take into account climate change issues.	The conveyence plans take into account climate change issues.
57	Fargo Canyon Spreading Facility	216	Water Supply		
58	1400 Zone Facilities	218	Water Supply		
59	Mission Creek/ Garnet Hill Subbasins Monitoring Program	222	Water Supply		
60	Coachella Valley Groundwater Model	227	Water Supply		
61	Coachella Valley Salt and Nutrient Management Plan	243	Water Supply		
62	Pierce Community Infrastructure - Regional Water Treatment Facility (North)	245	Water Supply		
63	St. Anthony of the Desert - Water Treatment Facility	246	Water Supply		
64	Pierce Community Infrastructure – Water Extension Supply (South Section)	247	Water Supply	The collaborative outreach programs will continue to educate families on water use efficiency and conservation practices.	
65	Harrison Street (Sunbird and surrounding cluster)	248	Water Supply	Collaborative efforts will continue to educate families in the area on water use efficiency and conservation practices.	
66	South Mecca Plan	250	Water Supply		
67	Surface Water Treatment Study	251	Water Supply		
68	Recycled Water Feasibility Study	253	Water Supply	If rainfall events become more extreme, the risk of flooding is more acute. The project is intended to reduce the frequency and severity of flooding.	This is a planning project, which will be carbon neutral. Any BMPs implemented may include energy efficiency measures.
69	Short Term Arsenic Treatment Program	254	Water Supply	The project will assist Valley water purveyors in expanding use of recycled water supplies, which reduces dependence of imported water supplies and associated climate change impacts of long-distance water transfers. Expansion of recycled water systems also ensures water supply availability and reliability should imported water supplies be reduced due to changing climates.	This is a planning project, which will be carbon neutral. However, any BMPs implemented as part of this project will include energy efficiency measures in accordance with AB32 and the California Environmental Quality Act.

Appendix B
Coachella Valley IRWM Project List (as of Sept 30, 2010)
Project Costs and Financing

#	Project Title	ID	#REF!	Estimated Maximum Project Cost	Estimated Minimum Project Cost	Grant Funds Requested	Estimated Local Match Amount	Describe Match Type	Annual Operations Maintenance Cost	Ready for Prop 84 Impl Grant
1	Achieve 14 percent reduction in Agricutural Water Use	197	Conservation	$1,000,000	$500,000	$1,000,000	$0	In-kind services	$1,000,000	Yes
2	Smart Water Conservation Programs	219	Conservation	$7,700,000	$900,000	$1,000,000	$0	$40,000; Approved FY 2010-2011 IWA Budget	$0	Yes
3	DMMs for CVRWMG Partners	223	Conservation	$300,000	$300,000	$225,000	$75,000		$0	No
4	Resource Action Programs	224	Conservation	$200,000	$200,000	$200,000	$0	partner agencies donate their time in providing customer consultations MSWD donates staff time and resources to promoting program and holding workshops. $8k per year provides for goal of reaching 150 to 200 households annually.	$0	Yes
5	Desert Hot Springs Community Gardens	225	Conservation	$10,000	$5,000	$8,000	$0	City of DHS and MSWD operating budgets	$8,000	Yes
6	Implementation of Projects in Garnet Wash and Tributaries Master Plan	194	Flood Control	$645,000	$483,750	$483,750	$161,250		$0	Yes
7	Implementation of Projects in East Wide Channel, Long Canyon and Tributaries Master Plan	195	Flood Control	$1,628,000	$1,628,000	$1,221,000	$407,000		$0	No
8	Implementation of projects for Cathedral City Master Plan	196	Flood Control	$1,600,000	$1,600,000	$1,200,000	$0		$0	No
9	Implementation of projects in the Palm Springs area Master Drainage Plan	200	Flood Control	$71,482,000	$71,482,000	$58,120,500	$0		$0	No
10	Implement projects in the Desert Hot Springs Area Master Drainage Plan	201	Flood Control	$30,504,000	$30,504,000	$22,900,000	$0		$0	No
11	East Cathedral Canyon Channel Levee Restoration	202	Flood Control	$1,222,000	$857,000	$916,000	$0		$0	Yes
12	Verbena Channel	203	Flood Control	$11,839,000	$7,905,794	$7,708,000	$0		$0	Yes
13	Palm Springs MDP line 41	204	Flood Control	$15,000,000	$13,000,000	$6,000,000	$9,000,000	CIP funds from District and City of Palm Springs	$10,000	Yes
14	Eagle Canyon Dam	205	Flood Control	$7,643,000	$6,600,000	$6,232,250	$0		$0	Yes
15	Whitewater River Levee Restoration	206	Flood Control	$50,420	$31,260	$35,600	$0		$0	Yes
16	Tahquitz Creek Levee Reconstruction	209	Flood Control	$1,600,000	$1,600,000	$1,280,000	$320,000	Local sewer and drainage funds.	$10,000	Yes
17	Groundwater Quality Protection and Floodplain Management - Eagle Canyon Dam and Lines 43 and 41	231	Flood Control	$16,500,000	$15,000,000	$11,000,000	$0		$0	Yes
18	Master Drainage Plan Implementation - Ramon Road Corridor	234	Flood Control	$70,000,000	$65,000,000	$1,500,000	$0		$0	Yes
19	Flood Control and Recycling of Storm, Non Storm Run Off Water - Desert Cove Golf Course	237	Flood Control	$14,400,000	$12,000,000	$300,000	$0		$0	Yes
20	Ramon Road Corridor - Improve Flood Protection	238	Flood Control	$24,000,000	$1,900,000	$1,000,000	$0		$0	No
21	Stormwater Master Plan	252	Flood Control	$250,000	$200,000	$187,500	$62,500	CIP funds	$0	Yes
22	Construct Wetland, Riparian, and Pupfish Habitat for CVMSHCP and Natural Community Conservation Plan	208	Natural Resources and Watersheds	$10,000,000	$7,000,000	$1,000,000	$250,000	CIP and in-kind services	$500,000	Yes

#	Project Title	ID	#REF!	Estimated Maximum Project Cost	Estimated Minimum Project Cost	Grant Funds Requested	Estimated Local Match Amount	Describe Match Type	Annual Operations Maintenance Cost	Ready for Prop 84 Impl Grant
23	Desert Cahuilla Wetlands Expansion	228	Natural Resources and Watersheds	$1,250,000	$750,000	$500,000	$0	Federal Grants Funds	$0	Yes
24	Perris Dam Remediation Program	215	Other	$500,000,000	$370,000,000	$250,000,000	$250,000,000	DWA, CVWD and MWD	$0	Yes
25	Water, Sewer and Drainage - North City Specific Plan	232	Other	$22,000,000	$20,000,000	$2,000,000	$0		$0	No
26	Cathedral City North City Specifc Plan - East Sub-Region	241	Other	$450,000	$400,000	$300,000	$0		$0	Yes
27	Water Recycling Efficiency and Capacity Improvement Project	187	Wastewater	$14,600,000	$11,704,184	$2,500,000	$1,000,000	Bureau of Reclamation- WaterSMART: Water and Energy Efficiency Grants for FY2010	$33,800	Yes
28	Groundwater Quality Protection Project	189	Wastewater	$68,000,000	$1,000,000	$1,000,000	$3,000,000	Assessment District proceeds	$500,000	Yes
29	Little Tuscany Sewer Improvements	211	Wastewater	$2,100,000	$2,100,000	$1,575,000	$525,000	Local wastewater funds.	$25,000	Yes
30	IWA Recycled Water Program	226	Wastewater	$40,000	$15,000	$30,000	$10,000	The IWA has purchased the land for proposed recycled water program	$0	Yes
31	Groundwater Quality Protection Perez Road Sewers	229	Wastewater	$500,000	$400,000	$375	$125	The City will form an assessment district to fund the local match	$200,000	Yes
32	Groundwater Quality Protection South City Improvement District (SCID)	230	Wastewater	$4,700,000	$4,200,000	$3,500,000	$1,200,000		$5,000	Yes
33	Groundwater Quality Protection - West Cathedral City Septic Tank Replacement	235	Wastewater	$32,000,000	$8,800,000	$3,000,000	$0		$0	Yes
34	Desert Edge Geothermal Water Conservation and Preservation	244	Wastewater	$300,000	$250,000	$200,000	$75,000	18th Avenue improvements to meet air quality requirement - new electric plant west of Palm Drive and dust abatement	$0	Yes
35	Pierce Community Infrastructure - Sewer Sanitary Collection System (North)	249	Wastewater	$5,000,000	$5,000,000	$5,000,000	$0	An application to the U.S. Department of Agriculture has been submitted in the amount of $7,900,000.	$0	Yes
36	Whitewater River Region and Coachella Valley Stormwater Channel Site Specific Objective Evaluation	210	Water Quality	$1,400,000	$1,000,000	$1,000,000	$0		$0	Yes
37	Implementation of Total Maximum Daily Load Best Management Practices	212	Water Quality	$200,000	$90,000	$200,000	$0	$30,000 from City of Coachella	$3,000	Yes
38	Evaluate Stormwater Recharge Opportunities within the Desert Hot Springs MDP	213	Water Quality	$1,200,000	$1,000,000	$900,000	$0		$0	Yes
39	Identification of Septic Wastewater Plumes in the MSWD Service Area	220	Water Quality	$160,000	$100,000	$120,000	$40,000	MSWD O&M funds	$40,000	Yes
40	College Of the Desert MTC Infrastructure	221	Water Quality	$500,000	$500,000	$375,000	$75,000	general obligation bond funds	$0	Yes
41	Bridge Drainage System Design for 3 Whitewater River Bridges	233	Water Quality	$250,000,000	$235,000,000	$3,000,000	$0		$0	Yes
42	Master Drainage Plan Implementation - Cathedral City South	236	Water Quality	$4,900,000	$4,300,000	$3,600,000	$0		$0	Yes
43	Palm Springs Unified School District - Storm Drain Outflow Transport Contamination	239	Water Quality	$10,000,000	$8,800,000	$1,000,000	$0		$0	Yes
44	Groundwater Protection- Cathedral City Cove Drainage System 4	240	Water Quality	$1,500,000	$1,200,000	$50,000	$0		$0	Yes

#	Project Title	ID	#REF!	Estimated Maximum Project Cost	Estimated Minimum Project Cost	Grant Funds Requested	Estimated Local Match Amount	Describe Match Type	Annual Operations Maintenance Cost	Ready for Prop 84 Impl Grant
45	Palm Springs Line 43 and 43a	242	Water Quality	$180,000,000	$140,000,000	$2,000,000	$0	District CIP funds	$0	No
46	Mid Valley Pipeline Phase II	182	Water Supply	$25,000,000	$20,000,000	$10,000,000	$10,000,000	CIP	$1,000,000	Yes
47	Belardo Road Pipeline Replacement	188	Water Supply	$375,000	$325,000	$243,750	$65,000	DWA capital improvement funds	$0	Yes
48	Well Pumping Plants 44 and 45 of the Palm Springs Main Well Field	190	Water Supply	$2,000,000	$1,800,000	$450,000	$1	N/A	$400,000	No
49	Posse Park Surface Water Treatment Plant	191	Water Supply	$52,406,000	$41,924,800	$30,000,000	$12,000,000	CIP funds	$1,863,000	Yes
50	Groundwater Elevation Monitoring--Regional project of CVRWMG	192	Water Supply	$100,000	$100,000	$75,000	$0		$0	No
51	Information Systems--a Regional Project of CVRWMG	193	Water Supply	$100,000	$100,000	$75,000	$0		$0	No
52	Treated Agricultural Drain Water for agricultural irrigation	198	Water Supply	$40,000,000	$2,000,000	$7,000,000	$25	CIP funds and in-kind services	$0	No
53	Siting studies, EIR and design of Colorado River Water Treatment Facility for municipal use	199	Water Supply	$70,000,000	$50,000,000	$10,000,000	$0		$0	No
54	Eastern Coachella Valley Water Supply Project	207	Water Supply	$25,000,000	$10,000,000	$2,000,000	$500,000	CIP and in-kind servces	$1,000,000	Yes
55	BDCP and DHCCP	214	Water Supply	$6,879,390	$6,879,390	$5,101,250	$525,313	DWA and CVWD reserves.	$0	Yes
56	Fargo Canyon Spreading Facility	216	Water Supply	$45,000,000	$30,000,000	$10,000,000	$10,000,000	Additional funding provided by water purveyor utilizing groundwater storage opportunity.	$0	Yes
57	1400 Zone Facilities	218	Water Supply	$30,504,000	$30,504,000	$22,900,000	$0	CIP funds	$0	Yes
58	Mission Creek/ Garnet Hill Subbasins Monitoring Program	222	Water Supply	$10	$7	$5	$0	MSWD operating budget	$0	Yes
59	Coachella Valley Groundwater Model	227	Water Supply	$180,000,000	$53,000,000	$39,000,000	$0		$2,600,000	Yes
60	Coachella Valley Salt and Nutrient Management Plan	243	Water Supply	$7,000,000	$6,000,000	$5,000,000	$1,000,000	In-kind services from CVRWMG agencies.	$5,000	Yes
61	Pierce Community Infrastructure - Regional Water Treatment Facility (North)	245	Water Supply	$3,000,000	$1,500,000	$3,000,000	$0		$0	Yes
62	St. Anthony of the Desert - Water Treatment Facility	246	Water Supply	$12,000,000	$12,000,000	$12,000,000	$0		$0	Yes
63	Pierce Community Infrastructure – Water Extension Supply (South Section)	247	Water Supply	$600,000	$400,000	$575,000	$0		$0	Yes
64	Harrison Street (Sunbird and surrounding cluster)	248	Water Supply	$2,100,000	$2,100,000	$2,100,000	$0		$0	Yes
65	South Mecca Plan	250	Water Supply	$7,900,000	$7,100,000	$3,500,000	$0		$0	Yes
66	Surface Water Treatment Study	251	Water Supply	$2,000,000	$500,000	$1,000,000	$0	CIP funds	$0	Yes
67	Recycled Water Feasibility Study	253	Water Supply	$150,000	$125,000	$112,500	$37,500	CIP funds	$0	Yes
68	Short Term Arsenic Treatment Program	254	Water Supply	$300,000	$200,000	$225,000	$75,000	No match, Local and In-kind will be provided for training and operations	$0	Yes







Appendix C: Public Outreach and Communications Plan

This appendix contains the Public Outreach and Communications Plan that was created for the Coachella Valley Integrated Regional Water Management Program.

Public Outreach and Communications Plan

Coachella Valley Integrated Regional Water Management Program

Prepared for:	Coachella Valley Regional Water Management Group Coachella Valley Planning Group
Prepared by:	Alison Hill and Rosalyn Stewart (RMC) Daniel Cozad (IPM)
Reviewed by:	Tom West (RMC)
Date:	Updated October 19, 2010
Reference:	0264-001.00

1 Introduction

The Coachella Water Authority (CWA), Coachella Valley Water District (CVWD), Desert Water Agency (DWA), Indio Water Authority (IWA), and Mission Springs Water District (MSWD) – collectively referred to as the Coachella Valley Regional Water Management Group (CVRWMG) – have undertaken an Integrated Regional Water Management (IRWM) program consistent with guidelines established by the California Department of Water Resources (DWR). The IRWM planning process is intended "to coordinate and share information concerning water supply planning programs and projects, and to improve and maintain overall communication among the partners involved" (from Section 3.1.1 of September 2008 MOU). This effort will address the Coachella Valley IRWM Region boundaries identified through DWR's Region Acceptance Process.

The CVRWMG is currently initiating a stakeholder outreach process to help support development and adoption of an IRWM Plan. The IRWM Plan will provide a mechanism for:

1) Coordinating, refining, and integrating existing water resources planning efforts within a comprehensive, regional context;
2) Identifying specific regional priorities for implementation projects; and
3) Generating funding support for the plans, programs, projects, and priorities of existing agencies and stakeholders.

In addition to supporting the integrated management of water resources in the region, the IRWM Plan will meet the minimum guidelines established by DWR and qualify the Coachella Valley IRWM Region to receive grant funding through Propositions 84, 1E, and other sources.

Building understanding and support for the IRWM program and grant application processes among key stakeholders, as well as the general public, is critical to the success of the ongoing program. A proactive approach to implementing public outreach and information dissemination will assist the CVRWMG in generating broad-based support for the effort. This document identifies a variety of outreach mechanisms that will improve general awareness of the Coachella Valley IRWM program and provide means for all interested parties to stay engaged during the planning process and plan implementation.

This Public Outreach and Communications Plan is organized into the following components:

- Stakeholder Coordination and Public Involvement
- Disadvantaged Communities (DAC) Outreach
- Tribal Outreach and Coordination

This Plan will be updated as needed throughout the IRWM planning process as stakeholder outreach and communication methods are refined.

2 Stakeholder Coordination and Public Involvement

2.1 Purpose

The goal of the stakeholder coordination effort is to provide a means for the region's various entities with interests and/or authority over water management in the region to maintain an active level of involvement in the IRWM program and implementation of the IRWM Plan. These entities have a vested interest in local water resources and can assist in articulating the needs of the Region during the planning phase, as well as implementing projects during implementation phases. These are also the entities with the greatest potential to oppose the IRWM planning effort if not engaged. Opposition to the IRWM Plan by entities with water management authority could present a significant obstacle to IRWM Plan implementation if these groups are not given ample opportunity to participate and engage in the planning effort.

The goal of public involvement is to increase awareness, understanding, and support for the Coachella Valley IRWM planning effort among the general public. The benefits of keeping the general public informed of the IRWM program and subsequent IRWM Plan implementation include educating constituents and politicians about the importance and interrelation of water management strategies, increasing regional as well as local support for projects, and generating broad-based support for continued regional coordination.

2.2 Participants

All interested stakeholders and members of the general public are invited to maintain coordination with the CVRWMG and the subsequent long-term institutional structure.

Individuals representing the following groups have been identified as potential stakeholders:

- State, county and municipal governments
- Community councils
- Environmental conservation and natural resources organizations
- Resource agencies and special interest groups
- Flood control districts
- Farm Bureau and agricultural interests
- Academic institutions
- Regional planning organization
- Stormwater management agencies
- Wastewater and water agencies
- School districts
- Private pumpers and large landscape irrigators
- Disadvantaged and environmental justice communities
- Elected officials
- Tribes
- Recreational interests
- Regulatory agencies
- Building Industry Association

Interested members of the general public may include:

- Private homeowners
- Landscape architects and contractors
- Chambers of commerce
- Commercial, industrial, and residential developers
- Home owners associations
- Garden clubs and organizations
- Rotary clubs and other service clubs

Table 4 (at the end of this Plan) lists of all Coachella Valley IRWM region stakeholders. All stakeholders identified by the CVRWMG and Planning Partners (discussed below) have been contacted and invited to participate in the program.

2.2.1 Planning Partners

One of the first steps in soliciting public involvement was to establish a list of key stakeholders that can serve in an advisory capacity. This advisory group, otherwise referred to as the Planning Partners, were established early in the IRWM planning process to help the CVRWMG identify the preliminary list of critical water resources issues that should be the focus of early stakeholder meetings. The Planning Partners consist of CVRWMG partners and other stakeholders in the region, including the County of Riverside, Coachella Valley cities, special districts, public agencies, non-governmental organizations, and tribes.

The Planning Partners played a valuable role in shaping key elements of the IRWM Plan, such as helping to establish goals and objectives, developing prioritization criteria for projects, reviewing and weighing in on draft IRWM Plan chapters, and implementing Plan activities. An advisory group's membership may be changed from time to time by the CVRWMG, as appropriate for ongoing management of the IRWM program. The goal of the Planning Partners is balanced membership and participation from representatives of all significant water resource issue areas in the Valley. **Table 1** below provides a current list of the Planning Partners; however, additional Partners may be added as the IRWM program evolves.

The Planning Partners are expected to meet on a quarterly basis to provide recommendations on IRWM planning and funding application activities. At a minimum, meetings would be held during key program milestones, including project solicitation and prioritization and development of the IRWM Plan Update. Meetings may be held at variable times of day as needed and in different geographic locations within the Region. As appropriate, meetings would be located in disadvantaged areas to facilitate attendance by members of the local public.

The Planning Partners are the primary advisory group for development of the IRWM Plan. They are involved with all facets of Plan development and implementation. They comprise many of the project submissions and are therefore essential to implementation of the Plan. Planning Partners also provide support for public outreach efforts. The public who may wish to participate in the IRWM planning process may contact their city and district representatives of the Planning Partners, and may interact with any member of the Planning Partners that they wish.

Table 1. Coachella Valley Planning Partners

No.	Agency / Organization
CVRWMG	
1	City of Coachella / Coachella Water Authority
2	City of Indio / Indio Water Authority
3	Coachella Valley Water District
4	Desert Water Agency
5	Mission Springs Water District
Planning Partners	
1	Agua-Caliente Band of Cahuilla Indians
2	Augustine Band of Cahuilla Indians
3	Cabazon Band of Mission Indians
4	California Rural Legal Assistance Foundation
5	City of Cathedral City
6	City of Desert Hot Springs
7	City of Indian Wells
8	City of La Quinta
9	City of Palm Desert
10	City of Palm Springs
11	City of Rancho Mirage
12	Coachella Valley Association of Governments
13	Coachella Valley Economic Partnership
14	Colorado River Regional Water Quality Control Board
15	County of Riverside
16	Desert Alliance for Community Empowerment
17	Friends of the Desert Mountains
18	Morongo Band of Mission Indians
19	Myoma Dunes Mutual Water Company
20	Poder Popular
21	Representative from Assemblymember Perez
22	Representative from Supervisor Ashley
23	Representative from Supervisor Benoit
24	Riverside County Flood Control and Water Conservation District
25	Salton Community Services District
26	Torres-Martinez Desert Cahuilla Indians
27	Twenty-Nine Palms Band of Mission Indians
28	U.S. Bureau of Indian Affairs
29	Valley Sanitary District

2.2.2 Issues Groups

One of the roles of the Planning Partners and the CVRWMG is to identify issues that will require specific stakeholders groups, called Issues Groups, to properly address. To date, two Issues Groups have formed: Disadvantaged Communities (DAC) and Native American Tribes. Participation in Issues Groups is open

to any stakeholder who consistently participates, and the Issues Groups may select their co-chairs or defer to the consulting team for leadership.

DAC Issues Group

DAC needs and issues were identified as special and different than other groups at the initiation of planning efforts. The DAC Issues Group and meetings began in May 2010. **Table 2** indicates the principal participants who are represented in meetings.

Table 2: DAC Issues Group Participants

Name	Organization
Anna Lisa Vargas	Poder Popular
Betty Leehan	Desert Edge Community Council
Cindy Nance	Desert Edge Community Council
Debbie Davis	Environmental Justice Coalition for Water
Ed Houser	Desert Edge Community Council
Elanor Dullen	Desert Edge Community Council
Jeff Hays	Desert Alliance for Community Empowerment
Jennifer Clary	Clean Water Action
Jennifer Hernandez	California Rural Legal Assistance Foundation
Jose Huerta	Poder Popular
Laurel Firestone	Community Water Center
Martha Guzman Aceves	California Rural Legal Assistance Foundation
Megan Beaman Carlson	California Rural Legal Assistance Foundation
Miriam Torres	Environmental Justice Coalition for Water
Rita Sonnenberg	Desert Edge Community Council
Sergio Carranza	Pueblo Unido CDC
Yvonna Cazares	Environmental Justice Coalition for Water

Native American Tribes Issues Group

The Native American Tribes Issues Group has been active and brings specific issues of cultural water use and special needs related to sovereign tribes in the region. Tribal principals, as well as representatives the U.S. Bureau of Indian Affairs, were included. **Table 3** indicates the principal participants who are represented in meetings. Tribal representatives are also included as Planning Partners for the development of the Plan. Separate Tribal group meetings will be held as needed to facilitate their participation and ensure their issues are appropriately reflected during Plan implementation.

Table 3: Native American Tribes Issues Group Participants

Contact Person	Division/Title	Organization
Richard M. Milanovich	Chairman	Agua-Caliente Band of Cahuilla Indians
Mary Ann Green	Chairwoman	Augustine Band of Mission Indians
John James	Chairman	Cabazon Band of Mission Indians
Robert Martin	Chairman	Morongo Band of Mission Indians
Mary L. Resvaloso	Chairperson	Torres-Martinez Desert Cahuilla Indians
Dean Mike	Chairman	Twenty-Nine Palms Band of Mission Indians
Kim Schneider	Palm Springs Agency	Bureau of Indian Affairs
Robert Eben	Superintendant Southern California Agency	Bureau of Indian Affairs
Dale Morris	Pacific Region, Regional Director	Bureau of Indian Affairs

2.3 Outreach Activities

CVRWMG believes that public access is critical to the success of the IRWM process. The CVRWMG will take a strategic approach to public outreach using the following tactics:

A. Develop an initial public outreach plan that can be executed by any combination of agency staff or consultants.
B. Determine best management practices for the dissemination of information for public review and for public input (e.g. print media, agency public information personnel, email and website).
C. Make suggestions for establishing public meetings or reformatting of current meeting schedules to allow for public participation.
D. Refine the timeline for the IRWM process in such a way that appropriate dates for notification of public meetings, workshops, sub-committee meeting, etc. can be documented and addressed in a logical and orderly manner.
E. Apprise the members at each meeting, and sooner if necessary, as to the issues and needs for supporting public outreach.

The public is notified of meetings and given specific contact information, and participants are given sufficient time to prepare. The first opportunity for the public to attend IRWM program meetings was concurrent with the RAP application in October 2009; the second opportunity was during the IRWM Plan development process in June 2010; the third was for public comment on the Draft IRWM Plan in November 2010. The CVRWMG expects that as the process evolves, the process of soliciting the input, help and support of the public will also evolve.

Workshops are the core of stakeholder and public participation. Initial stakeholder workshops were aimed at formulation of interest groups for more specific development of concepts and funding proposals. The public workshops and Issues Groups are organized to help guide the actions and policies of the CVRWMG and support continuous development of the proposed IRWM Plan. The CVRWMG recognizes the need and importance of public participation and will work diligently to make sure that not only the public is listened to, but that it's valuable advice helps create the best IRWM process possible for the region.

2.3.1 Public Workshops

Public Workshops have, and will continue to be, conducted to enable stakeholders and the general public to help guide the actions and policies of the CVRWMG, as well as support the development of the proposed IRWM Plan. An initial goal of the Public Workshops was to break out into Issues Groups for more specific identification and confirmation of the critical water resources issues in the Valley.

Workshop topics could include water cost management, groundwater, water quality, water conservation, habitat conservation, and flood control. Due to increased emphasis on stormwater/flood management at the State level, the CVRWMG will focus on engaging stormwater/flood management interests in the IRWM planning process to support enhancement of the flood control component of the IRWM Plan.

Public Workshops may be held at variable times of day as needed and in different geographic locations within the Region. As appropriate, meetings will be located in disadvantaged areas to facilitate attendance by members of the local public.

Workshop preparation will include public meeting notices and invitations, development and distribution of Issues Group presentations, meeting handouts and minutes, distribution of comment/feedback questionnaires, and compilation and summarization of public responses obtained during the workshops.

Website

A Coachella Valley IRWM website (http://www.cvrwmg.org/) was developed as a key component of the regional outreach program. The website contains a wealth of information about the IRWM program, including: explanation of the IRWM program and funding opportunities; issues identification, goals and objectives, and other planning materials; the adopted IRWM Plan (once final); information about potential IRWM projects to be included in Proposition 84 and 1E grant applications; information about the CVRWMG; CVAC and Issues Group meeting agendas, summaries, and presentations; and other helpful links. The website will continue to be added to and amended as the IRWM program continues.

Newsletters

Information regarding upcoming meetings may be relayed to the general public via fliers posted at community facilities, city and county office buildings, and announcements published in local newspapers and organizational newsletters. An electronic newsletter may be produced quarterly and at major milestones of the IRWM program, as needed to ensure stakeholders are being engaged.

Press Releases

Local newspapers will be encouraged to provide coverage of meetings or to provide updates on the progress of IRWM planning efforts. Media relations provide a credible and economic approach to achieving widespread dissemination of key project information. Studies show that information presented to the public through a third party, such as the media, is more readily believed by the public, as opposed to advertising or other methods of information coming directly from the source. Primary press outreach will be associated with kickoff and early awareness efforts early in the project. Press releases may be released quarterly and at major milestones of the IRWM program, including an open Call for Projects and IRWM Plan approval, but may be issued at other important junctures.

On-Line Project Database

To facilitate communications among planners and project proponents, the CVRWMG has commissioned an on-line project database aimed at providing universal access to information about IRWM projects in the Coachella Valley region. The project database allows project proponents and other interested parties to add, edit, and review project proposals throughout the region. This tool, coupled with the Public Workshops, is intended to connect stakeholders with one another to identify and enhance synergies among projects, hopefully leading to better integration and stronger partnerships. The on-line project database will also enhance CVRWMG efforts to inform the general public about "what is IRWM" through concrete project examples.

Correspondence

An electronic distribution list of stakeholders and interested parties, and any special subgroups, will be developed and maintained. E-mail notices, the primary method of communication, will be sent to announce the availability of new materials on the Coachella Valley IRWM website, meeting minutes, and upcoming meetings.

3 Disadvantaged Communities Outreach

3.1 Purpose

The goal of disadvantaged communities (DAC) outreach is to identify and obtain input from groups that may be otherwise restricted from participating in the IRWM planning and implementation efforts due to financial constraints. Through targeted outreach, the CVRWMG seeks to learn more about the major water-related concerns facing these groups such that long-term implementation of the IRWM Plan is responsive to those needs.

3.2 Participants

Numerous local and State-wide DAC and environmental justice organizations were targeted during outreach for the Coachella Valley IRWM program:

A. California Rural Legal Assistance Inc. / Foundation (CRLA)
B. Clean Water Action
C. Community Water Center
D. Desert Alliance for Community Empowerment
E. Desert Edge Community Council
F. Environmental Justice Coalition for Water (EJCW)
G. Pueblo Unido CDC
H. Poder Popular
I. Inland Congregation United for Change (ICUC)

Environmental justice (EJ) is defined by the USEPA as "the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and environmental of environmental laws." Outreach to organizations also involved with EJ issues ensures that water management activities implemented under the Coachella Valley IRWM program do not unduly burden DACs (e.g., through plant siting decisions).

Communities targeted as part of the DAC and EJ outreach are groups that have historically been disproportionately impacted with respect to the development, implementation, or enforcement of environmental laws, regulations, and policies due to race, culture, or income. The CVRWMG will work to tailor a more regionally-specific definition of a DAC and identify representatives of those communities. Table 2 above provides a list of participants in the DAC Issues Group.

3.3 Outreach Activities

DAC/EJ Outreach Meetings

The CVRWMG will host up to six (6) meetings with DAC/EJ members to better understand their critical water supply and water quality needs and to identify potential solutions. Initial meetings will focus on bringing any groups that were not involved in the earlier efforts up to speed and informing all groups about recent activities and opportunities. Subsequent meetings will expand the methods of outreach in DAC/EJ communities, update those groups which may not be able to attend or participate in broader CVAC meetings, and develop IRWM planning efforts to meet the needs of each community.

Meetings will be held at times convenient for DAC/EJ representatives (recognizing that this may include evenings and/or weekends) and in different geographic locations within the Region.

Meeting preparation will include public meeting notices and invitations, development and distribution of presentations, meeting handouts and minutes, and coordination of speakers/presenters.

Notices and Newsletters

CVRWMG staff will work with community leaders to identify appropriate methods for notifying members of DAC/EJ communities of the current state of the Valley's water-related resources, the IRWM program, and solutions being generated to address their needs. These methods may include techniques such as notices at community gathering sites, multi-lingual newsletters, mailings, phone surveys, door-to-door surveys, or public meetings within the communities. The focus of these efforts will be to identify the critical needs of the targeted communities. Once identified, these critical needs will be translated into long-term targets for the IRWM Plan. In addition, one-on-one communication between representatives from DACs and the CVRWMG will be used to encourage participation in IRWM public meetings.

CVRWMG Coordination

One or more CVRWMG partner(s) will be identified as the liaison with DAC/EJ organizations, so it is clear how coordination and communication will occur. Additionally, if the CVRWMG and Planning Group determine that a permanent advisory group is appropriate and desired, at least one DAC/EJ representative should be designated to serve on the advisory group.

DAC Outreach Demonstration Project

The CVRWMG has identified the opportunity for more comprehensive efforts relating to DAC outreach and has submitted a DAC Outreach Demonstration Project proposal to DWR for potential funding. If funding is approved, the following additional goals will be achieved as part of the DAC Outreach effort:

- Development of a DAC Community Planning Group to represent one of the Issues Groups;
- At least five (5) DAC Workshops addressing specific community needs;
- Coordination with Community Leaders;
- Flood Control Mapping in DAC Areas;
- Preparation of a DAC IRWM Plan Element;
- DAC Outreach Demonstration Project White Paper.

Correspondence

DAC or EJ communities will have direct connection with a CVRWMG liaison and possibly an advisory group representative. Communication will be conducted mainly via telephone and email; however, office visits may be arranged as feasible. Through one-on-one communication, the CVRWMG will encourage participation by DAC representatives in IRWM public meetings.

4 Tribal Outreach and Coordination

4.1 Purpose

The goal of engaging the Valley's tribal governments is to better understand their critical water resources issues and needs. Through targeted outreach, the CVRWMG seeks to learn more about the major water-related concerns facing the tribes such that long-term implementation of the IRWM Plan is responsive to those needs.

4.2 Participants

Tribal participants were contacted based on input from currently identified tribal representatives and the Planning Partners. The following six Native American tribes in the region were targeted during outreach for the IRWM program:

- Agua Caliente Band of Cahuilla Indians
- Augustine Band of Mission Indians
- Cabazon Band of Mission Indians
- Morongo Band of Mission Indians
- Torres-Martinez Desert Cahuilla Indians
- Twenty-Nine Palms Band of Mission Indians

Additionally, meetings may include the Bureau of Indian Affairs or other tribal coordinating agencies or groups as appropriate.

4.3 Outreach Activities

Tribal Outreach Meetings

The CVRWMG will host up to six (6) meetings with tribal representatives to better understand their critical water supply and water quality needs and to identify potential solutions. Tribal outreach meetings, however, will be based on the interest and availability of the tribal representatives. Tribal outreach meetings will inform the tribes about the IRWM program and its purpose, the local IRWM planning process, and upcoming funding opportunities. They will focus on clarifying the tribe's water resources issues and needs, and identifying integrated project concepts that address those needs. In addition, tribal outreach meetings will carefully review the different coordination and governance issues needed for Sovereigns in the Coachella Valley IRWM region.

Tribal outreach meetings will be coordinated with the DAC outreach meetings, as appropriate for the issues being discussed. Individual meetings with tribal leaders and staff will also be held, if needed.

Meetings will be held at times convenient for tribal representatives (recognizing that this may include evenings and weekends) and in different geographic locations within the Region.

Meeting preparation will include public meeting notices and invitations, development and distribution of presentations, meeting handouts and minutes, and coordination of speakers/presenters.

Notices and Newsletters

CVRWMG staff will work with community leaders to identify appropriate methods for notifying members of the tribes of the current state of the IRWM program and timing of project submittals. These methods may include techniques such as notices at community gathering sites, newsletters, or mailings. The focus of these efforts will be to identify the tribes' critical water resources needs and how those are represented in the IRWM Plan. In addition, one-on-one communication between tribal representatives and the CVRWMG will be used to encourage participation in IRWM public meetings.

CVRWMG Coordination

One or more CVRWMG partner(s) will be identified as the liaison with tribal governments, so it is clear how coordination and communication will occur. Additionally, if the CVRWMG and Planning Group determine that a permanent advisory group is appropriate and desired, at least one tribal representative should be designated to serve on the advisory group.

Correspondence

Tribal members will have direct connection with a CVRWMG liaison and possibly an advisory group representative. Communication will be conducted mainly via telephone and email; however, office visits may be arranged as feasible. Through one-on-one communication, the CVRWMG will encourage participation by tribal representatives in IRWM public meetings.

Table 4: Coachella Valley IRWM Stakeholder List

Agency	Contacted	Stakeholder List	Planning Partner
Cities			
City of Cathedral City	✓	✓	✓
City of Coachella	✓	✓	✓
City of Desert Hot Springs	✓	✓	✓
City of Indian Wells	✓	✓	✓
City of Indio	✓	✓	✓
City of La Quinta	✓	✓	✓
City of Palm Desert	✓	✓	✓
City of Palm Springs	✓	✓	✓
County of Riverside			
Riverside County Transportation and Land Management Agency	✓	✓	
Riverside County Department of Health	✓	✓	
Riverside County Regional Park District	✓	✓	
Riverside County Economic Development Agency	✓	✓	
Riverside County Flood Control and Water Conservation District	✓	✓	✓
Supervisor Benoit's office	✓	✓	
Supervisor Ashley's office	✓	✓	
Community Councils	✓		
Bermuda Dunes Community Council	✓	✓	
Desert Edge Community Council	✓	✓	✓
Desert Palms Community Council	✓	✓	
Indio Hills Community Council	✓	✓	
Mecca Community Council	✓	✓	
North Shore Community Council	✓	✓	
Oasis Community Council	✓	✓	
Sky Valley Community Council	✓	✓	
Thermal Community Council	✓	✓	
Thousand Palms Community Council	✓	✓	
Vista Santa Rosa Community Council	✓	✓	
Elected Officials	✓		
Congresswoman Mary Bono Mack	✓		
Senator John Benoit	✓		
Senator Denise Moreno Ducheny	✓		
Assemblyman Brian Nestande (64th Dist.)	✓		
Assemblyman Manuel Perez (80th Dist.)	✓		✓
Resource Agencies	✓		
California Department of Fish and Game	✓	✓	
California Department of Water Resources	✓	✓	✓
Colorado River Regional Water Quality Control Board	✓	✓	✓
U.S. Bureau of Indian Affairs	✓	✓	✓
U.S. Bureau of Land Management	✓	✓	
Special Interests	✓		
Big Morongo Preserve	✓		
Bighorn Research Institute	✓	✓	
Building Industry Association	✓	✓	
Center for Natural Land Management (fringed toed lizard preserve)	✓	✓	
Coachella Valley Archaeological Society	✓	✓	

Table 4: Coachella Valley IRWM Stakeholder List

Agency	Contacted	Stakeholder List	Planning Partner
Coachella Valley Association of Governments	✓	✓	
Coachella Valley Conservation Commission	✓	✓	
Coachella Valley Mosquito and Vector Control	✓	✓	
Coachella Valley Mountains Conservancy	✓	✓	
Coachella Valley Parks and Recreation District	✓	✓	
Coachella Valley Resource Conservation District	✓	✓	
Deep Canyon Desert Research	✓	✓	
Desert Alliance for Community Empowerment	✓	✓	✓
Friends of the Desert Mountains	✓	✓	✓
Groundwater Guardians	✓	✓	
Hi-Lo Golf Course Superintendents Association	✓	✓	
League of Women Voters	✓	✓	
Sierra Club	✓	✓	
Wildlands Conservancy	✓	✓	
Tribes			
Agua-Caliente Band of Cahuilla Indians	✓	✓	✓
Augustine Band of Mission Indians	✓	✓	✓
Cabazon Band of Mission Indians	✓	✓	✓
Morongo Band of Mission Indians	✓	✓	✓
Torres-Martinez Desert Cahuilla Indians	✓	✓	✓
Twenty-Nine Palms Band of Mission Indians	✓	✓	✓
Inter-tribal Council	✓	✓	
School Districts			
Coachella Valley Unified School District	✓	✓	
Desert Sands Unified School District	✓	✓	
Palm Springs Unified School District	✓	✓	
Other Water/Wastewater Companies			
Myoma Dunes Mutual Water Company	✓	✓	
Valley Sanitary District	✓	✓	
Private Pumpers and Large Irrigators	✓	✓	
Agricultural pumpers	✓	✓	
Home Owners' Associations	✓	✓	
Golf courses	✓	✓	
Cocopah Nursery	✓		✓
Disadvantaged Community Organizations	✓		✓
California Rural Legal Assistance Foundation	✓		✓
Environmental Justice Coalition for Water	✓		✓
Poder Popular	✓		✓
Pueblo Unido CDC	✓		✓
Rural Community Assistance Corporation	✓		✓







Appendix D: Coachella Valley IRWM Plan Project Performance Measures

This appendix contains information regarding performance measures that may be used to measure the performance for each submitted implementation project. These performance measures are intended to serve as measurable benchmarks for establishing success of projects following implementation.

Appendix D

Coachella Valley IRWM Plan

Project Performance Measures: Objectives A - F

Coachella Valley IRWM Plan Objectives		A	B		C		D				E					F	
		Performance Measures															
		Average year, single-year dry, and multi-year dry supplies available by water purveyor	Groundwater elevation monitoring	Land surface/subsidence monitoring	Volume of new imported water supply (AFY) secured	Activities associated with securing State Water Project supply	Urban per capita water use (GPCD)	Volume of recycled water supplies (AFY) utilized	Volume (AFY) of stormwater captured and infiltrated	Volume of canal water (AFY) desalinated	Groundwater quality monitoring	Arsenic concentration in East Valley drinking water supply	Number of septic systems converted to municipal sewer	Frequency and volume of sanitary sewer overflows	Preparation/Adoption of regional Salt and Nutrient Management Plan	Implementation of TMDL requirements	Volume of natural runoff (AFY) used for drinking water
#	Project Title	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	DMMs for CVRWMG Partners	○	○					●					○				
2	Desert Hot Springs Community Gardens	○	○					●					○				
3	Resource Action Programs	○	○					○									
4	Smart Water Conservation Programs	○	○					●					○				
5	Achieve 14 percent reduction in Agricutural Water Use	○	○					●					○				
6	Ramon Road Corridor - Improve Flood Protection							○					●			○	
7	Implementation of Projects in Garnet Wash and Tributaries Master Plan							○					●			○	
8	East Cathedral Canyon Channel Levee Restoration																
9	Verbena Channel							○					●			○	
10	Stormwater Master Plan																
11	Whitewater River Levee Restoration																
12	Flood Control and Recycling of Storm, Non Storm Run Off Water - Desert Cove Golf Course							○					○				
13	Implementation of Projects in East Wide Channel, Long Canyon and Tributaries Master Plan															○	
14	Groundwater Quality Protection and Floodplain Management - Eagle Canyon Dam and Lines 43 and 41																
15	Implementation of projects for Cathedral City Master Plan																
16	Implementation of projects in the Palm Springs area Master Drainage Plan																
17	Implement projects in the Desert Hot Springs Area Master Drainage Plan																

Coachella Valley IRWM Plan Objectives		A	B		C		D				E					F	
		Performance Measures															
		Average year, single-year dry, and multi-year dry supplies available by water purveyor	Groundwater elevation monitoring	Land surface/subsidence monitoring	Volume of new imported water supply (AFY) secured	Activities associated with securing State Water Project supply	Urban per capita water use (GPCD)	Volume of recycled water supplies (AFY) utilized	Volume (AFY) of stormwater captured and infiltrated	Volume of canal water (AFY) desalinated	Groundwater quality monitoring	Arsenic concentration in East Valley drinking water supply	Number of septic systems converted to municipal sewer	Frequency and volume of sanitary sewer overflows	Preparation/Adoption of regional Salt and Nutrient Management Plan	Implementation of TMDL requirements	Volume of natural runoff (AFY) used for drinking water
#	Project Title	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
18	Tahquitz Creek Levee Reconstruction												○			○	
19	Master Drainage Plan Implementation - Ramon Road Corridor							●					●			○	
20	Palm Springs MDP line 41							○					●			○	
21	Eagle Canyon Dam															●	
22	Desert Cahuilla Wetlands Expansion																
23	Construct Wetland, Riparian, and Pupfish Habitat for CVMSHCP and NCCP																
24	Perris Dam Remediation Program																
25	Region	●	○					○					○			○	
26	Water, Sewer and Drainage - North City Specific Plan	●	○					○					○			○	
27	Desert Edge Geothermal Water Conservation and Preservation							○					●				
28	Little Tuscany Sewer Improvements							○					●				
29	Water Recycling Efficiency and Capacity Improvement Project		○					●					○				
30	IWA Recycled Water Program	●	●					●									
31	Groundwater Quality Protection Perez Road Sewers							○					●				
32	Groundwater Quality Protection - West Cathedral City Septic Tank Replacement							○					●				
33	Pierce Community Infrastructure - Sewer Sanitary Collection System (North)							○					●				
34	Groundwater Quality Protection South City Improvement District (SCID)							○					●				
35	Groundwater Quality Protection Project							○					●				
36	Short Term Arsenic Treatment Program							●								●	

Coachella Valley IRWM Plan Objectives		A	B		C		D				E					F	
		Performance Measures															
		Average year, single-year dry, and multi-year dry supplies available by water purveyor	Groundwater elevation monitoring	Land surface/subsidence monitoring	Volume of new imported water supply (AFY) secured	Activities associated with securing State Water Project supply	Urban per capita water use (GPCD)	Volume of recycled water supplies (AFY) utilized	Volume (AFY) of stormwater captured and infiltrated	Volume of canal water (AFY) desalinated	Groundwater quality monitoring	Arsenic concentration in East Valley drinking water supply	Number of septic systems converted to municipal sewer	Frequency and volume of sanitary sewer overflows	Preparation/Adoption of regional Salt and Nutrient Management Plan	Implementation of TMDL requirements	Volume of natural runoff (AFY) used for drinking water
#	Project Title	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
37	Implementation of Total Maximum Daily Load Best Management Practices	●	●		●				●								
38	Pierce Community Infrastructure – Water Extension Supply (South Section)								○				●			○	
39	Evaluate Stormwater Recharge Opportunities within the Desert Hot Springs MDP															●	
40	Harrison Street (Sunbird and surrounding cluster)												●				
41	Palm Springs Line 43 and 43a												●				
42	Whitewater River Region and Coachella Valley Stormwater Channel Site Specific Objective Evaluation												●				
43	Palm Springs Unified School District - Storm Drain Outflow Transport Contamination												●				
44	Bridge Drainage System Design for 3 Whitewater River Bridges								○				●			○	
45	Identification of Septic Wastewater Plumes in the MSWD Service Area												●				
46	Master Drainage Plan Implementation - Cathedral City South	●											●				
47	Groundwater Protection- Cathedral City Cove Drainage System 4	●											●				
48	College Of the Desert MTC Infrastructure	●	○		●				●				○				
49	Posse Park Surface Water Treatment Plant	●	○		○				○				○				
50	Fargo Canyon Spreading Facility	●	○		●				●								
51	BDCP and DHCCP	●							●				●			●	
52	Coachella Valley Salt and Nutrient Management Plan	○	○						○								
53	Recycled Water Feasibility Study	●											●				
54	Eastern Coachella Valley Water Supply Project	●											●				

Coachella Valley IRWM Plan Objectives		A	B		C		D				E					F	
		Performance Measures															
		Average year, single-year dry, and multi-year dry supplies available by water purveyor	Groundwater elevation monitoring	Land surface/subsidence monitoring	Volume of new imported water supply (AFY) secured	Activities associated with securing State Water Project supply	Urban per capita water use (GPCD)	Volume of recycled water supplies (AFY) utilized	Volume (AFY) of stormwater captured and infiltrated	Volume of canal water (AFY) desalinated	Groundwater quality monitoring	Arsenic concentration in East Valley drinking water supply	Number of septic systems converted to municipal sewer	Frequency and volume of sanitary sewer overflows	Preparation/Adoption of regional Salt and Nutrient Management Plan	Implementation of TMDL requirements	Volume of natural runoff (AFY) used for drinking water
#	Project Title	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
55	Pierce Community Infrastructure - Regional Water Treatment Facility (North)	●											●				
56	St. Anthony of the Desert - Water Treatment Facility	●															
57	Belardo Road Pipeline Replacement	●															
58	1400 Zone Facilities	●	●		●												
59	Surface Water Treatment Study	●	○					●					○				
60	Mid Valley Pipeline Phase II		○										○				
61	Coachella Valley Groundwater Model		○					○					○				
62	South Mecca Plan	○	○					○					○				
63	Treated Agricultural Drain Water for agricultural irrigation	○	○					○					○				
64	Siting studies, EIR and design of Colorado River Water Treatment Facility for municipal use		○										○				
65	Mission Creek/ Garnet Hill Subbasins Monitoring Program	○															
66	Well Pumping Plants 44 and 45 of the Palm Springs Main Well Field	○															
67	Information Systems--a Regional Project of CVRWMG	○	○														
68	Groundwater Elevation Monitoring--Regional project of CVRWMG	●											●				

● Project anticipated to directly contribute to indicated objective; project must utilize at least one monitoring/performance measure (or appropriate substitute) for each objective

○ Project anticipated to indirectly contribute to indicated objective; project may utilize at least one monitoring/performance measure (or appropriate substitute) for each objective

Appendix D

Coachella Valley IRWM Plan

Project Performance Measures: Objectives G - M

Coachella Valley IRWM Plan Objectives		G		H		I		J				K		L			M	
		Performance Measures																
		Acreage/linear footage of native water-related habitat conserved or protected	Acreage/linear footage of restoration completed consistent with CVMSHCP	Number of existing properties protected by flood improvements	Number of new flood control facilities developed	Number of conjunctive use projects implemented	Volume of water supply (AFY) managed conjunctively	Presence of CVRWMG website	Number of outreach and education activities conducted on water resources topics/projects	Number of Valley population served by outreach and education activities	Number of hands-on water resources stewardship opportunities offered	Number of meetings/communications held to address Native American needs	Amount of culturally-significant resources protected on tribal lands	Number of meetings/communications held to address DAC needs	Drinking water quality monitoring in DAC areas	Number of septic systems in DAC areas converted to municipal sewer	Rate increases in terms of $/AF	Average water supply cost to income ratio
#	Project Title	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33
1	DMMs for CVRWMG Partners	○								●					●		●	
2	Desert Hot Springs Community Gardens	○								●					○		●	
3	Resource Action Programs	○								●					●		●	
4	Smart Water Conservation Programs	○								●					●		●	
5	Achieve 14 percent reduction in Agricutural Water Use	○								●					●		●	
6	Ramon Road Corridor - Improve Flood Protection	○		●		○												
7	Implementation of Projects in Garnet Wash and Tributaries Master Plan	○		●		○												
8	East Cathedral Canyon Channel Levee Restoration			●														
9	Verbena Channel	○		●		○												
10	Stormwater Master Plan			●														
11	Whitewater River Levee Restoration			●														
12	Flood Control and Recycling of Storm, Non Storm Run Off Water - Desert Cove Golf Course	○		●														
13	Implementation of Projects in East Wide Channel, Long Canyon and Tributaries Master Plan	○		●														
14	Groundwater Quality Protection and Floodplain Management - Eagle Canyon Dam and Lines 43 and 41			●								○						
15	Implementation of projects for Cathedral City Master Plan			●														
16	Implementation of projects in the Palm Springs area Master Drainage Plan			●														
17	Implement projects in the Desert Hot Springs Area Master Drainage Plan			●														

Coachella Valley IRWM Plan Objectives		G		H		I		J				K		L			M	
		Performance Measures																
		Acreage/linear footage of native water-related habitat conserved or protected	Acreage/linear footage of restoration completed consistent with CVMSHCP	Number of existing properties protected by flood improvements	Number of new flood control facilities developed	Number of conjunctive use projects implemented	Volume of water supply (AFY) managed conjunctively	Presence of CVRWMG website	Number of outreach and education activities conducted on water resources topics/projects	Number of Valley population served by outreach and education activities	Number of hands-on water resources stewardship opportunities offered	Number of meetings/communications held to address Native American needs	Amount of culturally-significant resources protected on tribal lands	Number of meetings/communications held to address DAC needs	Drinking water quality monitoring in DAC areas	Number of septic systems in DAC areas converted to municipal sewer	Rate increases in terms of $/AF	Average water supply cost to income ratio
#	Project Title	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33
18	Tahquitz Creek Levee Reconstruction	●		●														
19	Master Drainage Plan Implementation - Ramon Road Corridor	○		●														
20	Palm Springs MDP line 41	○		●		○											●	
21	Eagle Canyon Dam	○		●														
22	Desert Cahuilla Wetlands Expansion	●				●			●			●						
23	Construct Wetland, Riparian, and Pupfish Habitat for CVMSHCP and NCCP	●		●		●			●									
24	Perris Dam Remediation Program																	
25	Region	○							○			○		○				
26	Water, Sewer and Drainage - North City Specific Plan	○		○								○		○				
27	Desert Edge Geothermal Water Conservation and Preservation	●				○			●					●				
28	Little Tuscany Sewer Improvements	●				○								●			○	
29	Water Recycling Efficiency and Capacity Improvement Project																	
30	IWA Recycled Water Program																●	
31	Groundwater Quality Protection Perez Road Sewers	●				○						●		●				
32	Groundwater Quality Protection - West Cathedral City Septic Tank Replacement	●				○								●				
33	Pierce Community Infrastructure - Sewer Sanitary Collection System (North)	●				○			●									
34	Groundwater Quality Protection South City Improvement District (SCID)	●				○						●		●				
35	Groundwater Quality Protection Project	●				○								●				
36	Short Term Arsenic Treatment Program					●												

Coachella Valley IRWM Plan Objectives		G		H		I		J				K		L			M	
		Performance Measures																
		Acreage/linear footage of native water-related habitat conserved or protected	Acreage/linear footage of restoration completed consistent with CVMSHCP	Number of existing properties protected by flood improvements	Number of new flood control facilities developed	Number of conjunctive use projects implemented	Volume of water supply (AFY) managed conjunctively	Presence of CVRWMG website	Number of outreach and education activities conducted on water resources topics/projects	Number of Valley population served by outreach and education activities	Number of hands-on water resources stewardship opportunities offered	Number of meetings/communications held to address Native American needs	Amount of culturally-significant resources protected on tribal lands	Number of meetings/communications held to address DAC needs	Drinking water quality monitoring in DAC areas	Number of septic systems in DAC areas converted to municipal sewer	Rate increases in terms of $/AF	Average water supply cost to income ratio
#	Project Title	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33
37	Implementation of Total Maximum Daily Load Best Management Practices			●													●	
38	Pierce Community Infrastructure – Water Extension Supply (South Section)	○		●		○												
39	Evaluate Stormwater Recharge Opportunities within the Desert Hot Springs MDP	●				●				●								
40	Harrison Street (Sunbird and surrounding cluster)	●										●			●			
41	Palm Springs Line 43 and 43a			○														
42	Whitewater River Region and Coachella Valley Stormwater Channel Site Specific Objective Evaluation														●		●	
43	Palm Springs Unified School District - Storm Drain Outflow Transport Contamination											●			●			
44	Bridge Drainage System Design for 3 Whitewater River Bridges	○		●		○												
45	Identification of Septic Wastewater Plumes in the MSWD Service Area														●			
46	Master Drainage Plan Implementation - Cathedral City South	○								●					●		●	
47	Groundwater Protection- Cathedral City Cove Drainage System 4	○								●					●		●	
48	College Of the Desert MTC Infrastructure					●				●		●			○			
49	Posse Park Surface Water Treatment Plant			○						○								
50	Fargo Canyon Spreading Facility	○		●						●		○			○		●	
51	BDCP and DHCCP																	
52	Coachella Valley Salt and Nutrient Management Plan					○									○		○	
53	Recycled Water Feasibility Study	○								●		●			●		●	
54	Eastern Coachella Valley Water Supply Project	○								●					●		●	

Coachella Valley IRWM Plan Objectives		G		H		I		J				K		L			M	
		Performance Measures																
		Acreage/linear footage of native water-related habitat conserved or protected	Acreage/linear footage of restoration completed consistent with CVMSHCP	Number of existing properties protected by flood improvements	Number of new flood control facilities developed	Number of conjunctive use projects implemented	Volume of water supply (AFY) managed conjunctively	Presence of CVRWMG website	Number of outreach and education activities conducted on water resources topics/projects	Number of Valley population served by outreach and education activities	Number of hands-on water resources stewardship opportunities offered	Number of meetings/communications held to address Native American needs	Amount of culturally-significant resources protected on tribal lands	Number of meetings/communications held to address DAC needs	Drinking water quality monitoring in DAC areas	Number of septic systems in DAC areas converted to municipal sewer	Rate increases in terms of $/AF	Average water supply cost to income ratio
#	Project Title	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33
55	Pierce Community Infrastructure - Regional Water Treatment Facility (North)	○								●					●		●	
56	St. Anthony of the Desert - Water Treatment Facility											●					●	
57	Belardo Road Pipeline Replacement														●		●	
58	1400 Zone Facilities														●			
59	Surface Water Treatment Study					●												
60	Mid Valley Pipeline Phase II																	
61	Coachella Valley Groundwater Model					○			○			○			○			
62	South Mecca Plan								○			○					○	
63	Treated Agricultural Drain Water for agricultural irrigation								○			○			○			
64	Siting studies, EIR and design of Colorado River Water Treatment Facility for municipal use														○			
65	Mission Creek/ Garnet Hill Subbasins Monitoring Program																○	
66	Well Pumping Plants 44 and 45 of the Palm Springs Main Well Field																	
67	Information Systems--a Regional Project of CVRWMG																	
68	Groundwater Elevation Monitoring--Regional project of CVRWMG	○							○						●		●	

● Project anticipated to directly contribute to indicated objective; project must utilize at least one monitoring/performance measure (or appropriate substitute) for each objective

○ Project anticipated to indirectly contribute to indicated objective; project may utilize at least one monitoring/performance measure (or appropriate substitute) for each objective







Appendix E: Memorandum of Understanding

This appendix contains the Memorandum of Understanding that was signed by the five CVRWMG members in September 2008 for the purpose of coordinating water resources planning activities and developing and adopting an IRWM Plan.

MEMORANDUM OF UNDERSTANDING
among
CITY OF COACHELLA/COACHELLA WATER AUTHORITY, COACHELLA VALLEY WATER DISTRICT, DESERT WATER AGENCY, CITY OF INDIO/INDIO WATER AUTHORITY, AND MISSION SPRINGS WATER DISTRICT
for
DEVELOPMENT OF AN INTEGRATED REGIONAL WATER MANAGEMENT PLAN

This Memorandum of Understanding (MOU) dated Sept. 9,2008 is entered into among the City of Coachella/Coachella Water Authority, Coachella Valley Water District, Desert Water Agency, City of Indio/Indio Water Authority, and Mission Springs Water District (collectively known as Partners) for the purpose of coordinating water resources planning activities undertaken by the water agencies.

WHEREAS, each Partner has adopted a Resolution of commitment pledging to create an Integrated Regional Water Management Plan (IRWMP).

WHEREAS, it is in the interests of the signatory Partners and the region served by the Partners that these water resources are responsibly managed and conserved to the extent feasible; and

WHEREAS, the Partners wish to coordinate their long term water supply planning efforts in accordance with Section 10531 of the *Integrated Regional Water Management Planning Act of 2002* and Division 43 of the *Safe Water, Water Quality and Supply, Flood Control, River and Coastal Protection Bond Act* of 2006 (Acts); and

WHEREAS, the Partners anticipate the potential need for future agreements on specific projects or programs and with other affected agencies to further coordinate long term water supply planning.

NOW, THEREFORE, it is mutually understood and agreed as follows:

SECTION 1:
AUTHORITY OF PARTNERS

1.1 The Coachella Water Authority is a joint powers authority formed as a component of the City of Coachella and Redevelopment Agency of the City of Coachella and has statutory authority over water supply.

1.2 The Coachella Valley Water District is a public agency of the State of California organized and operating under County Water District Law, California Water Code section 30000, et seq, and Coachella District

Merger Law, Water Code section 33100, et seq. Coachella Valley Water District is a State Water Project Contractor and Colorado River Contractor empowered to import water supplies to its service area, and has statutory authority over water supply.

1.3 The Desert Water Agency is an independent special district created by a special act of the state legislature contained in chapter 100 of the appendix of the California Water Code. Desert Water Agency is also a State Water Project Contractor empowered to import water supplies to its service area, replenish local groundwater supplies, and collect assessments necessary to support a groundwater replenishment program as provided for in the Desert Water Agency Law and has statutory authority over water supply.

1.4 The Indio Water Authority is a joint powers authority formed as a component of the City of Indio and Redevelopment Agency of the City of Indio and has statutory authority over water supply.

1.5 Mission Springs Water District is a County Water District formed under Section 30000 et seq of the California Water Code and has statutory authority over water supply.

SECTION 2: DEFINITIONS

The abbreviations and capitalized words and phrases used in this MOU shall have the following meanings:

2.1 Acts – mean Section 10531 of the Integrated Regional Water Management Planning Act of 2002 and California Water Code Division 43, known as the *Safe Water, Water Quality and Supply, Flood Control, River and Coastal Protection Bond Act* of 2006

2.2 Coachella Valley Region – the watershed bounded on the North by the San Bernardino Mountains, Little San Bernardino Mountains and Mecca Hills Area, on the East by Mortmar and Travertine Rock, on the South by the Santa Rosa Mountains and San Jacinto Mountains and on the West by Stubbe Canyon.

2.3 CVWD – Coachella Valley Water District

2.4 CVRWMG – Coachella Valley Regional Water Management Group

2.5 CWA – Coachella Water Authority

2.6 DWA – Desert Water Agency

2.7 IRWMP – Integrated Regional Water Management Plan

2.8 IWA – Indio Water Authority

2.9 MSWD – Mission Springs Water District

SECTION 3:
PURPOSES AND GOALS OF THIS MOU

3.1 **Purpose and Goals:**

3.1.1 This MOU is to memorialize the intent of the Partners to coordinate and share information concerning water supply planning programs and projects and other information, and to improve and maintain overall communication among the Partners involved. It is anticipated that coordination and information sharing among the Partners will assist the agencies in achieving their respective missions to the overall well-being of the region. Coordination and information sharing shall focus on issues of common interest in Section 3.2.

3.1.2 The execution of this MOU by the Partners shall constitute the formation of a Regional Water Management Group consisting of the Partners, in accordance with the Acts. The Regional Water Management Group shall be named the Coachella Valley Regional Water Management Group(CVRWMG).

3.1.3 It is the goal of the Partners to prepare and adopt an IRWMP for the Coachella Valley Region and to implement projects and programs individually or jointly in groups that address issues of common interest, as the group so identifies.

3.2 **Common Issues and Interest:**

3.2.1 Water supply programs and projects that may provide mutual benefits in improving water supply reliability and/or water quality.

3.2.2 Coordination of near-term and long-term water supply planning activities.

3.2.3 Development of regional approaches to problem-solving and issues resolution as well as to further common interest.

3.3 **Future Agreements By Partners:** The Partners acknowledge that by virtue of commitments and intentions stated within this MOU, the need for

certain other considerations that will facilitate the preparation of an IRWMP for the Coachella Valley Region will likely emerge. These include and are not limited to:

3.3.1 Developing a Scope of Work

3.3.2 Determining the cost sharing of projects

3.3.3 Establishing methods for project management

3.3.4 Establishing a project timeline

SECTION 4:
JOINT PLANNING FOR PROJECTS AND PROGRAMS

4.1 **Projects and Programs Covered by this MOU:** it is the intent of the Partners that they coordinate and collaborate to address the common issues identified. The Partners may develop and implement projects and programs individually or jointly in groupings of two or more, or enter into additional agreements in furthering those goals. Applicable projects and programs include, but are not limited to the following:

4.1.1 Water conservation programs and other demand management programs.

4.1.2 Water recycling, desalination, groundwater basin management, and water quality improvement programs and projects.

4.1.3 Water banking, conjunctive use and transfer arrangements.

4.1.4 Storage development to improve system reliability, efficiencies, and flexibility.

4.1.5 Project and program planning and development to solicit external funding.

4.1.6 Other meritorious projects or programs consistent with the purposes of this MOU.

4.2 **Communication and Coordination:** It is the intent of the Partners to meet on a monthly basis in order to carry out the purposes and goals of this MOU. The frequency and location of meetings are subject to the discretion of the Partners and may be changed when appropriate.

SECTION 5:
GENERAL PROVISIONS GOVERNING MOU

5.1 **Term:** The term of this MOU is indefinite. Any Partner may withdraw from the MOU by written notice given at least 45 days prior to the effective date.

5.2 **Construction of Terms:** This MOU is for the sole benefit of the Partners and shall not be construed as granting rights to any person other than the Partners or imposing obligations on a Partner to any person other than another Partner.

5.3 **Good Faith:** Each Partner shall use its best efforts and work wholeheartedly and in good faith for the expeditious completion of the objectives of this MOU and the satisfactory performance of its terms.

5.4 **Rights of the Partners and Constituencies:** This MOU does not contemplate the Partners taking any action that would:

5.4.1 Adversely affect the rights of any of the Partners; or

5.4.2 Adversely affect the customers or constituencies of any of the Partners.

5.5 This document and participation in this IRWMP are nonbinding, and in no way suggest that a Partner may not continue its own planning and undertake efforts to secure project funding from any source.

5.6 It is expected that Partners will contribute the personnel and financial resources necessary to develop the IRWMP.

IN WITNESS WHEREOF, the parties have executed this Memorandum of Understanding as of the day and year indicated on the first page of this MOU.

Tim Brown, City Manager
City of Coachella:

Tim Brown, Executive Director
Coachella Water Authority:

Steve Robbins, General Manager/Chief Engineer
Coachella Valley Water District:

Dave Luker, General Manager
Desert Water Agency:

Glenn Southard, City Manager
City of Indio:

Glenn Southard, Executive Director
Indio Water Authority:

Arden Wallum, General Manager
Mission Springs Water District:

Appendix F: Letters of Support

This appendix contains letters from the Planning Partners that indicate support of the Coachella Valley IRWM Plan.







County of Riverside

RIVERSIDE OFFICE:
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DISTRICT OFFICE/MAILING ADDRESS:
73-710 Fred Waring Drive, Suite 222
Palm Desert, CA 92260-2574
(760) 863-8211
Fax (760) 863-8905

SUPERVISOR JOHN J. BENOIT
FOURTH DISTRICT

Oct. 28, 2010

Mark Cowin, Executive Director
c/o California Department of Water Resources
P.O. Box 942836
Sacramento, CA 94236

Dear Mr. Cowin:

I am writing to express my support for the Coachella Valley Integrated Regional Water Management Planning Grant Proposal. As Supervisor for Riverside County's Fourth District, representing the eastern two-thirds of Riverside County, I attest to the collaborative efforts between the water agencies and local governments in this planning process.

Water quality and access to potable water is a major health priority for residents, especially in the eastern Coachella Valley, home to many farm workers and their families. Many of the water systems serving mobile home parks throughout these unincorporated communities contain levels of arsenic that far exceed legal limits and should not be consumed.

The Coachella Valley Regional Water Management Group has been meeting with disadvantaged community representatives as part of the Integrated Regional Water Management process. This planning process has proven helpful to identifying solutions to the complex issues of water stewardship and public health.

I respectfully request full funding for this proposal so that these agencies may continue to develop the planning and projects needed to address our region's water supply and water quality.

Sincerely,

JOHN J. BENOIT
Fourth District Supervisor

JJB:das

cc: Tracie Billington, California Department of Water Resources
Patti Reyes, Coachella Valley Regional Water Management Group

Bill Luna
County Executive Officer

Jay E. Orr
Assistant County Executive Officer

Executive Office, County of Riverside

October 26, 2010

Coachella Valley Regional Water Management Group
C/O Patti Reyes, Coachella Valley Water District
85-995 Avenue 52
P.O. Box 1058
Coachella, CA 92236

RE: Support for Coachella Valley Integrated Regional Water Management Plan

On behalf of the County of Riverside, I wish to express our strong support for the Coachella Valley Integrated Regional Water Management (IRWM) Plan. The five water purveyors in the Coachella Valley are working closely together with the County of Riverside, and other water agencies and organizations in this important planning process.

I have been involved with the development of the Coachella Valley IRWM Plan as a member of the Planning Partners advisory group that has met for the last six months. We have worked to identify water related issues, set regional goals and objectives, establish a project submittal and prioritization process, and provide recommendations on the projects and programs included in the Plan. Additionally, the Coachella Valley Regional Water Management Group has held public workshops to communicate and gain feedback from community representatives throughout the Coachella Valley.

This month, the Coachella Valley Regional Water Management Group will adopt the IRWM Plan. We support and encourage them to do so quickly in order to qualify for funding under Round 1 of the Proposition 84 IRWM Grant Program. Together, we are all working to plan and develop long- and short-term solutions to the Valley's critical water management needs.

The County of Riverside views this regional planning process as one of the primary methods we can use to improve conditions for our community. We are committed to working together to develop the water management projects and programs needed to address our regional goals and the quality of life for our communities.
Should you have any questions, please do not hesitate to contact me at 951.955.1110.

Sincerely,

Michael R. Shetler

Michael R Shetler, REHS, MA
Senior Management Analyst
NPDES Stormwater Administrator
Riverside County Executive Office

WARREN D. WILLIAMS
General Manager-Chief Engineer

1995 MARKET STREET
RIVERSIDE, CA 92501
951.955.1200
FAX 951.788.9965
www.rcflood.org

RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

November 23, 2010

Ms. Patti Reyes, Coachella Valley Water District
Coachella Valley Regional Water Management Group
85-995 Avenue 52
P.O. Box 1058
Coachella, CA 92236

Dear Ms. Reyes:

Re: Support for Coachella Valley Integrated Regional Water Management Plan

On behalf of the Riverside County Flood Control and Water Conservation District (District), I wish to express our strong support for the Coachella Valley Integrated Regional Water Management (IRMW) Plan. The five water purveyors in the Coachella Valley are working closely together with the District, and other water agencies and organizations in this important planning process.

District staff has been involved with the development of the Coachella Valley IRWM Plan as a member of the Planning Partners advisory group which has met for the last six months. We have worked to identify water related issues, set regional goals and objectives, establish a project submittal and prioritization process, and provided recommendations on the projects and programs included in the plan. Additionally, the Coachella Valley Regional Water Management Group has held public workshops to communicate and gain feedback from community representatives throughout the Coachella Valley.

This month, the Coachella Valley Regional Water Management Group will adopt the IRWM Plan. We support and encourage them to do so quickly in order to qualify for funding under Round 1 of the Proposition 84 IRWM Grant Program. Together, we are all working to plan and develop long- and short-term solutions to the Valley's critical water management needs.

The District views the regional planning process as one of the primary methods we can use to improve conditions for our community. We are committed to working together to develop the water management projects and programs needed to address our regional goals and the quality of life for our communities.

Should you have any questions, please do not hesitate to contact Jason Uhley, the District's Chief of Watershed Protection, at 951.955.1273.

Very truly yours,

WARREN D. WILLIAMS
General Manager-Chief Engineer

JU:cw
P8/134283

CVAG
COACHELLA VALLEY ASSOCIATION of GOVERNMENTS
Blythe • Cathedral City • Coachella • Desert Hot Springs • Indian Wells • Indio • La Quinta • Palm Desert • Palm Springs • Rancho Mirage
County of Riverside • Agua Caliente Band of Cahuilla Indians • Cabazon Band of Mission Indians • Torres Martinez Desert Cahuilla Indians

December 6, 2010

Coachella Valley Regional Water Management Group
c/o Patti Reyes, Coachella Valley Water District
85-995 Avenue 52
P.O. Box 1058
Coachella, CA 92236

RE: Support for Coachella Valley Integrated Regional Water Management Plan

Dear Ms. Reyes:

On behalf of Coachella Valley Association of Governments we wish to express our support for the *Coachella Valley Integrated Regional Water Management (IRWM) Plan*. We appreciate the efforts of the five water purveyors in the Coachella Valley to reach out to CVAG and our member agencies, and other water agencies and organizations in this important planning process.

The development of the Coachella Valley IRWM Plan has involved the Planning Partners advisory group that has met for the last six months. This group has worked to identify water related issues, set regional goals and objectives, establish a project submittal and prioritization process, and provide recommendations on the projects and programs included in the Plan. Our staff has been involved in this process. Additionally, the Coachella Valley Regional Water Management Group has also held public workshops to communicate and gain feedback from community representatives throughout the Coachella Valley. This month, the Coachella Valley Regional Water Management Group will adopt the IRWM Plan. We support and encourage them to do so quickly in order to qualify for funding under Round 1 of the Proposition 84 IRWM Grant Program. Together, we are all working to plan and develop long- and short-term solutions to the Valley's critical water management needs.

This collaborative planning process to manage our water resources is an important regional effort and one of the primary methods we can use to improve conditions for our community. We are committed to working together with the Coachella Valley Regional Water Management Group to support the water management projects and programs needed to address our regional goals and the quality of life for our communities.

Sincerely,

Yvonne Parks
Chair

73-710 Fred Waring Drive, Suite 200 • Palm Desert, CA 92260 • (760) 346-1127 • FAX (760) 340-5949







Appendix G: Public Comments on Draft Coachella Valley IRWM Plan

This appendix contains comment letters that the CVRWMG received on the Public Review Draft Coachella Valley IRWM Plan, as well as responses to those comments.

November 21, 2010

To: rstewart@rmcwater.com

Rosalyn Stewart
4225 Executive Square, Suite 750
San Diego, Ca. 92037

COMMENTS: COACHELLA VALLEY INTEGRATED REGIONAL WATER (IRWM) PROGRAM

From: rnicklen@earthlink.net

Robert R. Nicklen, M.S., P.E.*
233 Serena Drive
Palm Desert, Ca. 92260

Phone 760-822-6869

Organization: Public

* Retired, formally employed by California Regional Water Quality Control Board, Santa Ana Region, and California Department of Water Resources and former Board Member of the Crestline Lake Arrowhead Water Agency a State Water Contractor.

General Comments

1. Groundwater Basin Overdraft

Groundwater overdraft has been occurring for about 70 years in the Upper Valley and about 35 years in the Lower Valley. This is occurring despite groundwater recharge with imported water and storm water recharge. This overdraft is causing some very serious adverse effects, such as ground surface subsidence and deep aquifer compaction, water quality degradation and loss of storage capacity. This is especially evident in the Palm Desert, Rancho Mirage, and Indian Wells areas where the land subsidence is causing a lot of damage to buildings, roads and pipelines, and will continue before the planned projects are fully implemented.

Several projects have helped mediate these adverse affects such as the Mid Valley Pipeline. However, the reduction in overdraft (bringing groundwater levels back up) is too slow. What is needed is a project that will have quick results as well as improve groundwater quality. A project to replace groundwater pumping for municipal supply by demineralizing imported Colorado River water will show almost immediate improvement in groundwater levels.

2. State Water Project water

A most important project that has been considered for a long time but has been pushed back is connecting to the SWP pipeline. This project should have being undertaken when the SWP pipeline was being extended to the Beaumont area.

Presently SWP water is exchanged with MWD/SC for Colorado River water which has more than twice the mineral concentration as SWP water. The Colorado River water is then recharged into local groundwater basins that have excellent water quality. Overtime this will degrade the local groundwater quality.

3. Water Conservation

The water conservation program for municipal and agricultural uses in the IRWM Program are generally very good. However, the municipal conservation program for existing residential (particularly HOA's) is not adequate. It should be equal to what is required for new developments.

Specific Detailed Comments

1. Page 2-32., Table 2-10, Quality of Water Sources

The MCL (Drinking Water) for TDS is shown as 1000-1500 ppm, (short term) this is unrealistic, a maximum level of 500 ppm should be used.

Groundwater in the East and West Valleys should be separated.

2. Page 2-33, Sect. 2.5.2 Imported Water Quality, 2nd paragraph
The organic quality of SWP water would not be a concern if it is recharged to the groundwater before use. Removal of problem organics is much less costly than removal of mineral salts in CRW.

3. Page 3-7, Sec. 3.1.5. Water Supply, Groundwater, line 3,
"See Table 2-9 recent groundwater quality" but page 2-27, Table 2-9, Shows Projected Water Demand with Conservation.

November 24, 2010

Robert R. Nicklen, M.S., P.E.
233 Serena Drive
Palm Desert, Ca. 92260

Subject: **Response to Comments on Public Review Draft Coachella Valley Integrated Regional Water Management Plan**

Dear Mr. Nicklen:

Thank you for your comments submitted on the Public Review Draft Coachella Valley Integrated Regional Water Management Plan (IRWM) Plan on November 21, 2010. The Coachella Valley Regional Water Management Group (CVRWMG) believes that the IRWM Plan is a significant first step in crafting a comprehensive water management framework for the Valley. We appreciate your efforts to improve the Plan by providing comments.

The IRWM Plan acknowledges the challenges faced by the Valley's water purveyors and pumpers with regard to groundwater overdraft in *Chapter 2, Region Description* and *Chapter 3, Issues and Needs*. Several barriers to overdraft remediation identified by the CVRWMG include the costs and availability of alternative supplies, as well as environmental and regulatory requirements. *Chapter 8, Agency Coordination* provides a description of the region's participation in the "State Water Project Extension Project Development Plan" effort to explore the feasibility of extending the State Water Project aqueduct to Coachella Valley. The IRWM Plan emphasizes the need to develop local supplies, including expansion of recycled water systems, desalination of agricultural drain water, and implementation of water conservation/water use efficiency programs.

The IRWM Plan also addresses various water quality concerns in *Chapter 2, Region Description* and *Chapter 3, Issues and Needs*. We utilize the adopted maximum containment levels (MCLs) from the Colorado River Basin Regional Water Quality Control Board as performance measures in the assessment.

Thank you again for your comments and contributions. Please let us know if you have any further questions or concerns.

Sincerely,

Rosalyn Prickett
on behalf of the Coachella Valley Regional Water Management Group

AGUA CALIENTE BAND OF CAHUILLA INDIANS

PLANNING & DEVELOPMENT DEPARTMENT
CONSTRUCTION DIVISION • ECONOMIC DEVELOPMENT DIVISION
PLANNING & NATURAL RESOURCES DIVISION • TRIBAL HISTORIC PRESERVATION OFFICE

November 22, 2010

Coachella Valley Regional Water Managers Group
c/o Rosalyn Prickett
RMC Water and Environment
4225 Executive Square, Suite 750
San Diego, CA 92037

RE: Comments on the Draft Coachella Valley Integrated Regional Water Management Plan

Dear Ms. Prickett:

Thank you for the opportunity to review and comment on the IRWM Plan. The development of the Coachella Valley Integrated Regional Water Management Plan is a significant first step in crafting a comprehensive water management framework for the Valley and the Coachella Valley Regional Water Managers Group is to be commended.

The Tribe offers the following general comments and questions:
Tribal concerns are addressed in a limited fashion in this document. Native Americans are the original inhabitants of the Coachella Valley, having resided in the Valley for millennia. The water in the Valley has sustained these Native American people agriculturally, economically, culturally and spiritually during the entirety of this long period, as it still does today. By virtue of their sustained and lengthy inhabitation of the Valley, the resident tribes currently possess water rights, and claims to water rights, under established federal law and doctrine.

For instance, the Agua Caliente Band of Cahuilla Indians and its members possess reserved water rights in the Coachella Valley. Federal law recognizes and protects the Tribe's aboriginal use right to water, as well as the rights to water associated with the creation of its Reservation in the Valley in 1876. The Tribe's reserved water rights are among the most senior rights in the Coachella Valley. A small portion of the Tribe's reserved right to surface water from Tahquitz and Andreas Creeks were asserted by the United States, as trustee for the Tribe, and adjudicated by the State of California in the 1938 Whitewater River Adjudication. The United States asserted additional groundwater rights in that adjudication, but no action was taken on those rights at that time as the court determined groundwater was beyond its jurisdiction. The Tribe possesses these other, as yet un-adjudicated, surface and groundwater rights in the Coachella Valley.

Current and future planning for the management and administration of water in the Valley must, necessarily, take into account the full spectrum of the Agua Caliente Tribe's rights – both adjudicated and un-adjudicated - as well as the rights of the other resident tribes. These points are not reflected currently in the draft IRWM Plan but should be noted as important issues relating to water management and administration in the Coachella Valley. We understand that it may be convenient for the CVRWMG, to place the affected Tribal Nations as an aggregated

Issues Group, but it is less than appropriate to do so. Each Tribal Nation should be engaged individually on a government-to-government basis such that the interests and needs of each sovereign is understood and reflected in the Plan. The central question in this respect is: How will the CVRWMG integrate the tribes into the IRWM Plan Process going forward?

Specific comments on the Plan are provided below:

P. 1-5 and 1-6: Planning Partners are described as an advisory group that provides support to the CVRWMG. Input on the Plan was necessarily limited, however, because the Partners did not get the opportunity to review and discuss the Draft Plan prior to its public release. It is difficult to provide substantive input on Plan without seeing it. A screencheck of only a small portion of the Plan was released to the group for a quick review and the Draft Plan is now out for a limited 20-day review.

P. 1-7: Agua Caliente should not be hyphenated. This error occurs in several places in the Plan.

P. 2-3: The Plan notes that in addition to Myoma Dunes Mutual Water Company there are a number of private well owners/pumpers in the Valley. Have these parties, who hold a direct interest in regional water management, been contacted to provide input into the development of this Plan?

P. 2-5: The statement is made: *"CVWD (2000) estimates the decrease in freshwater in storage in the CVGB for 1999 to be 136,700 acre-feet, of which the Indio subbasin is the largest part."* In addition to this reference, the IRWM Plan notes in several places that an extensive list of documents was reviewed and referenced to craft the IRWMP, including technical documents. However, much of the data regarding overdraft of groundwater and future use was derived from 2002. Why isn't more current data being used in this Plan? Given the changes Valley-wide the past 8 years, using more recent data would benefit all stakeholders. [See Fig. 2-10: 14-yr old data, Fig. 3-2: 1999 data, Pg. 3-2: *"...freshwater overdraft was estimated to be about 137,000 AFY in 1999."*]

P. 2-6: A statement is made that *"...the local groundwater basin has not been in balance since the early 1900's."* Other parts of the Plan note that the overdraft began in the late 1930's. Please clarify these discrepancies.

P. 2-10: In the discussion regarding surface waters, Andreas Creek is not included as a tributary despite it being part of the Whitewater River System Adjudication. Further, the Tribe is described as "receiving" surface water supplies from Tahquitz Creek and Andreas Creek. The Plan should clarify that these waters are not collected, stored or conveyed by the Tribe as they are allowed to flow downstream and are then collected, stored and/conveyed by DWA and/or CVWD to their customers.

P. 2-31: In Section 2.5.1 this statement is made: *"However, groundwater quality issues have arisen in isolated areas throughout the Valley."* Then, the next paragraph begins: *"Basin-wide groundwater quality is difficult to characterize as groundwater quality varies throughout the Valley."* These statements seem contradictory: how can issues be considered "isolated" if there isn't enough information to characterize the basin?" The Plan notes that the CVRWMG agencies intend to complete water quality evaluations. The Tribe strongly recommends that the agencies

immediately invest in the proposed comprehensive database and not wait to a future undetermined date. It appears that data collection, analysis and synthesis must take a high priority. A Plan is only as good as the data that supports and informs it.

P. 3-10: *"Local surface water supplies currently used by DWA and Agua Caliente Band and Cahuilla Indians are of high quality..."* The Plan should clarify that these waters are not collected, stored or conveyed by the Tribe. They are allowed to flow downstream and are then "used" by DWA for their customers.

Table 4-1: Provides a description of Plan Goals, Objectives and Targets but many of the targets and measurements are too vague to be used to track progress. It is suggested that targets be revised to be specific and measurable targets.

P. 5-10: *"The Native American Tribes Issues Group has been active and brings specific issues of cultural water use and special needs related to sovereign tribes in the region."* This statement is a mischaracterization of the role tribes should play in the management of water resources in the Valley. While cultural water use is important, the use/overuse of water and the reduction in the quality of groundwater is a significant concern of the Tribe. As holders of rights to the water in this Valley, tribal interests extend beyond single issues.

P. 7-3: Priority 7 is to create the Data Management System. The Plan indicates that such a system will be developed "over the next few years". We urge that development of this system be made high priority and that the system be comprehensive and that the data be accessible to the public. The 5 agencies must commit to providing more transparency in its data collection and analysis. In Section 9.3 (Data Management) it is noted that not all data will be available. Please explain which information will not be available to the public and the reasons why.

The Tribe would welcome the opportunity to sit down with the CVRWMG at an appropriate time and discuss specific affirmative steps to ensure full inclusion of Tribal Nations in the Plan development process. Again, we thank you for the opportunity to review the Draft IRWM Plan. If you have any questions, please feel free to contact me at 883-1326.

Very truly yours,

Margaret Park

Margaret E. Park, AICP
Director of Planning & Natural Resources
AGUA CALIENTE BAND
OF CAHUILLA INDIANS

C: Tribal Council
Tom Davis, Chief Planning and Development Officer

November 29, 2010

Margaret E. Park, AICP
Agua Caliente Band of Cahuilla Indians
5401 Dinah Shore Drive
Palm Springs, CA 92264

Subject: Response to Comments on Public Review Draft Coachella Valley Integrated Regional Water Management Plan

Dear Ms. Park:

Thank you for your comments submitted on the Public Review Draft Coachella Valley Integrated Regional Water Management Plan (IRWM) Plan on November 22, 2010. The Coachella Valley Regional Water Management Group (CVRWMG) concurs that the IRWM Plan is a significant first step in crafting a comprehensive water management framework for the Valley. We appreciate both your participation in our Tribal Issues Group and Planning Partners, and your efforts to improve the Plan by providing comments.

As discussed previously during your review of the Screen Check IRWM Plan (among the Tribal Issues Group and Planning Partners), we want to reiterate that this document provides an overview of the supply, demand, and uses of water in the Coachella Valley, but does not address water rights. The mention of tribal water rights, or the water rights of any entity, was not appropriate and therefore not included within the IRWM Plan. We have revised the Plan to recognize that Agua Caliente *may* divert surface water supplies from Tahquitz Creek, Andreas Creek, and/or Whitewater River, should you choose to do so.

We acknowledge that the IRWM Plan could contain more detailed accounts of the local Native American tribes and their historical and present water uses. The CVRWMG will work with the Tribal Issues Group to develop narratives describing each of the Valley's tribes for incorporation into the second edition of the Coachella Valley IRWM Plan (planned for 2012). We also invite the Tribal Nations to help refine the targets and measurements that will form the basis for evaluation of the IRWM Plan and implementation projects moving forward.

Given that the CVRWMG is not a formal government body, we have limited resources with which to develop and implement the IRWM Plan. We have established an inclusionary process wherein various governmental and non-governmental entities are brought together in a regional planning effort. We have proposed the Tribal Issues Group as a venue for collaborating specifically with the local Tribal Nations to better understand tribal interests and needs. We intend that our efforts to prepare a narrative for each local tribe will capture these issues and needs in the next Plan edition.

We concur that the preparation of water quality evaluations and a comprehensive data management system are priorities for water management within the Valley. The CVRWMG is committed to these collaborative efforts, as resources are made available by local and State entities. The CVRWMG has

applied for a planning grant with the California Department of Water Resources (DWR), which would provide resources for these efforts. We have used the most recent water modeling data available as the basis for the IRWM planning effort and will look to future planning and modeling efforts during the Plan update. Where provision of such data does not pose a legal or security concern, the proposed data management system will provide full and transparent public access. Contribution of water supply and water quality data from the local tribes would fortify the database and increase the region's understanding of basin characteristics. We look forward to collaborating with the Tribal Nations on a framework for this database. Thank you again for your comments and contributions. Please let us know if you have any further questions or concerns.

Sincerely,



Rosalyn Prickett

on behalf of the Coachella Valley Regional Water Management Group











Coachella Valley Integrated Regional Water Management Program
Planning Partners

Thursday December 13, 2012
1:00 – 3:00 p.m.

Coachella Valley Association of Governments
Conference Room #115
73-710 Fred Waring Drive
Palm Desert, CA 92260

DRAFT NOTES

Italics denote action items.

Attendees:

Planning Partners

Anna Aljabiry, DWR
Asaad Akar, Cathedral City
Jeff Benson, City of Rancho Mirage
Bill Engs, City of Rancho Mirage
Mike Gialdini, Supervisor Benoit
Jennifer Henke, Coachella Valley Mosquito and Vector Control District
Jacquelyn Gonzales, Cabazon Band of Mission Indians
Savat Khamphou, City of Palm Springs
Debi Livesay, Torres Martinez Desert Cahuilla Indians
Laura Massie, California Rural Legal Assistance
Alan Pace, Petra Geotechnical
Tim Roberts, Salton Community Services District

CVRWMG

Berlinda Blackburn, CWA
Sara Toyoda, IWA
Mark Krause, DWA
Katie Ruark, DWA
David Tate, DWA
Patti Reyes, CVWD
John Soulliere, MSWD
Rosalyn Prickett, RMC
Randy Raines, RMC
Kathy Caldwell, RMC
Leslie Dumas, RMC
Crystal Mohr, RMC
Daniel Cozad, IPM

Meeting Objectives:

A. Keep Planning Partners Up-to-Date on the Coachella Valley IRWM Program, including Salt and Nutrient, Groundwater Quality, and Flood Management Activities
B. Update on Disadvantaged Community (DAC) Outreach Efforts
C. Review Recommended Project Package for Proposition 84-Round 2 Grant Cycle
D. Review Climate Change Vulnerability Analysis for Coachella Valley

Meeting Notes:

Welcome and Introductions

Rosalyn Prickett, RMC Water and Environment (RMC), welcomed the Planning Partners on behalf of the Coachella Valley Regional Water Management Group (CVRWMG), the five regional water suppliers in the Coachella Valley who are responsible for overseeing the

Coachella Valley Integrated Regional Water Management (IRWM) Program. Ms. Prickett then provided an overview of the agenda and meeting objectives.

Status of IRWM Planning Activities and Schedule

Rosalyn Prickett provided an overview of the Coachella Valley IRWM Plan Update, noting that there are six key pieces of the Plan Update: stakeholder outreach (including outreach with the Planning Partners), a Salt and Nutrient Management Technical Evaluation, a DAC Groundwater Quality Evaluation, an Integrated Flood Management Technical Evaluation, a Groundwater Elevation Monitoring Technical Evaluation, and a comprehensive update to the existing IRWM Plan. Rosalyn Prickett also explained the schedule for the aforementioned pieces of the IRWM Plan Update, noting that stakeholder outreach will occur throughout the two-year process, the DAC Groundwater Quality Evaluation and the Salt and Nutrient Management pieces will be complete by mid-2013, and the Integrated Flood Management and Groundwater Elevation pieces will be complete by the end of 2013. The IRWM Plan Update, which will incorporate information from all of the technical evaluations and stakeholder outreach efforts, will be complete by mid-2014.

Recommended Proposition 84-Round 2 Grant Package

Rosalyn Prickett noted that the Coachella Valley IRWM Region is in the process of developing an application for Round 2 of Proposition 84 Implementation Grant funding, for which the Coachella Valley will be submitting a regional application. In total, there is approximately $36 million in grant funding available to the Colorado River Funding Area, which is a highly competitive funding area consisting of the Mojave, Imperial, Anza Borrego Desert, and Coachella Valley IRWM regions. The Coachella Valley was awarded $4 million in Round 1 of Proposition 84 funding – there will be approximately $5.24 million available in Round 2, although this is competitive among all four IRWM regions.

Rosalyn Prickett provided an overview of the Coachella Valley's Proposition 84-Round 2 Grant application process, noting that the Region recently completed the project selection process. Next steps are for the Planning Partners to review and potentially approve of the recommended project list; once the list of projects is approved, the consultant team will work with the CVRWMG and all local project sponsors (LPS) to complete the grant application.

Rosalyn Prickett then provided an overview of the project selection process that was completed for the Proposition 84-Round 2 Grant application process. After all projects were submitted to the online project database, the CVRWMG reviewed all projects in accordance with the scoring and ranking process outlined within the adopted IRWM Plan. This process involved evaluating each project and assigning a numerical score based upon a set of adopted criteria. Once all projects received a score, the projects were separated into Tier 1 (top 50%) and Tier 2 (bottom 50%) lists. While Tier 1 projects were all considered for further funding, the CVRWMG also evaluated all projects within the Tier 2 list to ensure that any highly eligible projects were not overlooked. Further, the CVRWMG pulled out all projects that involved septic-to-sewer conversion activities and compared and assessed those projects as a group.

Based upon lessons learned from the Proposition 84-Round 1 process, the CVRWMG conducted interviews with the top 9 project applicants to determine further information about project eligibility and competitiveness. Following the project interviews, the CVRWMG formalized a draft recommended project list based on a set of secondary criteria that were applied to each interviewed project. The secondary project selection criteria are as follows:

- Are the proposed scope and budget reasonable? Is the project technically feasible / able to move forward to implementation?
- Is the project cost effective (e.g., grant $$/connection)?

- What value does the project provide to the Coachella Valley? Are those benefits aligned with the California Department of Water Resources' (DWR's) scoring criteria?
- Is the project ready to proceed? Would the project be able to proceed if there were substantial funding delays?
- Are there any potential hurdles to completing the project on-time?
- Is the funding match secure?
- Does the project serve a disadvantaged community (DAC)?
- Has need been documented (e.g., history of septic failures for septic-to-sewer project and associated water quality issues)?

Rosalyn Prickett then noted that based on the secondary criteria, the CVRWMG is currently recommending the following list of projects for Proposition 84 funding:

Project Title	Recommended Funding Award
Coachella Valley Salt and Nutrient Management Plan (SNMP)	$500,000
Groundwater Quality Protection Project – Sub-Area D2	$1,845,000
Non-Potable Water Use Expansion Project	$2,000,000
San Antonio del Desierto – Sewer Sanitary Collection System Extension Project	$740,000
Torres-Martinez Water Line Extension Project Avenue 64	$155,000
TOTAL	**$5,240,000**

Following an explanation of each project, Rosalyn Prickett noted that every project has been recommended for partial funding (below the original grant request). Rosalyn Prickett then inquired if the Planning Partners have any questions or comments about the list of projects or the project selection process.

Questions/Comments

- Can the grant application be partially funded by DWR?
    - Yes. Sometimes DWR will pick projects to fund or not fund, and sometimes they will ask regions to choose projects out of the application to be funded if there is not enough money available in the Funding Area.
- Are the five projects on the recommended list prioritized?
    - No, the projects are not prioritized.
- Why did the Pierce Community Infrastructure – Sewer Sanitary Collection System Project get placed in the list of projects not considered for the Round 2 grant cycle?
    - This project had very high connection costs; the CVRWMG was concerned that this project would not be competitive from a cost-benefit ratio point of view. Given the competitive nature of the Implementation Grant process, the CVRWMG wanted to put forward the most competitive application possible. Please note that all projects within the IRWM database are immediately considered to be within the IRWM Plan; this makes them potentially eligible for other funding sources.
- Given the competitive nature of the process and the fact that DWR could choose to select a subset of projects to fund, wouldn't it be most beneficial to ask for more than the available $5,240,000?
    - Other regions, such as Mojave, have chosen to do this. However, it is risky to ask for more than the available funding amount. Ultimately the CVRWMG decided

that it would be best to go for the full amount available, but not ask for more than that.

- Note that the SNMP Project and the Non-Potable Water Use Expansion Project are connected in that all recycled water discharge permits require a SNMP to be in place.
- Regarding the Torres-Martinez project, you noted that the grant request was originally for full construction, but was reduced drastically to only cover design and engineering costs. Does the CVRWMG see this as a risk regarding the grant application? I had heard previously that design/engineering projects are not very competitive for Proposition 84 funding.
    - There are pros and cons to this decision. Ultimately the tribal and DAC benefits of this project are thought to overcome the fact that the grant request will not be for project implementation. Further, this grant will set the tribe up to receive funding from USDA for construction of the project.
- In the future, will there be an opportunity for other projects to apply for funding to cover engineering and design work, which would also make them eligible for other funding sources?
    - This is something for the CVRWMG and the Planning Partners to consider during future rounds of funding.
- Is there a way that the IRWM Program can be used to increase integration that will help make projects more cost-effective? For example, there are potential septic-to-sewer conversion projects that would be more cost-effective if nearby residents would all hook into the sewer system. Further, this would be more efficient, because it would ensure that an under-sized sewer system is not installed now and replaced in the next few years. It seems like the IRWM Program would be an appropriate venue for this kind of integration.
    - The IRWM Program has not been involved in such activities in the past, but could consider further integration activities that increase efficiencies within the Region.
- How much consideration was given to the need for the project? How was this evaluated?
    - The CVRWMG considered the actual need for the project from an environmental and technical standpoint, such as if septic systems were failing and causing public health and environmental issues. The CVRWMG also evaluated if project-related issues were impacting DACs, and then evaluated the security of the funding match. The security of the funding match helps to determine how likely the project is to actually move forward if provided grant funding. It is a priority to the CVRWMG to ensure that grant funding brought into the Region is put to use in an effective manner.

Following the discussion regarding the recommended Proposition 84-Round 2 Project List, the Planning Partners approved the project list.

Climate Change Vulnerability Analysis

Crystal Mohr, RMC, provided an overview of the climate change vulnerability analysis that is being conducted as part of the IRWM Plan Update. This analysis is being conducted in accordance with DWR standards for climate change planning per the IRWM Guidelines. DWR requires the climate change analysis to include two types of analysis: adaptation analysis and mitigation analysis. The first step of both analyses is to conduct a literature review; the consultant team did this by using widely cited statewide climate change resources as well as all relevant local climate change sources such as Climate Action Plans for various cities within the

Coachella Valley. Cumulatively, these sources demonstrate that the Coachella Valley could experience the following effects as a result of climate change:

- Temperature Change: Increase between 5-10 degrees (Fahrenheit)
- Precipitation: Little to no change in annual average rainfall
- Wildfire Risk: Same or slightly increased likelihood of wildfire
- Water Demand: Increases expected but not quantified
- Water Supply: Expect decreases to imported water (Colorado River) delivery and non-quantified changes to local groundwater supply

Ms. Mohr then provided an overview of the potential climate change vulnerabilities that the Region could face. These vulnerabilities are categorized into 7 categories, including: water demand, water supply, water quality, sea level rise, flooding, ecosystem and habitat, and hydropower. Ms. Mohr provided a brief overview of the analysis, inquiring if the Planning Partners had any comments. Following the meeting, the consultant team will distribute the climate change vulnerability matrix to stakeholders for further comments.

Questions/Comments

- Did the literature take into account population change associated with temperature increases? It seems like if the temperature in the Coachella Valley actually increased by 10 degrees, there would be much less people, and therefore water demand would not increase as currently projected.
    - RMC will check with the technical team on this question, however, in general the analysis only took into consideration very specific water-related climate change issues and did not analyze things such as population change.
- The matrix needs to be edited under water quality – it currently says that the Coachella Valley does not use any surface water sources, which is not accurate.

Update on DAC Outreach and Assistance

Kathy Caldwell, RMC, provided an overview of the DAC Outreach Program. The purpose of this program is to expand upon previous DAC outreach to target individuals and groups representing DAC issues, and to also engage members of DAC community in order to frame and articulate water management issues facing DACs. She provided an overview of activities that have been completed to date, noting that the second DAC Workshop was held the morning of December 13th.

Current efforts for the DAC Outreach Program include: continuing outreach to stakeholders and interested organizations, continuing work on DAC-focused mapping and characterization, contracting with non-profit organizations to assist in the process, holding stakeholder outreach meetings (DAC Workshops), beginning the flood mapping process, and continuing to coordinate with the IRWM Plan Update efforts.

Kathy also provided an overview of the DAC Outreach Program Timeline, noting that this program will be interwoven with the IRWM Plan Update.

Questions/Comments

- Does the flood mapping process include updating FEMA maps?
    - Yes and no. The process will start with available data such as FEMA data, and use locally-collected data to update those maps. The focus, however, will be on mapping disadvantaged communities that face flood-related issues.
- Does the flood analysis include Salton City? Flooding is a huge problem there.

- Yes. The flood analysis will cover the entire IRWM Region, which includes Salton City.

Update on Coachella Valley IRWM Technical Evaluations

Rosalyn Prickett provided an overview on the three planning studies that will be incorporated into the IRWM Plan Update: Salt and Nutrient Management, Groundwater Quality Evaluation, and Integrated Flood Management.

Salt and Nutrient Management

Rosalyn provided an overview of this workgroup, noting that it will specifically address salt and nutrient management associated with recycled water in accordance with the State's Recycled Water Policy. She then noted that three stakeholder workshops were conducted for this planning study.

The current status of the planning study is that the technical team has compiled a draft work plan, which outlines the salt and nutrient management planning process that would be recommended for the Coachella Valley. The next step with this planning study is to compile and respond to all comments – if you have not submitted comments, please do so ASAP! Modifications will be made to the work plan based upon relevant comments, and then the revised work plan will be reviewed by the CVRWMG. After the CVRWMG has approved of the work plan, they will meet with the Regional Water Quality Control Board staff for feedback, and potentially revise the work plan again based upon the Regional Board's comments. Following these steps, the CVRWMG will give a presentation to the Regional Board on January 17th to discuss the process and receive input from the board before moving on to the next phase, which would involve developing a salt and nutrient management plan.

Groundwater Quality Evaluation

Leslie Dumas, RMC, provided an overview of the groundwater quality evaluation that is being conducted as part of the IRWM Plan Update. She noted that the current step of this evaluation is to identify "areas of concern." Areas of concern include DACs that are not served by municipal water suppliers, and are therefore served by private groundwater wells. Information available from the Coachella Valley water purveyors as well as publically available state and federal data has allowed the technical team to identify areas of concern as well as constituents of concern in those areas. The data that was analyzed shows that there are four primary constituents of concern: arsenic, fluoride, nitrate, and uranium. The next step in the analysis is to determine potential solutions for addressing the various constituents. According to information from the EPA, membrane separation (which includes reverse osmosis), is the best available technology for addressing each constituent potentially present in local groundwater basins. Future steps in this process will involve a data gap analysis to determine more information that may be useful such as the exact location of wells, the volume of water being pumped and used, and a confirmation of water quality at each well. Following the data gap analysis, the technical team will develop an outline for a monitoring program that can potentially be implemented to address identified data gaps and other outcomes from the planning study.

<u>Questions/Comments</u>

- The number of sampling points reported for constituents of concern – do those represent the number of samples throughout the County or within the Coachella Valley Groundwater Basin?
    - The number of sampling points represents the number of samples that exceeded the MCL value – these sampling points are only for the local groundwater basins and are not County-wide.

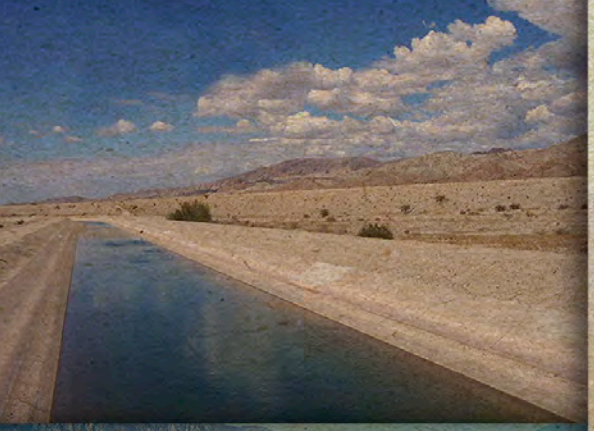
Integrated Flood Management

Rosalyn Prickett provided an overview of this workgroup, noting that this study and associated workgroup will kick off during the new year. The first integrated flood management workgroup will be held on January 15th, 2013. The technical team will send an announcement to stakeholders for this meeting.

Next Steps

The technical team, CVRWMG, and LPS will begin preparing the Round 2-Proposition 84 Implementation Grant application, and will continue to conduct work on the various planning studies that will be incorporated into the IRWM Plan Udpate.

Please mark your calendars: the next Planning Partners meeting will be held on March 14, 2013!











Attachment 2

Adopted Plan and Proof of Formal Adoption

Implementation Grant, Round 2

Coachella Valley IRWM
Implementation Grant Proposal

Attachment 2

Coachella Valley Integrated Regional Water Management Implementation Grant Proposal – Round 2

Adopted Plan and Proof of Formal Adoption Documentation

Attachment 2 consists of the following items:

- ✓ **Consistency with CWC §10543**

  This attachment contains documentation that the 2010 Coachella Valley IRWM Plan was adopted consistent with CWC §10543. Appendix 2-1 contains the published notices to adopt the IRWM Plan, which were inserted once a week for two successive weeks in The Desert Sun newspaper in accordance with §6066 of the Government Code.

- ✓ **Proof of Formal Adoption**

  The Coachella Valley IRWM Plan was adopted by each of the CVRWMG governing bodies, as well as the other two project proponents (Pueblo Unido Community Development Corporation and the Torres-Martinez Desert Cahuilla Indians). Proof of formal adoption is attached as Appendix 2-2.

Consistency with CWC §10543

In accordance with CWC§10543, the five CVRWMG agencies published notices of intention to adopt the IRWM Plan consistent with requirements of §6066 of the Government Code (Appendix 2-1) and held public meetings to formalize adoption of the IRWM Plan as follows:

- The Coachella Water Authority Board of Directors adopted the IRWM Plan at a public meeting held on December 15, 2010
- The Coachella Valley Water District Board of Directors adopted the IRWM Plan at a public meeting held on December 14, 2010
- The Desert Water Agency Board of Directors adopted the IRWM Plan at a public meeting held on December 7, 2010
- The Indio Water Authority Board of Directors adopted the IRWM Plan at a public meeting held on December 7, 2010
- The Mission Springs Water District Board of Directors adopted the IRWM Plan at a public meeting held on December 20, 2010

The non-CVRWMG project proponents also adopted the IRWM Plan:

- Pueblo Unido Community Development Corporation Board of Directors adopted the IRWM Plan at a meeting held on December 10, 2010
- The Torres-Martinez Desert Cahuilla Indians Tribal Council adopted the IRWM Plan at a meeting held on March 26, 2013

Proof of Formal Adoption

Appendix 2-2 contains formal resolutions for each of the CVRWMG entities and the project proponents, which indicate formal adoption of the IRWM Plan.

Appendix 2-1: Public Notices for Consistency with CWC §10543

The Desert Sun
750 N Gene Autry Trail
Palm Springs, CA 92262
760-778-4578 / Fax 760-778-4731

Certificate of Publication

State Of California ss:
County of Riverside

Advertiser:

RMC WATER & ENVIRONMENT
4225 EXECUTIVE SQUARE STE 750
SAN DIEGO CA 92037

2000235722

I am over the age of 18 years old, a citizen of the United States and not a party to, or have interest in this matter. I hereby certify that the attached advertisement appeared in said newspaper (set in type not smaller than non pariel) in each and entire issue of said newspaper and not in any supplement thereof on the following dates, to wit:

Newspaper: .The Desert Sun

11/24/2010

I acknowledge that I am a principal clerk of the printer of The Desert Sun, printed and published weekly in the City of Palm Springs, County of Riverside, State of California. The Desert Sun was adjudicated a newspaper of general circulation on March 24, 1988 by the Superior Court of the County of Riverside, State of California Case No. 191236.

I declare under penalty of perjury that the foregoing is true and correct. Executed on this 24th day of November, 2010 in Palm Springs, California.

Declarant

No 5035
Notice of Public Meetings to Adopt the Coachella Valley Integrated Regional Water Management Plan

The Coachella Valley Integrated Regional Water Management Plan will be considered for adoption by the governing bodies of the five water purveyors making up the Coachella Valley Regional Water Management Group. The Plan was created to meet Proposition 84 requirements for integrated water resource planning where multiple agencies, along with input from stakeholder advisory groups, collaborate on regional water issues and needs.

- The Coachella Water Authority Board of Directors will adopt the Plan on December 8, 2010 at 6:00 p.m. at 1515 6th Street, Coachella CA 92236;
- The Coachella Valley Water District Board of Directors will adopt the Plan on December 14, 2010 at 9:00 a.m. at 85-995 Avenue 52, Coachella CA 92236;
- The Desert Water Agency Board of Directors will adopt the Plan on December 7, 2010 at 8:00 a.m. at 1200 Gene Autry Trail South, Palm Springs CA 92264;
- The Indio Water Authority Board of Directors will adopt the Plan on December 7, 2010 at 4:00 p.m. at 100 Civic Center Mall, Indio CA 92201; and
- The Mission Springs Water District Board of Directors will adopt the Plan on December 20, 2010 at 3:00 p.m. at 66575 Second Street, Desert Hot Springs CA 92240.

The draft Coachella Valley Integrated Regional Water Management Plan, available at www.cvrwmg.org, was created to provide a mechanism for coordinating water resource planning efforts, identifying regional priorities for implementation, and generating funding support for the plans, programs, and projects of existing agencies and stakeholders.

For more information, please contact Public Information Associate Katie Ruark at (760) 323-4971 ext. 184 or kruark@dwa.org.

Published: 11/24/10

Appendix 2-1: Public Notices for Consistency with CWC §10543

The Desert Sun
750 N Gene Autry Trail
Palm Springs, CA 92262
760-778-4578 / Fax 760-778-4731

Certificate of Publication

State Of California ss:
County of Riverside

Advertiser:

RMC WATER & ENVIRONMENT
4225 EXECUTIVE SQUARE STE 750
SAN DIEGO CA 92037

2000236596

I am over the age of 18 years old, a citizen of the United States and not a party to, or have interest in this matter. I hereby certify that the attached advertisement appeared in said newspaper (set in type not smaller than non pariel) in each and entire issue of said newspaper and not in any supplement thereof on the following dates, to wit:

Newspaper: .The Desert Sun

12/1/2010

I acknowledge that I am a principal clerk of the printer of The Desert Sun, printed and published weekly in the City of Palm Springs, County of Riverside, State of California. The Desert Sun was adjudicated a newspaper of general circulation on March 24, 1988 by the Superior Court of the County of Riverside, State of California Case No. 191236.

I declare under penalty of perjury that the foregoing is true and correct. Executed on this 1st day of November, 2010 in Palm Springs, California.

Declarant

No 5072
Notice of Public Meetings to Adopt the Coachella Valley Integrated Regional Water Management Plan

The Coachella Valley Integrated Regional Water Management Plan will be considered for adoption by the governing bodies of the five water purveyors making up the Coachella Valley Regional Water Management Group. The Plan was created to meet Proposition 84 requirements for integrated water resource planning where multiple agencies, along with input from stakeholder advisory groups, collaborate on regional water issues and needs.

- **The Coachella Water Authority** Board of Directors will adopt the Plan on December 8, 2010 at 6:00 p.m. at 1515 6th Street, Coachella CA 92236;
- **The Coachella Valley Water District** Board of Directors will adopt the Plan on December 14, 2010 at 9:00 a.m. at 85-995 Avenue 52, Coachella CA 92236;
- **The Desert Water Agency** Board of Directors will adopt the Plan on December 7, 2010 at 8:00 a.m. at 1200 Gene Autry Trail South, Palm Springs CA 92264;
- **The Indio Water Authority** Board of Directors will adopt the Plan on December 7, 2010 at 4:00 p.m. at 100 Civic Center Mall, Indio CA 92201; and
- **The Mission Springs Water District** Board of Directors will adopt the Plan on December 20, 2010 at 3:00 p.m. at 66575 Second Street, Desert Hot Springs CA 92240.

The final Coachella Valley Integrated Regional Water Management Plan, available at www.cvrwmg.org, was created to provide a mechanism for coordinating water resource planning efforts, identifying regional priorities for implementation, and generating funding support for the plans, programs, and projects of existing agencies and stakeholders.

For more information, please contact Public Information Associate Katie Ruark at (760) 323-4971 ext. 184 or kruark@dwa.org.
PUB; 12/1/2010

RESOLUTION NO. 2010-04

A RESOLUTION OF THE BOARD OF DIRECTORS OF THE COACHELLA WATER AUTHORITY, COACHELLA, CALIFORNIA, ADOPTING THE COACHELLA VALLEY INTEGRATED REGIONAL WATER MANAGEMENT PLAN

WHEREAS, water resource planning in the Coachella Valley is of the utmost importance to sustain the area's residents, businesses, and agriculture in a desert climate, and

WHEREAS, the State of California encourages integrated water resource planning on a regional basis through Integrated Regional Water Management (IRWM) Plans and by conditioning certain existing and possibly future grant funding programs – including Proposition 84, the Safe Drinking Water, Water Quality and Supply, Flood Control, River and Coastal Protection Bond Act of 2006 (Public Resources Code section 75001 *et seq.*) – to activities contained in IRWM Plans, and

WHEREAS, the Coachella Valley Regional Water Management Group was formed as a collaboration of the five Coachella Valley public water agencies: the City of Coachella, Coachella Valley Water District, Desert Water Agency, Indio Water Authority, and Mission Springs Water District, and

WHEREAS, the Coachella Valley Regional Water Management Group partners have committed through a Memorandum of Understanding to developing a Coachella Valley IRWM Plan that coordinates and shares information concerning water supply planning and projects, and

WHEREAS, the Coachella Valley stakeholders have worked collaboratively to identify water related issues and needs, establish regional goals and objectives, develop a project submittal and prioritization process, and provide recommendations on the projects and programs included in the Plan, and

NOW THEREFORE BE IT RESOLVED; that the Board of Directors of the Coachella Water Authority adopts the Coachella Valley Integrated Regional Water Management Plan and is committed to continued development and implementation of the Plan to help address the critical water related needs of Coachella Valley.

[THIS PORTION LEFT BLANK INTENTIOANLY]

Appendix 2-2: Proof of Formal Adoption

PASSED, APPROVED AND ADOPTED at a regular meeting of the Board of Directors of the Coachella Water Authority on this 15th day of December 2010, by the following roll call vote:

AYES:

NOES:

ABSENT:

ABSTAIN:

_____
Eduardo Garcia, President

ATTEST:

_____
Isabel Castillon, Secretary

STATE OF CALIFORNIA)
COACHELLA WATER AUTHORITY) ss
OFFICE OF THE SECRETARY)

I, Isabel Castillon, Secretary of the Board of Director of the Coachella Water Authority, do hereby certify that the foregoing is a full, true and correct copy of Resolution No. 2010-04, adopted by the Board of Directors of said authority at a regular meeting therefore duly held and convened on the 8th day of December 2010, at which meeting a quorum of said Board was present and acting throughout.

_____
Isabel Castillon, Secretary

APPROVED AS TO FORM:

_____
Best Best & Krieger, City Attorney

Appendix 2-2: Proof of Formal Adoption

RESOLUTION NO. 2010-218

RESOLUTION OF THE BOARD OF DIRECTORS OF
COACHELLA VALLEY WATER DISTRICT
ADOPTION FOR THE COACHELLA VALLEY INTEGRATED
REGIONAL WATER MANAGEMENT PLAN

WHEREAS water resource planning in the Coachella Valley is of the utmost importance to sustain the area's residents, businesses, and agriculture in a desert climate; and

WHEREAS the State of California encourages integrated water resource planning on a regional basis through Integrated Regional Water Management (IRWM) Plans and by conditioning certain existing and possibly future grant funding programs – including Proposition 84, the Safe Drinking Water, Water Quality and Supply, Flood Control, River and Coastal Protection Bond Act of 2006 (Public Resources Code section 75001 *et seq.*) – to activities contained in IRWM Plans; and

WHEREAS the Coachella Valley Regional Water Management Group was formed as a collaboration of the five Coachella Valley public water agencies: the City of Coachella, Coachella Valley Water District, Desert Water Agency, Indio Water Authority, and Mission Springs Water District; and

WHEREAS the Coachella Valley Regional Water Management Group partners have committed through a Memorandum of Understanding to developing a Coachella Valley IRWM Plan that coordinates and shares information concerning water supply planning and projects; and

WHEREAS the Coachella Valley stakeholders have worked collaboratively to identify water related issues and needs, establish regional goals and objectives, develop a project submittal and prioritization process, and provide recommendations on the projects and programs included in the Plan.

NOW, THEREFORE, BE IT RESOLVED that the Coachella Valley Water District adopts the Coachella Valley Integrated Regional Water Management Plan and is committed to continued development and implementation of the Plan to help address the critical water related needs of Coachella Valley; and

BE IT FURTHER RESOLVED that we support and encourage the Coachella Valley Regional Water Management Group Member Agencies to quickly adopt this Plan to qualify for funding under Round 1 of the Proposition 84 IRWM Grant Program and we encourage the Department of Water Resources to fully fund the grant applications that are prepared as a result of this Plan; and

BE IT FURTHER RESOLVED that the General Manager-Chief Engineer is hereby authorized to direct staff to prepare necessary data, conduct investigations, file applications, and execute grant agreements with the California Department of Water Resources in association with this application process; and

BE IT FINALLY RESOLVED that we pledge to continue working to develop the planning and projects that address the long- and short-term solutions to the Valley's critical water needs, address our regional goals and objectives, and improve the conditions and the quality of life for our communities.

ADOPTED this 14th day of December, 2010.

Patricia A. Sanchez
President of the Board of Directors
of the Coachella Valley Water District

ATTEST:

Julia Fernandez
Board Secretary

Appendix 2-2: Proof of Formal Adoption

STATE OF CALIFORNIA)
COACHELLA VALLEY WATER DISTRICT) ss.
OFFICE OF THE SECRETARY)

I, JULIA FERNANDEZ, Secretary of the Board of Directors of the Coachella Valley Water District, DO HEREBY CERTIFY that the foregoing is a full, true and correct copy of Resolution No. 2010-218 adopted by the Board of Directors of said District at a regular meeting thereof duly held and convened on the 14th day of December, 2010, at which meeting a quorum of said Board was present and acting throughout. The Resolution was adopted by the following vote:

AYES: Five

NOES: None

ABSTAIN: None

Dated this 14th day of December, 2010.

(SEAL)

Board Secretary

Appendix 2-2: Proof of Formal Adoption

RESOLUTION NO. 1031

RESOLUTION OF THE BOARD OF DIRECTORS OF DESERT WATER AGENCY ADOPTING THE COACHELLA VALLEY INTEGRATED REGIONAL WATER MANAGEMENT PLAN

WHEREAS water resource planning in the Coachella Valley is of the utmost importance to sustain the area's residents, businesses, and agriculture in a desert climate; and

WHEREAS the State of California encourages integrated water resource planning on a regional basis through Integrated Regional Water Management (IRWM) Plans and by conditioning certain existing and possibly future grant funding programs – including Proposition 84, the Safe Drinking Water, Water Quality and Supply, Flood Control, River and Coastal Protection Bond Act of 2006 (Public Resources Code section 75001 *et seq.*) – to activities contained in IRWM Plans; and

WHEREAS the Coachella Valley Regional Water Management Group was formed as a collaboration of the five Coachella Valley public water agencies: the City of Coachella, Coachella Valley Water District, Desert Water Agency, Indio Water Authority, and Mission Springs Water District; and

WHEREAS the Coachella Valley Regional Water Management Group partners have committed through a Memorandum of Understanding to developing a Coachella Valley IRWM Plan that coordinates and shares information concerning water supply planning and projects; and

WHEREAS the Coachella Valley stakeholders have worked collaboratively to identify water related issues and needs, establish regional goals and objectives, develop a project submittal and prioritization process, and provide recommendations on the projects and programs included in the Plan; and

NOW THEREFORE BE IT RESOLVED that the Desert Water Agency Board of Directors adopts the Coachella Valley Integrated Regional Water Management Plan and is committed to continued development and implementation of the Plan, subject to available funding, to help address the critical water-related needs of Coachella Valley; and

BE IT FURTHER RESOLVED that we support and encourage all Coachella Valley Regional Water Management Group partners to quickly adopt this Plan to qualify for funding under Round 1 of the Proposition 84 IRWM Grant Program and we encourage the Department of Water Resources to fully fund the grant applications that are prepared as a result of this Plan; and

BE IT FINALLY RESOLVED that we pledge to continue working to develop the planning and projects that address the long- and short-term solutions to the Valley's critical water needs, address our regional goals and objectives through the regional planning group as long as is beneficial for all parties.

ADOPTED this seventh day of December 2010.

Patricia G. Oygar, President

Attest:

James Cioffi, Secretary-Treasurer

Appendix 2-2: Proof of Formal Adoption

RESOLUTION NO. 2010-51

RESOLUTION OF THE INDIO WATER AUTHORITY ADOPTING THE COACHELLA VALLEY INTEGRATED REGIONAL WATER MANAGEMENT PLAN

WHEREAS, water resource planning in the Coachella Valley is of the utmost importance to sustain the area's residents, businesses, and agriculture in a desert climate, and

WHEREAS, the State of California encourages integrated water resource planning on a regional basis through Integrated Regional Water Management (IRWM) Plans and by conditioning certain existing and possibly future grant funding programs – including Proposition 84, the Safe Drinking Water, Water Quality and Supply, Flood Control, River and Coastal Protection Bond Act of 2006 (Public Resources Code section 75001 *et seq.*) – to activities contained in IRWM Plans, and

WHEREAS, the Coachella Valley Regional Water Management Group was formed as a collaboration of the five Coachella Valley public water agencies: the City of Coachella, Coachella Valley Water District, Desert Water Agency, Indio Water Authority, and Mission Springs Water District, and

WHEREAS, the Coachella Valley Regional Water Management Group partners have committed through a Memorandum of Understanding to developing a Coachella Valley IRWM Plan that coordinates and shares information concerning water supply planning and projects, and

WHEREAS, the Coachella Valley stakeholders have worked collaboratively to identify water related issues and needs, establish regional goals and objectives, develop a project submittal and prioritization process, and provide recommendations on the projects and programs included in the Plan, and

WHEREAS, the Coachella Valley IRWM Plan is a planning document exempt from CEQA (pursuant to CEQA Guidelines sections 15262, 15306 and 15307); and

WHEREAS, the Coachella Valley Regional Water Management Group has made the IRWM Plan available for public review, and noticed of a public hearing to adopt the IRWM Plan, in a manner prescribed by law and consistent with Water Code section 10543; and

WHEREAS, all persons desiring to be heard at the public hearing held by the Coachella Valley Regional Water Management Group were given the opportunity to present their views, and written comments received concerning adoption of the IRWM Plan were publicly presented at the public hearing; and

WHEREAS, consistent with Water Code section 10543, subdivision (c), each of the individual members of the Coachella Valley Regional Water Management Group will be adopting the IRWM Plan at a noticed public hearing in the month of December.

NOW THEREFORE, BE IT RESOLVED that the Board of Directors of the Indio Water Authority adopts the Coachella Valley Integrated Regional Water Management Plan and is committed to the continued development and implementation of the objectives of the Plan to help address the critical water related needs of Coachella Valley.

BE IT FURTHER RESOLVED, that Indio Water Authority supports and encourages the Coachella Valley Regional Water Management Group to quickly adopt and submit a funding proposal to the Department of Water Resources (DWR) to qualify for funding under Round 1 of the Proposition 84 IRWM Grant Program, and Indio Water Authority encourages DWR to fully fund Coachella Valley Regional Water Management Group grant applications that are prepared as a result of the IRWM Plan.

BE IT FURTHER RESOLVED, that Indio Water Authority pledges to continue working to develop the planning and projects consistent with the IRWM Plan that address the long- and short-term solutions to the Valley's critical water needs, address regional goals and objectives, and improve the conditions and the quality of life for our communities.

BE IT FINALLY RESOLVED, that the General Manager of Indio Water Authority is authorized to execute any further documents necessary in support of Coachella Valley Regional Water Management Group's grant application for Round 1 of the Proposition 84 IRWM Grant Program.

PASSED, APPROVED AND ADOPTED this 7th day of December 2010, by the following vote:

AYES: Barba, Friestad, Miller, Tunis, Wilson, Ramos Watson
NOES: None
ABSENT: Holmes, Lamb, Torres

LUPE RAMOS WATSON, PRESIDENT

ATTEST:

CYNTHIA HERNANDEZ
SECRETARY

Appendix 2-2: Proof of Formal Adoption

RESOLUTION NO. 2010-27

A RESOLUTION ADOPTING THE COACHELLA VALLEY INTEGRATED REGIONAL WATER MANAGEMENT PLAN

WHEREAS, water resource planning in the Coachella Valley is of the utmost importance to sustain the area's residents, businesses, and agriculture in a desert climate, and

WHEREAS, the State of California encourages integrated water resource planning on a regional basis through Integrated Regional Water Management (IRWM) Plans and by conditioning certain existing and possibly future grant funding programs – including Proposition 84, the Safe Drinking Water, Water Quality and Supply, Flood Control, River and Coastal Protection Bond Act of 2006 (Public Resources Code section 75001 *et seq.*) – to activities contained in IRWM Plans, and

WHEREAS, the Coachella Valley Regional Water Management Group was formed as a collaboration of the five Coachella Valley public water agencies: the City of Coachella, Coachella Valley Water District, Desert Water Agency, Indio Water Authority, and Mission Springs Water District, and

WHEREAS, the Coachella Valley Regional Water Management Group partners have committed through a Memorandum of Understanding to developing a Coachella Valley IRWM Plan that coordinates and shares information concerning water supply planning and projects, and

WHEREAS, the Coachella Valley stakeholders have worked collaboratively to identify water related issues and needs, establish regional goals and objectives, develop a project submittal and prioritization process, and provide recommendations on the projects and programs included in the Plan, and

NOW, THEREFORE, BE IT RESOLVED that the Mission Springs Water District adopts the Coachella Valley Integrated Regional Water Management Plan and is committed to continued development and implementation of the Plan to help address the critical water related needs of Coachella Valley, and

BE IT FURTHER RESOLVED that Mission Springs Water District supports and encourages the Coachella Valley Regional Water Management Group to quickly adopt this Plan to qualify for funding under Round 1 of the Proposition 84 IRWM Grant Program and encourages the Department of Water Resources to fully fund the grant applications that are prepared as a result of this Plan, and

BE IT FURTHER RESOLVED that Mission Springs Water District pledges to continue working to develop the planning and projects that address the long- and short-term solutions to the Valley's critical water needs, address our regional goals and objectives, and improve the conditions and the quality of life for our communities.

BE IT FINALLY RESOLVED, that the General Manager of the Mission Springs Water District is authorized to execute any further documents necessary in support of Coachella Valley Regional Water Management Group's grant application for Round 1 of the Proposition 84 IRWM Grant Program.

Appendix 2-2: Proof of Formal Adoption

Adopted this 20th day of December 2010 by the following vote:

Ayes:	Bowman, Brown, Furbee, Martin, Wright
Noes:	None
Abstain:	None

President of Mission Springs Water District
and its Board of Directors

ATTEST:

Secretary of Mission Springs Water District
and its Board of Directors

Appendix 2-2: Proof of Formal Adoption

CERTIFICATION OF ADOPTION

STATE OF CALIFORNIA)
)
COUNTY OF RIVERSIDE)

I, Arden Wallum, Secretary of the Board of Directors of Mission Springs Water District, certify that the foregoing is a full, true and correct copy of Resolution No. **2010-27**, which was adopted by the Board of Directors of said District at its regular meeting held December 20, 2010.

It has not been amended or repealed.

Dated December 21, 2010

Secretary of Mission Springs Water District
and its Board of Directors

(SEAL)

Appendix 2-2: Proof of Formal Adoption

Pueblo Unido CDC
of the Eastern Coachella Valley

RESOLUTION NO._1210__

BOARD OF DIRECTORS OF _PUEBLO UNIDO CDC__

A RESOLUTION OF ADOPTION FOR THE COACHELLA VALLEY INTEGRATED REGIONAL WATER MANAGEMENT PLAN

WHEREAS water resource planning in the Coachella Valley is of the utmost importance to sustain the area's residents, businesses, and agriculture in a desert climate, and

WHEREAS the State of California encourages integrated water resource planning on a regional basis through Integrated Regional Water Management (IRWM) Plans and by conditioning certain existing and possibly future grant funding programs – including Proposition 84, the Safe Drinking Water, Water Quality and Supply, Flood Control, River and Coastal Protection Bond Act of 2006 (Public Resources Code section 75001 *et seq.*) – to activities contained in IRWM Plans, and

WHEREAS the Coachella Valley Regional Water Management Group was formed as a collaboration of the five Coachella Valley public water agencies: the City of Coachella, Coachella Valley Water District, Desert Water Agency, Indio Water Authority, and Mission Springs Water District, and

WHEREAS the Coachella Valley Regional Water Management Group partners have committed through a Memorandum of Understanding to developing a Coachella Valley IRWM Plan that coordinates and shares information concerning water supply planning and projects, and

WHEREAS the Coachella Valley stakeholders have worked collaboratively to identify water related issues and needs, establish regional goals and objectives, develop a project submittal and prioritization process, and provide recommendations on the projects and programs included in the Plan, and

NOW THEREFORE BE IT RESOLVED that the **_PUEBLO UNIDO CDC ___** adopts the Coachella Valley Integrated Regional Water Management Plan and is committed to continued development and implementation of the Plan to help address the critical water related needs of Coachella Valley, and

BE IT FURTHER RESOLVED that we support and encourage the Coachella Valley Regional Water Management Group to quickly adopt this Plan to qualify for funding under Round 1 of the Proposition 84 IRWM Grant Program and we encourage the Department of Water Resources to fully fund the grant applications that are prepared as a result of this Plan, and

BE IT FINALLY RESOLVED that we pledge to continue working to develop the planning and projects that address the long- and short-term solutions to the Valley's critical water needs, address our regional goals and objectives, and improve the conditions and the quality of life for our communities.

ADOPTED this ___10_____ day of December 2010

53040 Avenida Mendoza, La Quinta, CA 92253 - PO Box 1130, Thermal CA 92274 - Phone (427) 0985 Fax (760) 777-7550 www.pucdc.org

Appendix 2-2: Proof of Formal Adoption

Chair of the Board of Directors

Attest:

Secretary

Torres Martinez Desert Cahuilla Indians
P.O. Box 1160
Thermal CA 92274

Resolution **#TM-03-13-008**

Resolution adopting the Coachella Valley Integrated Regional Water Plan

Whereas, the Torres Martinez Desert Cahuilla Indians (Tribe) is a Sovereign Indian Nation; and

Whereas, the Torres Martinez Desert Cahuilla Indians has identified a need to adopt the Coachella Valley Integrated Regional Water Plan to make available clean, safe, potable water to its Tribal families; and

Whereas, the Tribe wishes to apply for various funding to provide potable water to its members and a requirement is to have an Integrated Water Plan in place; and

Whereas, the Tribe hereby adopts the Coachella Valley Integrated Regional Water Plan.

Now therefore be it resolved that the Torres Martinez Desert Cahuilla Indians Tribe hereby adopts the Coachella Valley Integrated Regional Water Plan

CERTIFICATION

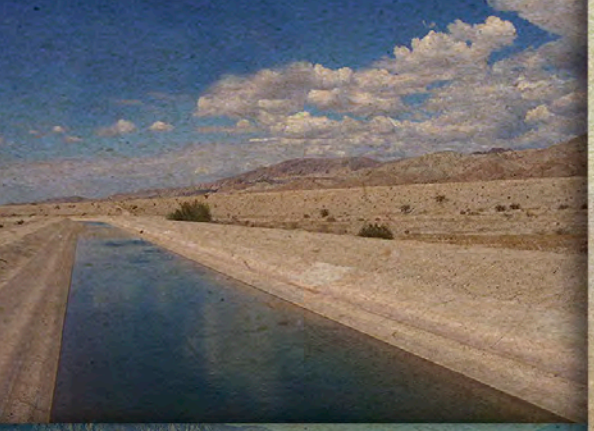
This Resolution is hereby approved by the Torres Martinez Tribal Council on this 20th day of March of 2013 by a vote of 3 "in favor", 0 "opposed", and 2 "abstaining". We, the Members of the Torres Martinez Desert Cahuilla Indians Tribal Council, do hereby certify that the foregoing Resolution has not been amended or rescinded in any way.

for Raymond Torres

Mary L. Resvaloso, Tribal Chairwoman

Thomas Tortez (Acting Secretary)

Alesia Reed, Tribal Secretary







Attachment 3

Work Plan

Implementation Grant, Round 2

Coachella Valley IRWM
Implementation Grant Proposal

Attachment 3

Coachella Valley Integrated Regional Water Management Implementation Grant Proposal – Round 2

Work Plan

Attachment 3 consists of the following item:

- ✓ **Work Plan**

Attachment 3 contains detailed information regarding the tasks that were and will be performed for each project constituting the proposal, as well as supporting documents such as regional and project maps, and existing data and studies.

This attachment contains summary descriptions of all the projects constituting the *Coachella Valley IRWM Implementation Grant Proposal – Round 2* and tasks necessary to complete each project in the proposal. This attachment demonstrates that the proposal is ready for implementation, and includes a brief discussion of the supporting studies, data, resources, and deliverables for each project, to ensure implementation of the proposal is based on sound scientific and technical principles. The tasks included in this Work Plan are also consistent with the major tasks and sub-tasks identified in the Budget (Attachment 4) and Schedule (Attachment 5) of this Proposal.

Introduction

The Coachella Valley Regional Water Management Group (CVRWMG) is comprised of the Coachella Water Authority (CWA), Coachella Valley Water District (CVWD), Desert Water Agency (DWA), Indio Water Authority (IWA), and Mission Springs Water District (MSWD). The IRWM regional boundary (Region) was selected because it is all-encompassing, and allows for the inclusion of all pertinent agencies and stakeholders interested in water management in the Coachella Valley. As such, besides the CVRWMG, the Coachella Valley IRWM planning process also includes input from key water-related stakeholders throughout the Region. The established governance structure for the Coachella Valley IRWM process is a collaborative, consensus-seeking process made up of the CVRWMG, Planning Partners, Issues Groups, and stakeholders.

The Coachella Valley IRWM Plan identifies five goals and thirteen objectives that were established to meet those goals. Each of the IRWM Plan goals and their corresponding objectives are listed in Table 3-1. The project prioritization process used to select from the Region's IRWM project list emphasized projects that contribute to these regional goals. Five projects were specifically selected by the CVRWMG and Planning Partners to meet the critical water resource issues and concerns of the Coachella Valley.

The five projects in this proposal will diversify water supply, improve water quality, and meet critical water and wastewater needs of disadvantaged communities (DACs), three critical issues in the Coachella Valley. Because groundwater is the primary source of water supply in the Coachella Valley, groundwater protection is a primary concern to regional stakeholders.

This proposal includes a suite of projects identified by the CVRWMG and Planning Partners to best meet the current challenges of Coachella Valley. The complete proposal offers an integrated solution to the Valley's water supply and water quality needs.

Table 3-1: Coachella Valley Region IRWM Plan Goals and Objectives

Goals	Objectives
1. Optimize water supply reliability.	A. Provide reliable water supply for residential and commercial, agricultural community, and tourism needs.
	B. Manage groundwater levels to reduce overdraft, manage perched water, and minimize subsidence.
	C. Secure reliable imported water supply, including restoring/improving reliability of State Water Project supply and securing other imported water supplies.
	D. Maximize local supply opportunities, including water conservation, water recycling and source substitution, and capture and infiltration of runoff.
2. Protect or improve water quality.	E. Protect groundwater quality and improve, where feasible.
	F. Preserve and improve surface water quality by maintaining integrity of agricultural drainage systems, protecting the quality of natural runoff used for potable supply, and reducing pollution in stormwater runoff.
3. Provide stewardship of our water-related natural resources.	G. Preserve local environment and restore, where feasible.
	H. Manage flood risks, including current acute needs and needs for future development.
4. Coordinate and integrate water resource management.	I. Optimize conjunctive use of available water resources.
	J. Maximize stakeholder involvement and stewardship in water resource management.
5. Ensure cultural, social, and economic sustainability of water in the Valley.	K. Address water-related needs of local Native American culture.
	L. Address water and sanitation needs of disadvantaged communities, including those in remote areas.
	M. Maintain affordability of water.

Proposal Goals and Objectives

The objective of this *Coachella Valley IRWM Implementation Grant Proposal* is to present a suite of projects that:

- Further the regional goals and objectives established in the IRWM Plan;
- Provide multiple benefits through integration of water management strategies; and
- Assist in meeting the Coachella Valley's critical water supply and water quality needs.

Purpose and Need

The purpose and need of this Implementation Grant Proposal are intrinsically linked to the goals and objectives of the Coachella Valley IRWM Plan. This is evident in the fact that part of the criteria used by the CVRWMG and Planning Partners to select projects to include as part of this proposal was the ability of a project to meet the goals and objectives of the Coachella Valley IRWM Plan. Table 3-2 provides a summary of the five projects contained within this proposal, and their contribution to the IRWM Plan Objectives. For a full explanation of the purpose and need of each project, and how the purpose and need address the Coachella Valley IRWM Plan's goals and objectives, please refer to the Proposed Work section of this attachment, which includes this type of project-specific information.

Table 3-2: Contribution to IRWM Plan Objectives

Proposed Project	Contribution to IRWM Plan Objectives												
	A	B	C	D	E	F	G	H	I	J	K	L	M
Non-Potable Water Use Expansion Program	●	●	●	●					○	○	○	○	●
Coachella Valley Salt and Nutrient Management Program	○	○		○	○					●	○	○	○
Groundwater Quality Protection Program – Sub-Area D-2	○	○		○	●					○		●	○
San Antonio del Desierto DAC Sewer Extension Project	○		●	○	●	○	○			●		●	○
Torres Martinez Avenue 64 Water Supply Connection Project	●	●								○	●	●	●

● = directly related ○ = indirectly related

Project List

The five projects in this proposal will diversify water supply, improve water quality, and meet critical water and wastewater needs of DACs, three critical issues in the Coachella Valley. Table 3-3 presents the specific projects included as part of the Proposal. An abstract, current project status, and implementing agency is provided for each project.

Table 3-3: Projects in Coachella Valley IRWM Implementation Grant Proposal – Round 2

Project	Description	
1: Non-Potable Water Use Expansion Program	*Abstract:*	The *Non-potable Water Use Expansion Program* is a form of source substitution - the delivery of an alternate source of water to users who currently depend on groundwater pumping. The substitution of an alternate non-potable water source reduces groundwater extraction and allows the groundwater to remain in storage, thus reducing overdraft. It also matches source to use by providing untreated Colorado River water (Canal water) and recycled water for outdoor irrigation in lieu of higher quality groundwater. Canal water and recycled water are significant existing local resources that are underutilized for agricultural and golf course irrigation. Backbone distribution systems exist to deliver non-potable water, but funding is needed to connect potential customers to existing non-potable distribution systems and further reduce groundwater pumping. In the eastern portion of the Coachella Valley (generally east of Washington Street), the Coachella Canal (Canal) and its adjacent irrigation distribution system has delivered Colorado River water to the agricultural community since 1950. However, this system has not been fully utilized. In the western portion of the Coachella Valley, the backbone of the area's non-potable water system, the Mid-Valley Pipeline (MVP), was completed in 2008, and has the capacity to serve approximately 50 golf courses. There are over 110 golf courses in the Coachella Valley with access to non-potable water. CVWD has entered a standardized non-potable water use agreement with 43 of these golf courses that requires them to meet at least 80% of their demand with non-potable water. Of these 43 courses, 14 receive water from the MVP system and 29 receive water from the Canal distribution system. This project would fund three west Valley golf course connections (connections to the MVP), one improvement to a pump station, and four east Valley golf course connections (to the Canal system).
	Status:	Project planning and preliminary design has already been completed via the Mid-Valley Pipeline Final Concept Paper (CVWD 2005), and is currently considered to be at 30% design. Final design work is included in the scope of this project.

Project	Description	
	Sponsor:	Coachella Valley Water District
2: Coachella Valley Salt and Nutrient Management Program	*Abstract:*	The *Coachella Valley Salt and Nutrient Management Program* will implement the analytical and planning tasks needed to develop a SNMP for the Coachella Valley Groundwater Basin that is compliant with the State's Recycled Water Policy. Key tasks to be undertaken by the CVRWMG include: 1. *Establish a collaborative process* of Valley stakeholders interested in groundwater management, which will entail setting up working groups, conducting technical review meetings and conference calls, conducting stakeholder workshops, and program management. 2. *Characterize the groundwater basins*, including identifying the groundwater basins to be evaluated, collecting and reviewing existing groundwater data, documenting beneficial uses, characterizing groundwater quality and occurrences, identifying constituents of concern, and establishing baseline conditions. 3. *Identify salt/nutrient loading and trends* by first identifying salt/nutrient sources, and then quantifying salt/nutrient source loads and developing a plan for data gaps. 4. *Identify water management goals and potential strategies*, which would entail developing a list of potential management strategies, evaluating the feasibility of those potential management strategies, and then conducting an assimilative capacity analysis. 5. *Conduct anti-degradation process*, which includes assessing load reduction and water quality improvements, and identifying preferred management strategies. 6. *Finalize the SNMP*, which includes developing an implementation plan, identifying metrics and developing a monitoring plan, developing data management, reporting, and audit processes, determining CEQA/NEPA compliance needs, and producing the SNMP document. Successful completion of the SNMP is necessary to ensure compliance with the Recycled Water Policy. Compliance with this policy is necessary for continued Colorado River RWQCB approval of recycled water permits in the Basin. Therefore, developing the SNMP will enable continued use and expansion of the Valley's water recycling efforts, which are an important component of the Region's groundwater management strategy. Development of the Coachella Valley SNMP would be a collaborative process driven by stakeholders that have already been identified during Phase I activities. This program allows the Region's water and wastewater agencies to better manage salts and nutrients in the groundwater basin to preserve the high quality groundwater supply used for potable purposes.
	Status:	This program does not require any design work. However, Phase I of the program has already been completed, and Phase II (described in this work plan) is ready for implementation.
	Sponsor:	Coachella Valley Water District on behalf of the CVRWMG

Project	Description	
3: Groundwater Quality Protection Program – Sub-Area D-2	*Abstract:*	The City of Desert Hot Springs is classified as an economically disadvantaged community (DAC), located within the MSWD service area, which is located within the Colorado River Basin. This community overlays the Desert Hot Springs groundwater aquifer, a hot-water groundwater basin containing hot mineral water with temperatures exceeding 100 degrees Fahrenheit. This water serves as the economic basis of the City of Desert Hot Springs, because it draws visitors to the City's numerous spa resorts and hotels. The Colorado River RWQCB's *Basin Plan* notes septic system impacts to groundwater as a critical regional issue, and specifically states that septic systems within the Colorado River Basin have the potential to negatively impact groundwater. Portions of the City of Desert Hot Springs have septic tank densities that are 2.3 to 2.8 times higher than the density recommended by the RWQCB. As such, the high density of the septic systems potentially threaten the water quality of the local groundwater supply. These septic systems also potentially threaten the local economy, which is highly dependent on hot mineral water to support the spa and hotel industry. As a response to local issues associated with high-density septic systems, Assessment District 12 was approved by voters in 2004, providing approximately $28 million of matching funds that expires in 2014. This money was used to fund engineering design of a wastewater collection system that will abate approximately 6,000 on-site septic systems. Design of 10 sub-areas that make up the Assessment District is complete, and funds are now needed for construction. Environmental compliance documentation was completed in 1998 and re-certified in 2007. The project area, Subarea D2, consists of 582 parcels and 382 existing on-site septic systems that will be converted to sewers. Wastewater collected by the MSWD sewer system would be sent to the existing Horton Wastewater Treatment Plant (WWTP), where it would be beneficially reused via percolation. Project construction includes installing 18,555 lineal feet of 8-inch vitrified clay pipe (VCP) sewer, 15,281 lineal feet of 4-inch VCP sewer laterals, 70 manholes, and all appurtenances. Final design work for Subarea D2 was completed in 2010, and construction is currently ready to bid. As such, this project is at 100% completion of design.
	Status:	This project is ready for implementation. 100% design for the project has been completed.
	Sponsor:	Mission Springs Water District
4: San Antonio del Desierto DAC Sewer Extension Project	*Abstract:*	The San Antonio del Desierto (St. Anthony) Mobile Home Park is located along Highway 111, south of Avenue 66 and north of Avenue 68 in the Coachella Valley in an unincorporated portion of Riverside County known as Mecca. This mobile home park, which contains approximately 400 residents, is considered an economically disadvantaged community (DAC) per requirements established by DWR. The mobile home park is owned by the Pueblo Unido CDC, which is in the process of acquiring legal permitting for the mobile home park in the form of a Conditional Use Permit (CUP) from the County of Riverside. One of the conditions of the CUP is that the mobile home park must convert to a sanitary wastewater system, as the mobile home park currently relies upon five (5) anaerobic wastewater treatment lagoons for wastewater treatment and disposal. The lagoons are in extremely close proximity (within 150 feet) to the mobile home park residents. Inadequate design of the lagoons, including lack of proper lining, location, and unstable dikes, urge the need to provide a sanitary and reliable wastewater disposal and

Project	Description	
		treatment system for residents of the mobile home park. Inadequate design of the lagoons not only provides concerns relating to the health and safety of mobile home park residents, but also presents water quality concerns within and surrounding the project area. Due to the project's location within the eastern Coachella Valley, the project area is underlain by a shallow groundwater aquifer with a high water table. As such, inadequate lagoon conditions pose a potential threat to groundwater quality within the surrounding area as wastewater and associated contaminants from the lagoons could potentially contaminate the groundwater due to the lack of an adequate barrier lining the lagoons. Due to the proximity of the mobile home park to the CVWD's sewer sanitary collection system, connecting to the CVWD municipal wastewater system is the best option for meeting project-related needs. The project proposes the installation of a gravity sewer pipeline, lift station, and a sewer force main pipeline that will collect wastewater from the St. Anthony Mobile Home Park. The project will provide sewer service to the residents and convey the wastewater to CVWD's Water Reclamation Plant No. 4 (WRP-4).
	Status:	Preliminary engineering for this project is currently underway. The project will be considered to be at the 30% design phase by September 2013.
	Sponsor:	Pueblo Unido Community Development Corporation (Pueblo Unido CDC)
4: Torres-Martinez Avenue 64 Water Supply Connection Project	*Abstract:*	The *Torres-Martinez Avenue 64 Water Supply Connection Project* would provide funding to engineer the development of a new water supply for the Torres-Martinez Avenue 64 potable water system (PWS) located at the intersection of Avenue 64 and Monroe Street. This new supply source would be from the Coachella Valley Water District's (CVWD) potable water system through the construction of 100 feet of 12-inch Ductile Iron (DI) water main and provide a master meter at the southeast corner of Monroe Street and Avenue 62. This new water main would improve the safety and reliability of the water supply and would connect at two points to PWS's existing water distribution system that currently serves the subdivision, one for the domestic water supply and one for fire protection service. The community water system that feeds this subdivision that includes 33 single occupancy homes with an estimated 100 people and a church that is owned and operated by the Torres- Martinez DCI. The existing wells, pumping system, and storage tanks currently servicing the Avenue 64 PWS was evaluated through several studies and reported to be suffering from a lack of maintenance and upkeep. The conclusions in the *Preliminary Engineering Report* determined that "upgrades to the existing system would be prohibitively expensive, or would only solve some of the system's many existing issues. In addition, the existing water source for the Tribal system would be permanently disconnected from the distribution system." As such, the Report concludes that the most effective long-term solution to providing safe and reliable drinking water to the Avenue 64 Subdivision would be to connect to the CVWD municipal system, as proposed in this project. CVWD would own the short extension of 12-inch DI water main and the master meter. The Tribe would own and maintain the 4-inch PVC distribution system from the master meter throughout the subdivision.
	Status:	A preliminary engineering report has been completed for the project. As such, this project is currently at the 10% (conceptual) design phase.
	Sponsor:	Torres-Martinez Desert Cahuilla Indians

Integrated Elements of Projects

Several of the projects included in this proposal are linked, and the coordinated implementation of each project is critical to the success of the proposal as a whole. The proposal has been crafted to maximize the linkages and integration between the projects within the proposal, and projects included in the proposal have been selected based on their ability to generate multiple benefits.

The *Non-potable Water Use Expansion Program* is directly connected to the *Coachella Valley Salt and Nutrient Management Program*, as implementation of recycled water programs would not be possible without development of a Salt and Nutrient Management Plan consistent with the Recycled Water Policy. Because source substitution is an important strategy for managing groundwater overdraft, implementation of both projects is critical for the Valley.

The *Groundwater Quality Protection Program – Subarea D2, Torres-Martinez Avenue 64 Water Supply Connection Project*, and *San Antonio del Desierto DAC Sewer Extension Project* all serve the Region's DACs by providing healthy and sanitary municipal water and wastewater services. The Coachella Valley IRWM Plan identifies the critical need to serve the Region's DACs (IRWM Plan Objective L) and this funding application helps the Region to accomplish that goal.

The two septic-to-sewer projects – *Groundwater Quality Protection Program – Subarea D2* and *San Antonio del Desierto DAC Sewer Extension Project* – also link to the *Coachella Valley Salt and Nutrient Management Program* in that they will be removing a source of nutrient and salt loading in the subbasin. Reducing this loading will help the Coachella Valley Groundwater Basin to meet overall *Basin Plan* objectives.

For a full explanation of the linkages and synergies between projects, please refer to the Proposed Work section of this attachment (below).

Regional Map

Figure 3-1 provides a regional map containing the location of proposed activities or facilities of the projects and the water resources that will be affected. Figure 3-2 provides a regional map containing the location of proposed activities or facilities of the projects and the DACs within the Region. Please note that monitoring locations are not relevant to the five projects within this proposal, and are therefore not shown on Figure 3-1 or Figure 3-2.

Completed Work

Each individual work plan for the five projects included in this proposal provides a description of both completed work (work that has been or is expected to be completed prior to the grant award date of September 30, 2013, and future work for each of the four projects included within this proposal.

Existing Data and Studies

Available data and studies have been collected and reviewed to support the feasibility and technical methods of the projects included within this proposal. For a list of the existing data and studies for each project, please refer to individual project work plans included in this attachment. The specific page numbers that provide information supporting the feasibility and technical methods of the projects included in this proposal are included as Appendices 3-1 through 3-5. Complete documentation of the existing data and studies included for each individual project have been submitted on a separate CD as part of this Implementation Grant Proposal.

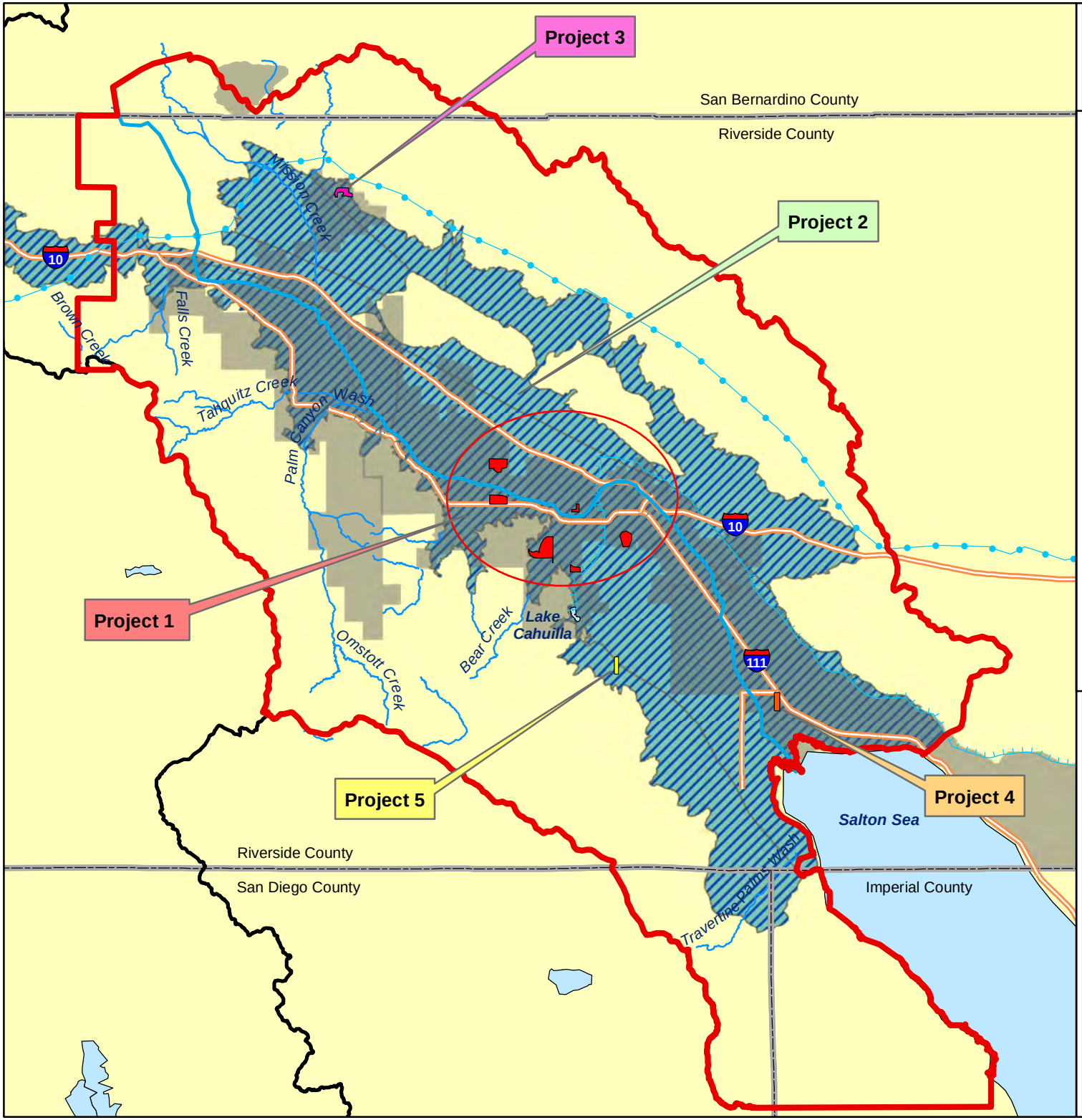
Project Timing and Phasing

Some projects included in this proposal are multi-phases projects and can operate on a standalone basis whiles others are not. For project timing and phasing for each project please refer to individual project work plans included in the following section of this attachment.

Basin Plan Consistency

As explained previously, the projects in this proposal work to protect groundwater quality in a variety of ways, including through permanently removing sources of groundwater pollution that can be contained within septic system and wastewater lagoon effluent. The projects also work to maintain adequate groundwater levels and supplies within the Region by supporting activities that will maintain or increase source substitution to manage groundwater levels on a long-term basis. These groundwater quality and groundwater management benefits imparted by the projects ensure that this proposal will be consistent with the *Water Quality Control Plan for the Colorado River Basin* (Basin Plan), because they will help to protect beneficial uses that rely on the Region's groundwater.

In addition, the proposal includes a program (*Coachella Valley Salt and Nutrient Management Program*) that will help meet goals set forth in the State's Recycled Water Policy to ensure compliance with water quality objectives while protecting beneficial uses established in the Basin Plan.



CVIRWMP Project Locations with Groundwater Basin

Project Location

- Project 1: Non-Potable Water Use Expansion Program
- Project 2: Coachella Valley Salt and Nutrient Management Program
- Project 3: Groundwater Quality Protection Program - Sub-Area D-2
- Project 4: San Antonio del Desierto DAC Sewer Extension Project
- Project 5: Torres-Martinez Avenue 64 Water Supply Connection Project
- Colorado River Aqueduct
- Coachella and All American Canals
- Whitewater River Stormwater Channel
- River or Creek
- Interstate Hwys.
- Lakes
- Colorado River Funding Area
- Coachella Valley IRWM Region
- City or Unincorporated Community
- Groundwater Basin

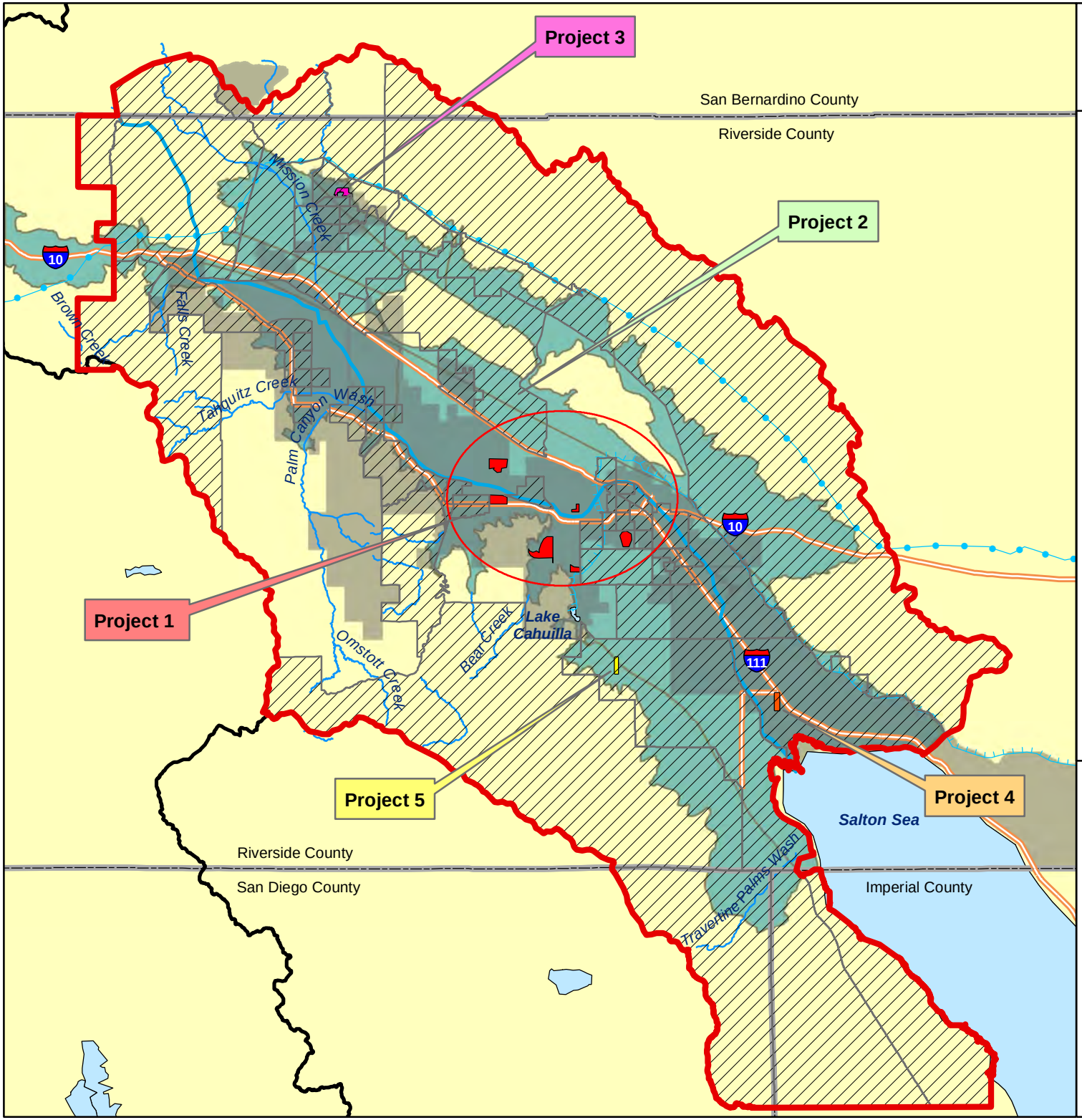
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COACHELLA VALLEY IRWMP

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Date Updated: November 2010
Made By: DNF
Department: RMC Water & Environment



CVIRWMP Project Locations with Diadvantaged Communities

Project Location

- Project 1: Non-Potable Water Use Expansion Program
- Project 2: Coachella Valley Salt and Nutrient Management Program
- Project 3: Groundwater Quality Protection Program - Sub-Area D-2
- Project 4: San Antonio del Desierto DAC Sewer Extension Project
- Project 5: Torres-Martinez Avenue 64 Water Supply Connection Project
- Colorado River Aqueduct
- Coachella and All American Canals
- Whitewater River Stormwater Channel
- River or Creek
- Interstate Hwys.
- Lakes
- Colorado River Funding Area
- Coachella Valley IRWM Region
- City or Unincorporated Community
- Disadvantaged Communities

Disadvantaged communities are considered those who earned less than $48,706 (80% Statewide MHI)

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COACHELLA VALLEY IRWMP

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Date Updated: November 2010
Made By: DNF
Department: RMC Water & Environment

Proposed Work (Work Plan Tasks)

The following sections outline the specific activities that will be performed to implement each project in the *Coachella Valley IRWM Implementation Grant Proposal – Round 2*. In addition, the following sections describe the specifics of each project with respect to project sponsors, project need, project purpose, project objectives, project partners, project abstract, linkages and synergies between projects, existing data and studies, project timing and phasing, and project mapping.

Project 1: Non-potable Water Use Expansion Program

1. Introduction

Project Sponsor

Coachella Valley Water District (CVWD) is the sponsor for the *Non-potable Water Use Expansion Program.*

Project Need

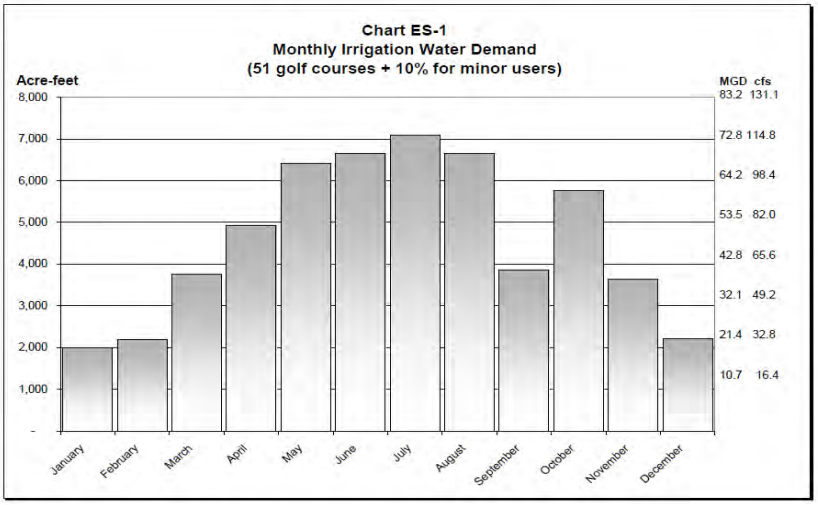
The groundwater supply of the Whitewater River Subbasin consists of a combination of natural runoff and returns from groundwater and imported water use. The supply is supplemented with artificial recharge with both State Water Project (SWP) exchange water and Colorado River water. Total inflows are estimated to be about 331,000 acre-feet per year (AFY). Outflows from the basin consist of pumping, flows to the agricultural drainage system, evapotranspiration by native vegetation, and subsurface outflow to the Salton Sea. Total basin outflows are estimated to be 441,000 AFY.[1]

DWR's Bulletin 108 (1964) and Bulletin 118 (2003) both documented that the annual loss in storage (overdraft) for the Coachella Valley is an ongoing problem. The *Coachella Valley Water Management Plan Update* acknowledges that the overdraft condition of the Coachella Valley has caused groundwater levels to decline in many portions of the East Valley from La Quinta to the Salton Sea, and has raised concerns about water quality degradation and land subsidence. For the ten-year period of 2000 to 2009, an average of 110,000 AFY was removed from storage.[2]

The *Coachella Valley Water Management Plan Update* identifies source substitution as one of the primary tools to address the Coachella Valley's overdraft issue and specifically recommends maximizing use of local sources of non-potable water for agricultural and golf course irrigation.[3] There are 50 golf courses within the Mid-Valley area, including the golf courses proposed as part of the *Non-potable Water Use Expansion Program*. Annual water use of these courses in 2015 will be approximately 50,200 AFY or 975 AFY per golf course. Minor irrigation water users in the area include homeowners associations, parks, and the Palm Desert High School. Figure 3-3 shows the monthly use of irrigation water in the Mid-Valley area.

[1] CVWD. 2010. *Coachella Valley Water Management Plan Update*. Section 4.1.6 Overdraft Status, page 4-11.
[2] CVWD. 2010. *Coachella Valley Water Management Plan Update*. Section 4.1.6 Overdraft Status, page 4-11.
[3] CVWD. 2010. *Coachella Valley Water Management Plan Update*. Section 6.5 Source Substitution, page 6-24.

Figure 3-3: Monthly Irrigation Water Demand in Mid-Valley[4]



Project Purpose

The purpose of the *Non-potable Water Use Expansion Program* is to reduce groundwater overdraft by providing non-potable water supply for agricultural and golf course irrigation in lieu of groundwater, which would reduce groundwater extraction and associated overdraft.

Project Abstract

The proposed *Non-potable Water Use Expansion Program* is a form of source substitution - the delivery of an alternate source of water to users who currently depend on groundwater pumping. The substitution of an alternate non-potable water source reduces groundwater extraction and allows the groundwater to remain in storage, thus reducing overdraft. It also matches source to use by providing untreated Colorado River water (Canal water) and recycled water for outdoor irrigation in lieu of higher quality groundwater.

Canal water and recycled water are significant existing local resources that are underutilized for agricultural and golf course irrigation. Backbone distribution systems exist to deliver non-potable water, but funding is needed to connect potential customers to existing non-potable water distribution systems and further reduce groundwater pumping.

In the eastern portion of the Coachella Valley (generally east of Washington Street), the Coachella Canal (Canal) and its adjacent irrigation distribution system have delivered Canal water to the agricultural community since 1950. However, this system has not been fully utilized. In the western portion of the Coachella Valley, the backbone of the area's non-potable water system, the Mid-Valley Pipeline (MVP), was completed in 2008. It has the capacity to serve approximately 50 golf courses.

There are over 110 golf courses in the Coachella Valley with access to non-potable water. CVWD has entered a standardized non-potable water use agreement with 43 of these golf courses that requires them to meet at least 80% of their demand with non-potable water. Of these 43 courses, 14 receive water from the MVP system and 29 receive water from the Canal distribution system.

This project would fund three west Valley golf course connections (connections to the MVP), one improvement to the L4 Pump station, and four east Valley golf course connections (to the Canal system) that are more or less shovel ready:

[4] Mid-Valley Pipeline Final Concept Paper, 2005.

Mid Valley Pipeline

1. Desert Horizons Country Club – this project extends the 24" distribution pipeline from the existing stub-out at the Coachella Valley Stormwater Channel to Fred Waring Drive and constructs a new pipeline and meter to the Desert Horizons Country Club.
2. Indian Springs Country Club – this project extends the 24" distribution pipeline from the existing stub-out at the Coachella Valley Stormwater Channel to Fiesta Drive and constructs a new pipeline and meter to the Indian Springs Country Club.
3. The Lakes Country Club – this project constructs two new sections of 12" pipeline and meters from the 24" high pressure pipeline and one new 12" pipeline and meter from the low pressure pipeline to the Lakes Country Club.

Canal System

4. *L4 Pump Station Improvements* – this project replaces the broken meter at Citrus Country Club and installs Variable Frequency Drives (VFDs) at the L4 Pump Station.
5. *L4 La Quinta Extensions* – this project extends Irrigation Lateral 120.8 from the relocated L4 Pump Station to Avenue 52 and includes three new meters for Canal water delivery to the La Quinta Country Club, the La Quinta Resort Mountain Course, and the La Quinta Resort Dunes Course.
6. *Indian Palms Golf Course* – this project extends the 12" Irrigation Lateral 117.8 from Monroe Street to the Indian Palms Golf Course.

The three golf courses located in the western portion of CVWD's service area would receive 2,152 AFY of recycled water and 1,998 AFY of Canal water via the existing MVP. The four golf courses located in the eastern portion of the service area would receive a total of 3,900 AFY of Canal water. In total, the *Non-potable Water Use Expansion Program* will provide 8,050 AFY in non-potable water supplies.

Project Partners

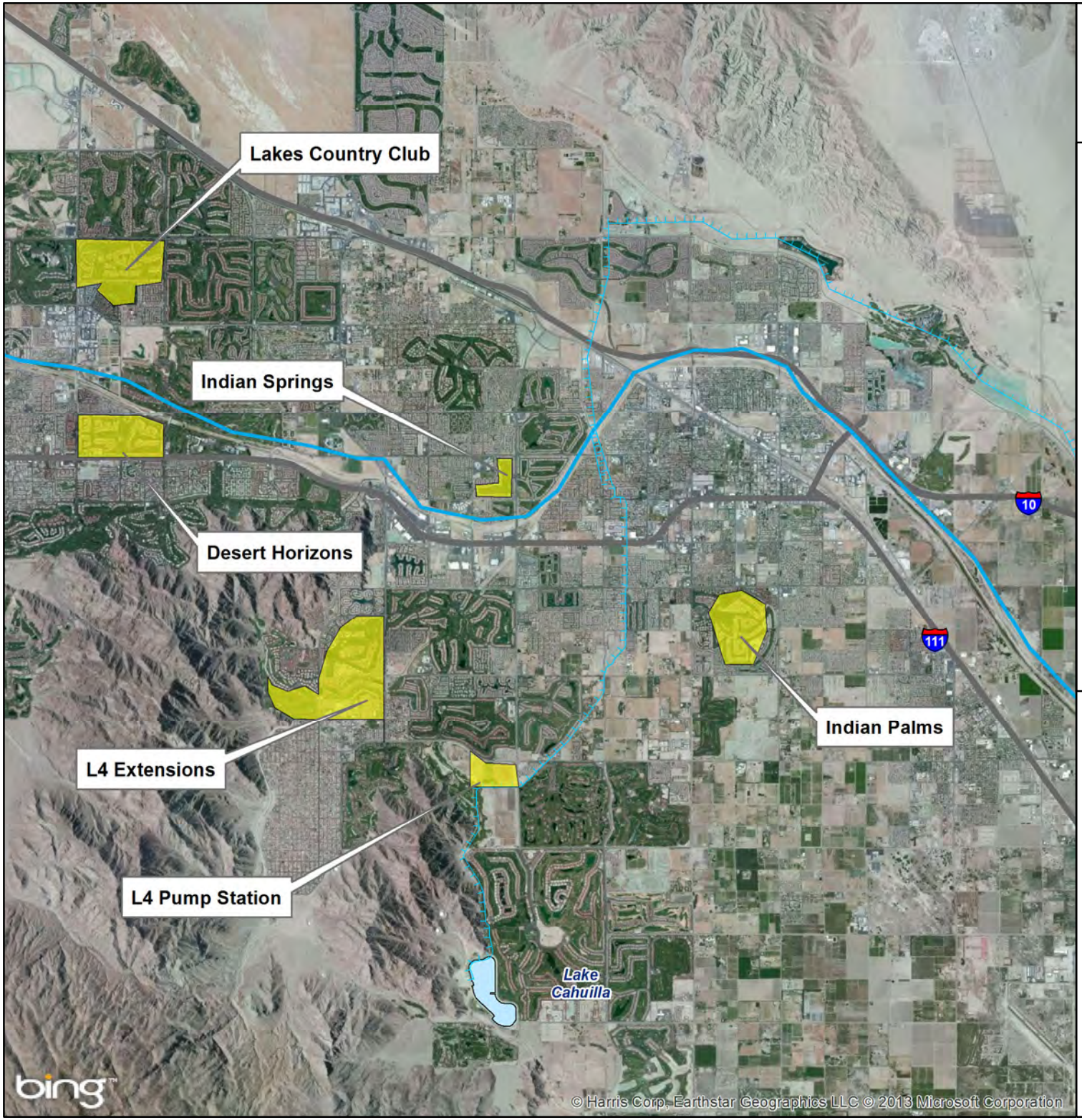
The primary agency for the *Non-potable Water Use Expansion Program* is CVWD, the owner and operator of the Coachella Canal and the MVP. Indio Water Authority (IWA) and Coachella Water Authority (CWA) are interested in taking an active role in connecting potential customers within their service areas as well. All three agencies use the groundwater basin as their urban water supply source and benefit from the project regardless of their level of participation in making connections, since this project would help to reduce groundwater extraction and associated overdraft. Between 300,000 and 400,000 residents who depend on the groundwater basin for their drinking water will benefit from this project.

Project Timing and Phasing

The project is a portion or phase of a larger multi-phased project. The backbone facilities for the *Non-potable Water Use Expansion Program* are in place and the purpose of the program is to expand the number of connections to and delivery of non-potable water supplies. The MVP is designed to connect 50 golf courses. To date, 14 golf courses have been connected. Each additional connection provides approximately 975 AFY of non-potable water for irrigation use and thus preserves that same volume of groundwater in storage. The Coachella Canal delivers a Colorado River allotment of 400,000 afy and which will increase to 459,000 AFY by 2026. Water that is not used for irrigation is recharged, though ample capacity exists for new connections.

Project Map

Figure 3-4 is a map showing the project's geographical location and surrounding work boundaries. Figures 3-5 – 3-10 are maps of the six (6) individual non-potable connections.



CVIRWMP Project Locations
Non-potable Service Area

Legend

- Non-potable connection Areas
- Colorado River Aqueduct
- Coachella and All American Canals
- Whitewater River Stormwater Channel
- Interstate Hwys.
- Lakes

Disadvantaged communities are considered those who earned less than $48,706 (80% Statewide MHI)

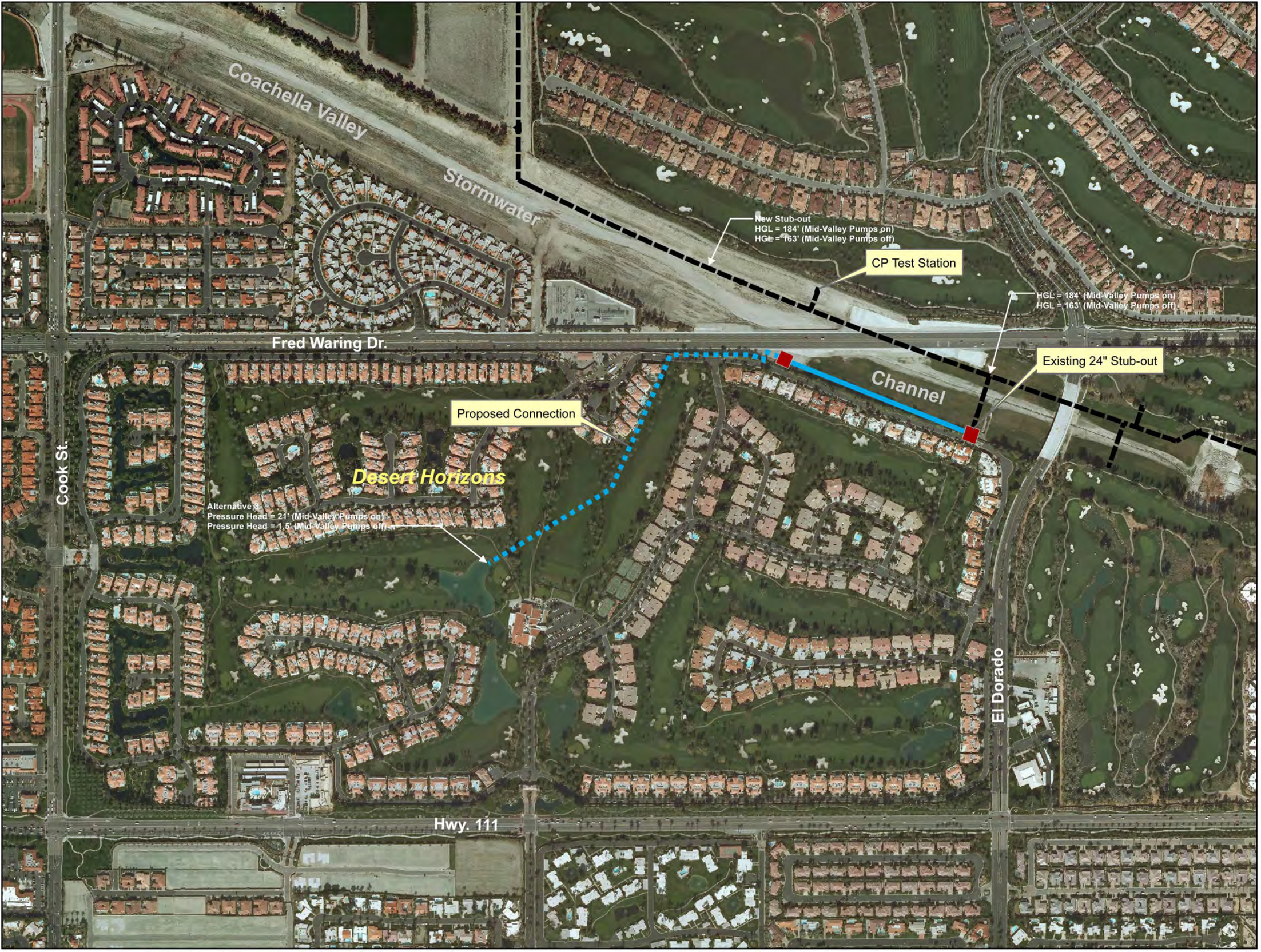
N
W E
S

0 0.5 1 2

Miles

COACHELLA VALLEY IRWMP

File Name: Fig 5-3_MHI.mxd
File Location: L:\Projects GIS\0264-001_CoachellaIRWMP\mxds\
Date Updated: November 2010
Made By: DNF
Department: RMC Water & Environment



Legend

- Meter/Connecting Point
- Proposed Connection Desert Horizons
- Proposed Connection CVWD 24" Pipeline
- Mid_Valley_Pipeline_Alignment

N
W E
S

0 250 500
Feet

Non-Potable Water Connections for Desert Horizons Golf Course

File Name: Alternative Connections for Desert Horizons 10-17-2011.mxd
File Location: J:\ENGCAD\GIS BACKUP\GIS Projects\Mike M GIS Projects\Sara Li
Date Updated: Friday, June 3, 2011
Made for: Sara Li
Made By: M.Morales (Rev. 5)
Department: CVWD Engineering - GIS

Indian Springs

Existing Connection

Alternative 2 & 3
Pressure Head = 135' (Mid-Valley Pumps on)
Pressure Head = 97' (Mid-Valley Pumps off)

Westward Ho Dr.

Indian Springs

Existing Stub-out
HGL = 214' (Mid-Valley Pumps on)
HGL = 163' (Mid-Valley Pumps off)

Channel

New Stub-out
HGL = 213' (Mid-Valley Pumps on)
HGL = 163' (Mid-Valley Pumps off))

Proposed Connection

Jefferson St.

Fiesta Dr.

Stormwater

Proposed Connection

New Stub-out
HGL = 205' (Mid-Valley Pumps on)
HGL = 163' (Mid-Valley Pumps off)

Coachella Valley

Stormwater Channel

N
W
E
S

Legend

- Meter/Connecting Point
- Mid_Valley_Pipeline_Alignment
- Existing Well_Site
- Proposed Connection Golf Course Pipeline
- Proposed Connection CVWD Pipeline

0 150 300 Feet

Non-Potable Water Connections for Indian Springs Golf Course

File Name: Alternative Connections for Indian Springs 10-17-2011.mxd
File Location: J:\ENGCAD\GIS BACKUP\GIS Projects\Mike M GIS Projects\Sara Li
Date Updated: Friday, June 3, 2011
Made for: Sara Li
Made By: M. Morales
Department: CVWD Engineering - GIS



Legend

- New MWP Meter Connection
- 12" NPW
- 24 " Low Pressure Nonpotable Water
- 24" High Pressure Nonpotable Water
- Lakes Country Club

N
W E
S

0 300 600
Feet

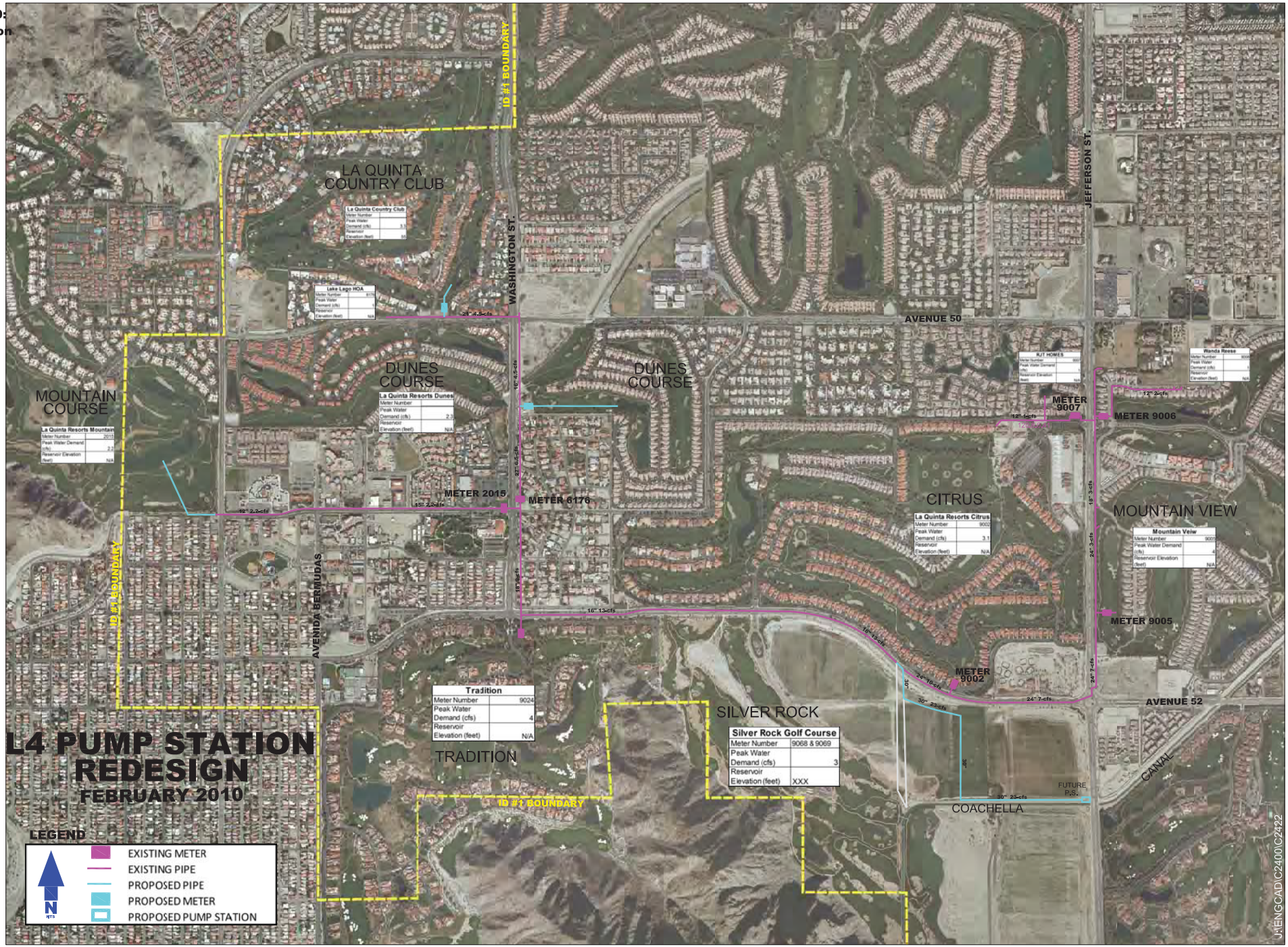
Non-Potable Water Connection
Lakes Country Club

WATER DISTRICT

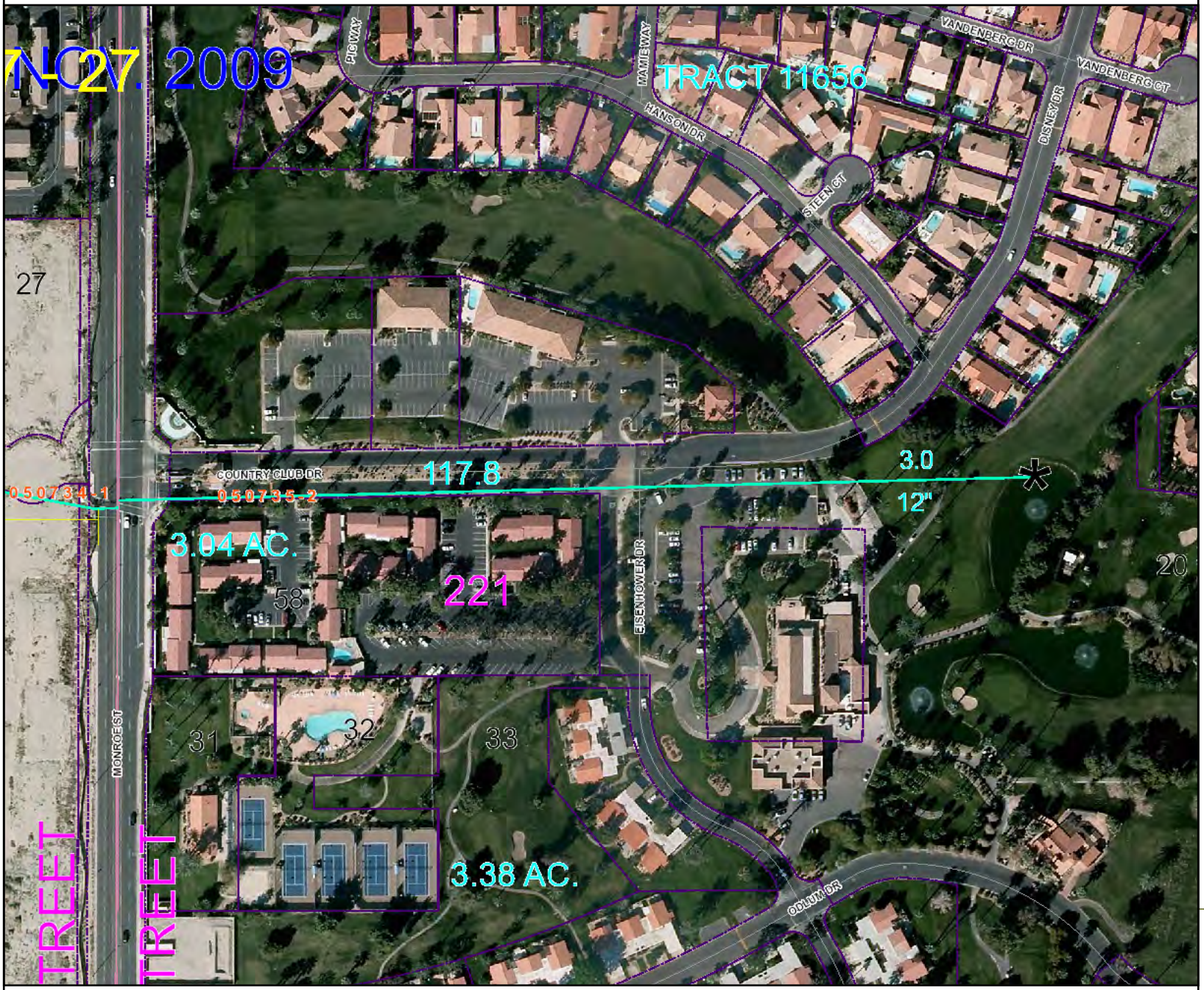
File Name: Lakes Country Club Non Potable Water Connection.mxd
File Location: J:\ENGCAD\GIS\Projects\Non Potable Water Lakes CC\Mxd\
Date Updated: Monday, February 11, 2013 @ 4:52:59 PM
Department: CVWD Engineering - GIS/CAD


Citrus Country Club
52nd Ave
SilverRock Golf Course
L4 Pump Station
Jefferson Street
Ave. 66
N
AVENIDA N
CETRINO
LIMA
LUISA
ANGELO
MARBELLA CT
CITRUS
FRESA
PALM GROVE DR
52ND AVE
ROSEWOOD LN
ADAMS ST

Figure 3-9: Connection 5 Map

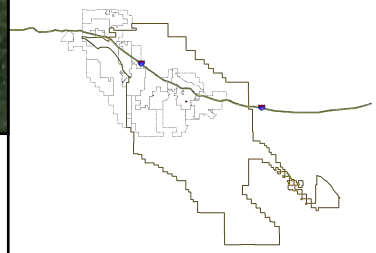


Lateral 117.8 - Indian Palms Entrance



Riverside Parcels
Imperial Parcels
AllAnno
Meter
Fitting
CustomerDeliveryPoint
Canal Water Availability
LinesForCustomerDeliveryPoints
LeaderLine
Lateral
EvacuationChannel
EasementLine
CVWD Canal
Street Centerlines
Interstate
Canal Mile Posts - Check Structure
Canal Lateral 97.1 - Junctions
Canal Lateral 97.1 - Pipelines
Mid Valley Pipeline
ID 1 Boundaries
Coachella Valley City Limits
CVWD Boundary
Quarter Sections

210 ft



Coachella Valley Water District uses the most current and complete data available. However, GIS data and product accuracy may vary. GIS data and products may be developed from sources of differing accuracy, accurate only at certain scales, based on modeling or interpretation, incomplete while being created or revised, etc. Coachella Valley Water District reserves the right to correct, update, modify, or replace, GIS products without notification. Coachella Valley Water District cannot assure the accuracy, completeness, reliability, or suitability of this information for any particular purpose. Using GIS data for purposes other than those for which they were created may yield inaccurate or misleading results. The recipient may neither assert any proprietary rights to this information nor represent it to anyone as other than District-produced information. Coachella Valley Water District shall not be liable for any activity involving this information with respect to lost profits, lost savings or any other consequential damages.

Project Objectives

The *Non-potable Water Use Expansion Program* is seeking to achieve the following objectives:

- Reduce groundwater overdraft by providing non-potable water supplies to golf courses in lieu of groundwater pumping
- Match source to use by providing Canal water and recycled water for outdoor irrigation in lieu of higher quality groundwater
- Maximize use of local non-potable water resources

Table 3-4 provides an overview of the Coachella Valley IRWM Plan Objectives that are expected to be achieved through implementation of the *Non-Potable Water Use Expansion Program*.

Table 3-4: Contribution to IRWM Plan Objectives

Project	IRWM Objective												
	A	B	C	D	E	F	G	H	I	J	K	L	M
Non-Potable Water Use Expansion Program	●	●	●	●					○	○	○	○	●

● = Directly helps achieve objective
○ = Indirectly helps achieve objective

The *Non-Potable Water Use Expansion Program* will contribute towards achieving the following CVIRWM Plan Objectives:

Objective A – Provide reliable water supply: The program will help to provide a reliable water supply for commercial/tourism needs (the golf course industry) via the provision of non-potable water consisting of Canal water and recycled water. Access to Canal water is secured by a contract, and CVWD is Priority 3a in California for Colorado River water delivered via the Coachella Canal. The Quantification Settlement Agreement (QSA) guarantees reliable delivery of 459,000 AFY of non-potable Colorado River water for the next 75 years (effective 2003). Use of recycled water under this project will provide a local water supply source that is not dependent upon imported water supplies.

Objective B – Manage groundwater levels: By expanding non-potable water service, this project will enable golf course customers to stop using potable groundwater for irrigation purposes. This will reduce groundwater pumping and overdraft via source substitution.

Objective C – Secure reliable imported water supply: By maximizing the capacity of non-potable water infrastructure, this project will offset the need to import additional SWP exchange water to the Region, and will therefore reduce net diversions from the SWP. This will help to improve the reliability of SWP water by reducing regional demands for this water source for non-potable uses.

Objective D – Maximize local supply opportunities: By expanding non-potable water service (including recycled water and Canal water), the project will provide local non-potable water for purposes of source substitution.

Objective I – Optimize conjunctive use: This project helps meets the Region's conjunctive use goals by reducing localized groundwater pumping that can reduce the capacity of the basin. Therefore, the project will help maintain the ability to use the groundwater basin to store excess imported water for conjunctive use purposes.

Objective J – Maximize stakeholder involvement: This project will involve direct coordination between CVWD and non-potable water customers, and will help to provide education and awareness for

source substitution and the ability to use non-potable water for irrigation. Therefore, the project will help assist with increasing stewardship in water resource management through education and awareness.

Objective K – Address water-related needs of Tribes: This project will reduce groundwater pumping for irrigation purposes, therefore making local groundwater available for other users, including Native American tribes.

Objective L – Address needs of DACs: This project will reduce groundwater pumping for irrigation purposes, therefore making local groundwater available for other users, including DACs.

Objective M – Maintain affordability of water: Non-potable water provided by the project will be provided to golf courses at a reduced cost in order to incentivize the use of this water. Therefore, this project will directly help to maintain the affordability of water.

Project Integration

As septic to sewer conversion continues throughout the Coachella Valley, recycled effluent volumes will increase and their use can be maximized for outdoor irrigation. Additionally, this program protects water quality, since high quality groundwater is left in the aquifer while non-potable water with higher total dissolved solids (TDS) levels is used for irrigation instead of recharge. The *Non-Potable Water Use Expansion Program* is a critical program that allows Coachella Valley's water agencies to protect the groundwater aquifer and slow groundwater overdraft.

Linkages and Synergies with Other Projects in the Proposal

This program would involve construction of facilities necessary to deliver additional non-potable water (including recycled water) to agricultural and golf course users. This program is directly connected to Project 2, the *Coachella Valley Salt & Nutrient Management Program*, as implementation of recycled water programs would not be possible without development of a Salt and Nutrient Management Plan consistent with the Recycled Water Policy.

Completed Work

The following work has been completed or is expected to be completed prior to the grant award date:

- Mid-Valley Pipeline Final Concept Paper (2005) established the feasibility of proceeding with the design and implementation of the non-potable delivery system.
- The backbone of the Mid-Valley Pipeline and irrigation system are complete.
- Agreements with new customers are standardized and implementable.
- CEQA work was completed via the *Coachella Valley Water Management Plan Update Supplemental Program Environmental Impact Report* (2010) and the *Mid-Valley Pipeline Environmental Impact Report* (2007). Proposed connections would consist of less than 1 mile of pipeline each and would require only a Categorical Exemption or Mitigated Negative Declaration.
- Connection details are generally standardized and easily implementable.

Existing Data and Studies

The following includes a list of data that have been collected and studies that have been performed that support the project site location, feasibility, and technical methods. These documents are also included as Appendix 3-1 to this attachment.

- Preliminary connection mapping for: Indian Palms, Desert Horizons, Indian Springs, and the Lakes and a nomination form for the L4 Pump Station
- Coachella Valley Water District (CVWD). 2010. *Coachella Valley WMP 2010 Update.* This comprehensive water management plan conducted by CVWD explains that non-potable water use via the Mid-Valley Pipeline and via delivery of Canal water is one of the Region's strategies for managing groundwater overdraft (Page 6-32).
- Coachella Valley Water District (CVWD). 2005. *Final Concept Paper: Mid-Valley Pipeline.* This report is a conceptual paper that analyzed recycled water and Canal water supplies as well as non-potable demands, and determined an appropriate ratio of recycled water: Canal water blending that would be appropriate for the Mid Valley Pipeline. In addition, this paper explains why the Mid Valley Pipeline concept was developed, to provide non-potable water to golf courses within the middle portion of the Coachella Valley.
- Coachella Valley Water District (CVWD). 2012. *Non-Potable Water: Board Report, November 27, 2012.* This presentation, given to the CVWD Board of Directors in November of 2012 explains non-potable water provisions by CVWD, explains reduced rates provided to golf course users, and explicitly states (Slide 10) that CVWD is targeting golf courses adjacent to the existing distribution system.
- Coachella Valley Water District (CVWD). 2011. *2010 Urban Water Management Plan*. This planning document provides updated non-potable water demand projections, and explains the importance of offsetting pumping with non-potable water sources.

II. Project Work

Row (a) Direct Project Administration

Task 1: Project Administration

CVWD will be responsible for overall grant administration for the *Coachella Valley Proposition 84-Round 2 Implementation Grant Proposal*. This will include compiling invoices and progress reports from all of the project sponsors, coordinating with DWR and Finance Department staff as needed, and processing grant payments. CVWD's Planning Manager will provide overall grant administration oversight and be the first point of contact for grant questions and issues, and CVWD's Analyst will handle processing of the invoice and progress report materials.

CVWD will also be responsible for project administration. If IWA and CWA choose to participate in the *Non-Potable Water Use Expansion Program*, coordination will be via MOU. Work will be performed by the agencies, up to the Customer's meter. Customers are responsible for costs on their side of the meter. CVWD's Standard Agreement provides for amortization of customer costs over time. The grant will not cover these amortized costs.

Task 1 Deliverables:

- Fully executed MOUs between project partners (if applicable)
- Quarterly invoices and progress reports, including required deliverables
- Project Assessment and Evaluation Plan
- Project Completion Report

Table 3-5: Row (a) Direct Project Administration
Non-Potable Water Use Expansion Program

Activity or Deliverable	Schedule	Status	Completion of Task	
			Before Sept 2013	After Sept 2013
Task 1: Project Administration				
CVWD Grant Administration, including invoicing, quarterly reporting, and other materials required by DWR	October 2013-June 2017	Not yet begun		X

Task 2: Labor Compliance Program

CVWD will implement a Labor Compliance Program (LCP), as per the Department of Industrial Relations regulations, for the *Non-Potable Water Use Expansion Program*. CVWD will assume all LCP administration costs and they are not included in this work plan.

Task 3: Reporting

CVWD will prepare quarterly invoices and progress reports for submittal to DWR as part of the grant contract. CVWD will also prepare a project completion report upon completion of all grant-funded activities associated with the proposed project. CVWD will assume all reporting costs and they are not included in this work plan.

CVWD will also ensure that all of the data collected and analyzed to measure program performance (as described in Attachment 6) will be submitted to DWR and made available to the public and to the Region for future inclusion within the Data Management System as required in the Data Management Standard.

Row (b) Land Purchase/ Easement

Some golf courses have private streets, so easements may have to be negotiated. Also, the non-potable water meter is usually located near a golf course lake, so easements may have to be negotiated on these private lands. Permanent pipeline easements will not be required. Instead, CVWD will obtain construction easements to construct the connections and delivery points, then deed these over to the land owner for operations and maintenance. CVWD will assume all easement costs, and they are not included in this work plan.

Row (c) Planning/ Design/ Engineering/ Environmental Documentation

Task 4: Assessment and Evaluation

No planning, conceptual, or technical studies are included in this work plan. As described above, the Mid-Valley Pipeline Final Concept Paper (2005) established the feasibility of proceeding with the design and implementation of the non-potable delivery system.

Task 5: Project Design

Prior to initiation of this grant proposal, CVWD prepared preliminary assessments of the proposed pipeline connections to the MVP and Canal water delivery systems. These preliminary assessments considered various alternative alignments and provided recommendations regarding final design for the connections.

After initiation of the grant agreement, final design will be required to solidify design of the pipeline connections. This design will be completed in-house by CVWD's Engineers for Connections 1-4 and 6, and by a combination of CVWD's Engineers and contract engineers for Connection 5.

Task 5 Deliverables:

- Final design specifications for Connections 1-6

Table 3-6: Row (c) Planning/ Design/ Engineering/ Environmental Documentation
Non-Potable Water Use Expansion Program

Activity or Deliverable	Schedule	Status	Completion of Task	
			Before Sept 2013	After Sept 2013
Task 5: Project Design				
Connection 1: Desert Horizons	September 2014 – June 2015	Not yet begun		X
Connection 2: Indian Springs	January 2015 – October 2015	Not yet begun		X
Connection 3: The Lakes	June 2015 – February 2016	Not yet begun		X
Connection 4: L4 Pump Station Improvements	October 2013 – June 2014	Not yet begun		X
Connection 5: L4 La Quinta Extensions	October 2013 – June 2014	Not yet begun		X
Connection 6: Indian Palms	March 2014 – November 2014	Not yet begun		X

Task 6: Environmental Documentation

CVWD will assume all CEQA, NEPA, or other environmental documentation costs, and they are not included in this work plan.

Task 7: Permitting

CVWD will assume all permitting costs, and they are not included in this work plan.

Row (d) Construction/ Implementation

Task 8: Construction Contracting

CVWD will be responsible for construction contracting. However, no construction contracting tasks are included in this work plan.

Task 9: Construction

This project would fund three West Valley golf course connections (connections to the MVP), one improvement to the L4 Pump station, and four East Valley golf course connections (to the Canal system) that are more or less shovel ready:

Mid Valley Pipeline

1. *Desert Horizons Country Club* – this project extends the 24" distribution pipeline from the existing stub-out at the Coachella Valley Stormwater Channel to Fred Waring Drive and constructs a new pipeline and meter to the Desert Horizons Country Club.
2. *Indian Springs Country Club* – this project extends the 24" distribution pipeline from the existing stub-out at the Coachella Valley Stormwater Channel to Fiesta Drive and constructs a new pipeline and meter to the Indian Springs Country Club.

3. *The Lakes Country Club* – this project constructs two new sections of 12" pipeline and meters from the 24" high pressure pipeline and one new 12" pipeline and meter from the low pressure pipeline to the Lakes Country Club.

Canal System

4. *L4 Pump Station Improvements* – this project replaces the broken meter at Citrus Country Club and installs Variable Frequency Drives (VFDs) at the L4 Pump Station.
5. *L4 La Quinta Extensions* – this project extends Irrigation Lateral 120.8 from the relocated L4 Pump Station to Avenue 52 and includes three new meters for Canal water delivery to the La Quinta Country Club, the La Quinta Resort Mountain Course, and the La Quinta Resort Dunes Course.
6. *Indian Palms Golf Course* – this project extends the 12" Irrigation Lateral 117.8 from Monroe Street to the Indian Palms Golf Course.

Connection 1: Desert Horizons Country Club
Project construction under this task will include installation of water meter, pipelines, water level controllers, and other facilities, via a public works contract.

Connection 2: Indian Springs Country Club
Project construction under this task will include installation of water meter, pipelines, concrete panel, water level controllers, and other facilities, via a public works contract. Traffic control and striping will also be necessary on Fiesta Drive.

Connection 3: The Lakes Country Club
Project construction under this task will include installation of water meter, pipelines, power supply, air release valve, concrete vault, water level controllers, and other facilities, via a public works contract.

Connection 4: L4 Pump Station Improvements
Project construction under this task will include installation of water meter and variable frequency drives at the L4 Pump Station, via a public works contract.

Connection 5: L4 La Quinta Extensions
Project construction under this task will include installation of water meters and pipelines, via a public works contract.

Connection 6: Indian Palms Golf Course
Project construction under this task will include installation of water meter, pipelines, upstream tie-in, and other facilities, via a public works contract. Traffic control will also be necessary on Monroe Street.

Table 3-7: Row (d) Construction/ Implementation
Non-Potable Water Use Expansion Program

Activity or Deliverable	Schedule	Status	Completion of Task	
			Before Sept 2013	After Sept 2013
Task 9: Construction				
Connection 1: Desert Horizons	June 2015 – May 2016	Not yet begun		X
Connection 2: Indian Springs	October 2015 – September 2016	Not yet begun		X
Connection 3: The Lakes	February 2016 – February 2017	Not yet begun		X
Connection 4: L4 Pump Station Improvements	July 2014 – June 2015	Not yet begun		X
Connection 5: L4 La Quinta Extensions	July 2014 – June 2015	Not yet begun		X
Connection 6: Indian Palms Golf Course	December 2014 – November 2015	Not yet begun		X

Row (e) Environmental Compliance/ Mitigation/ Enhancement

Task 10: Environmental Compliance / Mitigation / Enhancement

No environmental mitigation or enhancement actions are included in this work plan.

Row (f) Construction Administration

Task 11: Construction Administration

CVWD will be responsible for construction management. However, no construction management tasks are included in this work plan.

Project 2: Coachella Valley Salt & Nutrient Management Program

I. Introduction

Project Sponsor

Coachella Valley Water District (CVWD) is the project sponsor for the Coachella Valley Salt & Nutrient Management Program. CVWD is representing the Coachella Valley Regional Water Management Group (CVRWMG) – made up of CVWD, DWA, MSWD, IWA, and CWA – in administering this project.

Project Need

The State of California adopted the Recycled Water Policy (Policy) that requires Salt and Nutrient Management Plans (SNMPs) be developed to manage salts, nutrients, and other contaminants of emerging concern on a watershed- or basin-wide basis. The Policy specifies that SNMPs be developed in a cooperative and collaborative manner among water and wastewater agencies and other salt/nutrient stakeholders. The SNMPs are intended to help streamline permitting of new recycled water projects while ensuring compliance with water quality objectives and protection of beneficial uses. For each groundwater basin, a SNMP is to be provided to the Regional Water Quality Control Board (RWQCB) no later than May 2014. An extension of up to 2 years may be granted by the RWQCB if the region demonstrates substantial progress by the May 2014 deadline.

In 2011, the Coachella Valley Regional Water Management Group (CVRWMG) began preliminary discussions about preparing a SNMP for the Coachella Valley Groundwater Basin. In order to either meet the May 2014 deadline or show substantial progress in developing its SNMP, the CVRWMG is working toward consensus on a SNMP strategy and scope of work by early to mid-2013.

Project Purpose

Using a collaborative process, this project will complete a SNMP for the Coachella Valley groundwater basin to satisfy State Recycled Water Policy requirements.

Project Abstract

The *Coachella Valley Salt & Nutrient Management Program* will implement the analytical and planning tasks needed to develop a SNMP for the Coachella Valley Groundwater Basin that is compliant with the State's Recycled Water Policy. Key tasks to be undertaken by the CVRWMG include:

1. *Establish a collaborative process* of Coachella Valley stakeholders interested in groundwater management, which will entail setting up working groups, conducting technical review meetings and conference calls, conducting stakeholder workshops, and program management.
2. *Characterize the groundwater basins*, including identifying the groundwater basins to be evaluated, collecting and reviewing existing groundwater data, documenting beneficial uses, characterizing groundwater quality and occurrences, identifying constituents of concern, and establishing baseline conditions.
3. *Identify salt/nutrient loading and trends* by first identifying salt/nutrient sources, and then quantifying salt/nutrient source loads and developing a plan for data gaps.
4. *Identify water management goals and potential strategies*, which would entail developing a list of potential management strategies, evaluating the feasibility of those potential management strategies, and then conducting an assimilative capacity analysis.
5. *Conduct anti-degradation process*, which includes assessing load reduction and water quality improvements, and identifying preferred management strategies.

6. *Finalize the SNMP*, which includes developing an implementation plan, identifying metrics and developing a monitoring plan, developing data management, reporting, and audit processes, determining CEQA/NEPA compliance needs, and producing the SNMP document.

Successful completion of the SNMP is necessary to ensure compliance with the State's Recycled Water Policy. Compliance with this policy is necessary for continued Colorado River RWQCB approval of recycled water permits in the Basin. Therefore, developing the SNMP will enable continued use and expansion of the Valley's water recycling efforts, which are an important component of the Region's overall groundwater management strategy. Developing the SNMP is also an important component of one of the projects included in this grant proposal, the *Non-Potable Water Use Expansion Program*, which will be included in the SNMP analysis since it will have an impact on the salt and nutrient loading into the basin.

Development of the Coachella Valley SNMP would be a collaborative process driven by stakeholders that have already been identified during Phase I activities. This program allows the Region's water and wastewater agencies to better manage salts and nutrients in the groundwater basin to preserve the high quality groundwater supply used for potable purposes.

Project Partners

The Coachella Valley Regional Water Management Group, which is made up of Coachella Valley Water District, Coachella Water Authority, Desert Water Agency, Indio Water Authority, and Mission Springs Water District, are partners in this project.

Project Timing and Phasing

As part of the development of the SNMP-related work that has been completed to date, the current CVRWMG and Stakeholders explored several of the issues that are likely to be addressed as part of the SNMP process. One of the challenges identified for this SNMP was the number of issues and size/scale of the SNMP, especially given the current Basin Plan's lack of sub-basin distinction. Therefore, the SNMP process is being developed using a phased approach that will allow it to be completed over time in an incremental manner. The following defines the three plan development phases:

1. Phase I: Initial SNMP Scoping and Work Plan Development (funded through Proposition 84 Round 1 Planning Grant)
2. Phase II: SNMP Development (subject of this Round 2 funding application)
3. Phase III: SNMP Monitoring and Other Follow-Up Work such as additional monitoring and data collection (if necessary and dependent on outcomes of Phase II)

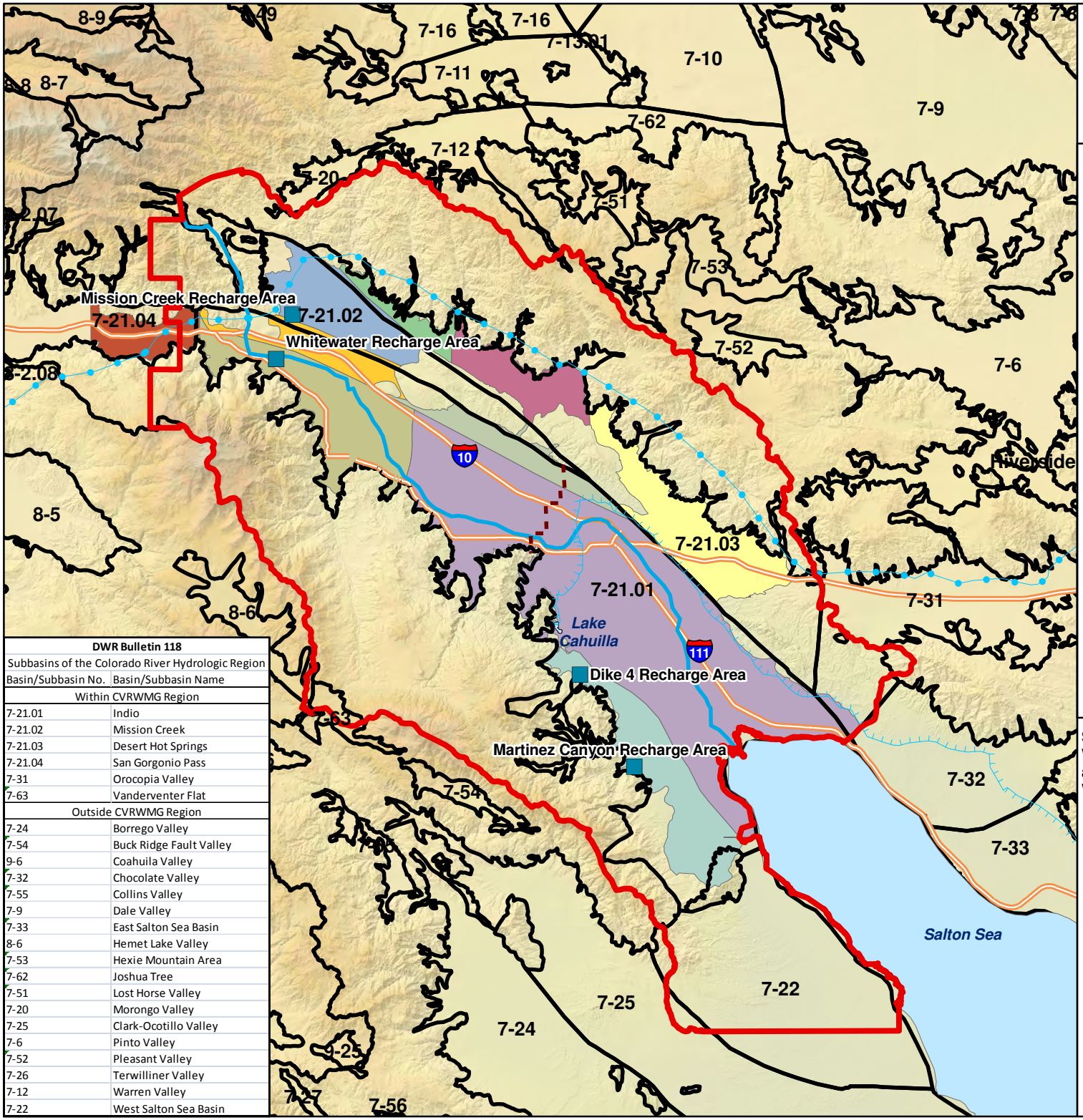
Phase I has already been funded and resulted in a series of stakeholders meetings and the creation of this work plan for Phase II. Phases I outline some possible tasks for Phase III, which will be further identified and defined as part of the Phase II effort.

Project Map

Figure 3-11 a is site map showing the project's geographical location and surrounding work boundaries.

Groundwater Basins and Recharge Areas

Figure 2-1



DWR Bulletin 118	
Subbasins of the Colorado River Hydrologic Region	
Basin/Subbasin No.	Basin/Subbasin Name
Within CVRWMG Region	
7-21.01	Indio
7-21.02	Mission Creek
7-21.03	Desert Hot Springs
7-21.04	San Gorgonio Pass
7-31	Orocopia Valley
7-63	Vanderventer Flat
Outside CVRWMG Region	
7-24	Borrego Valley
7-54	Buck Ridge Fault Valley
9-6	Coahuila Valley
7-32	Chocolate Valley
7-55	Collins Valley
7-9	Dale Valley
7-33	East Salton Sea Basin
8-6	Hemet Lake Valley
7-53	Hexie Mountain Area
7-62	Joshua Tree
7-51	Lost Horse Valley
7-20	Morongo Valley
7-25	Clark-Ocotillo Valley
7-6	Pinto Valley
7-52	Pleasant Valley
7-26	Terwilliner Valley
7-12	Warren Valley
7-22	West Salton Sea Basin

- Recharge Area
- Division between Upper and Lower Valley
- Colorado River Aqueduct
- Coachella and All American Canals
- Whitewater River Stormwater Channel
- Interstate Hwys.
- Coachella Valley IRWM Region
- Groundwater Basins

Hydrogeologic Subbasins in CV

- Fargo Canyon Sub Area
- Garnet Hill Sub Area
- Miracle Hill Sub Area
- Mission Creek Subbasin
- Oasis Sub Area
- Palm Springs Sub Area
- San Gorgonio Pass Subbasin
- Sky Valley Sub Area
- Thermal Sub Area
- Thousand Palms Sub Area

Source: DWR Bulletin 118 & 2009 Coachella Valley Water District Engineer's Report on Water Supply and Replenishment Assessment - Lower & Upper Whitewater River Subbasin Areas of Benefit

N W E S

0 2.5 5 10

Miles

COACHELLA VALLEY IRWMP

File Name: Fig 2-1_GroundwaterBasins.mxd
File Location: L:\Projects GIS\0264-001_CoachellaIRWMP\mxds\
Date Updated: Friday, November 19, 2010
Made By: DNF
Department: RMC Water & Environment

Project Objectives

The Coachella Valley Salt & Nutrient Management Program seeks to achieve the following objectives.

- Establish a collaborative process of Coachella Valley stakeholders to address groundwater management
- Characterize groundwater basins, identify salt/nutrient loading and trends, and evaluate management strategies
- Develop SNMP that supports management of groundwater quality

Table 3-8 provides an overview of the Coachella Valley IRWM Plan Objectives that are expected to be achieved through implementation of the Coachella Valley Salt and Nutrient Management Program.

Table 3-8: Contribution to IRWM Plan Objectives

Project	IRWM Objective												
	A	B	C	D	E	F	G	H	I	J	K	L	M
Coachella Valley Salt & Nutrient Management Program	○	○		○	○					●	○	○	○

● = Directly helps achieve objective
○ = Indirectly helps achieve objective

The *Coachella Valley Salt & Nutrient Management Program* will contribute towards achieving the following IRWM Plan Objectives:

Objective A – Provide reliable water supply: Development of the Salt and Nutrient Management Plan will help to ensure that the Region can continue to use recycled water, which is a reliable, local, drought-proof water supply.

Objective B – Manage groundwater levels: This program will facilitate the permitting and use of recycled water, which will help the Region to continue to manage groundwater overdraft via source substitution with recycled water. Source substitution helps to reduce localized groundwater pumping, which could potentially help manage land subsidence.

Objective D – Maximize local supply: This program will assist Valley water purveyors in continuing and expanding use of recycled water supplies by achieving compliance with the State Water Resources Control Board's Recycled Water Policy.

Objective E – Protect groundwater quality: This program will assist Valley water purveyors in managing salt and nutrient loading to the groundwater basin in order to preserve the beneficial uses identified for the basin.

Objective J – Maximize stakeholder involvement: The State requires that SNMPs be developed in a cooperative and collaborative manner among water and wastewater agencies and other salt/nutrient stakeholders. This program will continue the collaborative stakeholder process established in Phase I to characterize groundwater basins, identify salt/nutrient loading and trends, identify water management goals and strategies, and draft a SNMP. This program will involve water and wastewater agencies, the golf industry, agricultural industry, and tribes. An outreach process will be utilized to collect data, understand stakeholder concerns, and reach consensus on a final plan.

Objective K – Address water-related needs of Tribes: Salt and nutrient management is a concern to the tribes who also utilize the groundwater supply. Collaboration with the tribes to address groundwater quality will improve relations among stakeholders in the Valley.

Objective L – Address Water and Sanitation Needs for DACs: This program will serve to protect groundwater quality in communities throughout the Region, including DACs. It will also provide evaluation of management strategies for salt and nutrient loading, which may reduce future conflicts over permitting and potential violations. Having a clear set of standards and management strategies in place will make it easier for communities to make planning decisions, and has the potential to make growth easier and more attractive for DACs.

Objective M - Maintain affordability of water: This project will facilitate continued use and expansion of recycled water supplies. Recycled water is generally provided to customers at a reduced rate to maximize incentives for using this water. Therefore, the program will help to maintain the affordability of water by facilitating the current and future use of a less-costly water supply source (recycled water).

Integrated Elements of Projects

The *Non-Potable Water Use Expansion Program* is a critical program that allows Coachella Valley's water agencies to protect the groundwater aquifer and manage groundwater overdraft by implementing source substitution via the provision of non-potable water supplies for irrigation uses. As the *Coachella Valley Salt & Nutrient Management Program* will complete activities to ensure compliance with the Recycled Water Policy, this program will also ensure that the Region can continue to produce and use recycled water for important activities such as source substitution. Therefore, this program is linked to the *Non-Potable Water Use Expansion Program*, which will be included in the SNMP analysis since it will have an impact on the salt and nutrient loading into the basin.

Linkages and Synergies with Other Projects in the Proposal

This program is connected with other projects in this proposal, because this program will allow the Coachella Valley IRWM Region to maintain compliance with the state's Recycled Water Policy. Therefore, this program will allow the Region to continue existing and future planned use of recycled water. This program is therefore connected to Project 1, the *Non-Potable Water Use Expansion Program*, as implementation of recycled water projects would not be possible without implementation of the *Coachella Valley Salt & Nutrient Management Program*.

Completed Work

The CVRWMG award for Planning Grant funding included a task for initial scoping of the *Coachella Valley Salt & Nutrient Management Program* to augment the Coachella Valley IRWM Plan Update. Since both the SNMP and the IRWM Plan Update are regional planning efforts, the CVRWMG has taken the lead to coordinate stakeholder outreach and involvement in these planning efforts. The grant was awarded, and the consulting team of RMC Water and Environment and Integrated Planning and Management, Inc. were contracted to initiate the scoping.

To date, three public workshops have been held on August 22, 2012, September 26, 2012, and November 28, 2012 with good interaction between stakeholders interested in the SNMP. Based on the direction from the CVRWMG, comments and concerns of the stakeholders, and input from the Colorado River RWQCB, this work plan has been developed for preparation of the Coachella Valley SNMP.

Existing Data and Studies

A multitude of data and studies have been completed that support the site location, feasibility, and technical methods for the *Coachella Valley Salt & Nutrient Management Program.* Those studies or reports most relevant to this program, and those which have provided specific information for development of this scope of work are listed below. These documents are also included as Appendix 3-2 to this attachment.

- State Water Resources Control Board (SWRCB). 2009. *Recycled Water Policy*. Available: http://www.waterboards.ca.gov/water_issues/programs/water_recycling_policy. This policy enacted by the State Water Resources Control Board provides the impetus for completing a SNMP for the Coachella Valley Groundwater Basin. Further, this policy specifies requirements and provisions that have been used to develop the scope of work presented herein.
- Coachella Valley Water District (CVWD). 2010a. *Coachella Valley Water Management Plan Update.* Page 5-7 and Page 5-8, Section 5.1.2.3, Salt/Nutrient Management Plans. This comprehensive water management plan conducted by CVWD mentions that local water and wastewater entities, together with local salt/nutrient contributing stakeholders to fund locally-driven and controlled SNMPs. The process described in the 2010 Coachella Valley Water Management Plan Update is consistent with the SNMP process described below.

II. Project Work

Row (a) Direct Project Administration

Task 1: Project Administration

CVWD will be responsible for administration of the *Coachella Valley Salt & Nutrient Management Program*. The CVRWMG partners already have an MOU in place (refer to Attachment 1) and will adopt amendments as needed to clarify roles and responsibilities for the salt and nutrient management effort. Project administration efforts will also include those required to complete DWR-required administration such as progress reporting, invoicing, completion of a Project Assessment and Evaluation Plan, and a Project Completion Report. CVWD will assume all project management-related costs. Although the following reporting deliverables will be submitted per the grant contract, those costs will not be tracked by CVWD and therefore are not included in budget (Attachment 4).

Task 1 Deliverables:

- Amendments to the MOU, as necessary
- Quarterly invoices and progress reports, including required deliverables
- Project Assessment and Evaluation Plan
- Project Completion Report

Table 3-9: Row (a) Direct Project Administration
Coachella Valley Salt and Nutrient Management Program

Activity or Deliverable	Schedule	Status	Completion of Task	
			Before Sept 2013	After Sept 2013
Task 1: Project Administration				
CVWD Project Administration	October 2013-December 2015	Not yet begun		X

Task 2: Labor Compliance Program

The project does not include construction of a public works project and therefore, does not require establishment of a Labor Compliance Program (LCP).

Task 2 Deliverables:

As no work for this task will be completed as part of the project, deliverables are not applicable.

Task 3: Reporting

CVWD will prepare quarterly invoices and progress reports for submittal to DWR as part of the grant contract. CVWD will also prepare a project completion report upon completion of all grant-funded activities associated with the proposed project. These reporting-related activities required for the DWR grant contract will be prepared by CVWD. All reporting costs are included under Task 1: Project Administration.

CVWD will also ensure that all of the data collected and analyzed to measure program performance (as described in Attachment 6) will be submitted to DWR and made available to the public and to the Region for future inclusion within the Data Management System as required in the Data Management Standard.

Task 3 Deliverables:

Deliverables associated with reporting are included under Task 1: Project Administration.

Row (b) Land Purchase/Easement

No easement acquisitions and/or right-of-ways will be required for project.

Land Purchase Easement Deliverables:

As no work related to a land purchase easement will be completed as part of the project, deliverables are not applicable.

Row (c) Planning/Design/Engineering/Environmental Documentation

Task 4: Assessment and Evaluation

Task 4 includes the six steps necessary for creating an SNMP for the Coachella Valley Groundwater Basin based on a collaborative stakeholder-driven planning process. Table 3-10 provides an overview of the program schedule, while Tables 3-11 through 3-17 provide detailed subtask schedule and status.

Table 3-10: Row (c) Planning/ Design/ Environmental Documentation - Summary
Coachella Valley Salt and Nutrient Management Program

Activity or Deliverable	Schedule	Status	Completion of Task	
			Before Sept 2013	After Sept 2013
Task 4: Assessment and Evaluation				
Subtask 4.1 Establish Collaborative Process	October 2013-December 2015	Not yet begun		X
Subtask 4.2 Conduct Basin Characterization	October 2013-January 2014	Not yet begun		X
Subtask 4.3 Identify Salt/Nutrient Loading and Trends	January 2014-April 2014	Not yet begun		X
Subtask 4.4 Identify Water Management Goals and Potential Strategies	April 2014-June 2014	Not yet begun		X
Subtask 4.5 Conduct Anti-Degradation Process	June 2014-September 2014	Not yet begun		X
Subtask 4.6 Finalize Phase 2 SNMP	September 2014-March 2015	Not yet begun		X

Subtask 4.1 Establish Collaborative Process

The primary purpose of this task is to refine the stakeholder process established during the Scoping and Work Plan Development (Phase I) to ensure that the process meets State's *Recycled Water Policy* requirements and represents the community. This will occur by engaging stakeholders in the SNMP development process, establishing plan goals and objectives, gathering input on technical analysis tasks, and collaboratively developing implementation and basin management measures. The CVRWMG will direct or lead the collaborative process.

Subtask 4.1.1 Develop Working Groups

Active participants in the SNMP process are assumed to fall into one of two groups intended to help guide and gain input for the SNMP.

- **Stakeholders.** This group will consist of those whose activities and operations may impact salt and nutrient management in the Basin, including agricultural interests, private well owners, environmental groups, regulatory staff, and the general public. The current stakeholder list developed by the CVRWMG as part of the IRWMP and SNMP Work Plan development process will be used as the initial list of stakeholders (see current list of Stakeholder in table below). Additional stakeholders will be solicited by the CVRWMG prior to initiation of the SNMP and throughout the SNMP development process. This can be done as part of the IRWMP public workshops or separately. The CVRWMG shall maintain the stakeholder list and coordinate all workshop notifications and deliverable distributions with stakeholders.
- **Technical Team.** This group consists of those who contribute technical information, conduct the technical analyses, develop the SNMP, and provide initial technical reviews prior to the Stakeholder meetings. The CVRWMG will be included within the Technical Team and will work with other Technical Team members to coordinate activities for maximum productivity. This group is proposed to consist of the staff and designated technical consultants from local water and wastewater agencies and municipalities as well as staff from the Colorado River Basin (Region 7) Regional Water Quality Control Board. The CVRWMG will work with stakeholders to identify any other key members that should be included in the Technical Team. This technical work may be conducted by CVRWMG agency staff, a consultant(s), or other combination that is acceptable to the stakeholders and approved by the CVRWMG. When decided, the final roles of the Technical Team members will require further clarification as to who is performing the work and who is reviewing and approving the work products.

Subtask 4.1.2 Conduct Technical Review Meetings

In addition to conducting the technical work, the Technical Team shall conduct six (6) Technical Review Meetings. The purpose of the meetings will be to discuss data collection efforts, review work in progress, review/discuss comments on work products, coordinate, prepare and follow-up from Stakeholder meetings, and to solicit input/direction from the CVRWMG. The Technical Team shall prepare all meeting notices, agendas, and meeting summaries. Technical Review Meetings are planned at the following project milestones:

- Project kick-off and data collection
- Groundwater characterization review
- Salt/Nutrient loading assessment review
- Establish goals and identify management strategies for the SNMP
- Review anti-degradation process and assess management strategies

- Develop implementation and monitoring plans

Subtask 4.1.3 Conduct Technical Review Conference Calls

The Technical Team shall conduct additional conference calls with all or sub-members of the Technical Team, as necessary, to discuss technical issues, preliminary analyses, etc. Any key decisions or major question should be brought up to the entire Technical Team or the CVRWMG as a separate sub-group of the Technical Team as necessary.

Subtask 4.1.4 Conduct SNMP Stakeholder Workshops

The Technical Team shall conduct five (5) stakeholder workshops for the purpose of presenting information, gathering input from stakeholders, and providing a forum for discussion of salt/nutrient issues. The Technical Team will prepare agendas, workshop notifications, sign-in lists, presentations, and summaries, and guide stakeholder discussion and technical presentations. The CVRWMG will review presentations prior to the workshops and provide comments to the Technical Team no later than three days prior to a workshop date. The Technical Team will distribute workshop notifications and materials prior to each workshop, and shall provide the following in support during each workshop:

- **Workshop 1 – Review Basin Characterization.** At end of **Task 2**, the Technical Team will prepare for and present an overview of the State Policy on SNMPs and key elements in developing the SNMP, the SNMP development process, elements/sections of the SNMP, salt/nutrient constituents that will be assessed, and an overview of current understanding of the groundwater basin and potential salt/nutrient sources in the Basin.
- **Workshop 2 – Review Salt / Nutrient Loading and Trends.** Following **Task 3,** the results of salt/nutrient loading analysis and assimilative capacity analysis will be presented by the Technical Team.
- **Workshop 3 –Input on SNMP Goals and Management Strategies.** During **Task 4**, the Technical Team will present a summary of the goals established for the SNMP and the potential salinity/nutrient management strategies to be analyzed, along with the process for analyzing these strategies. Stakeholder input shall be considered by the Technical Team and CVRWMG.
- **Workshop 4 – Review Anti-Degradation Process and Management Strategies**, Following **Task 5**, the Technical Team will present a summary of the evaluation of preferred management strategies and the results of the anti-degradation process.
- **Workshop 5 – Review Draft SNMP**, During **Task 6,** the Technical Team will present the Draft SNMP to the stakeholders after the CVRWMG has reviewed and commented on the Draft Plan. This workshop will be a forum to discuss and respond to stakeholder comments on the Draft Plan. The Technical Team shall present the collaborative process used in development of the Draft Plan and the SNMP's key components.

Subtask 4.1.5 Program Management/Oversight of Technical Team

The CVRWMG will provide oversight and program management for the Technical Team in addition to the Technical Review Meetings and Stakeholder Workshops. These monthly meetings will ensure the continuation of the IRWM program and integrated planning, and will allow for creation of an SNMP in coordination with IRWM efforts.

Task 4.1 Deliverables:

- Technical Team and Stakeholder Working Group Lists
- Six (6) Technical Review Meetings

- Technical Team Conference calls, as necessary
- Five (5) SNMP Stakeholder Workshops
- For each Technical Team Review Meeting, Technical Team conference call, and Stakeholder workshop: announcements, agendas, meeting/conference call materials, including presentations and handouts, and summary notes.

Table 3-11: Row (c) Planning/ Design/ Environmental Documentation Costs
Coachella Valley Salt and Nutrient Management Program
Subtask 4.1: Establish Collaborative Process

Activity or Deliverable	Schedule	Status	Completion of Task	
			Before Sept 2013	After Sept 2013
Subtask 4.1: Assessment and Evaluation				
4.1.1 Develop Working Groups	October 2013 – October 2013	Not yet begun		X
4.1.2 Conduct Technical Review Meetings (6 total)	October 2013 – October 2014	Not yet begun		X
4.1.3 Conduct Technical Review Conference Calls	October 2013 – May 2015	Not yet begun		X
4.1.4 Conduct SNMP Stakeholder Workshops (5 total)	January 2014 – January 2015	Not yet begun		X
4.1.5 Program Management / Oversight of Technical Team	October 2013 – December 2015	Not yet begun		X

Subtask 4.2 Conduct Basin Characterization

This task will involve identifying and characterizing the groundwater basin being assessed and delineating the study area.

Subtask 4.2.1 Identify the Groundwater Basins Being Evaluated

The Technical Team will conduct work to define the groundwater basin and potential sub-basins or management areas, and identify the upstream tributary area that may contribute source loads to the basin. The study area will include all or portions of the San Gorgonio Pass, Whitewater (Indio), Garnet Hill, Murrieta, Mission Creek, and Desert Hot Springs groundwater sub-basins. Figure 11 shows the current project study area.

Any tributary lands that are suspected or known to influence groundwater flow or quality in the groundwater basin will be included. A determination of basis for the selected study area will be documented, and a Geographic Information Systems (GIS)-based map depicting the areal extent of the groundwater basin and proposed management areas, the proposed study area, and the tributary watershed will be prepared. This map will be posted on the CVRWMG website for public viewing.

Subtask 4.2.2 Identify, Collect, and Review Existing Groundwater Studies and Data

The Technical Team shall identify and review prior groundwater management studies, hydrogeologic assessments, or evaluations that have assessed issues relevant to salinity and nutrient planning and/or groundwater basin management within the study area. This work will include region-wide, local and basin-specific studies, as applicable and available. Information to be collected will include, but is not limited to:

- Areas of groundwater recharge (including direct and/or indirect groundwater discharges into the Salton Sea)
- Estimation of groundwater storage capacity (and other studies related to a basin-wide water balance)
- Public, private, and agricultural supplies, usage, and water quality information
- Location of recycled water irrigation/application
- Recycled water quality
- Storm water runoff quality and permitted outfalls
- Projected future water demands (including recycled water)
- Projected future wastewater and recycled water production
- Location and quantity/quality of brined disposal
- Land use plans from Coachella Valley Association of Governments

Technical data or assessments on which groundwater management studies were based will also be used. Appropriate agencies, groups, and co-permittees will be contacted to assist with identifying and obtaining these studies.

Subtask 4.2.3 Document Beneficial Uses

The Technical Team shall perform a preliminary analysis to identify and quantify existing and likely potential future uses of groundwater in the basin. This work will include identifying and characterizing existing and planned municipal supply wells or projects and quantified pumping in the Basin, identifying and characterizing private groundwater wells and users in the Basin, quantifying or estimating the irrigation pumping from private wells, identifying areas where groundwater-dependent habitat is known to exist, quantifying the amount of groundwater uptake required by the habitat, and identifying the actual listed Beneficial Use(s) within the basin and sub-basin areas from the Basin Plan. Existing documentation, where available, will be used, including water agency records, well surveys and well records, County of Riverside permit records, and other relevant data. GIS-based mapping will be used to identify the locations of municipal and private wells.

Work conducted under this task would provide preliminary indication of uses that may need to be protected. Should differences between current existing or potential future use and Basin Plan Beneficial Uses be identified, significant additional work and study, potentially up to a Use Attainability Analysis, would be required to modify the beneficial uses. Such a change requires an amendment to the current Basin Plan and is not included in this scope of work.

Subtask 4.2.4 Characterize Groundwater Quality and Occurrences

The Technical Team shall characterize existing and historic groundwater quantities and qualities within the Basin through review of existing studies and contact with agencies or groups engaged in ongoing data collection. The Technical Team will also identify and obtain additional data, as available, to fill identified data gaps. Work may include collecting, aggregating, and analyzing historic and current water quality data for the beneficial uses and objectives review, and for purposes of completing the salt/nutrient loading analysis and anti-degradation process. Geographic and depth-dependent distribution of concentrations will be assessed for the salinity and nutrient parameters of interest (determined in **Subtask 4.2.5**, below). GIS-based maps will be developed depicting groundwater quality, concentration contours, depth-to-water, groundwater flow directions, and key hydrogeologic features that may affect constituent transport. All

data will be accumulated into GIS- and/or Excel-based database for subsequent analyses. GIS-based mapping will be posted on the CVRWMG website for public viewing.

Subtask 4.2.5 Identify Salinity, Nutrient, and Constituents of Concern

The Technical Team shall identify recommended salinity and nutrient parameters to be addressed within the SNMP. The focus of this subtask shall be to identify constituents of concern relative to attainment of groundwater basin objectives and water quality standards as related to beneficial use for the groundwater basin. The recommended list of constituents of concern will be developed on the basis of prior groundwater studies, collected groundwater quality information, consultation with Regional Board staff, and discussions with study partners and stakeholders.

Anticipated constituents to be considered include total dissolved solids (TDS) and/or Specific Electrical Conductance or Electrical Conductivity (EC), and may include one or more individual ions such as chlorine, sulfates, or sodium if such constituents are determined to be of concern; nitrate-nitrogen; and potentially iron and/or manganese. During Stakeholder Workshop 1, the relevance of the aforementioned constituents and other potential constituents shall be discussed, and input regarding other potential constituents will be received.

As noted, the CVRWMG is encouraged to coordinate with its technical team to maximize use of prior studies that have assessed groundwater hydrogeology, groundwater quality, and beneficial uses within the Coachella Valley groundwater basin.

Subtask 4.2.6 Establish Baseline Conditions

Using the data collected and evaluated in the prior subtasks, a baseline period will be selected and baseline groundwater conditions identified using available data for that period. This baseline period will be utilized in subsequent tasks to establish basin assimilative capacity.

Task 4.2 Deliverables:

- Basin Study Area Map
- List of existing groundwater studies and hydrogeologic assessments in the Basin
- Well Listings in the Basin
- Well Location Map in the Basin
- Quantification of historical pumping (public and private wells), groundwater recharge, septic systems, recycled water usage, discharges, and runoff in the Basin
- Estimation of groundwater storage capacity (based on available data)
- An identification (list) of any groundwater-dependent habitat
- Groundwater Quality and Basin Characteristics GIS layers and Map
- Summary of preliminary existing and potential future Beneficial Uses within the Basins
- Baseline groundwater conditions
- List of Salinity and Nutrient Parameters and other Constituents of Concern to the SNMP
- Technical Memorandum (TM) summarizing the above
- Stakeholder Workshop 1 - Basin Characterization

Table 3-12: Row (c) Planning/ Design/ Environmental Documentation Costs
Coachella Valley Salt and Nutrient Management Program
Subtask 4.2: Conduct Basin Characterization

Activity or Deliverable	Schedule	Status	Completion of Task	
			Before Sept 2013	After Sept 2013
Subtask 4.2: Assessment and Evaluation				
4.2.1 Identify the Groundwater Basins Being Evaluated	October 2013 – November 2013	Not yet begun		X
4.2.2 Identify, Collect, and Review Existing Groundwater Studies and Data	October 2013 – November 2013	Not yet begun		X
4.2.3 Document Beneficial Uses	November 2013 – December 2013	Not yet begun		X
4.2.4 Characterize Groundwater Quality and Occurrences	December 2013 – January 2014	Not yet begun		X
4.2.5 Identify Salinity, Nutrient, and Constituents of Concern	December 2013	Not yet begun		X
4.2.6 Establish Baseline Conditions	December 2013 – January 2014	Not yet begun		X

Subtask 4.3 Identify Salt / Nutrient Loading and Trends

This task will involve identifying, and the preliminary quantification of, salt and nutrient sources to the groundwater basin for the identified constituents of concern.

Subtask 4.3.1 Identify Salinity and Nutrient Sources

The Technical Team shall identify land use characteristics, known point sources and non-point sources of salts and nutrients, and their locations. Water sources and their places of use shall be identified based on information gathered with input from appropriate water suppliers, irrigators, and stakeholders. The type or source of water used for outdoor irrigation for each parcel shall be defined using available information. Data collected under this task will be accumulated into GIS and/or Excel databases for subsequent analyses. During the first Technical Team Review Meeting, and subsequently in Stakeholder Workshop 1, the Technical Team shall seek input regarding significant land cover changes that might have taken place since the date of available data to more accurately reflect current land cover data.

Subtask 4.3.2 Quantify Salinity and Nutrient Source Loads

The Technical Team shall use existing available data to quantify salinity and nutrient sources in terms of volume, concentration, and/or mass loads using data and information collected in previous tasks, along with other salinity and nutrient source loading information, to conduct a loading analysis. The Technical Team shall prepare a preliminary water budget and mass load estimate for the study area, as well as for individual groundwater sub-basins or management areas.

The Technical Team shall conduct the initial source loading analysis using a GIS-based tool to input all data into a GIS format and to perform initial water budget and mass loading analyses. The GIS-based tool shall be used to conduct analyses of historical, existing, and projected future basin conditions and to identify any water quality trends. Salt and nutrient loads to each sub-basin or management area will be identified, as will the salinity and nutrient load sources that appear to be most important in influencing historical and projected groundwater quality trends.

The mass balance model will assume instantaneous mixing of waters within the groundwater basin and will be developed to analyze sub-basins or management areas that may have specific water quality or salt/nutrient source loadings that differ significantly from the rest of the basin.

Where data history on sources, water balance, and conditions is adequate for use in projecting future conditions, the Technical Team will perform an assessment of historic and projected future trends of salinity and nutrient concentrations in groundwater basins. This preliminary work could indicate an increase, decrease, or no expected changes in the future. More detailed study (Phase 3) would provide quantified future contaminant concentrations for the 20-year planning horizon.

Subtask 4.3.3 Develop a Plan for Data Gaps

The Technical Team shall identify potential data gaps or needs based on the work completed in **Tasks 4.2 and 4.3**. Data gaps could include groundwater quality data, groundwater monitoring data, salinity and nutrient source data, and data for hydrogeologic and other groundwater modeling parameters. The Technical Team shall determine what additional data may be required to support future analysis or modeling efforts to be completed in Phase 3. If necessary, the Technical Team will develop a plan for obtaining the data, including the identification of responsible parties for collecting the data as part of the monitoring plan to be developed under **Task 4.6**.

Task 4.3 Deliverables:

- Salt and nutrient source location and loads maps
- Preliminary water budget and mass load estimates
- Preliminary salinity and nutrient source load assessment and evaluation of model results of existing and projected basin conditions
- Stakeholder Workshop 2: Salt/Nutrient Loading and Trends

Task 4.3 Assumptions:

- Loading assessments will include an initial analyses, a review by the Technical Team, and then a final analyses for presentation to the Stakeholders
- A Technical Memorandum or other written summary in digital format will be developed that can be used in subsequent workshop presentations and handouts and for use in the Draft and Final Salt/Nutrient Management Plan. This summary will include appropriate figures and maps based on the analyses conducted.

Table 3-13: Row (c) Planning/ Design/ Environmental Documentation Costs
Coachella Valley Salt and Nutrient Management Program
Subtask 4.3: Identify Salt/Nutrient Loading and Trends

Activity or Deliverable	Schedule	Status	Completion of Task	
			Before Sept 2013	After Sept 2013
Subtask 4.3: Assessment and Evaluation				
4.3.1 Identify Salinity and Nutrient Sources	January 2014 – February 2014	Not yet begun		X
4.3.2 Quantify Salinity and Nutrient Source Loads	February 2014 – April 2014	Not yet begun		X
4.3.3 Develop a Plan for Data Gaps	April 2014	Not yet begun		X

Subtask 4.4 Identify Water Management Goals and Potential Strategies

The purpose of this task is to identify the principal goals to be achieved by the SNMP and to develop an initial list of management strategies that may be appropriate for achieving the established goals.

Subtask 4.4.1 Identify Water Supply and Water Quality Management Goals

The Technical Team shall identify the preferred goals of the key agencies that will implement the SNMP and other stakeholders, including processes for obtaining stakeholder input and resolving potential conflicts.

Working with the CVRWMG, the Technical Team shall develop an approach to solicit input from Stakeholders that will be used to identify and rank overall management goals to be achieved within the groundwater basin or sub-basin/management area. Desired goals may focus on source load reduction, treatment, providing other forms of water quality protection, or increased recycled water use. The selected goals should be specific to the needs and conditions of the basin, and will, in part, depend on:

- Existing groundwater quality and occurrence
- Existing salinity/nutrient source loads and locations
- Water agency needs and proposed supply projects
- Recycled water agency needs and proposed projects
- Existing Basin Plan objectives and compliance issues
- Water conservation considerations
- Potential within the basin to implement specific groundwater management strategies
- Basin assimilative capacity
- Funding/implementation feasibility considerations
- Future growth (development depends on water supply assessments)

The CVRWMG shall be responsible for managing and addressing potential stakeholder conflicts and refinement of the SNMP goals as may be necessary. The Technical Team will provide a Technical Memorandum or other written summary that can be used in subsequent workshop presentations and handouts and for use in the Draft and Final Salt/Nutrient Management Plan. This updated summary will include appropriate figures and maps based on the analyses conducted previously and the salt/nutrient management plan goals developed under this task.

Subtask 4.4.2 Develop List of Potential Management Strategies

The Technical Team shall review possible salinity and nutrient management strategies, including those being implemented or under consideration by agencies, those identified in previous studies, and based on input from the CVRWMG and stakeholders. The Technical Team will develop a preliminary list of alternative management strategies that are feasible for implementation in the groundwater basin, and obtain stakeholder input on the preliminary list. The following are potential strategies that may be considered.

Table 3-14: Summary of Potential Salinity/Nutrient Management Strategies

Category	Potential Salinity/Nutrient Management Strategy
Wastewater salinity/nutrient source control	• Water softener control (ordinance and/or rebates) • Local pretreatment limits (industrial discharge controls) • Recycled water nutrient treatment • Recycled water demineralization treatment
Public education	• Salinity source reduction best management practices • Water softener use education • Irrigation best management practices • Fertilizer use best management practices
Source load reduction	• Agency lease-holder requirements • Fertilizer reduction requirements for recycled water users • Source load diversion
Source water salinity control	• Brackish source water demineralization • Modify ratios of local or imported water sources
Salt export	• Brine line • Salt flushing to the Salton Sea or other location • Concentrate management including disposal • Zero liquid discharge involving salt sequestration
Groundwater recharge	• Imported water recharge • Recycled water recharge • Stormwater recharge • Percolation basins • Injection wells • Aquifer Storage Recovery (ASR) wells
Groundwater management	• Conjunctive use • Demineralization treatment • In lieu (exchange use of untreated groundwater for recycled water) • Decrease detention time • Seasonal storage • Carryover storage • Emergency storage
Land use regulation	• Modify land use policy • Require sewer connections
Water use efficiency (20 x 2020 goals)	• Landscape ordinance • Water use restrictions • Water conservation rate structures • Public education/behavior change
Stormwater/runoff management	• Stormwater BMPs to reduce salinity/nutrient loading • Stormwater diversion to beneficial use • Low flow runoff diversion
Regulatory	• Changes to current basin plan (work in conjunction with RWQCB in Phase 3): o Designated Beneficial Uses (See Task 2) o Numerical groundwater concentration objectives or narrative translation procedures o Implementation policies and projects

Subtask 4.4.3 Evaluate Feasibility of Potential Management Strategies

Following completion of **Subtask 4.4.2**, the Technical Team will evaluate the list of potential management strategies to identify and compare the most feasible strategies (including existing and proposed strategies) on the basis of factors such as:

- Costs (capital and O&M, including monitoring costs)

- Anticipated water quality improvements
- Local water supply development potential, including increasing the use of recycled waters or enhanced development of groundwater supplies
- Regulatory compliance
- Sustainability and funding considerations
- Ability to implement
- Environmental impacts

After this evaluation is complete, preferred management strategies will be recommended for implementation by the Technical Team using stakeholder feedback and a pre-defined decision process and will be carried forwarded into the anti-degradation process for further review and consideration (**Task 4.5**). The CVRWMG will oversee the evaluation process and make final decisions regarding the recommended strategies.

The methodology for evaluating and ranking the list of potential management strategies will be developed by the Technical Team to help determine which management strategies should be implemented to help address the various SNMP goals (preferred management strategies). If necessary, a decision methodology will be developed with input from the Stakeholders to help define and document the decision-making process. The potential costs for implementation, including monitoring needs, of the strategies should also be considered in the prioritization process.

Subtask 4.4.4 Assimilative Capacity Analysis

Assimilative capacity represents a comparison of existing water quality concentrations to the limits set in the Colorado River RWQCB's Water Quality Control Plan (Basin Plan). In general, water quality better than the Basin Plan limits is an indicator of available assimilative capacity, while water quality constituent levels above the Basin Plan limits indicate that load reduction measures may be necessary (or that Basin Plan objectives may need to be changed). In this subtask, the Technical Team will conduct several activities that will allow comparison of groundwater quality at representative locations within the basin to identified limits set in the Basin Plan to estimate the assimilative capacity of the groundwater basin, either in whole or by management area.

- Step 1: Identify Basin Management Levels The Technical Team will work with Colorado River RWQCB staff to identify a method for translating the existing narrative water quality objectives for Municipal Supply (MUN), Agricultural Supply (AGR) and Industrial Supply (IND), as documented in the Basin Plan, into basin management targets for the recommended list of constituents of concern developed in **Subtask 4.2.5**. These levels will be used in the subsequent steps to estimate the basin assimilative capacity.
- Step 2: Compare Baseline Groundwater Quality Conditions with Basin Management Targets After identifying the Basin Management Targets, baseline groundwater quality will be compared to the targets to determine if the current status of the basin with respect to the Basin Plan's management goals.
- Step 3: Evaluate Fate and Transport of Salts and Nutrients in Groundwater Basin The Technical Team will also perform a qualitative analysis of the fate and transport of the identified constituents of concern using the GIS-based mass balance model.
- Step 4: Estimate Basin Assimilative Capacity The results of the previous steps will then be brought together to estimate the groundwater basin's assimilative capacity.

This approach will facilitate future updates to the analysis as well as allow reviewers to monitor specific areas of concern within the basin.

Task 4.4 Deliverables:

- SNMP goals
- Summary of identified and ranked alternative management strategies
- Decision methodology for selecting the preferred strategy(ies)
- Stakeholder Workshop 3: SNMP Goals and Management Strategies
- Mass balance model and results
- Assimilative capacity analysis

Task 4.4 Assumptions:

- The CVRWMG shall be responsible for managing and addressing potential stakeholder conflicts and refinement of the SNMP goals and preferred management strategies.

Table 3-15: Row (c) Planning/ Design/ Environmental Documentation Costs
Coachella Valley Salt and Nutrient Management Program
Subtask 4.4: Identify Water Management Goals and Potential Strategies

Activity or Deliverable	Schedule	Status	Completion of Task	
			Before Sept 2013	After Sept 2013
Subtask 4.4: Assessment and Evaluation				
4.4.1 Identify Water Supply and Water Quality Management Goals	April 2014 – May 2014	Not yet begun		X
4.4.2 Develop List of Potential Management Strategies	May 2014	Not yet begun		X
4.4.3 Evaluate Feasibility of Potential Management Strategies	May 2014 – June 2014	Not yet begun		X
4.4.4 Assimilative Capacity Analysis	June 2014	Not yet begun		X

Subtask 4.5. Conduct Anti-Degradation Process

The anti-degradation process incorporates and builds, as well as informs, efforts performed in previous tasks to evaluate the preferred management strategies. Strategies developed under **Task 4-4** should be reconsidered as a result of the initial analyses. In addition, assumptions and/or data collection needs resulting from the Salt/Nutrient Loading and Trends Analysis may also have to be revised or updated as a result of this analysis.

Subtask 4.5.1 Assess Load Reductions and Water Quality Improvements

The purpose of this task is to assess the existing and preferred water management strategies and their ability to meet the goals of the SNMP, including any salt/nutrient load reduction, other water quality goal, and water supply/beneficial use goals. The Technical Team will identify the necessary mass loading modeling scenarios to be analyzed on a projected basis to assess the effectiveness of each management strategy in meeting the SNMP goals. It is assumed that the mass balance tool developed under **Task 4.3** will be utilized to perform this analysis. Initial strategies that should be assessed will be those strategies currently employed by agencies. If additional strategies are needed to meet SNMP goals, then the

additional analyses will consider new/additional strategies based on the preferences identified under **Task 4.4**.

Subtask 4.5.2 Identify Preferred Management Strategies

The Technical Team shall evaluate the preferred management strategies identified in **Subtask 4.4.3**, along with any additional management strategies determined potentially feasible, to determine their compliance with the State's Anti-Degradation Policy (Resolution Number 68-16). Specifically, the assessment will:

- Determine if their implementation will degrade groundwater;
- Verify that they meet best practicable treatment or control (BPTC) requirements; or
- If the strategy is consistent with the maximum benefit to the people of the State.

After this evaluation is complete, the revised list of preferred management strategies will be recommended for implementation by the Technical Team using stakeholder feedback and a pre-defined decision process. The CVRWMG will oversee the evaluation process and make final decisions regarding the recommended strategies.

If any Basin Plan Amendments are recommended (including those identified in **Task 4.4**) after conducting the anti-degradation process and evaluation of management strategies, then the following steps should be undertaken as part of the Phase 2 effort:

- Identify required Basin Plan Amendments (e.g. changes to numerical objectives, implementation policies, or beneficial uses) associated with the preferred salinity/nutrient management strategies. This effort will most likely occur during Phase 2 activities, but additional amendments may be developed as part of the initial Phase 3 efforts as well.
- Coordinate with Regional Board staff to (1) reach agreement on the approach for Basin Plan amendment; (2) identify information needs necessary for the proposed Basin Plan Amendment; and (3) identify if data are available for proposed amendment.
- Under **Task 4.6**, develop a data collection or monitoring plan necessary to collect any necessary data as part of the Phase 3 process.

Actual Basin Plan Amendments would be prepared under Phase 3.

Task 4.5 Deliverables:

- Assessment of load reduction and/or water quality improvements (anti-degradation process) - Technical Memorandum
- Evaluation and selection of SNMP Management Strategies - Technical Memorandum, including any recommended Basin Plan Amendments for Phase 3
- Recommendations for any additional Basin Plan Amendments - Technical Memorandum
- Stakeholder Workshop 4: Anti-Degradation Process and Management Strategies

Table 3-16: Row (c) Planning/ Design/ Environmental Documentation Costs
Coachella Valley Salt and Nutrient Management Program
Subtask 4.5: Conduct Anti-Degradation Process

Activity or Deliverable	Schedule	Status	Completion of Task	
			Before Sept 2013	After Sept 2013
Subtask 4.5: Assessment and Evaluation				
4.5.1 Assess Load Reductions and Water Quality Improvements	June 2014 – August 2014	Not yet begun		X
4.5.2 Identify Preferred Management Strategies	August 2014 – September 2014	Not yet begun		X

Subtask 4.6 Finalize Phase 2 SNMP

This task will involve developing an implementation plan, identifying the metrics to evaluate effectiveness of selected salinity and nutrient management strategies, developing monitoring and audit plans, finalizing the SNMP, and working with the Colorado River Basin RWQCB (Region 7) to obtain approval of the Phase 2 SNMP and scope for the Phase 3 SNMP.

Subtask 4.6.1 Develop Implementation Plan

The Technical Team will develop an Implementation Plan that will include the following components:

- Identification of the selected management strategies
- Activities to be implemented
- Phases of implementation
- Estimated costs
- Implementation timeframes

Subtask 4.6.2 Identify Metrics and Develop Monitoring Program

The Technical Team shall identify metrics (measureable parameters) that can be used to evaluate the effectiveness of the selected salinity and nutrient management strategies following implementation. The Technical Team shall develop a monitoring program, including identification of the responsible agency, the schedule for implementation, and monitoring required to measure the effectiveness of any implemented groundwater management strategy. Existing monitoring efforts will be incorporated into the SNMP monitoring plan. Where possible, existing monitoring efforts will be adjusted to include any necessary SNMP monitoring needs. The costs for additional monitoring needs shall be considered when assessing the feasibility of the implementation strategies under **Task 4.5.2.** The monitoring program shall comply with the State Water Resources Control Board's (SWRCB's) policy on monitoring of contaminants of emerging concern (CECs) that is currently in draft form and expected to be approved in late 2012 or 2013. In addition, data collection/monitoring needs identified under **Tasks 4.3** will also be included in this monitoring plan. The metrics and monitoring plan shall be reviewed by the CVRWMG prior to input from the Stakeholder Workshop.

Subtask 4.6.3 Develop SNMP Data Management, Reporting, and Audit Processes

The Technical Team shall establish the framework and schedule for how data will be managed, including ongoing monitoring efforts, in addition to reporting and auditing processes. Auditing of the SNMP and its implementation will likely be conducted on a periodic basis and should include updating of the SNMP

(based on adaptive management principles) and identifying the responsible agency or agencies for implementing the effectiveness assessment.

Subtask 4.6.4 Determine CEQA/NEPA Compliance Needs

In conjunction with the RWQCB, the Technical Team shall determine how the recommended SNMP will need to conform to California Environmental Quality Act (CEQA) and National Environmental Policy Act (NEPA) requirements. In accordance with the SWRCB's Recycled Water Policy, the SNMP is required to be in compliance with CEQA to determine potential significant environmental impacts and identify measures to avoid or mitigate impacts where feasible.

However, under the California Secretary for Natural Resources, the SWRCB's basin planning process is exempt from certain requirements of CEQA, including the preparation of an Initial Study, Negative Declaration, and Environmental Impact Report [CCR, Title 14, §15251(g)].The SNMP may still be subject to other CEQA provisions, including the avoidance of significant adverse effects to the environment where feasible. Completion of an environmental checklist and a written report consisting of a description of the proposed activities, analysis of reasonable alternatives, and identification of mitigation measures to minimize potential significant adverse environmental impacts may still be required (CCR, Title 23, §3777(a)). In lieu of an Initial Study, Negative Declaration, and Environmental Impact Report, a Substitute Environmental Documentation (SED) may be required for any water quality control plan, state policy for water quality control, and other components of California's water quality management plan, prior to RWQCB approval or adoption. This assessment will identify if implementation of the recommended strategies or any identified Basin Plan Amendments (to be developed under Phase 3 of this work plan) will be subject to review under CEQA or NEPA and if an SED or other documentation will be necessary.

The Technical Team will work with the RWQCB in preparing the necessary CEQA documentation for implementation of the SNMP. For the purposes of this work plan, it is assumed that all management strategies identified in previous tasks for implementation under the SNMP will be non-structural in nature (e.g. policies, monitoring). Therefore, the scope of work under this subtask is limited to:

- One scoping meeting to seek input on environmental information that should be considered;
- Completion of an environmental checklist evaluating environmental factors that may be potentially affected by the SNMP implementation;
- Preparation of a response to any comments received on the environmental checklist and during the scoping meeting; and
- A cover memorandum identifying the preferred management strategies and summarizing the results of the checklist and scoping meeting (including identification of any recommended mitigation measures).

If the recommended strategies or identified Basin Plan Amendments would be subject to review, then in conjunction with the RWQCB and as part of the Phase 2 work, the CVRWMG and the Technical Team will:

- Identify the appropriate governing body (lead agency)
- Identify the required documentation and responsible parties

Since preparation of the Basin Plan Amendments are proposed under Phase 3, the Environmental Documentation process will occur in Phase 3 as well.

Subtask 4.6.5 Finalization of the SNMP

The Technical Team shall prepare a Draft and Final Salt/Nutrient Management Plan that summarize the results of all deliverables described within **Tasks 4.1 through 4.6** into a comprehensive planning document that is stand-alone or that can be incorporated into the IRWM Plan Update.

Task 4.6 Deliverables:

- Summaries or Technical Memorandums from **Tasks 4.2 through 4.5**,
- SNMP Implementation Plan
- Performance metrics and monitoring plan
- SNMP Audit Plan
- Scope and Schedule for Phase III efforts, including any proposed Basin Plan modifications
- Assessment of any required CEQA/NEPA documentation
- Draft and Final Salt/Nutrient Management Plan
- Stakeholder Workshop 5: Draft SNMP

Task 4.6 Assumptions:

- One Draft Plan will be developed and after review by the CVRWMG, will be reviewed by the public stakeholders as part of Stakeholder Workshop 5. Comments from this review will then be incorporated into a Final Plan for approval by the CVRWMG.

Table 3-17: Row (c) Planning/ Design/ Environmental Documentation Costs
Coachella Valley Salt and Nutrient Management Program
Subtask 4.6: Finalize Salt and Nutrient Management Plan

Activity or Deliverable	Schedule	Status	Completion of Task	
			Before Sept 2013	After Sept 2013
Subtask 4.6: Assessment and Evaluation				
4.6.1 Develop Implementation Plan	September 2014 - October 2014	Not yet begun		X
4.6.2 Identify Metrics and Develop Monitoring Program	October 2014	Not yet begun		X
4.6.3 Develop SNMP Data Management, Reporting, and Audit Processes	October 2014 - November 2014	Not yet begun		X
4.6.4 Determine CEQA/NEPA Compliance Needs	November 2014 - December 2014	Not yet begun		X
4.6.5 Finalization of the SNMP	December 2014 - March 2015	Not yet begun		X

Task 5: Project Design

No design deliverables are included in this work plan.

Task 6: Environmental Documentation

No CEQA, NEPA, and other environmental compliance tasks or deliverables are included in this work plan.

Task 7: Permitting

No permits or permitting deliverables are anticipated for this project.

Task 8: Construction Contracting

No construction contracting or associated deliverables are needed for this project.

Row (d) Construction/ Implementation

Task 9: Construction

No construction activities or associated deliverables are included in this work plan.

Row (e) Environmental Compliance/ Mitigation/ Enhancement

Task 10: Environmental Compliance / Mitigation/Enhancement

No environmental mitigation or enhancement actions or associated deliverables are included in this work plan.

Row (f) Construction Administration

Task 11: Construction Administration (Management)

No construction management tasks or associated deliverables are needed for this project.

Project 3: Groundwater Quality Protection Program – Subarea D2

I. Introduction

Project Sponsor

The project sponsor for the *Groundwater Quality Protection Program – Subarea D2* is the Mission Springs Water District (MSWD).

Project Need

The Coachella Valley IRWM region lies within Region 7 (Colorado River Basin) of the California Regional Water Quality Control Board (RWQCB). In 2006, the RWQCB last adopted the *Water Quality Control Plan for the Colorado River Basin* (Basin Plan), outlining water quality objectives for the region and putting forth an Implementation Program that would assist in achieving those objectives. The Basin Plan notes Septic System Impacts to Groundwater Basins as a critical regional issue and that unsewered communities within Region 7 have the potential to negatively impact groundwater.[5] The Basin Plan specifically prohibits individual disposal systems on parcels (less than one-half acre) that overlie the Mission Creek and Desert Hot Springs groundwater aquifers and mandates connection to the municipal sewer system.[6]

Water quality in the Mission Creek Subbasin is being degraded by a on-site wastewater disposal systems (septic systems) within the Mission Creek Subbasin and potentially from the neighboring Desert Hot Springs subbasin, which contributes a small amount of inflow (approximately 1,800 AFY) to the unconfined Mission Creek aquifer.[7] On-site disposal systems are increasing nitrate contamination levels in local water supply wells. The *Groundwater Quality Protection Program – Subarea D2* will capture and treat wastewater flows, and then recharge them in the Mission Creek Subbasin. The project will result in groundwater quality protection by treating wastewater and preventing wastewater effluent from entering the high-quality Mission Creek subbasin.

MSWD's 2010 *Urban Water Management Plan* notes that the Desert Hot Springs Subbasin is a hot-water basin, containing hot mineral water with temperatures exceeding 100 degrees Fahrenheit.[8] This water serves as the economic basis of Desert Hot Springs because it draws visitors to the City's numerous spa resorts and hotels. Therefore, protecting the groundwater quality within the Desert Hot Springs aquifer will not only protect the local water supply but will also protect hot mineral water that is the economic basis of the community's spa industry.

Water quality both in the water supply (Mission Creek) and hot water (Desert Hot Springs) subbasins are vital to the area's economic vitality. In addition, because Desert Hot Springs qualifies as a disadvantaged community (DAC), this project will also protect residents of a DAC from significant costs that would result if treatment of the potable groundwater supply were necessary due to contamination of groundwater supplies.

[5] Colorado River RWQCB. 2006. *Water Quality Control Plan for the Colorado River Basin (Region 7).* Includes Amendments through June 2006. Section III: Regional Board Issues, A: Septic System Impacts to Groundwater Basins, page 5-2. Section II. Point Source Controls, H: Septic Systems, page 4-5.
[6] Colorado River RWQCB. 2006. *Water Quality Control Plan for the Colorado River Basin (Region 7).* Includes Amendments through June 2006. Section II. Point Source Controls, H: Septic Systems, page 4-5.
[7] MSWD. 2011. *2010 Urban Water Management Plan.* Page 2-7, Table 2.1-1, Mission Creek Subbasin Inflows/Outflows.
[8] MSWD. 2011. 2010 *Urban Water Management Plan.* June 2011. Section 2.1.1 Groundwater, page 2-1.

Project Purpose

The purpose of the *Groundwater Quality Protection Program – Subarea D2* is to 1) extend MSWD's municipal wastewater collection system to Subarea D2 in Assessment District 12, 2) eliminate the need for on-site septic systems in the project area, and 3) comply with State law and an MSWD ordinance that require customers to connect to the wastewater collection system once it is available to their property.

Project Abstract

The City of Desert Hot Springs is classified as an economically disadvantaged community (DAC), located within the MSWD service area, which is located within the Colorado River Basin. This community overlays the Desert Hot Springs groundwater aquifer, a hot-water groundwater basin containing hot mineral water with temperatures exceeding 100 degrees Fahrenheit. This water serves as the economic basis of the City of Desert Hot Springs, because it draws visitors to the City's numerous spa resorts and hotels.

The Colorado River RWQCB's Basin Plan notes septic system impacts to groundwater as a critical regional issue, and specifically states that septic systems within the Colorado River Basin have the potential to negatively impact groundwater.[9] Portions of the City of Desert Hot Springs have septic tank densities that are 2.3 to 2.8 times higher than the density recommended by the RWQCB. As such, the high density of the septic systems potentially threaten the water quality of the local groundwater supply. These septic systems also potentially threaten the local economy, which is highly dependent on hot mineral water to support the spa and hotel industry.

As a response to local issues associated with high-density septic systems, Assessment District 12 was approved by voters in 2004, providing approximately $28 million of matching funds that expires in 2014. This money was used to fund engineering design of a wastewater collection system that will abate approximately 6,000 on-site septic systems. Design of 10 sub-areas that make up the Assessment District is complete, and funds are now needed for construction. Environmental compliance documentation was completed in 1998 and re-certified in 2007.

The project area, Subarea D2, consists of 582 parcels and 382 existing on-site septic systems that will be converted to sewers. Wastewater collected by the MSWD sewer system would be sent to the existing Horton Wastewater Treatment Plant (WWTP), where it would be beneficially reused via percolation. Project construction includes installing 18,555 lineal feet of 8-inch vitrified clay pipe (VCP) sewer, 15,281 lineal feet of 4-inch VCP sewer laterals, 70 manholes, and all appurtenances. Final design work for Subarea D2 was completed in 2010, and construction is currently ready to bid. As such, this project is at 100% completion of design.

Project Partners

MSWD provides water and wastewater infrastructure to the City of Desert Hot Springs, and as such, coordinates land use planning efforts with the City. The City of Desert Hot Springs is supportive of MSWD's efforts to convert septic tanks to sewers, including attending joint meetings of the two governing boards where the need and status of the program were discussed. In conjunction with the sewer project, the City of Desert Hot Springs coordinates additional land use improvements such as curbs, gutters, and street paving.

[9] Colorado River RWQCB. 2006. *Water Quality Control Plan for the Colorado River Basin (Region 7).* Includes Amendments through June 2006. Section III: Regional Board Issues, A: Septic System Impacts to Groundwater Basins, page 5-2. Section II. Point Source Controls, H: Septic Systems, page 4-5.

Project Timing and Phasing

This project is a multi-phased project. MSWD's Groundwater Quality Protection Program includes numerous phases, where some portions have been completed and others will be completed in the future. Upon completion of the Subarea D-2 phase, the project will be fully operational connecting to a phase currently under construction (Subarea D-1).

Project Map

Figure 3-12 provides a project site map for the *Groundwater Quality Protection Program – Subarea D2*, showing the boundary of the project in relation to the rest of Assessment District 12. Figure 3-13 provides a project site map for the *Groundwater Quality Protection Program – Subarea D2*, showing surface waters, groundwater basins, DACs within the project area, and proposed monitoring locations.

Project Objectives:

The *Groundwater Quality Protection Program – Subarea D2* includes the following project objectives:

- Expand the wastewater collection system in Assessment District 12 Subarea D2, which will connect 582 parcels (382 on-site septic systems) to the MSWD system
- Abate potential water quality threats associated with 382 on-site septic systems
- Protect both the drinking water supply to Desert Hot Springs and the hot mineral water that is the basis of the spa economy for the City of Desert Hot Springs and the Coachella Valley
- Reduce the septic tank density in Assessment District 12 Sub Area D2 to at or near the density recommended by the RWQCB

Table 3-18 provides an overview of the Coachella Valley IRWM Plan Objectives that are expected to be indirectly (○) or directly (●) achieved through implementation of the *Groundwater Quality Protection Program - Desert Hot Springs*.

Table 3-18: Contribution to IRWM Plan Objectives

Proposal Projects	Contribution to IRWM Plan Objectives												
	A	B	C	D	E	F	G	H	I	J	K	L	M
Groundwater Quality Protection Program – Sub-Area D-2	○	○		○	●					○		●	○

● = directly related; ○ = indirectly related

This project contributes to the IRWM Plan objectives in the following ways:

Objective A – Provide reliable water supply. The program will help to provide a reliable water supply for MSWD customers by contributing flows to the Horton WWTP for future recycled water use.

Objective B – Manage groundwater levels. This project will help to manage groundwater levels by capturing flows currently lost to the non-potable Desert Hot Springs Subbasin and reusing them within the potable Mission Creek subbasin. This will help to manage groundwater levels in the Mission Springs subbasin through recharge (percolation) and through source substitution (recycled water use).

EXIST. RECHARGE FACILITY

MSWD BOUNDARY

A

Q= 0.157 MGD

D-2

Q= 0.141 MGD

D-1

Q= 0.047 MGD

Q= 0.100 MGD

Q= 0.035 MGD

G

J

K

F

Q= 0.220 MGD

H

I

Q= 0.151 MGD

Q= 0.100 MGD

Q= 0.096 MGD

EXIST. HORTON WWTP
EXIST. FLOW=1.7 MGD
2.0 MGD CAPACITY

M-1

Q= 0.063 MGD

L

M-2

Q= 0.178 MGD

Desert Hot Springs

Dos Palmas Corners

Two Bunch Palms

Devers Hill

LEGEND:

- MSWD SERVICE AREA
- FAULT LINES
- NON-PROJECT SEWERED AREAS
- COMPLETED SEWER
- UNDER CONSTRUCION
- FUTURE CONSTRUCTION

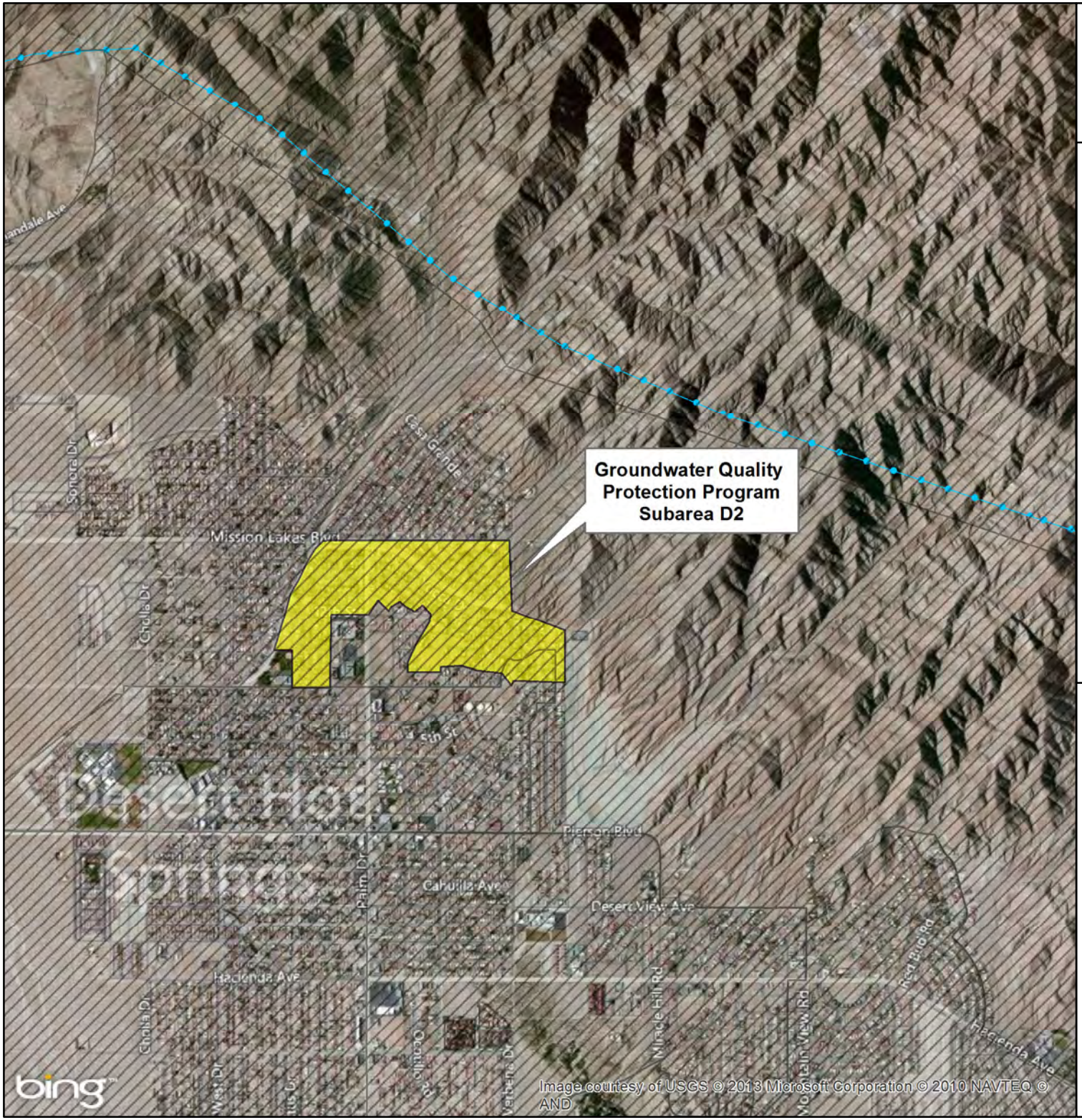
SCALE: 1" = 1,200'

TKE ENGINEERING, INC.
2305 CHICAGO AVENUE
RIVERSIDE, CA 92507
(951) 680-0440
FAX: (951) 680-0490

MISSION SPRINGS WATER DISTRICT

GROUNDWATER PROTECTION PROGRAM

S:\CADD\110-10 Water Management Plan\Sewer Exhibit for EDA Zoomed Section_02-4-13.dwg



CVIRWMP Project Locations
Groundwater Protection Program

- Groundwater Protection Program
- Colorado River Aqueduct
- Coachella and All American Canals
- Whitewater River Stormwater Channel
- Interstate Hwys.
- Lakes
- Colorado River Funding Area
- Disadvantaged Communities

N
W E
S

0 2,000 4,000
Feet

COACHELLA VALLEY IRWMP

File Name: Fig 5-3_MHI.mxd
File Location: L:\Projects GIS\0264-001_CoachellaIRWMP\mxds\
Date Updated: November 2010
Made By: DNF
Department: RMC Water & Environment

Objective D – Maximize local supply opportunities. This project indirectly maximizes local supplies by capturing septic effluent that is currently lost to the Desert Hot Springs Subbasin for possible future recycled uses. The sewer flows captured via new customer connections to the MSWD collection system will be treated for future groundwater recharge in the basin. This will alleviate the current overdraft in the region's groundwater basin and prevent potential subsidence.

Objective E – Protect groundwater quality and improve where feasible. Expansion of MSWD's municipal wastewater collection system will eliminate the need for on-site septic systems in the project area. This will reduce septic tank densities in the region and prevent potential negative impact to Mission Creek and Desert Hot Springs groundwater aquifers from improperly functioning septic systems. In addition, this project protects hot mineral water sources from contamination by septic systems, thus preserving the primary industry of the local economy of a DAC.

Objective J – Maximize stakeholder involvement. This project will involve coordination with residents within Sub Area D-2 of Assessment District 12 within MSWD's service area. As residents within this area are required to connect to the sewer system once it is in place, these residents are considered primary stakeholders and will be made aware of the project, its schedule, and its benefits to the Region.

Objective L – Address water and sanitation needs of DACs. This project directly addresses water and sanitation needs of DACs by providing for expansion of the municipal wastewater collection system and providing means for connection to the collection system. Removal of the septic systems will avoid any potential unsanitary conditions resulting from future system failures at residences. Potential nitrate and pathogen contaminations of the Desert Hot Springs aquifer will be eliminated via abatement of septic system. Hot mineral water will also be secured to continue supporting the local spa and hotel economy.

Objective M – Maintain affordability of water. This project indirectly helps maintain the affordability of water by reducing and preventing contamination of the local groundwater supply. A contaminated potable water supply would require costly treatment, and therefore, the project helps maintain the current water supply at affordable levels.

Project Integration

This program will involve replacing high-density septic systems with sewers in a DAC. Several of the other projects – *Torres-Martinez Avenue 64 Water Supply Connection Project* and *San Antonio del Desierto DAC Sewer Extension Project* – both also serve the Region's DACs by providing healthy and sanitary municipal water and wastewater services. The Coachella Valley IRWM Plan identifies the critical need to serve the Region's DACs (IRWM Plan Objective L) and this funding application helps the Region to accomplish that goal.

This project also links to the *Coachella Valley Salt & Nutrient Management Program* in that it will be removing a source of nutrient and salt loading in the subbasin. Reducing this loading will help the Coachella Valley Groundwater Basin to meet overall Basin Plan objectives.

Finally, the *Groundwater Quality Protection Program – Subarea D2* is a continuation of a previous project funded through the Coachella Valley IRWM Region under Proposition 84-Round 1. The previous phase of the project connected 238 parcels to the municipal sewer system and abated 181 septic systems in Subarea D1.

Linkages and Synergies with Other Projects in the Proposal

This program will involve replacing high-density septic systems with sewers in a DAC. Several of the other projects – *Torres-Martinez Avenue 64 Water Supply Connection Project* and *San Antonio del Desierto DAC Sewer Extension Project* – both also serve the Region's DACs by providing healthy and

sanitary municipal water and wastewater services. The Coachella Valley IRWM Plan identifies the critical need to serve the Region's DACs (IRWM Plan Objective L) and this funding application helps the Region to accomplish that goal.

This project also links to the *Coachella Valley Salt & Nutrient Management Program* in that it will be removing a source of nutrient and salt loading in the subbasin. Reducing this loading will help the Coachella Valley Groundwater Basin to meet overall Basin Plan objectives.

Completed Work

- Formation of Assessment District 12—MSWD completed formation of the Assessment District in 2004 to provide local match funding for grant opportunities.
- Contract Documents—MSWD completed design for the project in 2010.
- Environmental Compliance—MSWD completed environmental compliance processing in 2007.

Existing Data and Studies

This project type, scope, and focus are identified in the following plans and studies. These documents are also included as Appendix 3-3 to this attachment.

- Sub Area D2 Sewer Exhibits (2012).
- Mission Springs Water District (MSWD). 2007. *CEQA Recertification Documents.*
- Mission Springs Water District (MSWD). 1997. *Sewer Improvement Project Report.* This report contains the following appendices:
    - June 17, 1996 – USGS Report, Transport of Contaminants from Wastewater Disposal Systems Near Mission Creek Subbasin
    - September 12, 1996- Michigan Technical University, Groundwater Study
- Mission Springs Water District (MSWD). 2007. *Water Recycling Feasibility Study: Resource Protection and Wastewater Infrastructure, Desert Hot Springs, CA.*

II. Project Work

Row (a) Direct Project Administration Costs

Task 1: Project Administration

Ongoing project administration for this project will involve coordinating with CVWD on DWR-related contracting efforts and coordinating with the project consultant. Project administration also includes the staff time that necessary to receive approval for project construction from the MSWD Board of Directors.

Task 1 Deliverables:

- Construction and other project-related approvals from the MSWD Board of Directors

Task 2: Labor Compliance Program

MSWD will contract with a consultant to complete a Labor Compliance Program (LCP) to verify that construction is completed in accordance with current law including prevailing wage determinations. The program will be completed and submitted to the California Department of Industrial Relations. Implementation of the LCP will begin prior to project construction, occur through project construction, and end with construction, which is estimated to be complete in March of 2017.

Task 2 Deliverables:

- Final LCP Report and Submittal to the California Department of Industrial Relations

Task 3: Reporting

MSWD will prepare a project assessment and evaluation plan, quarterly invoices, and progress reports for submittal to DWR as part of the grant contract. MSWD will also prepare a project completion report upon completion of all grant-funded activities associated with the proposed project.

MSWD will also ensure that all of the data collected and analyzed to measure program performance (as described in Attachment 6) will be submitted to DWR and made available to the public and to the Region for future inclusion within the Data Management System as required in the Data Management Standard.

Task 3 Deliverables:

- Quarterly invoices and progress reports, including required deliverables
- Project Assessment and Evaluation Plan (PAEP)
- Project Completion Report

Table 3-19: Row (a) Direct Project Administration
Groundwater Quality Protection Program - Subarea D2

Activity or Deliverable	Schedule	Status	Completion of Task	
			Before Sept 2013	After Sept 2013
Task 1: Project Administration				
Project Coordination	October 2013-July 2017	Not yet begun		X
Task 2: Labor Compliance Program				
Labor Compliance Program, including field interviews, reviewing contractor payroll, preparing deficiency notifications, and preparing final report	August 2014 – March 2017	Not yet begun		X
Task 3: Reporting				
Compile PAEP, Invoices, and Progress Reports	October 2013-July 2017	Not yet begun		X
Prepare Quarterly Reports	October 2013-July 2017	Not yet begun		X
Prepare Final Report	March 2017-July 2017	End of work		X

Row (b) Land Purchase/ Easement

A land purchase easement is not required for implementation of this project. As such, there are no deliverables related to a land purchase easement.

Row (c) Planning/ Design/ Engineering/ Environmental Documentation

Task 4: Assessment and Evaluation

Preliminary design and assessments were prepared in 2004. No additional planning work or deliverables are included in this work plan.

Task 5: Final Design

Design drawings, specifications, and cost estimates for Subarea D2 were completed in 2010. Bids have not yet been solicited. The project does not require completion of any future phases to place the system into operation. MSWD, through the lead agency, will submit contract documents (plans, specifications, and estimates) for review to DWR to verify consistency with program requirements. No additional design work or deliverables are included in this work plan.

Task 6: Environmental Documentation

The project has been analyzed in an Initial Study/Mitigated Negative Declaration document that was completed and finalized in 1999. The document was later recertified in 2007. This project also went through a NEPA review that resulted in an Environmental Assessment and a Finding of No Significant Impact in December 2010.

The CEQA/NEPA environmental documentation outlined a Mitigation Monitoring and Reporting Plan (MMRP) that demonstrates mitigation measures required for CEQA compliance were completed in 1998. The MMRP will be in effect during the construction phase of this project. No additional environmental documentation or deliverables are included in the work plan.

Task 7: Permitting

MSWD will apply for coverage from the State Water Resources Control Board under the NPDES General Construction Permit, which requires preparation of a Stormwater Pollution Prevention Plan (SWPPP). MSWD will also apply for right-of-way Encroachment Permits from the City of Desert Hot Springs and the County of Riverside. MSWD will apply for these permits prior to December 2014.

Task 7 Deliverables:

- Final SWPPP
- Final Encroachment Permits from the City of Desert Hot Springs and the County of Riverside

Table 3-20: Row (c) Planning/ Design/ Environmental Documentation
Groundwater Quality Protection Program - Subarea D2

Activity or Deliverable	Schedule	Status	Completion of Task	
			Before Sept 2013	After Sept 2013
Task 7: Permitting				
NPDES General Construction Permit, including SWPPP	August 2014 – December 2014	Not yet begun		X
Encroachment Permits from City of Desert Hot Springs and County of Riverside	August 2014 – December 2014	Not yet begun		*X*

Row (d) Construction/ Implementation

Task 8: Construction Contracting

Solicitation for a construction contractor will involve advertisement for bids, holding a preconstruction meeting, bid opening, bid evaluations, MSWD staff recommendations, MSWD Board of Directors approval, and awarding the construction contract, which includes confirming the contractor's insurance requirements and bonds. For each contract, MSWD staff must issue a Request for Proposals, evaluate submitted proposals, and issue recommendations.

Task 8 Deliverables:

- Final Executed Construction Contract

Task 9: Construction/ Implementation

Construction tasks will include mobilization, clearing and grubbing, trench protection, pipeline installation, manhole construction, lateral construction, connections, backfill, compaction, testing, street restoration, on-site disposal system abandonment, and clean-up.

Building Materials and/or Computational Methods

Building material requirements are detailed in the 100% design plans and specifications and are further referenced in the ASTM, Green Book, and Mission Springs Water District Developer Handbook standards. All materials will be submitted by the contractor, evaluated according to the standards, and approved prior to construction (normally after NTP and before the pre-construction meeting).

Construction Standards, Health and Safety Standards, Laboratory Analysis, and/or Accepted Classification Methods

Construction for this project will conform to the specifications prepared for the project by a licensed engineer. These specifications include project-specific construction standards and require the contractor to conform to applicable local, state, and federal laws. The specific codes that will be used for project implementation include: MSWD Developer/Contractors Guidelines Handbook, Project Plans and Specifications, ASTM Standards for materials and manufacturing, compliance with all state and local health and safety standards, California Occupational Safety and Health (Cal-OSHA) requirements, County of Riverside and/or Desert Hot Springs Noise Ordinance(s), South Coast Air Quality Management District Standards, and Colorado River Basin RWQCB Standards.

Construction Tasks

Construction tasks for this project will include Mobilization and Site Preparation, Project Construction, and Performance Testing and Demobilization. These subtasks are described in detail below:

- ***Subtask 9.1 Mobilization and Site Preparation*:** This task will involve equipment delivery, SWPPP BMP installation, potholing, pavement grind and disposal, and potentially some clearing and grubbing at lateral connections.
- ***Subtask 9.2 Project Construction*:** Project construction includes installing 18,555 lineal feet of 8-inch vitrified clay pipe (VCP) sewer, 15,281 lineal feet of 4-inch VCP sewer laterals, 70 manholes, and all appurtenances. This task includes traffic control, BMP management, pavement removal, trenching, shoring, bedding, pipe installation, manhole installation, lateral construction, backfilling, compaction, connections, pavement restoration, striping, and clean-up. The contractor shall return construction and staging areas to as reasonable as possible to original or improved conditions as a result of construction activities, including newly paved streets.
- ***Subtask 9.3 Performance Testing and Demobilization*:** Performance testing shall be per MSWD Developer/Contractors Guidelines Handbook and per the project plans and specifications. Inspection and testing are required by the project specifications. Testing includes air pressure testing of the sewer lines and backfill compaction testing. Demobilization includes surplus materials and equipment removal.

Task 9 Deliverables:

- Performance testing results

Table 3-21: Row (d) Construction/ Implementation
Groundwater Quality Protection Program - Subarea D2

Activity or Deliverable	Schedule	Status	Completion of Task	
			Before Sept 2013	After Sept 2013
Task 8: Construction Contracting				
Bidding, Bid Evaluation and Award, and Contract Execution	January 2015 – March 2015	Not yet begun		X
Task 9: Construction				
Subtask 9.1 Mobilization and Site Preparation				
Mobilization, traffic control, implementation of SWPPP BMPs, potholing, and pavement pulverization	April 2015 - June 2015	Not yet begun		X
Subtask 9.2 Project Construction				
Installation of sewer main, laterals, manholes, connections, restoration, etc	June 2015 – September 2016	Not yet begun		X
Subtask 9.3 Performance Testing and Demobilization				
Testing and demobilization	October 2016 – March 2017	Not yet begun		X

Row (e) Environmental Compliance/ Mitigation/ Enhancement

Task 10: Environmental Compliance/Mitigation/Enhancement

No environmental compliance or mitigation deliverables are included in this work plan. As discussed above under Task 6, the completed CEQA/NEPA documentation outlined a Mitigation Monitoring and Reporting Plan (MMRP) that demonstrates mitigation measures required for CEQA compliance were completed in 1998. The MMRP will be in effect during the construction phase of this project.

Row (f) Construction Administration

Task 11: Construction Administration

Construction management includes 1) general construction management (administration, project-partner coordination, preconstruction conference coordination, construction progress meetings, invoicing, requests for information and requests for copy responses, change order execution, and other related management duties), 2) materials testing, 3) inspection, and 4) construction staking. A consultant will be procured to help manage the aforementioned activities.

Task 11 Deliverables:

- Construction management contract

Table 3-22: Row (f) Construction Administration
Groundwater Quality Protection Program - Subarea D2

Activity or Deliverable	Schedule	Status	Completion of Task	
			Before Sept 2013	After Sept 2013
Task 11: Construction Contracting				
Management of Construction Contractor, including materials testing, inspection, and construction staking	January 2015 – March 2017	Not yet begun		X

Project 4: San Antonio del Desierto DAC Sewer Extension Project

I. Introduction

Project Sponsor

Pueblo Unido Community Development Corporation (PUCDC) is the project sponsor for the *San Antonio del Desierto DAC Sewer Extension Project*.

Project Need

The San Antonio del Desierto (St. Anthony) Mobile Home Park is currently operating five (5) anaerobic wastewater treatment lagoons. The lagoons are in extremely close proximity (within 150 feet) to the mobile home park residents. Inadequate design of the lagoons, including lack of proper lining, location, and unstable dikes, urge the need to provide a sanitary and reliable wastewater disposal and treatment system for residents of the mobile home park. Inadequate design of the lagoons not only provides concerns relating to the health and safety of mobile home park residents, but also presents water quality concerns within and surrounding the project area. Due to the project's location within the eastern Coachella Valley, the project area is underlain by a shallow groundwater aquifer with a high water table. As such, inadequate lagoon conditions pose a potential threat to groundwater quality within the surrounding area as wastewater and associated contaminants from the lagoons could potentially contaminate the groundwater due to the lack of an adequate barrier lining the lagoons. Due to the proximity of the mobile home park to the Coachella Valley Water District's (CVWD's) sewer sanitary collection system, connecting to the CVWD municipal wastewater system is the best option for meeting project-related needs.

Project Purpose

The purpose of the *San Antonio del Desierto DAC Sewer Extension Project* is to replace the existing on-site wastewater treatment system at the St. Anthony Mobile Home Park with a sewer connection. The project proposes the installation of a gravity sewer pipeline, lift station, and a sewer force main pipeline that will collect wastewater from the St. Anthony's Mobile Home Park, which has an approximate population of 400 people. The project will provide sewer service to the residents and convey the wastewater to the Coachella Valley Water District (CVWD) Water Reclamation Plant No. 4 (WRP-4).

Project Abstract

The San Antonio del Desierto (St. Anthony) Mobile Home Park is located along Highway 111, south of Avenue 66 and north of Avenue 68 in the Coachella Valley in an unincorporated portion of Riverside County known as Mecca. This mobile home park, which contains approximately 400 residents, is considered an economically disadvantaged community (DAC) per requirements established by DWR. The mobile home park is owned by the Pueblo Unido Community Development Corporation (PUCDC), which is in the process of acquiring legal permitting for the mobile home park in the form of a Conditional Use Permit (CUP) from the County of Riverside. One of the conditions of the CUP is that the mobile home park must convert to a sanitary wastewater system, as the mobile home park currently relies upon five (5) anaerobic wastewater treatment lagoons for wastewater treatment and disposal.

The lagoons are in extremely close proximity (within 150 feet) to the mobile home park residents. Inadequate design of the lagoons, including lack of proper lining, location, and unstable dikes, urge the need to provide a sanitary and reliable wastewater disposal and treatment system for residents of the mobile home park. Inadequate design of the lagoons not only provides concerns relating to the health and safety of mobile home park residents, but also presents water quality concerns within and surrounding the

project area. Due to the project's location within the eastern Coachella Valley, the project area is underlain by a shallow groundwater aquifer with a high water table. As such, inadequate lagoon conditions pose a potential threat to groundwater quality within the surrounding area as wastewater and associated contaminants from the lagoons could potentially contaminate the groundwater due to the lack of an adequate barrier lining the lagoons. Due to the proximity of the mobile home park to the CVWD's sewer sanitary collection system, connecting to the CVWD municipal wastewater system is the best option for meeting project-related needs.

The project proposes the installation of a gravity sewer pipeline, lift station, and a sewer force main pipeline that will collect wastewater from the St. Anthony Mobile Home Park. The project will provide sewer service to the residents and convey the wastewater to CVWD's Water Reclamation Plant No. 4 (WRP-4).

Project Partners

The primary organization responsible for implementing the project is PUCDC, who is leading the design and funding of the sewer main extension. CVWD, who will own and operate the sewer main that will be constructed, is a cooperating agency. The County of Riverside, who will be responsible for permitting the mobile home park, is also a cooperating agency.

Project Timing and Phasing

The project is not a portion or phase of a larger multi-phased project. The project will be completed in one single phase including grading, trenching, underground work, construction of a lift station and extension of pipelines to the existing force main located north of the site. CVWD will then operate the facility.

Project Map

Figure 3-14 is a site map showing the project's geographical location and surrounding work boundaries.

Project Objectives

The *San Antonio del Desierto DAC Sewer Extension Project* seeks to achieve the following objectives:

- To provide sewer sanitary collection service
- Abandonment of existing wastewater lagoons
- Improve the quality of water services to the community



CVIRWMP Project Locations
San Antonio Del Desierto

- Proposed Sewer Connection
- Colorado River Aqueduct
- Coachella and All American Canals
- Whitewater River Stormwater Channel
- Interstate Hwys.
- Lakes
- Colorado River Funding Area
- Disadvantaged Communities

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COACHELLA VALLEY IRWMP

File Name: Fig 5-3_MHI.mxd
File Location: L:\Projects GIS\0264-001_CoachellaIRWMP\mxds\
Date Updated: November 2010
Made By: DNF
Department: RMC Water & Environment

Table 3-23 provides an overview of the Coachella Valley IRWM Plan Objectives that are expected to be achieved through implementation of the *San Antonio del Desierto DAC Sewer Extension Project*.

Table 3-23: Contribution to IRWM Plan Objectives

Project	IRWM Objective												
	A	B	C	D	E	F	G	H	I	J	K	L	M
San Antonio del Desierto DAC Sewer Extension Project	○			○	●	○	○			●		●	○

● = Directly helps achieve objective
○ = Indirectly helps achieve objective

The *San Antonio del Desierto DAC Sewer Extension Project* will contribute towards achieving the following CVIRWM Plan Objectives:

Objective A – Provide reliable water supply: The program will help to provide a reliable water supply by connecting the St. Anthony Mobile Home Park to a municipal sewer system, thereby transferring wastewater to a water reclamation plant for future water reuse.

Objective D – Maximize local supply: This project indirectly maximizes local supplies by capturing wastewater effluent that is currently lost to the shallow aquifer, and ultimately the Salton Sea, for future recycled uses at CVWD's WRP-4. Wastewater that is sent to WRP-4 is currently discharged to the Coachella Valley Stormwater Channel (CVSC) after undergoing secondary treatment. While these flows are not currently beneficially reused, CVWD intends to upgrade WRP-4 to tertiary treatment to produce recycled water for beneficial reuse. This will maximize local supply opportunities by providing additional flows for recycled water, which will alleviate groundwater pumping via source substitution.

Objective E – Protect groundwater quality: The St. Anthony Mobile Home Park utilizes an on-site wastewater facility that is inadequate, does not meet current minimum standards, and is in need of replacement. The presence of a high groundwater table and poor percolation rates in the vicinity can negatively impact the operation of the onsite wastewater lagoons. The elevated groundwater can cause the system to fail and significantly degrade the surrounding groundwater quality that is the mainstream use for irrigation purposes. The proposed project will connect to CVWD's wastewater collection system and will protect public health, preserve valuable water resources, and diminish the possibility for groundwater contamination.

Objective F – Preserve and improve surface water quality: The existing on-site wastewater facilities consist of anaerobic wastewater lagoons. The majority of the existing on-site wastewater system is in immediate need of replacement and has a history of overflow, spills, and leaks. Existing groundwater levels are very close to ground surface and may adversely affect the subsurface flow of water from the lagoons to adjacent agricultural drains.

Objective G – Preserve local environment: This project will divert flows from onsite wastewater lagoons to the CVWD municipal water system. Therefore, the project will divert untreated wastewater from flowing into the Salton Sea or to the Torres-Martinez wetlands located adjacent to the Salton Sea. Wastewater from the project will be treated to tertiary levels and reused as recycled water, assuming that WRP-4 is upgraded to tertiary treatment by 2015. Therefore, the project will improve the quality of wastewater before it is discharged to the local environment.

Objective J – Maximize stakeholder involvement: *San Antonio del Desierto DAC Sewer Extension Project* is a community-driven project supported by CVWD. This constitutes a true testimony of

community involvement. The community has expressed serious interest in replacing the existing wastewater lagoons that have been adversely impacted by the high water table and poor percolation in the area for many years. This has resulted in the formulation of this project, which will ensure better living conditions and new opportunities for future generations.

Objective L – Address needs of DACs: Connection to the CVWD wastewater collection system will help a local DAC meet their water and sanitation needs by providing for expansion of the municipal wastewater collection system and providing means for connection to the collection system. Removal of the wastewater lagoon system will avoid any potential unsanitary conditions resulting from future system failures. Potential nitrate and pathogen contaminations of the shallow aquifer will be eliminated via abatement of the lagoons.

Objective M – Maintain affordability of water: Protecting groundwater quality indirectly helps maintain the affordability of water. Eliminating the potential for nitrate contamination in water supplies will help project proponents avoid costly mitigation measures.

Project Integration

The project will be the catalyst of new infrastructure resources that in turn, will create new opportunities for affordable housing and improved living conditions in the vicinity. The lack of basic infrastructure has been recognized to be one detrimental obstacle in improving the quality of life of many residents in the area. Other projects in development include the Riverside County Transportation Department Avenue 66 realignment project geared to improve traffic circulation in the vicinity.

Linkages and Synergies with Other Projects in the Proposal

Though not explicitly connected with other projects in this proposal, this project would provide necessary sanitary sewer service to a disadvantaged community. Several of the other projects – *Groundwater Quality Protection Program – Subarea D2* and *Torres-Martinez Avenue 64 Water Supply Connection Project* – both also serve the Region's DACs by providing healthy and sanitary municipal water and wastewater services. The Coachella Valley IRWM Plan identifies the critical need to serve the Region's DACs (IRWM Plan Objective L) and this funding application helps the Region to accomplish that goal.

Completed Work

- Preliminary Engineering Report
- Sewer Sanitation Collection System construction plans and exhibits
- Funding procurement with the U.S. Department of Agriculture to match the project
- Funding procurement with the State Water Boards to match the project

Existing Data and Studies

The following includes a list of data that have been collected and studies that have been performed that support the project site location, feasibility, and technical methods. These documents are also included as Appendix 3-4 to this attachment.

- County of Riverside Planning Department. 2011. CZ07738/CUP03645 – PC Staff Report: May 25, 2011. This report contains information, including the preliminary environmental documentation that was completed for the project. This report also clearly indicates that connection to the CVWD sewer system is a County of Riverside stipulation that must be met in order to secure a CUP for the project (Page 3 or 4, Finding No. 5).

- Gross, Elena Blank. N.D. *Market Study: the Unincorporated Community of Mecca.* This study is a comprehensive market study completed regarding the community of Mecca. This study clearly documents the need for affordable housing within the eastern Coachella Valley, and specifically with Mecca. This study also specifically notes that the St. Anthony Mobile Home Park project is an example of an innovative approach to effectively respond to the need for housing preservation to prevent potential displacement of families (Executive Summary and Conclusions).

II. Project Work

Row (a) Direct Project Administration Costs

Task 1: Project Administration

PUCDC is the lead entity in managing and administering the project. This task will involve administering the grant contract, tracking budgets, preparing invoices and quarterly reports, preparing project assessment and evaluation plans (PAEPs), and preparing final reports as required by DWR for IRWM contracting purposes. It is assumed that this work will be completed in-house by a Project Manager from PUCDC. PUCDC will also provide assistance in submitting engineering design, plans and cost estimates. Additionally, PUCDC will provide technical support in coordinating construction activities within the property boundary.

Task 1 Deliverables:

- Quarterly invoices and progress reports, including required deliverables
- Project Assessment and Evaluation Plan
- Project Completion Report

Task 2: Labor Compliance Program

Construction of the proposed sewer main extension and pump station are "public works projects" in accordance with the State Department of Industrial Relations guidelines. All construction activities will be in compliance with CVWD's established Labor Compliance Program (LCP). No additional budget for administration of the LCP is included in this work plan.

Task 2 Deliverables:

As no specific work items for this task are included in this scope of work, deliverables are not applicable.

Task 3: Reporting

Reporting for the *San Antonio del Desierto DAC Sewer Extension Project* is included above in Task 1: Project Administration. With regards to reporting described in Task 1, PUCDC will also ensure that all of the data collected and analyzed to measure program performance (as described in Attachment 6) will be submitted to DWR and made available to the public and to the Region for future inclusion within the Data Management System as required in the Data Management Standard.

Task 3 Deliverables:

Deliverables associated with reporting are included under Task 1: Project Administration.

Table 3-24: Row (a) Direct Project Administration
San Antonio del Desierto DAC Sewer Extension Project

Activity or Deliverable	Schedule	Status	Completion of Task	
			Before Sept 2013	After Sept 2013
Task 1: Project Administration				
Track budgets, prepare invoices, compile backup documentation, and prepare quarterly reports	October 2013-December 2016	Not yet begun		X
Prepare and administer PAEP	October 2013-December 2013	Not yet begun		X
Prepare project completion report	July 2016-December 2016	Not yet begun		X
Coordination of construction plans and exhibits	October 2013-November 2014	Not yet begun		X

Row (b) Land Purchase/Easement

No easement acquisitions and/or right-of-ways will be required for project. The proposed lift station will be located on St Anthony's property, and an easement will be granted to CVWD.

Land Purchase Easement Deliverables:

As no work related to a land purchase easement will be completed as part of the project, deliverables are not applicable.

Row (c) Planning/ Design/ Engineering/ Environmental Documentation

Task 4: Assessment and Evaluation

No assessment or conceptual studies will be prepared for the project.

Task 4 Deliverables:

As no work for this task will be completed as part of the project, deliverables are not applicable.

Task 5: Project Design

Currently, PUCDC is in progress to complete the Preliminary Engineering Report for the San Antonio del Desierto DAC Sewer Extension Project. PUCDC is also managing preparation of geotechnical investigations and final design for the sewer extension. That design work will be completed for the project prior to construction.

Task 5 Deliverables:

- Preliminary Engineering Report
- Geotechnical Investigations
- Final (100%) Design

Task 6: Environmental Documentation

Because the proposed project is less than one mile of pipeline, a CEQA Categorical Exemption is anticipated. PUCDC will work with CVWD to prepare and adopt the necessary CEQA findings. These costs are not included in the proposed budget.

Task 6 Deliverables:

As no work for this task will be completed as part of the project, deliverables are not applicable.

Task 7: Permitting

PUCDC, in collaboration with CVWD, will secure all necessary permits for construction of the project including encroachment permits with the County of Riverside. Preparation of permit applications is not included in this work plan.

Table 3-25: Row (c) Planning/ Design/ Environmental Documentation
San Antonio del Desierto DAC Sewer Extension Project

Activity or Deliverable	Schedule	Status	Completion of Task	
			Before Sept 2013	After Sept 2013
Task 5: Project Design				
Preliminary Engineering Report	January 2013 – September 2013	In progress	X	
Geotechnical Investigations	October 2013– June 2014	Not yet begun		X
Final Design (100%)	July – November 2014	Not yet begun		X

Row (d) Construction/ Implementation

Task 8: Construction Contracting

Once final construction plans are approved, CVWD will be the lead agency in preparing bid documents to retain construction contractors. Construction contracting is not included in this work plan.

Task 9: Construction

The project proposes the installation of a gravity sewer pipeline, lift station, and a sewer force main pipeline that will collect wastewater from the St. Anthony Mobile Home Park. The project will provide sewer service to the residents and convey the wastewater to the CVWD WRP-4. Please note that there is a scheduled time lapse between the time that project design is complete and the time that project construction will begin. This ensures that there will be time to coordinate efforts between PUCDC, CVWD, and the construction contractor.

Subtask 9.1 Mobilization and Site Preparation:

This task will involve mobilization as necessary for pipeline installation. Mobilization includes engineering and construction staking, as well as mobilization and site preparation for the project area that will include the sewer force main, the sewer gravity pipeline, and the sewer lift station.

Subtask 9.2 Project Construction:

This task will include construction of the following facilities:

- 2,200 feet of 8-inch gravity sewer beginning at the St. Anthony Mobile Home Park and Lincoln Street, extending southerly to the intersection of Avenue 68, and connecting to the proposed lift station that will be located at the corner of Avenue 68 and Lincoln Street
- Sewer lift station located at the corner of Avenue 68 and Lincoln Street

- 5,000 feet of a 6-inch sewer force main from the proposed lift station at the intersection of Avenue 68 and Lincoln Street to CVWD's existing 18-inch force main at the intersection of Avenue 66 and Lincoln Street
- Temporary building and site fencing

Subtask 9.3 Performance Testing and Demobilization:

This task will include performance testing of the new sewer line and lift station, along with payment of the CVWD connection fee for the mobile home park that is required to make the new sewer extension operational.

Task 9 Deliverables:

- Notice to Proceed for Construction Contractor
- Performance testing results

Table 3-26: Row (d) Construction/ Implementation
San Antonio del Desierto DAC Sewer Extension Project

Activity or Deliverable	Schedule	Status	Completion of Task	
			Before Sept 2013	After Sept 2013
Task 9: Construction				
Subtask 9.1 Mobilization and Site Preparation				
Mobilization	July - August 2015	Not yet begun		X
Subtask 9.2 Project Construction				
2,200 feet of 8-inch gravity sewer	September 2015 – May 2016	Not yet begun		X
Sewer lift station	September 2015 – May 2016	Not yet begun		X
5,000 feet of 6-inch sewer force main	September 2015 – May 2016	Not yet begun		X
Subtask 9.3 Performance Testing and Demobilization				
Performance testing and CVWD Connection Fee	June 2016	Not yet begun		X

Row (e) Environmental Compliance/ Mitigation/ Enhancement

Task 10: Environmental Compliance / Mitigation / Enhancement

No environmental mitigation or enhancement action or tasks are included in this work plan. However, as noted above under Task 6, PUCDC will collaborate with CVWD to prepare and adopt a Mitigated Negative Declaration in compliance with CEQA. Any environmental mitigation set forth in the Mitigated Negative Declaration will be implemented in accordance with CEQA.

F. Construction Administration

Task 11: Construction Administration

PUCDC, in collaboration with CVWD, will manage the construction contractor that is chosen for the project.

Table 3-27: Row (f) Construction Administration
San Antonio del Desierto DAC Sewer Extension Project

Activity or Deliverable	Schedule	Status	Completion of Task	
			Before Sept 2013	After Sept 2013
Task 11: Construction Administration				
Management of Construction Contractor	July 2015 – June 2016	Not yet begun		X

Project 5: Torres-Martinez Avenue 64 Water Supply Connection Project

I. Introduction

Project Sponsor

The Torres-Martinez Desert Cahuilla Indians (DCI) is the sponsor of the *Torres-Martinez Avenue 64 Water Supply Connection Project*.

Project Need

The Torres-Martinez Avenue 64 potable water system (PWS), which serves an economically disadvantaged tribal subdivision located along Avenue 64 (Avenue 64 Subdivision), is subject to power outages, water supply failures, and other issues that pose multiple health and safety hazards to the community and to the operators who run the system. These potential hazards are due to the documented failures with the existing system leading to: 1) loss of water supply for consumption, showers or flushing toilets, 2) insufficient back-up service which does not meet capacity needs and has also led to loss of chlorine residual in drinking water supply, 3) inoperable components such as the hydropneumatic tank and fire supply system, 4) safety and security risks from electrical hazards that could result in fatal consequences, and 5) potential water quality concerns related to perchlorate and chromium.

These risks and hazards are documented in the U.S. Environmental Protection Agency's (USEPA) Sanitary Survey Information (USEPA 2011a) and correspondence from the USEPA to the Torres-Martinez DCI (USEPA 2011b). In the letter, the USEPA notified Torres-Martinez DCI that the deficiencies in the water system and its management "pose a critical risk to human health". In this letter, Torres-Martinez DCI was given 120 days to respond with concrete actions to address the many deficiencies in the system or face a formal enforcement action. Additional information with regard to operations and maintenance issues associated with the existing PWS is summarized in the Preliminary Engineering Report produced by Indian Health Service (IHS) for the Torres Martinez DCI (IHS 2012a).

Project Purpose

The *Torres-Martinez Avenue 64 Water Supply Connection Project* would provide a safer and more reliable supply of water and require much less direct operations and maintenance from the Torres-Martinez DCI. Once implemented, this project will resolve the water outages and improve the health and safety issues for the residents and the operators of the system. This project will also restore fire protection to the Avenue 64 Subdivision, which has not been operable since 2004 (IHS 2012a).

This project will provide engineering services to design the extension of the existing CVWD regional water supply system and connect it to the existing Torres-Martinez Avenue 64 potable water distribution system. The existing Avenue 64 groundwater wells, storage tanks, and pressure stations would be physically disconnected from the water distribution system, and the existing distribution system would be permanently connected to the CVWD municipal water system.

Project Abstract

The *Torres-Martinez Avenue 64 Water Supply Connection Project* would provide funding to design and engineer the development of a new water supply for the Torres-Martinez Avenue 64 potable water system (PWS) located at the intersection of Avenue 64 and Monroe Street. This new supply source would be from the CVWD municipal water system through the construction of approximately 5,400 feet of 12-inch Ductile Iron (DI) water main along Monroe Street from an existing CVWD 24-inch DI water main at the intersection of Monroe Street and Avenue 62 to the Avenue 64 Subdivision. CVWD would own the 5,400-foot extension of 12-inch DI water main and the master water meter that would be connected at two

points to the existing Avenue 64 PWS. The Torres-Martinez Desert Cahuilla Indians (DCI) would own and maintain the 4-inch polyvinyl chloride (PVC) distribution system from the CVWD meter throughout the Avenue 64 Subdivision.

This new water main would improve the safety and reliability of the water supply and would connect at two points to PWS's existing water distribution system that currently serves the subdivision, one for the domestic water supply and one for fire protection service. The community water system that feeds this subdivision that includes 33 single occupancy homes with an estimated 100 people and a church that is owned and operated by the Torres- Martinez DCI.

The existing wells, pumping system, and storage tanks currently servicing the Avenue 64 PWS were evaluated through several studies and reported to be suffering from a lack of maintenance and upkeep. The conclusions in the Preliminary Engineering Report (PER) conducted by IHS determined that "upgrades to the existing system would be prohibitively expensive, or would only solve some of the system's many existing issues. In addition, the existing water source for the Tribal system would be permanently disconnected from the distribution system" (IHS 2012a). As such, the PER concludes that the most effective long-term solution to providing safe and reliable drinking water to the Avenue 64 Subdivision would be to connect the subdivision to the CVWD municipal system, as proposed in this Project.

CVWD would own the 5,400-foot extension of 12-inch DI water main and the master meter. The Tribe would own and maintain the 4-inch PVC distribution system from the master meter throughout the subdivision.

Many planning and assessment tasks are complete or ongoing, including biological and cultural/archaeological surveys, records searches, and aerial mapping of the project area. These tasks are being completed by funds from a USEPA Clean Water Act grant for a sewer project along the same proposed alignment (Monroe Street). The project will take place in two phases:

1. Phase I-Planning and Design: Most of the planning studies are complete or in progress. This application is for the design and environmental compliance tasks needed to complete Phase I.
2. Phase II-Construction: The design plans and specifications generated by Phase I will provide the basis for Phase II-Construction.

Project Partners

The Torres-Martinez DCI is the lead entity responsible for project administration and management. CVWD will be responsible for the engineering, design, construction, and inspection of the water main extension. CVWD will also review the design of the service connection and inspect the final connection during the construction phase. Indian Health Services (IHS) will lead the engineering design, construction inspection of system interconnections, and well disconnection. The USEPA has undertaken planning tasks as a Phase I and potential Phase II funding agency. The U.S. Department of Agriculture (USDA) is a potential Phase II-construction funding agency.

Project Timing and Phasing

Phase I involves the planning, engineering, and environmental compliance for the *Torres-Martinez Avenue 64 Water Supply Connection Project* and is currently underway. Completing Phase I will increase the likelihood of the potential funding agencies (USEPA and USDA) to fund the construction in Phase II.

Project Map

Figure 3-15 is a site map showing the project's geographical location and surrounding work boundaries.



CVIRWMP Project Locations
Torres-Martinez Ave 64

- Connection to CVWD
- Tribe Water Main
- Colorado River Aqueduct
- Coachella and All American Canals
- Whitewater River Stormwater Channel
- Interstate Hwys.
- Lakes
- Colorado River Funding Area
- Disadvantaged Communities

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COACHELLA VALLEY IRWMP

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Date Updated: November 2010
Made By: DNF
Department: RMC Water & Environment

Project Objectives

The *Torres-Martinez Avenue 64 Water Supply Connection Project* seeks to achieve the following objectives:

- Phase I: Complete planning, design/engineering, and environmental tasks to prepare for construction of the CVWD-Avenue 64 Subdivision connection. This effort includes the biological and cultural/archaeological surveys/reports to satisfy NEPA/CEQA requirements, in order to be ready to proceed during the next round of funding from the USDA, USEPA, IRWM, and/or others.
- Phase II: Complete construction of interconnection to CVWD's water main and disconnect the Ave 64 PWS distribution system from the current source, which is a local groundwater well.

Table 3-28 provides an overview of the Coachella Valley IRWM Plan Objectives that are expected to be achieved through implementation of the *Torres-Martinez Avenue 64 Water Supply Connection Project*.

Table 3-28: Contribution to IRWM Plan Objectives

Project	IRWM Objective												
	A	B	C	D	E	F	G	H	I	J	K	L	M
Torres-Martinez Water Extension Project	●	●								○	●	●	●

● = Directly helps achieve objective
○ = Indirectly helps achieve objective

The *Torres-Martinez Avenue 64 Water Supply Connection Project* will contribute towards achieving the following CVIRWM Plan Objectives:

Objective A – Provide reliable water supply: This project will connect the Torres-Martinez Avenue 64 Subdivision to the current CVWD water distribution system, which will provide safe and reliable domestic water and fire suppression services to the community. The project will allow the Torres-Martinez DCI to disconnect their existing well system, which experiences frequent outages and poses a risk to human health and safety.

Objective B – Manage groundwater levels: This Project will allow the Torres-Martinez DCI to disconnect their current well system and eliminate local groundwater pumping in the community, which is located in the eastern Coachella Valley. Reduced local groundwater extraction in this portion of the Coachella Valley will help to manage the perched water aquifer.

Objective J – Maximize stakeholder involvement: By partnering with adjacent agencies and doing outreach to local residents, along with CVWD, this project will optimize stakeholder involvement in extension of municipal services to a disadvantaged tribal community.

Objective K – Address water-related needs of Tribes: This project is designed to address the critical drinking water supply needs of the Torres-Martinez DCI (a Native American Tribe), and provides reliable and safe drinking water directly to a tribal community located on tribal lands.

Objective L – Address water and sanitation needs of DACs: This project will provide for a more reliable and safer water source for a DAC. With the elimination of the existing groundwater wells, this will project will reduce the risks to human health and safety that are posed by the community's current water system. By connecting to the CVWD potable water system, the project will also provide a long-term solution to addressing water-related needs of a DAC.

Objective M – Maintain affordability of water: Residents currently need a periodic provision of bottled water supplies for potable consumption during frequent outages in their current water supply system. This project will eliminate the need for costly bottled water provisions to the community. The project will also greatly reduce the operations and maintenance needs and costs associated with the existing onsite potable water system.

Integrated Elements of Projects:

The Torres-Martinez Avenue 64 Subdivision is a disadvantaged tribal community, for which the Coachella Valley IRWM Plan recommends outreach and partnership to address critical water supply and water quality needs. The 2010 *Coachella Valley Water Management Plan* notes that there are water quality concerns within private groundwater wells located in the eastern Coachella Valley, and specifically mentions that CVWD is working with the Torres-Martinez DCI on federal grants to expand the CVWD municipal water system to tribal lands (CVWD 2010).

Linkages and Synergies with Other Projects in the Proposal

Though not explicitly connected with other projects in this proposal, this program will provide high quality municipal water supply for a disadvantaged tribal community. Several of the other projects – *Groundwater Quality Protection Program – Subarea D2* and *San Antonio del Desierto DAC Sewer Extension Project* – both also serve the Region's DACs by providing healthy and sanitary municipal water and wastewater services. The Coachella Valley IRWM Plan identifies the critical need to serve the Region's tribes (IRWM Plan Objective K) and DACs (IRWM Plan Objective L) and this funding application helps the Region to accomplish that goal.

Completed Work

The following work has been completed for the *Torres-Martinez Avenue 64 Water Supply Connection Project*.

- Digitized aerial mapping of the project area has been completed, and is included as an attachment to the Preliminary Engineering Report (IHS 2012a)
- *Preliminary Engineering Report for the Torres Martinez DCI, CVWD Water Main Extension to Avenue 64 Housing Subdivision* complete by the Indian Health Service (IHS 2012a)
- Biological assessment survey completed and report published for proposed project area and alignments

Existing Data and Studies

The following includes a list of data that have been collected and studies that have been performed that support the project site location, feasibility, and technical methods. These documents are also included as Appendix 3-5 to this attachment.

- Indian Health Services (IHS). 2012a. *Preliminary Engineering Report for the Torres Martinez DCI, CVWD Water Main Extension to Avenue 64 Housing Subdivision*. This report contains extensive documentation to support the project, and also includes a multitude of appendices from other agencies such as the EPA and the CVWD that demonstrate the site location, feasibility, and preferred alternative for the project.
- Indian Health Services (IHS). 2012b. *Preliminary Engineering Report for the Torres Martinez DCI, CVWD Sewer Main Extension to Avenue 64 Housing Subdivision*. This report includes information regarding a parallel sewer connection project, which would connect the Avenue 64 Subdivision to the CVWD municipal sewer system.

- Coachella Valley Water District (CVWD). 2010. *Coachella Valley WMP 2010 Update.* This comprehensive water management plan conducted by CVWD mentions that CVWD is working with the Torres-Martinez DCI to connect tribal lands to the CVWD potable water system (see page 6-39).
- L&L Environmental, Inc. 2012. Biological Assessment for Plants and Animals, Botany, and Wildlife Report for the Torres Martinez Indian Reservation Sewer and Water Line Improvement Project. This report is a biological assessment that was completed for the project area, and provides information regarding on-site biological resources, which will provide information for the environmental planning and design work completed for the project.

II. Project Work

Row (a) Direct Project Administration Costs

Task 1: Project Administration

Project administration activities for the project will include various accounting and other administrative activities that will occur throughout the duration of the project. Such activities include but are not limited to: coordination of contracts, memorandums of understanding (MOUs), review and reimbursement of contractor payment applications, payroll review for prevailing wages requirements, change order review and approval, regular meetings with contractor, engineer, and funding agencies, and quarterly invoicing and reporting requirements. Further, administrative activities included within this task include those required to complete DWR-required administration such as completion of a Project Assessment and Evaluation Plan and a Project Completion Report. Torres Martinez DCI staff will be responsible for project management and oversight.

Task 1 Deliverables:

- Fully executed MOUs between project partners
- Quarterly invoices and progress reports, including required deliverables
- Project Assessment and Evaluation Plan
- Project Completion Report

Task 2: Labor Compliance Program

This project includes design, /engineering, and environmental services only. The project does not include construction of a public works project and therefore, does not require establishment of a Labor Compliance Program (LCP) at this time. When Phase II-construction is initiated, however, Torres-Martinez DCI and CVWD are committed to implementing an LCP and ensuring the construction contractor applies prevailing wage rates.

Task 2 Deliverables:

As no work for this task will be completed as part of the project, deliverables are not applicable.

Task 3: Reporting

Quarterly and final reports required for the DWR grant contract will be prepared by Torres-Martinez DCI. All reporting costs are included under Task 1: Project Administration. With regards to reporting described in Task 1, Torres-Martinez DCI will also ensure that all of the data collected and analyzed to measure program performance (as described in Attachment 6) will be submitted to DWR and made available to the public and to the Region for future inclusion within the Data Management System as required in the Data Management Standard.

Task 3 Deliverables:

Deliverables associated with reporting are included under Task 1: Project Administration.

Table 3-29: Row (a) Direct Project Administration
Torres-Martinez Avenue 64 Water Supply Connection Project

Activity or Deliverable	Schedule	Status	Completion of Task	
			Before Sept 2013	After Sept 2013
Task 1: Project Administration				
Tribal Administration to Contract Engineering Services and CVWD Construction	October 2013 - May 2015	Not yet begun		X
Tribal Administration for Planning Tasks	April 2012 – May 2015	Ongoing		X
IHS Project Technical Support for Planning Tasks	April 2012 – May 2015	Ongoing		X

Row (b) Land Purchase/ Easement

No easement acquisitions and/or right-of-ways will be required for the project. It is anticipated that all proposed work will be within the Bureau of Indian Affairs (BIA) right-of-way along Monroe Street and on Torres-Martinez DCI tribal land. It will be necessary to obtain a BIA easement permit for Phase II construction activities, but no land purchase easements are anticipated.

Land Purchase Easement Deliverables:

As no work related to a land purchase easement will be completed as part of the project, deliverables are not applicable.

Row (c) Planning/ Design/ Engineering/ Environmental Documentation

Task 4: Assessment and Evaluation

Two planning tasks for this project are complete, including aerial mapping (via USEPA planning funds), and the PER (prepared by IHS). Another planning task to create geotechnical studies is expected to begin in September of 2013, and will be conducted via USEPA planning funds for a proposed sewer connection along the same alignment along Monroe Street. Torres-Martinez DCI is working with the funding agencies to ensure that all assessment and evaluation activities will be completed in a timely manner so that Phase II engineering and environmental tasks can begin promptly.

Task 4 Deliverables:

- Final aerial maps of the project area
- Final Preliminary Engineering Report from IHS
- Final Geotechnical Study

Task 5: Project Design

Project design will require solicitation of engineering consultants, review of their qualifications and proposals, and selection and contracting. The selected design consultant will be responsible for delivery of 30, 60, 90, and 100% design plans and specifications for construction. Design plans and specifications must adhere to CVWD design requirements and therefore will require review and approval by CVWD.

Task 5 Deliverables:

- 30% Design Plans
- 60% Design Plans
- 90% Design Plans and Specifications
- 100% Design Plans and Specifications
- Final Design Plans – these will be provided in the event that CVWD modifies the 100% Design Plans and Specifications

Task 6: Environmental Documentation

Torres-Martinez DCI is currently in the process of completing the Biological and Cultural/Archaeological surveys and reports, records research, consultation with the State Historic Preservation Office, impact/mitigation determinations, and other tasks to ensure that the project will be in compliance with applicable provisions of the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA). Given that the Torres-Martinez DCI is a Native American tribe, CVWD will serve as the lead agency for CEQA-related requirements.

Task 6 Deliverables:

- Final CEQA Documentation – including applicable surveys and reports such as those pertaining to biological and cultural resources, and a final mitigation and monitoring plan
- Final NEPA Documentation– including applicable surveys and reports such as those pertaining to biological and cultural resources, and a final mitigation and monitoring plan

Task 7: Permitting

Torres-Martinez DCI will obtain a BIA encroachment permit to construct the project within the BIA right-of-way located along Monroe Street.

Task 7 Deliverables:

- Final BIA Encroachment Permit

Table 3-30: Row (c) Planning/ Design/ Environmental Documentation
Torres-Martinez Avenue 64 Water Supply Connection Project

Activity or Deliverable	Schedule	Status	Completion of Task	
			Before Sept 2013	After Sept 2013
Task 4: Assessment and Evaluation				
Aerial Mapping	June 2012 – December 2012	Completed	X	
Preliminary Engineering Report	January 2012 - June 2012	Completed	X	
Geotechnical Studies	Sept 2013 – Sept 2014	Not yet begun		X
Task 5: Project Design				
30% Design Plans	September 2013 – January 2014	Not yet begun		X
60% Design Plans	January 2014 – March 2014	Not yet begun		X

Activity or Deliverable	Schedule	Status	Completion of Task	
			Before Sept 2013	After Sept 2013
90% Design Plans and Specifications	March 2014 – May 2014	Not yet begun		X
100% Design Plans and Specifications	May 2014 – August 2014	Not yet begun		X
Review of Plans and Specifications by CVWD	September 2013 – September 2014	Not yet begun		X
Final Design Plans and Specifications	September 2013 – September 2014	Not yet begun		X
Task 6: Environmental Documentation				
Biological Study/Report	April 2012– July 2012	Completed	X	
Cultural/Archeological Study/Report	June 2012 – June 2013	Ongoing	X	
NEPA/CEQA Documentation	May 2013 – December 2013	Not yet begun		X
Cultural/Archeological Mitigation Planning	April 2012 – September 2014	Not yet begun		X
Task 7: Permitting				
BIA Road Permit Application Process and Fee	Dec 2013 – June 2014	Not yet begun		X

Row (d) Construction/ Implementation

Task 8: Construction Contracting

No construction contracting is included in this work plan therefore, deliverables are not applicable.

Task 9: Construction

No construction tasks are included in this work plan therefore, deliverables are not applicable.

Row (e) Environmental Compliance/ Mitigation/ Enhancement

Task 10: Environmental Compliance / Mitigation / Enhancement

No environmental mitigation or enhancement action or tasks are included in this work plan therefore, deliverables are not applicable.

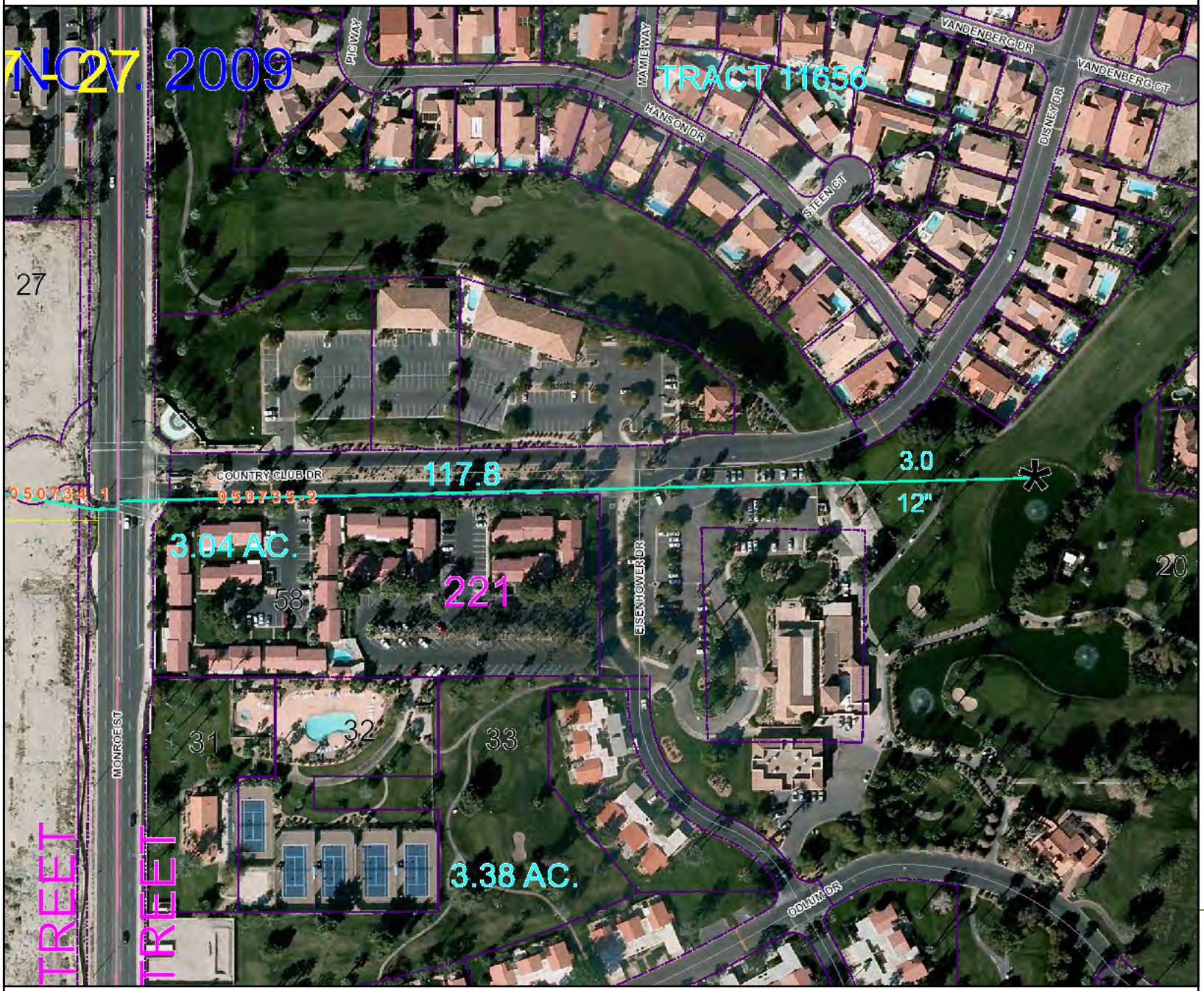
Row (f) Construction Administration

Task 11: Construction Administration

No construction management is included in this work plan therefore, deliverables are not applicable.

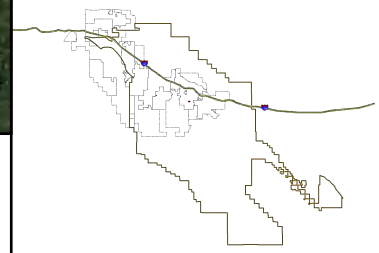
Appendix 3-1: Supporting Documents for *Non-Potable Water Use Expansion Program*

Lateral 117.8 - Indian Palms Entrance



Riverside Parcels
Imperial Parcels
AllAnno
Meter
Fitting
CustomerDeliveryPoint
Canal Water Availability
LinesForCustomerDeliveryPoints
LeaderLine
Lateral
EvacuationChannel
EasementLine
CVWD Canal
Street Centerlines
Interstate
Canal Mile Posts - Check Structure
Canal Lateral 97.1 - Junctions
Canal Lateral 97.1 - Pipelines
Mid Valley Pipeline
ID 1 Boundaries
Coachella Valley City Limits
CVWD Boundary
Quarter Sections

210 ft



Coachella Valley Water District uses the most current and complete data available. However, GIS data and product accuracy may vary. GIS data and products may be developed from sources of differing accuracy, accurate only at certain scales, based on modeling or interpretation, incomplete while being created or revised, etc. Coachella Valley Water District reserves the right to correct, update, modify, or replace, GIS products without notification. Coachella Valley Water District cannot assure the accuracy, completeness, reliability, or suitability of this information for any particular purpose. Using GIS data for purposes other than those for which they were created may yield inaccurate or misleading results. The recipient may neither assert any proprietary rights to this information nor represent it to anyone as other than District-produced information. Coachella Valley Water District shall not be liable for any activity involving this information with respect to lost profits, lost savings or any other consequential damages.



Legend

- Mid_Valley_Pipeline_Alignment
- Meter/Connecting Point
- Alternative 1 Desert Horizon 24" Pipeline
- Alternative 2 Desert Horizon 24" Pipeline
- CVWD 24" Pipe
- Desert Horizon 24" Pipe

	CVWD Cost	Golf Course Cost
Alternative 1 Meter	$152,202	
Alternative 1 24" Pipeline		$402,600
Alternative 1 CVWD Eng. Cost	$58,800	
Alternative 1 Total Costs	$211,002	$402,600
Alternative 2 Meter	$152,202	
Alternative 2 24" Pipeline		$367,950
Alternative 2 CVWD Eng. Costs	$58,800	
Alternative 2 Total Cost	$211,002	$367,950
Alternative 3 Meter & New Connection	$290,680	
Alternative 3 24" Pipeline		$194,700
Alternative 3 CVWD Eng Costs	$68,800	
Alternative 3 Total Cost	$359,480	$194,700

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Non-Potable Water Connections for Desert Horizons Golf Course

WATER DISTRICT

File Name: Alternative Connections for Desert Horizons 10-17-2011.mxd
File Location: J:\ENGCAD\GIS BACKUP\GIS Projects\Mike M GIS Projects\Sara Li
Date Updated: Friday, June 3, 2011
Made for: Sara Li
Made By M Morales (Rev. 5)

Cost Estimate for Desert Horizons NPW Meter Connection-Alternative 1

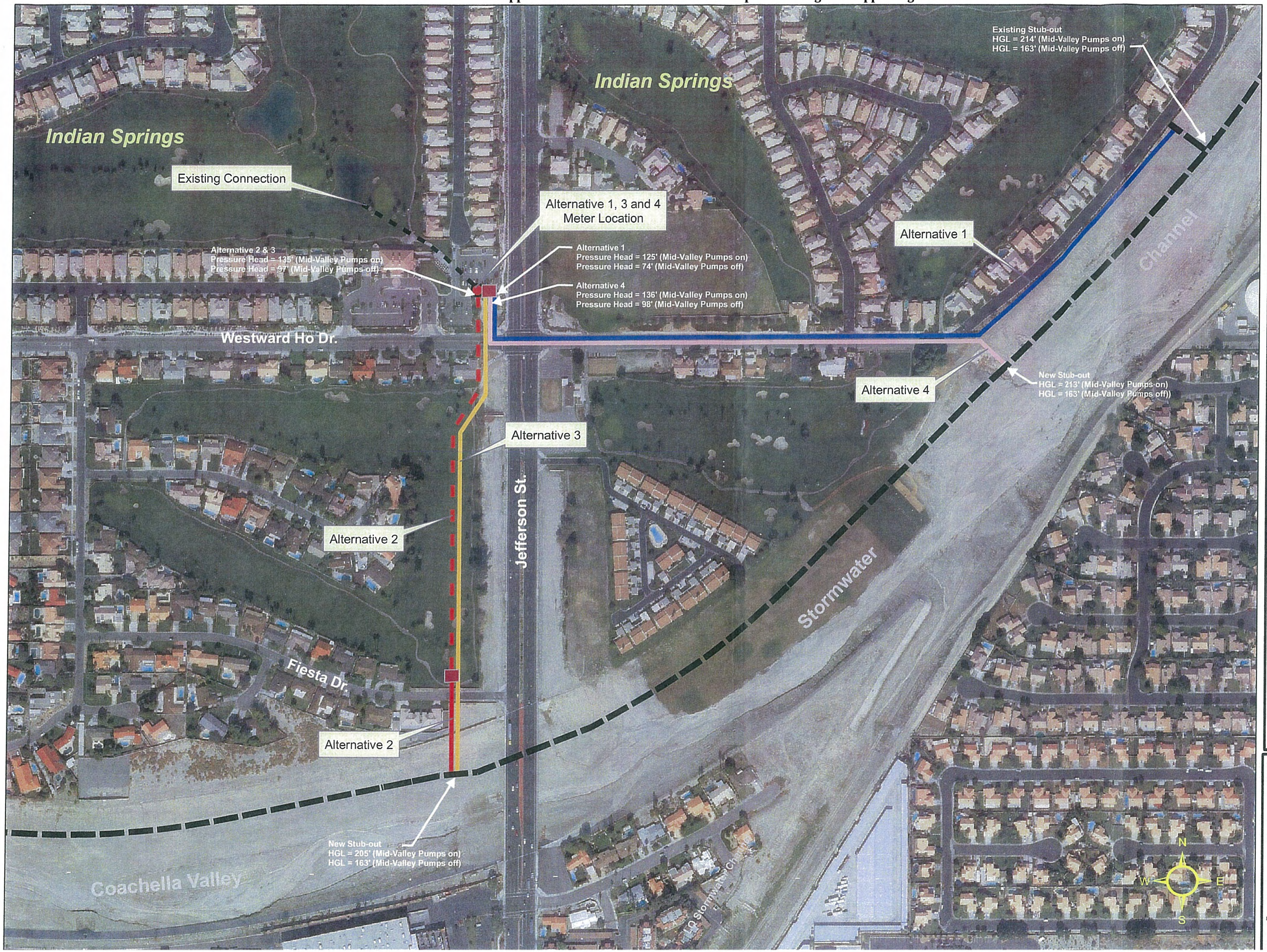
Item	Material	Quantity	Unit	Unit price	Cost
CVWD Item	CVWD engineering cost	1	LS	$ 58,800.00	$ 58,800.00
	Meter box	1	EA	$ 48,000.00	$ 48,000.00
	24" D. I. P. pipe within channel	300	LF	$ 200.00	$ 60,000.00
	Contingency 10%				$ 16,680.00
	A & G 15%				$ 27,522.00
CVWD Total Cost					**$ 211,002.00**
Golf Course Item	24" PVC within grass area	1700	LF	$ 90.00	$ 153,000.00
	24" PVC within pavement	1650	LF	$ 120.00	$ 198,000.00
	Water level control over pond	1	EA	$ 15,000.00	$ 15,000.00
	Contingency 10%				$ 36,600.00
	A & G 15%				$ 40,260.00
Golf Course Total Cost					**$ 402,600.00**
Total Project Cost					**$ 613,602.00**

Cost Estimate for Desert Horizons NPW Meter Connection-Alternative 2

Item	Material	Quantity	Unit	Unit price	Cost
CVWD Item	CVWD Engineering cost	1	LS	$ 58,800.00	$ 58,800.00
	Meter box	1	EA	$ 48,000.00	$ 48,000.00
	24" D.I.P. pipeline	300	LF	$ 200.00	$ 60,000.00
	Contingency 10%				$ 16,680.00
	A & G 15%				$ 27,522.00
CVWD Total Cost					**$ 211,002.00**
Golf Course Item	24" PVC within grass area	3550	LF	$ 90.00	$ 319,500.00
	Water level control over pond	1	EA	$ 15,000.00	$ 15,000.00
	Contingency 15%				$ 33,450.00
	A & G 15%				$ 55,192.50
Golf Course Total Cost					**$ 367,950.00**
Total Project Cost					**$ 578,952.00**

Cost Estimate for Desert Horizons NPW Meter Connection-Alternative 3

Item	Material	Quantity	Unit	Unit price	Cost
CVWD Item	Meter box	1	EA	$ 48,000.00	$ 48,000.00
	CVWD Engineering cost	1	LS	$ 68,800.00	$ 68,800.00
	New 24" stub out from 54" Steel pipe	1	EA	$ 45,000.00	$ 45,000.00
	24" D.I.P. within the channel	400	LF	$ 200.00	$ 80,000.00
	24" D.I.P.crossing Fred Waring Dr.	250	LF	$ 250.00	$ 62,500.00
	Replace pavement Fred Waring DR.	1	LS	$ 7,500.00	$ 7,500.00
	Traffic control and stripping	1	LS	$ 15,000.00	$ 15,000.00
	Contingency 10%				$ 32,680.00
	A&G 15%				$ 53,922.00
CVWD Total Cost					**$ 359,480.00**
Golf Course Item	24" PVC within grass	1800	LF	$ 90.00	$ 162,000.00
	Water level control over pond	1	EA	$ 15,000.00	$ 15,000.00
	Contingency 10%				$ 17,700.00
	A&G 15%				$ 29,205.00
Golf Course Total Cost					**$ 194,700.00**
Total Project Cost					**$ 554,180.00**



Legend

- Meter/Connecting Point
- Mid_Valley_Pipeline_Alignment
- Existing Well_Site
- Alternative 1 CVWD Pipeline
- Alternative 2 Golf Course Pipeline
- Alternative 2 CVWD Pipeline
- Alternative 3 CVWD 18" Pipeline
- Alternative 4 CVWD Pipeline

	CVWD Cost	Golf Course Cost
Alternative 1 18" Pipeline and Meter	$540,226	
Alternative 1 On-site Connection		$69,575
Alternative 1 CVWD Eng. Costs	$85,000	
Alternative 1 Total Cost	$625,226	$69,575
Alternative 2 18" Pipeline and Meter	$247,144	
Alternative 2 18" Pipeline and Meter		$239,401
Alternative 2 CVWD Eng. Costs	$68,600	
Alternative 2 Total Cost	$315,744	$239,401
Alternative 3 18" Pipeline and Meter	$393,654	
Alternative 3 On-site Connection		$69,575
Alternative 3 CVWD Eng Costs	$68,600	
Alternative 3 Total Cost	$462,254	$69,575
Alternative 4 18" Pipeline and Meter	$547,898	
Alternate 4 On-Site Connection		$69,575
Alternative 4 CVWD Eng Costs	$68,600	
Alternative 4 Total Cost	$616,498	$69,575

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Non-Potable Water Connections for Indian Springs Golf Course

WATER DISTRICT

File Name: Alternative Connections for Indian Springs 10-17-2011.mxd
File Location: J:\ENGCAD\GIS BACKUP\GIS Projects\Mike M GIS Projects\Sara Li\
Date Updated: Friday, June 3, 2011
Made for: Sara Li
Made By: M. Morales
Department: CVWD Engineering - GIS

Cost Estimate for Indian Springs Cannal Water Delivery Water Meters-Alternative 1

Item	Material	Quantity	Unit	Unit price	Cost
CVWD item	CVWD engineering cost	1	LS	$ 85,000.00	$ 85,000.00
	Meter box	1	EA	$ 48,000.00	$ 48,000.00
	18" D.I.P along channel levee	1100	LF	$ 95.00	$ 104,500.00
	18" D.I.P along Westward Ho. Dr.	1450	LF	$ 135.00	$ 195,750.00
	18" D.I.P. crossing Jefferson	170	LF	$ 300.00	$ 51,000.00
	Traffic Control and striping along Westward Ho. Dr.	1	LS	$ 11,000.00	$ 11,000.00
	Contigency 10%				$ 48,425.00
	A & G 15%				$ 81,551.25
CVWD Total Cost					**$ 625,226.00**
Golf Course Item	Connetcion to CVWD pipe	1	LS	$ 40,000.00	$ 40,000.00
	Water level control over pond	1	LS	$ 15,000.00	$ 15,000.00
	Contigency 10%				$ 5,500.00
	A & G 15%				$ 9,075.00
Golf Course total					**$ 69,575.00**
Total Project Cost					**$ 694,801.00**

Alternative 1 : CVWD only provide pipe from the existing 24" stub out to well site

Cost Estimate for Indian Springs Cannal Water Delivery Water Meters-Alternative 2

Item	Material	Quantity	Unit	Unit price	Cost
CVWD Item	CVWD engineering cost	1	LS	$ 68,600.00	$ 68,600.00
	Water meter box	1	EA	$ 48,000.00	$ 48,000.00
	New 18" stun out from 54" steel pipe	1	EA	$ 45,000.00	$ 45,000.00
	18" D.I.P. within channel	200	LF	$ 200.00	$ 40,000.00
	18" D.I.P. ouside channel	200	LF	$ 135.00	$ 27,000.00
	Remove and replace concrete panel	20	LF	$ 950.00	$ 19,000.00
	Traffic Control and striping at Fiesta Dr.	1	LS		$ 2,000.00
	Contigency 10%				$ 24,960.00
	A&G 15%				$ 41,184.00
CVWD Total Cost					**$ 315,744.00**
Golf Course Item	connection to CVWD pipe	1	LS	$ 40,000.00	$ 40,000.00
	18" PVC within golf course	1000	LF	$ 85.00	$ 85,000.00
	18" PVC from the end of golf couse to Well site	350	LF	$ 135.00	$ 47,250.00
	Water level cobtrol over pond	1	EA	$ 15,000.00	$ 15,000.00
	Traffic Control and striping				$ 2,000.00
	Contigency 10%				$ 18,925.00
	A&G 15%				$ 31,226.25
Golf Course total					**$ 239,401.25**
Total Project Cost					**$ 555,145.25**

Cost Estimate for Indian Springs Cannal Water Delivery Water Meters-Alternative 3

Item	Material	Quantity	Unit	Unit price	Cost
CVWD Item	Engineering cost	1	LS	$ 68,600.00	$ 68,600.00
	Meter vault box	1	EA	$ 48,000.00	$ 48,000.00
	New stub out from 54" Middel valley pipeline	1	EA	$ 45,000.00	$ 45,000.00
	18"D.I.P. within channel	200	LF	$ 200.00	$ 40,000.00
	18" D.I.P. under pavement	500	LF	$ 135.00	$ 67,500.00
	18" D.I.P. within golf course grass	1000	LF	$ 85.00	$ 85,000.00
	Remove and replace pavement at Fiesta and Westward Ho. Dr.	1	LS	$ 7,500.00	$ 7,500.00
	Traffic Control and striping at Fiesta Dr.	1	LS	$ 2,000.00	$ 2,000.00
	Traffic Control and striping at Westward Ho. Dr.	1	LS	$ 2,000.00	$ 2,000.00
	Contigency 10%				$ 36,360.00
	A&G 15%				$ 60,294.00
CVWD Total Cost					**$ 462,254.00**
Golf Course Item	Connection to CVWD pipe	1	LS	$ 40,000.00	$ 40,000.00
	water level control over pond	1	EA	$ 15,000.00	$ 15,000.00
	Contigency 10%				$ 5,500.00
	A&G 15%				$ 9,075.00
Golf Course total					**$ 69,575.00**
Total Project Cost					**$ 531,829.00**

Cost Estimate for Indian Spring Cannal Water Delivery Water Meters-Alternative 4

Item	Material	Quantity	Unit	Unit price	Cost
CVWD Item	CVWD engineering cost	1	LS	$ 68,600.00	$ 68,600.00
	Meter box	1	EA	$ 48,000.00	$ 48,000.00
	New Stub out from 54" MVP	1	LS	$ 45,000.00	$ 45,000.00
	18" D.I.P. within channel	250	LF	$ 200.00	$ 50,000.00
	Remove and replace conctret panel	20	LF	$ 950.00	$ 19,000.00
	18" D.I.P. along Westward Ho. Dr.	1450	LF	$ 135.00	$ 195,750.00
	18" D.I.P. crossing Jefferson	170	LF	$ 300.00	$ 51,000.00
	Traffic Control and striping along Westward Ho. Dr.	1	LS	$ 11,000.00	$ 11,000.00
	Contigency 10%				$ 47,735.00
	A & G 15%				$ 80,412.75
CVWD Total Cost					**$ 616,497.75**
Golf Course Item	Connetcion to CVWD pipe	1	LS	$ 40,000.00	$ 40,000.00
	Water level control over pond	1	LS	$ 15,000.00	$ 15,000.00
	Contigency 10%				$ 5,500.00
	A & G 15%				$ 9,075.00
Golf Course total					**$ 69,575.00**
Total Project Cost					**$ 686,072.75**

Alternative 4 : CVWD provide new stub out close to Westward Ho. Dr.


COUNTRY CLUB DR
24" Nonpotable Water
(Low Pressure)
24" Nonpotable Water
(Low Pressure)
New NPW Meter Connection
Lakes Country Club
New NPW Meter Connection
24" Nonpotable Water
(High Pressure)
24" Nonpotable Water
(Low Pressure)
HOVLEY LN
New NPW Meter Connection
ELDORADO DR
12" NPW Pipeline
COOK ST
HOVLEY LN
24" Nonpotable Water
(High Pressure)
Legend
24 " Low Pressure Nonpotable Water
24" High Pressure Nonpotable Water
Lakes Country Club
N
W
E
S
0
300
600
Feet
Non-Potable Water Connection
Lakes Country Club
WATER DISTRICT
File Name: Lakes Country Club Non Potable Water Connectn. mxd
File Locate: J:\ENGCAD\GIS\Projects\Non Potable Water lakes EC\MXDs
Date Updated: Friday, August 10, 2012 @ 1:15:32 PM
Department: CVWD Engineering - GIS/CAD

Cost Estimate for The Lakes Country Club

Item	Material	Quantity	Unit	Unit price	Cost
CVWD Item	CVWD Field Survey	1	LS	$ 3,500.00	$ 3,500.00
	CVWD Engineering Design	300	Hr	$ 50.00	$ 15,000.00
	CVWD Construction Inspection	100	hr	$ 50.00	$ 5,000.00
	CVWD Soil Report	1	LS	$ 9,000.00	$ 9,000.00
	Install 12" PVC	1700	LF	$ 225.00	$ 382,500.00
	Install Meter box (6'x8' concrete vault, two 10" plug valve, Krohne mag meter, telemetry)	3	EA	$ 35,000.00	$ 105,000.00
	Power Supply	3	LS	$ 10,000.00	$ 30,000.00
	Install 2" Air Release Valve	1	EA	$ 2,900.00	$ 2,900.00
	Contingency 10%				$ 55,290.00
CVWD Total Cost					**$ 608,190.00**
Golf Course Item	Install 12" PVC (within golf course area)	400	LF	$ 185.00	$ 74,000.00
	Install 12" PVC within pavement	500	LF	$ 225.00	$ 112,500.00
	Install 2" Air Release Valve	1	EA	$ 2,900.00	$ 2,900.00
	Install 6'x8' Concrete Vault	3	EA	$ 5,500.00	$ 16,500.00
	Install Automated Water Level Control Valve	3	EA	$ 5,500.00	$ 16,500.00
	Floater and Telemetry	3	LS	$ 7,500.00	$ 22,500.00
	Power Supply	3	LS	$ 10,000.00	$ 30,000.00
	Contingency 10%				$ 27,490.00
Golf Course Total Cost					**$ 302,390.00**
Total Project Cost					**$ 910,580.00**

Appendix 3-1: Non-Potable Water Use Expansion Program Supporting Documents

Project Summary

Project Title:	L4 Pump Station Extension
Project ID Number:	IR00XX
Project Description & Justification:	This projects extends Irrigation Lateral 120.8 from the relocated L4 Pump Station to Avenue 52 and includes 3 new meters for canal water delivery to the La Quinta Country Club, the La Quinta Resort Mountain Course, and the La Quinta Resort Dunes Course.

☐ Ongoing Project
☒ District Forces

Discretionary ☐
Non-discretionary ☒
Return on Investment Y ☐ N ☒

Current Project Budget $ 0.00

Estimated Project Schedule and Funding Request

	Fiscal Year	Cost
	Prior Total Actuals	
Design	16/17	$ 50,000.00
Construction	17/18	$ 600,000.00
	Total Project Cost	$ 650,000.00

Proposed Funding Source

Estimated Annual Impact on Operating Costs

	Cost	Comments
Labor, Materials & Equipment		No impact
Utilities		No impact
Other		No impact
Total		

Non-Financial Impacts:

PREPARED FOR
COACHELLA VALLEY
WATER DISTRICT

Coachella Valley Water Management Plan Update

DRAFT REPORT



December 2010

MWH
BUILDING A BETTER WORLD

Water Consult
Engineering and Planning Consultants

Appendix 3-1: Non-Potable Water Use Expansion Program Supporting Documents

COACHELLA VALLEY WATER MANAGEMENT PLAN 2010 UPDATE

Draft Report

Prepared by:

Coachella Valley Water District

P.O. Box 1058
Coachella, California 92236
(760) 398-2651

Steve Robbins
General Manager-Chief Engineer

Patti Reyes
Planning and Special Program Manager

December, 2010

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delivery operation at Whitewater where Metropolitan stores surplus water for future exchange with CVWD and DWA. This program has allowed the Valley to benefit from higher groundwater levels while water is stored and allowed Metropolitan to essentially discontinue Exchange water deliveries during dry periods, drawing upon its stored water. CVWD and DWA also purchase and store available surplus water for groundwater storage.

With the increased variability of SWP deliveries and uncertainty regarding the QSA, increased emphasis will be placed on conjunctive use. Since the Valley has a large groundwater basin, it can provide groundwater storage opportunities for other water agencies in the State. As part of the QSA, CVWD and IID have signed an agreement that allows IID to store surplus Colorado River water in the Coachella Valley. Under the agreement, CVWD would store water for IID subject to availability of storage space, delivery and recharge capacity and the prior storage rights of CVWD, DWA and Metropolitan. Stored water would incur a 5 percent recharge loss and a 5 percent annual storage loss. IID may also request CVWD to investigate and construct additional locations for direct or in-lieu recharge facilities. CVWD would return stored water to IID by reducing its consumptive use of Colorado River water. This could be accomplished by temporarily reducing or eliminating groundwater recharge. If reduced recharge were not sufficient to produce the required delivery reduction, CVWD or its customers could pump groundwater and reduce Colorado River water deliveries to source substitution projects. This program would benefit Coachella Valley by providing higher levels of groundwater storage while IID water is stored in the Valley.

The 2002 WMP did not identify specific conjunctive use projects, but instead recommended that flexibility be provided for conjunctive use. For the 2010 WMP Update, it is recommended that recharge facilities have sufficient capacity to allow capture of surplus water deliveries during future wet periods. This could be accomplished by providing additional recharge basins or by changing the operations of existing facilities to recharge water on a more continuous basis. The ability to recharge additional water may be limited by water delivery system capacity and the need to meet existing customers' demands.

In addition to providing sufficient recharge capacity, additional pumping capacity may be required to maximize the potential for conjunctive use. Under the Advanced Delivery and Exchange Agreements, the mechanism for returning stored water to entities outside the basin is through a reduction in SWP deliveries. If stored water is to be returned through reductions in Canal water deliveries, then deliveries for recharge would need to be reduced during the payback period. If recharge reductions are insufficient, then reductions in direct deliveries would need to be offset through increased groundwater pumping.

6.5 SOURCE SUBSTITUTION

Source substitution is the delivery of an alternate source of water to users that currently pump groundwater. The substitution of an alternate water source reduces groundwater extraction and allows the groundwater to remain in storage, thus reducing overdraft. Source substitution projects include:

- Conversion of existing and future golf courses in the West Valley from groundwater to recycled water

- Conversion of existing and future golf courses in the East Valley from groundwater to Colorado River water
- Conversion of existing and future golf courses in the West Valley from groundwater to Colorado River water via the Mid-Valley Pipeline
- Conversion of agricultural irrigation from groundwater to Colorado River water, primarily in the Oasis area
- Conversion of urban use from groundwater to treated Colorado River water in the East Valley
- Conversion of outdoor urban use to non-potable water including Colorado River water or recycled water in the East Valley

The following discussion of source substitution projects is presented by water source and by location within the Valley.

6.5.1 Recycled Water Uses

Recycled water is a significant potential local resource that could be used to help reduce overdraft. Wastewater that has been highly treated and disinfected can be reused for landscape irrigation and other purposes; treated wastewater is not suitable for potable use. Recycled wastewater has historically been used for irrigation of golf courses and urban landscaping in the Coachella Valley. Future recycled water uses could also include indirect potable reuse (IPR), which is the planned use of highly treated wastewater to directly augment water supplies via direct or indirect groundwater recharge, or blending with other potable sources.

6.5.1.1 Non-potable Uses

The principal non-potable uses for recycled water in the Coachella Valley are:

- Agricultural irrigation
- Golf course irrigation
- Urban landscape irrigation

Each of these recycled water uses could be implemented through: 1) direct blending with Coachella Canal water and delivery through the existing Canal water distribution system or the MVP system, 2) construction of an isolated distribution system that delivers recycled water only, 3) expansion of existing dedicated recycled water systems to serve new customers, and 4) a combination of these options. Each approach has advantages and disadvantages.

The first option has a significant potential cost advantage in that the distribution system is in place; little additional capital expenditures would be needed to deliver recycled water to a wide range of non-potable water users. Recycled water (even blended with Canal water) may not be acceptable to certain agricultural users; however, the California Department of Public Health (DPH) regulations allow the use of tertiary treated municipal effluent to irrigate “food crops, including all edible root crops, where the recycled water comes into contact with the edible portion of the crop” (CCR Title 22, 2010). However, the introduction of recycled water into the Canal system could pose significant permitting issues for the future potable use of Canal water.

This may require isolating portions of the system that receive recycled water from those that would ultimately deliver water to urban water treatment facilities.

The second option would avoid the issues created by serving a blend of recycled and Canal water by operating a dedicated recycled delivery system. However, this option is most feasible where the suitable users are located relatively near the recycled water source. It is also difficult to balance demand and supply with this type of system because irrigation needs fluctuate seasonally.

The third option is partially in place. Existing dedicated recycled water systems have been constructed near each of the West Valley wastewater treatment facilities. Expansion of these systems makes sense when the users can be served recycled water from a cost-effective extension.

The fourth option may be the most viable approach in the East Valley where agriculture is expected to transition to urban land uses. Here, the existing Canal water distribution system can serve Colorado River water to most users. This also allows the system to convey water to future potable water treatment facilities. New non-potable water systems could be designed to use both Canal and recycled water where appropriate. Portions of the Canal distribution system located near the recycled water sources that can be isolated could be used to deliver a blend of water to non-potable customers.

6.5.1.2 Indirect Potable Reuse

An additional recycled water use in the East Valley is indirect potable reuse (IPR). IPR is the planned use of highly treated wastewater to directly augment water supplies. IPR is likely to become an important element of water resources development in southern California due to the limitations on imported water supplies. Orange County Water District and West Basin Municipal Water District have been pioneers in the development of IPR for injection at the coastal seawater intrusion barriers. Several other agencies in southern California including Metropolitan, Los Angeles County Sanitation Districts, Water Replenishment District of Southern California, Upper San Gabriel Valley Municipal Water District, Eastern Municipal Water District and the City of San Diego are investigating IPR for either groundwater replenishment through surface spreading and/or injection prior to extraction or blending with surface water supplies prior to diversion for potable use.

In all cases, multiple barriers are provided to protect the safety of the water supply. Most commonly, membrane treatment processes (microfiltration/nanofiltration and reverse osmosis) followed by ultraviolet light and hydrogen peroxide addition are being used or investigated to meet the stringent public health requirements established by the State of California DPH and the Regional Boards. In addition, strict source control programs prevent the introduction of harmful pollutants to the wastewater supply coupled with comprehensive monitoring and blending with natural and imported water supplies. The cost for IPR is high due to the extensive treatment requirements with capital costs in the range of $4.50 to $6.50 per gallon of plant capacity. Including conveyance and operations/maintenance costs, recent IPR projects have unit costs in the range of $900-$1,200/AF.

In the Coachella Valley, IPR could be practiced through treatment and groundwater recharge via spreading or injection or through treatment and blending with Coachella Canal water. However, it is likely that simple blending with Coachella Canal water may not provide sufficient retention time to satisfy the regulatory agencies without construction of a large surface reservoir. IPR is an emerging approach that may be considered in future WMP updates, but are not included in the 2010 Plan Update.

6.5.2 Groundwater to Canal Water Conversion

Canal water is a significant water supply source for the Coachella Valley. One of the underlying principles in the development of the 2010 WMP Update is to fully use the available Canal water supply. This is achieved by conversion of agricultural users and golf courses from groundwater to Canal water, development of dual piping for urban users and treatment of Canal water for urban use and groundwater recharge. Recharge activities are discussed in **Section 6.6**.

6.5.2.1 Agricultural Conversion from Groundwater

Agriculture accounted for approximately 314,000 AFY (69 percent) of the water use in the Coachella Valley in 2009. Of the total agricultural use, about 66,000 AFY of demand is estimated to be supplied from groundwater pumping.[2]

The 2002 WMP focused on conversion of agricultural groundwater use to Canal water use and proposed two principal measures:

- expansion of the distribution system to areas within ID-1 not served by the current distribution system, and
- conversion of groundwater users who have Canal water available for use but choose to irrigate with groundwater

Expansion of the Canal Water Distribution System: CVWD is currently working with two farming groups (Gold Coast Growers and Ocean Mist, et al.) to extend the Canal water delivery system to serve agricultural operations that are not currently served with Canal water. One extension will deliver water outside the ID-1 to serve agriculture that pumps groundwater from the Lower Whitewater River Subbasin. The other extension will serve a group of farmers located south of Mecca in a portion of the ID-1 service area that did not originally receive Canal water. Implementation of these two extensions will increase Canal water use by about 5,300 AFY.

A third location of potential expansion of the Canal water delivery system is the Oasis area. This area is included in the ID-1 service area but did not receive Canal water because the soils were not suitable for farming based on the irrigation technology of the time. Currently, much of this area is irrigated with groundwater using drip irrigation.

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[2] Reported pumping in 2009 was 25,748 AFY. About 40,000 AFY of additional pumping is estimated based on historical power records.

In 1996, CVWD completed a study investigating the feasibility of expanding the distribution system to serve farmers on the Oasis slopes (Summers, 1996). Desalinated drain water and recycled water would be served to the areas outside ID-1 via an exchange to avoid then existent limitations preventing delivery of Canal water outside ID-1. The 2002 WMP recommended construction of this system with additional facilities to serve farmers located outside ID-1 with the system being operational in the mid-2020s. However, farmers considered the system too costly. Recently, there has been renewed interest in expanding the irrigation system in the Oasis area. Since the QSA now allows Canal water to be used outside ID-1 to reduce groundwater overdraft in ID-1, the need for delivering non-Canal water via exchange has been eliminated. If completed, this system is expected to deliver about 27,000 AFY of Canal water to offset groundwater pumping. As development occurs in the Oasis area, the system could be converted to serve non-potable water for landscape irrigation.

A 1958 agreement between CVWD and Reclamation allows the extension of the Canal water distribution system to serve tribal lands if requested by the tribes. The cost of the extension is to be paid by the federal government. The Torres-Martinez tribe has expressed interest in obtaining Canal water service. Since much of the land is not currently farmed, this represents a new use of Canal water. The potential amount of Canal water that could be used has not been quantified.

Increased Use by Existing Canal Water Customers: A review of reported groundwater extraction from the Engineer's Report on Water Supply and Replenishment Assessment for the Lower Whitewater River Subbasin Area of Benefit (CVWD, 2010b) shows agriculture pumped at least 25,748 AFY in 2009. It is believed that significantly more agricultural pumping (up to 40,000 AFY) may be unreported, based on historical power records. Eight of the largest farming operations that pump 1,000 AFY or more represent 92 percent of the reported agricultural pumping. Most of these operations are within the ID-1 service area. Of these, about 65 percent of their water use is from groundwater and 35 percent is Canal water.

If these operations could increase their Canal water use to 90 percent of their demand, then 20,700 AFY of additional Canal water could be utilized, with a corresponding reduction in groundwater overdraft. Since many of these agricultural operations have Canal water connections, it is expected that little additional cost would be incurred to increase their usage. The District should determine what obstacles exist that prevent these pumpers from using additional Canal water and encourage them to reduce their groundwater pumping.

Summary of Agriculture Conversion Potential. For the 2010 WMP Update, agricultural use of groundwater is assumed to decrease from about 66,000 AFY in 2009 to about 7,000 AFY by 2045, a decrease of 59,000 AFY or 89 percent.

6.5.2.2 Golf Course Conversion

There are currently about 80 golf courses in the West Valley and 35 golf courses in the East Valley (Palm Springs Life, 2010). Additional golf courses are expected to be constructed as development occurs, primarily in the East Valley. In 2010, CVWD developed a new non-potable water use agreement that requires golf courses with access to Canal or recycled water to meet at least 80 percent of their irrigation demand from that source (CVWD, 2010e). For the 2010 WMP Update, a target is established of 90 percent use of Canal water by 2015.

East Valley Golf Course Conversion: The use of Canal water by golf courses has increased from 6,500 AFY in 1999 to 14,900 AFY in 2009 in the East Valley. There are 19 existing golf course operations in the East Valley that have Canal water connections. The total water usage (Canal water and groundwater) for these courses was 26,100 AFY in 2009. Existing Canal water use constituted approximately 57 percent of their total annual water use. Based on the 90 percent non-potable usage target, there is a potential for an additional 8,800 AFY of Canal water usage at these golf courses. Since these customers have Canal water connections, there is little additional cost associated with increasing their non-potable water use.

In addition to golf courses that currently have Canal water connections, there are nine golf course operations that rely solely on groundwater. In 2009, these courses used about 8,300 AFY of groundwater. All of these courses are located within or adjacent to ID-1; however, not all have access to Canal water. The Canal water distribution system is nearby the Eagle Falls, Indian Palms, La Quinta Country Club, La Quinta Resort and Rancho Casablanca courses. However, the system would need to be extended about one mile to serve The Quarry and several miles to serve Bermuda Dunes and Palm Royale. The district plans to serve the latter two courses from the MVP. These courses could reduce their groundwater pumping by up to 7,800 AFY when connected to non-potable water.

CVWD currently requires new golf courses with access to Canal water to meet at least 80 percent of their demand with that source. With an estimated additional demand of 34,000 AFY, new courses should use at least 27,000 AFY of Canal water. Based on this assessment, non-potable water use by golf courses could reduce groundwater pumping by 44,000 AFY by 2045 as shown in **Table 6-3**.

West Valley Golf Course Conversion: In the West Valley, the MVP will provide 37,000 AFY of Canal water and 15,000 AFY of WRP-10 recycled water to golf courses in lieu of groundwater pumping. The MVP project is discussed further in **Section 6.5.3.** Additional golf course conversion in the West Valley could be accomplished using recycled water from the Palm Springs WRP and WRP-7. Canal water, amounting to 2,300 AFY, will also be provided to Mountain Vista, Shadow Hills and Classic Club in the West Valley by 2045. Conversion of all feasible golf courses in the West Valley to use at least 80 percent non-potable water would reduce groundwater pumping by 56,800 AFY by 2045 as shown in **Table 6-4**. These figures are applied in the 2010 Plan Update.

Table 6-3
East Valley Golf Course Conversion Potential

User	Demand (AFY)	Current Non-potable Use [1] (AFY)	Future Non-potable Use [2] (AFY)	Pumping Reduction (AFY)
Existing Courses with Canal Water Connections	26,100	14,900	23,900	8,800
Existing Courses without Canal Water	9,200	0	8,300	8,300
New Courses	34,000	0	27,000	27,000
Totals	**69,300**	**14,900**	**59,200**	**44,100**

1 Current non-potable use is Canal water.
2 Future non-potable use includes both Canal water and recycled water.

Table 6-4
West Valley Golf Course Conversion Potential

User	Demand (AFY)	Current Non-potable Use [1] (AFY)	Future Non-potable Use [2] (AFY)	Pumping Reduction (AFY)
Palm Springs Area Courses	16,500	4,300	13,200	8,900
Mid-Valley Courses	50,700	6,600	45,600	39,000
North Indio Area Courses	4,800	4,300	4,300	0
New Courses	11,200	0	8,900	8,900
Totals	**83,200**	**15,200**	**72,000**	**56,800**

1 Current non-potable use is principally recycled water with limited Canal water use.
2 Future non-potable use includes both recycled water and Canal water.

6.5.2.3 Potable Urban Use in the East Valley

As growth occurs in the East Valley and farms are converted to urban land uses, agricultural demand for Canal water will decrease. To avoid increased urban groundwater pumping, there will be a need to begin treating Canal water for urban use. The 2002 WMP anticipated this need and proposed that treatment be provided beginning in the late 2020s and about 32,000 AFY be treated by 2035. Increased domestic water demand coupled with reduced agricultural demand is expected to increase this amount.

Several possible approaches exist for defining the range of treated Canal water required in the future. By 2045, urban water demand in the East Valley is projected to be about 190,000 AFY with conservation. Because water treatment infrastructure is relatively costly, one approach would be to treat only the amount of potable demand created by new growth. Since about 25 percent of domestic water is used for potable purposes, about 48,000 AFY of treatment would be required to meet new indoor potable demands in the East Valley. A somewhat larger program might involve treating all indoor demands in the East Valley. Based upon a 2045 urban demand of about 265,000 AFY (with conservation), about 62,000 AFY of treated Canal water could be used to meet the indoor water demands. A third approach would be to treat all urban water demand not met by groundwater and non-potable Canal water deliveries. This might require 75,000 to 90,000 AFY of treated water depending on the amount of non-potable water delivered for irrigation. Using these approaches, treated Canal water capacities might range from 48,000 to 90,000 AFY compared to the 32,000 AFY identified in the 2002 WMP. This represents a

significant increase in the amount of Canal water that would be treated for urban use compared to the 2002 WMP. Treatment strategies are discussed further in **Section 6.7.1**.

6.5.2.4 Non-potable Urban Water Systems in the East Valley

One approach for reducing future groundwater use and overdraft while increasing Canal water use is the installation of dual source water systems, which refers to the operation of separate but parallel potable and non-potable systems to serve urban development.

An urban non-potable distribution system may be achieved by the following methods:

- Developer installation of on-site non-potable irrigation system (treatment if needed, storage, pumping and piping) which connects to Canal water distribution system or recycled water systems as available and feasible.
- Rehabilitation and extension of the existing Canal delivery system, as needed
- Separate potable water system that meets indoor and other uses requiring a potable supply.

A separate non-potable system could reduce the amount of groundwater that would have to be treated for arsenic removal, minimize the number of new wells required to serve growth and could be designed to meet fire protection needs, thus reducing the size of the potable water system. In addition, delivery of non-potable water for urban use would reduce the amount of Canal water treatment need for potable use. The non-potable system would need to be distinguishable from the potable water system to prevent cross-contamination and backflow issues. In California, non-potable systems are installed using "purple pipe" in compliance with the California Health and Safety Code §116815, to clearly indicate that the water is not for drinking purposes.

For this 2010 WMP Update, it is estimated that distribution systems could be installed for at least two-thirds to as much as 80 percent of the new development in the East Valley by 2045. This estimate is based on the following:

- Growth will create about 190,000 AFY of new demand in the East Valley with conservation. Of this amount, about 75 percent or 143,000 AFY is expected to be outdoor demand.
- Larger developments must mitigate for their incremental demand on the basin.
- Large developments are more likely to have the financial capability to distribute the costs of infrastructure among more housing units, thereby lowering the individual unit's cost.

Based on these premises, about 95,000 to 115,000 AFY of non-potable use with Canal water and desalinated drain water could potentially be implemented by 2045. Additional investigations should be conducted into the feasibility of delivering non-potable water on this scale over the next five years.

Section 6 - Management Plan Elements

6.5.3 Mid-Valley Pipeline

The MVP is a pipeline distribution system to deliver Colorado River water to the Mid-Valley area for use with CVWD's recycled water for golf courses and open space irrigation. This source substitution project will reduce groundwater pumping for these uses. Construction of the first phase of the MVP from the Coachella Canal in Indio to WRP-10 (6.6 miles in length) was completed in 2009. Implementation of later phases will expand the MVP to be able to serve approximately 50 golf courses in the Rancho Mirage-Palm Desert-Indian Wells area that currently use groundwater as their primary source of supply with a mixture of Colorado River water and recycled water.



Construction of the Mid-Valley Pipeline

The 2010 WMP Update assumes that the MVP will serve about 37,000 AFY of imported water and 15,000 AFY of WRP-10 recycled water on average by 2045. The MVP will meet approximately 72 percent of the West Valley golf course demand by 2045.

Since the MVP has not been fully implemented, the amount of water it can currently deliver is limited by the demands of existing non-potable customers. There are eight golf courses and five other users in the West Valley currently connected to the WRP-10 recycled water system, which can receive both recycled water and canal water via the MVP. If all of these courses use at least 90 percent of their irrigation needs with non-potable water, then about 2,700 acre-ft/ of groundwater pumping could be eliminated.

There are four golf courses adjacent to the MVP that can be connected to the system by undertaking minimal construction, thus making them ideal candidates to receive Canal water through the MVP. In fact, construction of Phase 1 of the MVP included outlets along the pipeline to serve these courses. However, pipeline connections to deliver Canal water from the MVP to each course have yet to be constructed. When all of these courses are connected, about 4,500 AFY of additional pumping could be eliminated. At least ten additional courses could be connected to the MVP downstream of WRP-10 with relatively simple pipeline connections, reducing pumping by about 11,200 AFY. In total, about 18,400 AFY of golf course pumping could be eliminated.

In addition to delivering water for non-potable uses, another possible use for the MVP is conveyance of Canal water to urban water treatment facilities. Although this use was not contemplated when the MVP concept was developed, it is possible that one or more small-scale water treatment facilities could be constructed to offset urban groundwater pumping. The locations and economic feasibility of this approach has not been evaluated. However, since the MVP has a capacity of 92 cfs at the Coachella Canal diversion, conveyance of Canal water to water treatment facilities would reduce the capacity available to serve golf courses. Thus the

cost to treat and deliver potable water would need to be compared with the cost to expand the MVP distribution system to serve additional golf courses.

CVWD should implement the near-term extensions to the MVP and prepare a master plan to lay out the remainder of the MVP system. In addition to non-potable uses, the feasibility of using a portion of the capacity to treat water for urban water uses will be evaluated.

6.5.4 Source Substitution Scenarios

Potential source substitution options are arrayed by size as summarized in **Table 6-5**. For this table, the amount of source substitution is determined by comparing the change in groundwater production after deducting the effects of planned water conservation. The amounts of source substitution included in the 2002 WMP are also shown for comparison.

Table 6-5
Range of Source Substitution Options
(AFY)

Scenario	Agriculture	Golf Courses	Urban-Treated	Urban-Untreated	Total
2002 WMP	51,000	59,000	32,000	0	142,000
Minimum	5,300	108,200	48,000	95,000	256,500
Moderate	33,000	120,000	62,000	105,000	320,000
Maximum	38,000	142,600	90,000	115,000	385,600

6.6 GROUNDWATER RECHARGE

Groundwater recharge is an important component of basin management. Groundwater recharge can be accomplished by surface spreading or by injection. The feasibility of each method is a function of geologic conditions, land availability, cost and other factors. With surface spreading, water is placed in shallow ponds where it is allowed to percolate into the underlying aquifers. Surface spreading requires large areas of open land for construction of ponds and the absence of significant confining clay layers that would prevent the water from reaching the aquifers. With injection, water is put directly into the aquifers through a well. Frequently, injection wells are also used to extract the stored water. Injection wells have a relatively small footprint compared to recharge basins and the cost is only slightly higher than the cost of a new production well; however, injected water needs to be treated prior to injection to ensure that it meets drinking water regulations and to prevent well clogging.

Since 1973, CVWD and DWA have recharged the West Valley basin at the Whitewater River Spreading Facility with over two million AF of SWP Exchange water. As a part of the 2002 WMP, CVWD investigated recharge in the East Valley using Colorado River water and finished construction at the Thomas E. Levy Groundwater Replenishment Facility (Levy facility) and is planning the construction of another major recharge facility at Martinez Canyon. Additional surface recharge sites in the Mid-Valley area will be considered on the basis of geologic suitability and availability of sufficient vacant land.

6.6.1 West Valley Recharge Facility

The Whitewater River Recharge Facility has a recharge capacity of in excess of 300,000 AFY. The 2002 WMP established a future average annual recharge goal at this facility of about 100,000 AFY. Consequently, no additional recharge capacity expansion is required. The available capacity is valuable for conjunctive use operations by CVWD and DWA as well as Metropolitan or other interested parties.



Whitewater River Spreading Facility located north of Palm Springs

As described in **Section 6.4.2**, to reach the 100,000 AFY goal for the Whitewater facility, CVWD and DWA would need to acquire additional SWP Table A Amounts or other imported water sources. As discussed in **Section 4**, the SWP Exchange supply can currently provide about 77,700 AFY for the Whitewater facility. However, the 2010 WMP Update assumes the reliability of the SWP will decline to about 50 percent of the Table A Amounts without improvements in the Delta. Consequently, under future conditions, it is possible that recharge at Whitewater could be limited to the available future supply of about 61,400 AFY unless it is augmented with other supplies. If Delta habitat and conveyance improvements can be successfully implemented, this supply could increase to 93,000 AFY.

6.6.2 East Valley Recharge Facilities

CVWD has operated a pilot recharge facility at Dike 4 near Avenue 62 since 1997. Construction of the full-scale Levy facility was completed in mid-2009. This facility is located on the west side of the Valley in La Quinta and has an estimated average recharge capacity of 40,000 AFY. Currently, the capacity is limited by hydraulic and water delivery constraints within the Canal water distribution system to a long-term average of about 32,000 AFY. Consequently, construction of an additional pipeline and pumping station from Lake Cahuilla may be required in the future.



Thomas E. Levy Groundwater Replenishment Facility located in La Quinta

The Martinez Canyon recharge facility is a pilot project underway since 2005. Upon completion of a full-scale facility, this project (according to the 2010 WMP Update) is expected to recharge 20,000 to 40,000 AFY on average. The Martinez Canyon facility is projected to start initial operation in 2016 and is expected to reach full capacity by 2018.

CVWD is also evaluating alternative recharge locations that might allow recharge in the vicinity of areas of significant groundwater pumping. A settlement agreement between the City of Indio and CVWD specifies a process for proposing and evaluating additional recharge facilities in the vicinity of Indio (CVWD-Indio, 2009). CVWD and the City of Indio are investigating the potential of a recharge site within the City of Indio which would benefit the Indio area.

IWA conducted a preliminary investigation (performed by Petra Geotechnical) that identified Posse Park (Avenue 42 and Golf Center Parkway adjacent to the Coachella Canal) as a potential location for recharge of both the upper and lower Coachella Valley aquifer by either spreading or injection wells. IWA recently drilled two exploratory wells at this location and plans to conduct further studies to validate the use of Posse Park to replenish the aquifer. The amount of potential recharge at this location has not been determined. The 2010 WMP Update assumes for planning purposes that an Indio facility could recharge 10,000 AFY.

As discussed previously, surface recharge facilities are only effective in areas where the geology is suitable. In the Coachella Valley, significant portions of the East Valley are underlain by relatively thick clay and silt which impedes the vertical percolation of water into the deep aquifers from which most groundwater is produced. Consequently, most surface recharge facilities are located on the fringes of the East Valley where these clay and silt layers are not present. As an alternative, the groundwater basin can also be recharged by injection through either dedicated recharge wells or aquifer storage and recovery (ASR) wells which can be used for both recharge and groundwater production. Injection has the benefit of placing replenishment water at the same location where pumping has occurred. However, injection requires a high quality, turbidity-free source of water. In most areas where injection is practiced, a treated water source that meets federal and state surface water treatment rules is used.

Injection was considered in the 2002 WMP as a potential means of recharge. However, injection was deferred from consideration at that time due to the cost. In the future, injection may become more viable as a recharge approach when treated Colorado River water becomes more widely available. However, impacts of injection on local water quality may affect feasibility.

6.6.3 Recharge Scenarios

Three alternative recharge scenarios are considered for possible implementation in the 2010 WMP Update: minimum, intermediate and maximum.

A minimum scenario would involve continued operation of the existing Whitewater, Levy and Martinez recharge facilities based on capacity and existing supply limitations. Recharge at Whitewater is assumed to be limited by future SWP supply availability (about 61,400 AFY) without Delta habitat and conveyance improvements. In the East Valley, the Levy facility would operate at 40,000 AFY and the Martinez demonstration project operate at 3,000 AFY. This would provide about 101,000 AFY of recharge on average.

An intermediate scenario is considered that is similar to that proposed in the 2002 WMP. This option would increase recharge at Whitewater to 100,000 AFY through the use of supplemental water from either the QSA or agricultural drain desalination, construct the Martinez facility to an average capacity of 40,000 AFY as indicated in the 2002 WMP, and add recharge at a potential

F i n a l C o n c e p t P a p e r

Mid-Valley Pipeline

Coachella Valley, California

Submitted to:
Coachella Valley Water District

October 2005
Project No: 042720

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Executive Summary

This concept paper provides District staff and the District Board with the information needed to evaluate the feasibility of proceeding with design of the Mid-Valley Pipeline. In addition, it will to serve as background information for a request for proposal for engineering services on the Mid-Valley Pipeline. **Sketch 2-1** (all sketches are in **Appendix B**) shows the Mid-Valley area. The area includes a large concentration of golf courses that currently obtain most of their water from groundwater.

The Mid-Valley Pipeline was initially proposed in the Conjunctive Use/Surplus Water Storage Study prepared in 2000. That study proposed a system to deliver water from the Coachella Canal (Canal) to golf courses in the Mid-Valley area (generally Palm Desert, Indian Wells and Rancho Mirage). The system would operate as a conjunctive use project, allowing the District to better manage use of Canal water and groundwater. From a legal perspective, the Canal water would be water from the State Water Project (SWP). The District would exchange the SWP water with Metropolitan Water District of Southern California (Metropolitan) for some of Metropolitan's Colorado River water.

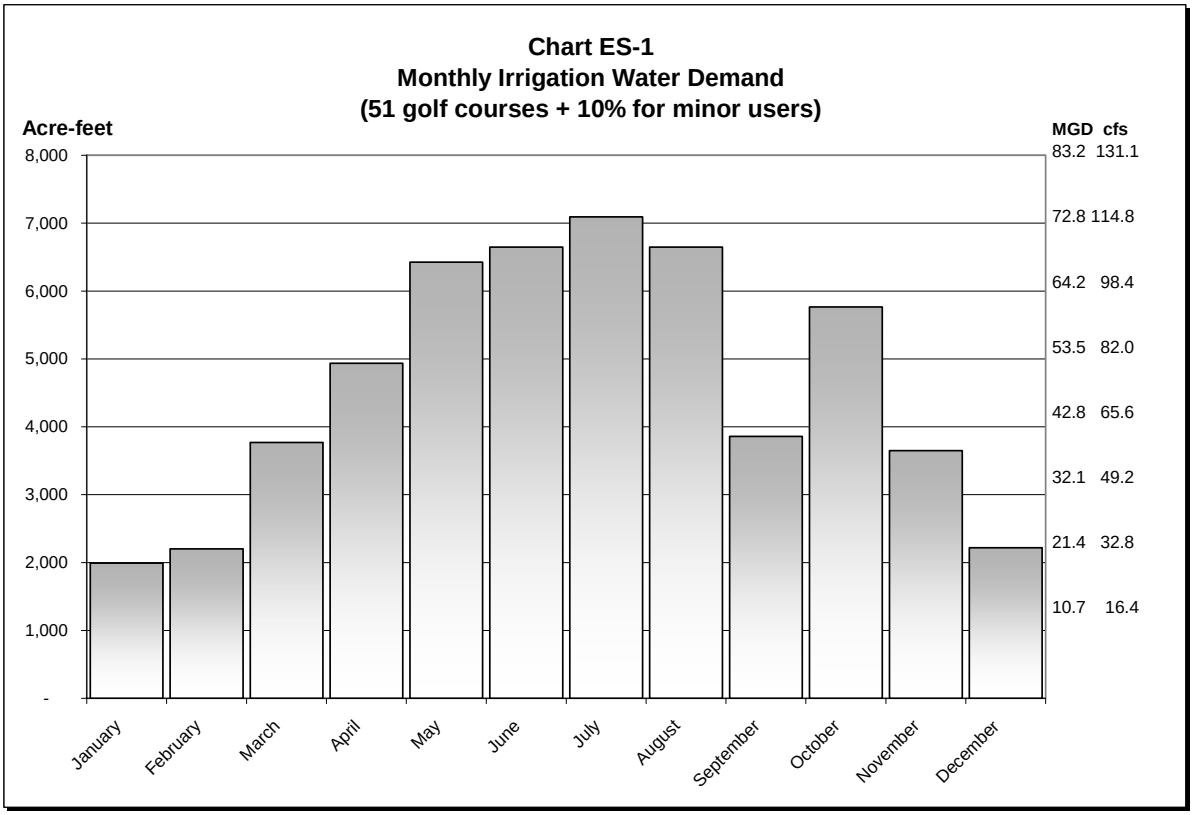
The Mid-Valley Pipeline has been incorporated into the Preferred Alternative of the District's September 2002 Final Water Management Plan. The Preferred Alternative of the Water Management Plan sets a goal of eliminating approximately 37,000 acre-feet/yr of groundwater pumping with this conversion. The Preferred Alternative also includes a conversion of 8,000 acre-feet of groundwater use by golf courses to recycled water. The Program Environmental Impact Report of the Water Management Plan provides program-level CEQA analysis for these two projects. Project-level (site-specific) CEQA analysis for facilities construction will be required for facilities construction.

This concept paper reviews the previous work and provides a more detailed evaluation. It proposes integrating the use of Canal water with the use of WRP 10 recycled water program.

Irrigation Use in the Mid-Valley Area

There are 51 golf courses within Mid-Valley area, including proposed courses. Annual water use of these courses in 2015 will be approximately 50,200 acre-feet per year or 975 acre-feet per year per golf course. Minor irrigation water users in the area including homeowners associations, parks and the Palm Desert High School, may use an additional 10 percent or 5,000 acre-feet.

Chart ES-1 shows the monthly use of irrigation water in the Mid-Valley area.



Impacts on Golf Course Operations

While the golf courses recognize the necessity of reducing groundwater pumping they operate in a highly competitive market and are concerned with equity among all golf courses. If the project is implemented in a manner that puts one golf course at a disadvantage to another, there may be severe financial impacts. Golf courses have a number of concerns with the projects impact on their operations and costs. These concerns include water quality, capital costs of converting their irrigation systems and increased maintenance and operations costs.

The District has set in place a collaborative effort with the golf courses in the Mid-Valley area to address issues related to use of Canal water, recycled water and groundwater on the courses.

WRP 10 Recycled Water Facilities

WRP 10 is located within the Mid-Valley area on the south side of Hovley Lane east of Cook Street. An existing recycled water system serves golf courses and other users with tertiary treated water from WRP 10. Since 1987, WRP 10 has been providing recycled water to golf courses, homeowners associations, and the Palm Desert High School.

In 2003, WRP 10 treated 3,752 million gallons of influent (11,515 acre-feet). While influent is higher in winter, flows are relatively constant from season to season. Historically, inflow has increased by approximately 5 percent per year.

Only about one-third of influent was recycled in 2003. In August 2004, the District and Toscana Country Club signed an agreement to serve that golf course with recycled water. Still, only about one-half of the influent will be recycled. Further expansion of recycled water use is limited by the inability to meet demand during the high demand months. If Canal water were brought to WRP 10 and delivered to the recycled water pump station, then additional customers could be added and the use of recycled water maximized by supplementing the supply during the summer when irrigation demand is high.

Proposed Mid-Valley Pipeline Facilities

The Mid-Valley Pipeline facilities would consist of a Canal Water Transmission System from the Coachella Canal to WRP 10 and distribution facilities from WRP 10 to the golf courses and other users. There would be two types of distribution facilities. First Canal water would be used to augment the existing recycled water supply allowing expansion of the recycled system. Second, a separate Canal Water Distribution System would be constructed to serve the remaining demand.

Canal Water Transmission System

The Canal Water Transmission System would consist of Pump Station 1 located adjacent to the Canal, a Transmission Line to WRP 10, a Receiving Impoundment at WRP 10 and service connections to adjacent golf courses.

Pump Station 1 would be sized to deliver the projected remaining demand for irrigation water after maximum use is made of recycled water produced by WRP 10. A preliminary estimate of the required area for the pump station is 0.7 acres, not including any additional land for mitigating noise and aesthetic impacts.

Two alignments for the Transmission Line to WRP 10 have been evaluated. **Sketch 4-1** shows the locations of these two alignments. The Coachella Stormwater Channel Alignment (Stormwater Channel Alignment) generally follows the Coachella Stormwater Channel. The 42nd Avenue/Hovley Lane Alignment (42nd Avenue Alignment) follows public streets for the majority of its route.

District staff and Bookman-Edmonston met with staff from the cities of Indio, Indian Wells, La Quinta and Palm Desert, and the County of Riverside in February and May 2005. The cities and county all indicated a preference for the Stormwater Channel Alignment in order to reduce construction impacts. While the 42nd Avenue Alignment is shorter, constructing along a major street presents significant challenges including traffic control, maintaining access for adjacent property owners, utility conflicts and restricted construction zones.

A Receiving Impoundment at WRP 10 will be required to allow matching flows entering WRP 10 from the Canal with flows being delivered from the plant to the golf courses. District plans for WRP 10 include construction of a 5 million gallon (15-acre-foot) impoundment adjacent to an existing recycled water reservoir. Construction of this impoundment as part of the transmission system will allow operation of the Mid-Valley Pipeline at partial capacity. Additional storage will be required as additional golf courses are connected to the system.

It is feasible to connect some golf courses located adjacent to the Canal Water Transmission System directly to the system.

Recycled Water System Extension

The existing Recycled Water System will need to be extended to make the additional deliveries made possible by the addition of Canal water to the recycled system. The extension is not addressed in this report.

Canal Water Distribution System

The District and the golf course operators are collaborating to fully understand the opportunities and constraints in delivering Canal water to the golf courses. A possible system configuration has been prepared in order to develop an understanding of the feasibility and cost of a distribution system.

From the proposed Pump Station 2 at WRP 10, the Canal Water Distribution System would extend to the northwest with approximately 120,000 lineal feet of pipeline. Additional storage will be constructed as the system is built. Fifteen million gallons of storage (in addition to the five million gallons built with the transmission system) would allow operation of the Canal Water Transmission System for 24 hours and delivery of canal water to the golf courses over 18-hours.

Two options were evaluated for the sizing and operation of the distribution system. The first option is to enlarge the system to allow all deliveries to the distribution system to occur at mid-peak or off-peak energy rates. The second option is the inclusion of an additional pump station to reduce energy consumption by allowing some deliveries to be made with less pumping.

Project Cost

Project costs have been developed using current (2005) price levels. These costs include the costs of construction and a partial evaluation of operation costs where those costs affect sizing and design of the proposed facilities. **Table ES-2** summarizes the projected capital cost of each alignment and various sizes of the Canal Water Transmission System.

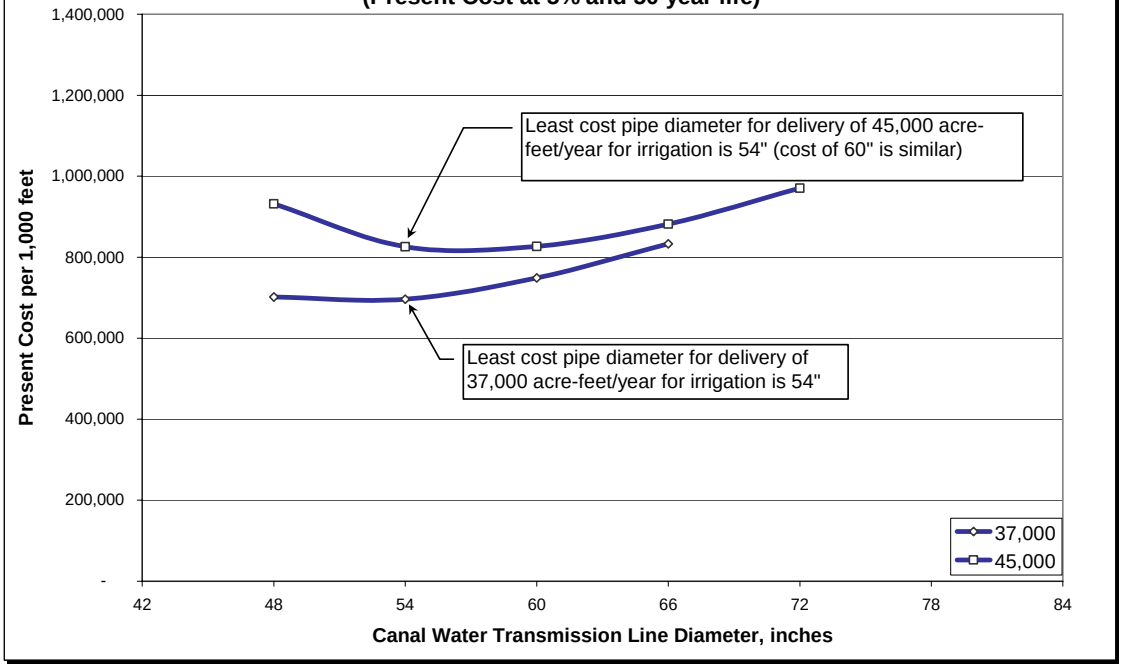
Table ES-2
Canal Water Transmission System Capital Cost
Includes Pump Station 1 and 5 MG storage at WRP 10
(2005 Price Level)

Pipe Diameter (inches)	42nd Avenue/ Hovley Lane Alignment	Coachella Stormwater Channel Alignment	
		Levee	Invert
54	$ 27,509,799	$ 29,266,322	$ 29,914,107
60	$ 30,328,335	$ 32,716,761	$ 32,889,852
66	$ 33,652,274	$ 36,728,243	$ 36,389,973

The estimated capital cost varies by approximately ten-percent between the alignments. Given uncertainty of predicting the construction climate more than a year from now and the preliminary nature of these estimates, the capital cost of each alignment is essentially the same.

Determination of the most cost effective pipe diameter depends not only on the capital cost, but also on operation and maintenance costs. Energy to pump the water, the largest element in the operation and maintenance cost, depends on the diameter of the pipeline. In **Chart ES-2** the total cost (capital and operation and maintenance) for a length of pipe has been evaluated under two operational scenarios. If the transmission line is to be sized to meet the goal delivering 37,000 acre-feet per year of Canal water as stated in the District's Water Management Plan, a 54-inch diameter pipeline would be the most cost effective. Initial sizing of the project has focused on a potential of delivering 45,000 acre-feet per year. A 54-inch or a 60-inch diameter pipeline would be the most cost effective size for the delivery of 45,000 acre-feet.

Chart ES-2
Optimum Transmission Line Diameter Under Three Operational Scenarios
(Present Cost at 5% and 50 year life)



Canal Water Distribution System Cost

Table ES-3 shows the capital cost of each option considered for this system.

Table ES-3
Canal Water Distribution System Capital Cost
(2005 Price Level. Includes design and construction management. Does not include supervision and administration by District staff)

	Single Pressure Zone	Dual Pressure Zone
Canal Water Distribution System, Pump Station 2 at 72 cfs for 24-hour Delivery	$ 37,090,824	$ 40,603,627
Canal Water Distribution System, Pump Station 2 at 96 cfs for 18-hour Delivery	$ 40,132,982	$ 44,654,383
Notes: Does not include supervision and administration by District staff		

An evaluation of the operation and maintenance costs of each of these four options has been made. The savings from 18-hour deliveries would be on the order of $60,000 per year. This annual savings would justify approximately $1.5 million dollars of construction (50 year life, 3 percent interest rate). The cost estimate in Table ES-3 shows an increased capital cost of three to four million to enlarge the system to facilitate 18-hour delivery. While there are still issues with the location of storage and system operations to be resolved, it appears that 18-hour delivery cannot be justified based on savings in energy costs.

Including a dual lift for the distribution system would reduce the lift of 23,000 acre-feet of Canal water by 180 feet. This reduction in lift would result in an annual savings in energy of $550,000. This reduction easily justifies the additional cost of approximately $ 4 million. Including the second lift station may have additional advantages of facilitating construction of the distribution system in phases.

Mid-Valley Pipeline Cost

Table ES-4 presents an evaluation of the capital cost and cost per acre-foot of the Mid-Valley Pipeline. The table focuses on the anticipated deliveries of the project and on the construction of the Canal Water Transmission System. Thus, the cost of the Canal Water Distribution System is kept constant for each alternative. Four different diameters for the Canal Water Transmission System and two different annual delivery goals are shown. The anticipated capital cost is between $74 million and $85 million. The annual operation and maintenance cost is predominately energy for pumping. The cost per acre-foot of water delivered varies between $170 and $208.

Table ES-4
Cost of Mid-Valley Pipeline
(2005 price level. 5% and 50 year life)

	Diameter of the Canal Water Transmission System			
	54-inch	**60-inch**	**66-inch**	**72-inch**
Capital Costs (2005 price level)				
Canal Water Transmission System (Stormwater Channel Alignment, Invert)	$ 29,300,000	$ 32,900,000	$ 36,400,000	$ 40,300,000
Canal Water Distribution System (18-hour deliveries, dual lift)	44,700,000	44,700,000	44,700,000	44,700,000
On site improvements to golf courses	Not included	Not included	Not included	Not included
Expansion of recycled water system	Not included	Not included	Not included	Not included
Capital Cost	$ 73,900,000	$ 77,500,000	$ 81,000,000	$ 84,900,000
37,000 acre-feet per year of canal water delivered (Goal of Water Management Plan)				
Equivalent annual capital cost	$ 4,050,000	$ 4,250,000	$ 4,440,000	$ 4,650,000
Annual Operation and Maintenance cost	3,030,000	3,010,000	3,020,000	3,040,000
Equivalent annual cost	$ 7,080,000	$ 7,260,000	$ 7,460,000	$ 7,690,000
Equivalent annual cost per acre-foot	$ 191	$ 196	$ 202	$ 208
45,000 acre-feet per year of canal water delivered (all pumping of groundwater in Mid-Valley eliminated)				
Equivalent annual capital cost	$ 4,050,000	$ 4,250,000	$ 4,440,000	$4,650,000
Annual Operation and Maintenance cost	3,610,000	3,540,000	3,510,000	3,520,000
Equivalent annual cost	$ 7,660,000	$ 7,790,000	$ 7,950,000	$ 8,170,000
Equivalent annual cost per acre-foot	$ 170	$ 173	$ 177	$ 182

Recommendations

The evaluation in this concept paper is adequate to recommend that the District fund implementation of the Mid-Valley Pipeline. The first phase of construction should be the Canal Water Transmission System to deliver Canal water to WRP 10. Planning for the expansion of the existing recycled system and construction of the proposed Canal Water Distribution System should be initiated in order that deliveries of Canal water to golf courses can start soon after construction of the Transmission Facilities is complete.

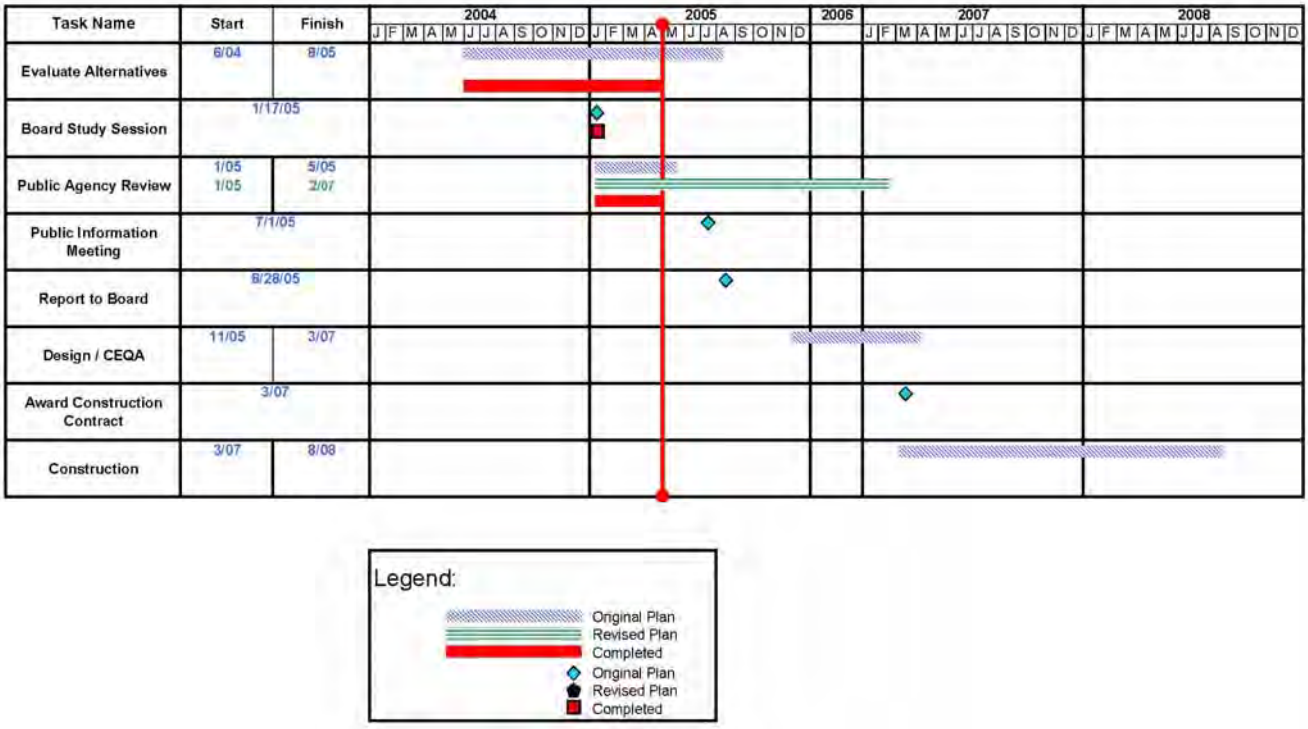
The proposed Canal Water Transmission System should be sized to allow delivery of up to 37,000 acre-feet of Canal water for irrigation purposes and should be integrated with the existing Recycled Water System. The cost difference between a 54-inch and 60-inch diameter Transmission Line is small. Further evaluation during pre-design is warranted to select the pipeline diameter. The Stormwater Channel Alignment is recommended over the Hovely Lane/42nd Avenue Alignment due to reduced construction impacts. District staff has initiated selection of property for the pump station to be located at the canal under the presumption that the Stormwater Channel Alternative will be selected. Once a selection is made, the District should assure that the selected site remains available.

Implementation requires significant coordination with the golf courses. During design of the Canal Water Transmission System discussions should occur with golf courses that possibly

can be connected to the Canal Water Transmission System. During design and construction, discussions should occur with the golf courses than can be connected to an expanded recycled water system. During construction, discussions should occur with the golf courses that can be connected to the Canal Water Distribution System. Table 4-1 in Section 4 divides the Mid-Valley area golf courses into Phases 1, 2 and 3 respectively.

A preliminary design and construction schedule through design and construction of the Transmission system is shown in **Chart ES-3**. Planning and design efforts for construction of the Canal Water Distribution System would continue during this period. Implementation of the distribution system and enlargement of the Recycled Water Distribution System would be initiated with the completion of the Transmission System.

Chart ES-3
Preliminary Schedule through construction of
Canal Water Transmission System



1 Introduction

The Mid-Valley Pipeline was initially proposed in the Conjunctive Use/Surplus Water Storage Study prepared for the Coachella Valley Water District (District) and Metropolitan Water District of Southern California (Metropolitan) (Bookman-Edmonston, 2000). The project was then incorporated into the District's September 2002 Final Water Management Plan.

The Conjunctive Use/Surplus Water Storage Study proposed a system to deliver water from the Coachella Canal (Canal) to golf courses in the Mid-Valley area (generally Palm Desert, Indian Wells and Rancho Mirage). The system would operate as a conjunctive use project, allowing the District to better manage its use of Canal water and groundwater. The study determined that there was a market for up to 35,900 acre-feet of Canal water if 49 golf courses converted from groundwater to Canal water. From a legal perspective, the water from the Canal would be water from the State Water Project (SWP). The District would exchange the SWP water with Metropolitan for some of Metropolitan's Colorado River water. The study proposed that the golf courses would maintain their groundwater wells and the ability to shift back to groundwater when imported supplies were unavailable. The potential would also exist for the golf courses to produce groundwater for use by the District. The District could then deliver groundwater to the Canal by operating the proposed facilities in reverse.

The concept was incorporated into the Preferred Alternative of the District's September 2002 Final Water Management Plan and is covered by the CEQA documentation of that plan as "Conversion of Upper Valley Golf Courses to SWP Exchange Water" (Montgomery Watson Harza, 2002a). The Preferred Alternative sets a goal of eliminating 37,000 acre-feet/yr of groundwater pumping with this conversion. The Preferred Alternative also includes "Upper Valley Golf Courses Conversion to Recycled Water." This conversion anticipated an increase of about 8,000 acre-feet/year in recycled water use. The Program Environmental Impact Report of the Water Management Plan provides program-level CEQA analysis for these two projects. The District's Board of Directors certified the Final Program Environmental Impact Report prepared for the Water Management Plan in Resolution No. 2002-213. Project-level (site-specific) CEQA analysis for facilities construction will be required for facilities construction (Montgomery Watson Harza, 2002b and 2002c).

The District retained Bookman-Edmonston, a division of GEI Consultants, to prepare a concept paper on the Mid-Valley Pipeline. This concept paper reviews the previous work and provides a more detailed evaluation. In addition, it proposes integrating the use of Canal water in the Mid-Valley area with the use or recycled water. This integration would facilitate water management by allowing better matching of supply and demand – monthly supply of

recycled water is relatively constant while demand for irrigation water is seasonal. This concept paper provides District staff and the District Board with the information needed to evaluate the feasibility of proceeding with design. In addition, it is intended to serve as background information for a Request for Proposal for additional engineering services.

Section 2 reviews the demand for irrigation water in the Mid-Valley Pipeline area. In Section 3 the existing recycled water supply is discussed. Section 4 addresses the design criteria and evaluates several options for the required project facilities. The project costs are discussed in Section 5. Section 6 addresses eliminated alternatives and study limitations. Finally, Section 7 contains recommendations for proceeding with the Mid-Valley Pipeline.

2 Irrigation Water Use in Mid-Valley Area

The Mid-Valley Pipeline area (Mid-Valley area) is generally bounded by Interstate 10 on the northeast, Washington Street on the east, Highway 111 on the south, and Date Palm Drive on the west. In addition, several golf courses along Deep Canyon Channel, south of Highway 111, are included. The area includes a large concentration of golf courses that currently obtain most of their water from groundwater and the remainder from the District's recycled water program. **Sketch 2-1** (all sketches are in **Appendix B**) shows the Mid-Valley area. The limits of the area were established based on the engineering and economic feasibility of delivering water from the Coachella Canal (Canal).

This section updates the water demand projections of the Conjunctive Use/Surplus Water Storage Study (Bookman-Edmonston, 2002). The primary changes have been to reflect the construction of additional golf courses and to include golf courses that use recycled water. While the prior study treated recycled water as a separate system, this concept paper proposes close integration of the recycled water and Canal water systems.

2.1 Irrigation Water Demand

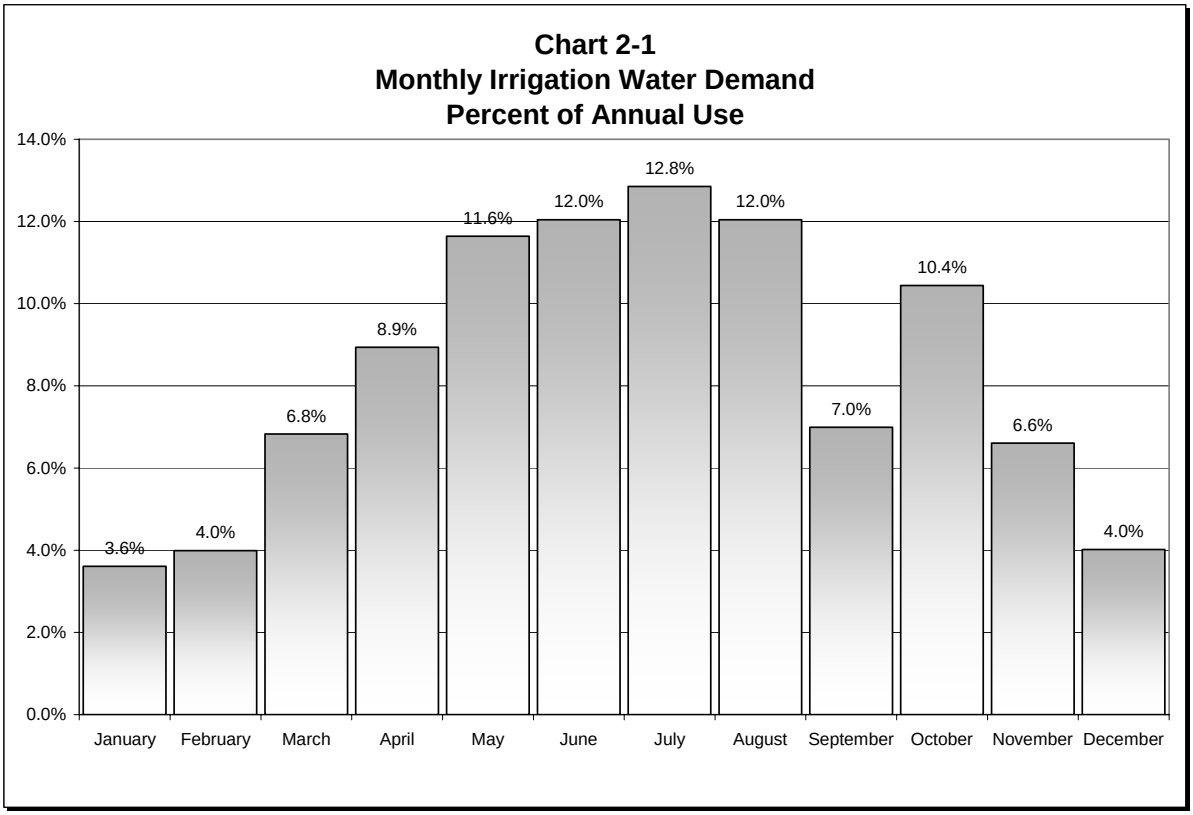
There are 51 golf courses within Mid-Valley area (A 27-hole golf course is counted as 1.5 golf courses), including several proposed courses. **Table 2-1** lists these golf courses and their projected water use in 2015. Water use by minor users in the area (including homeowners associations, parks and the Palm Desert High School) is assumed to use ten percent of golf course use.

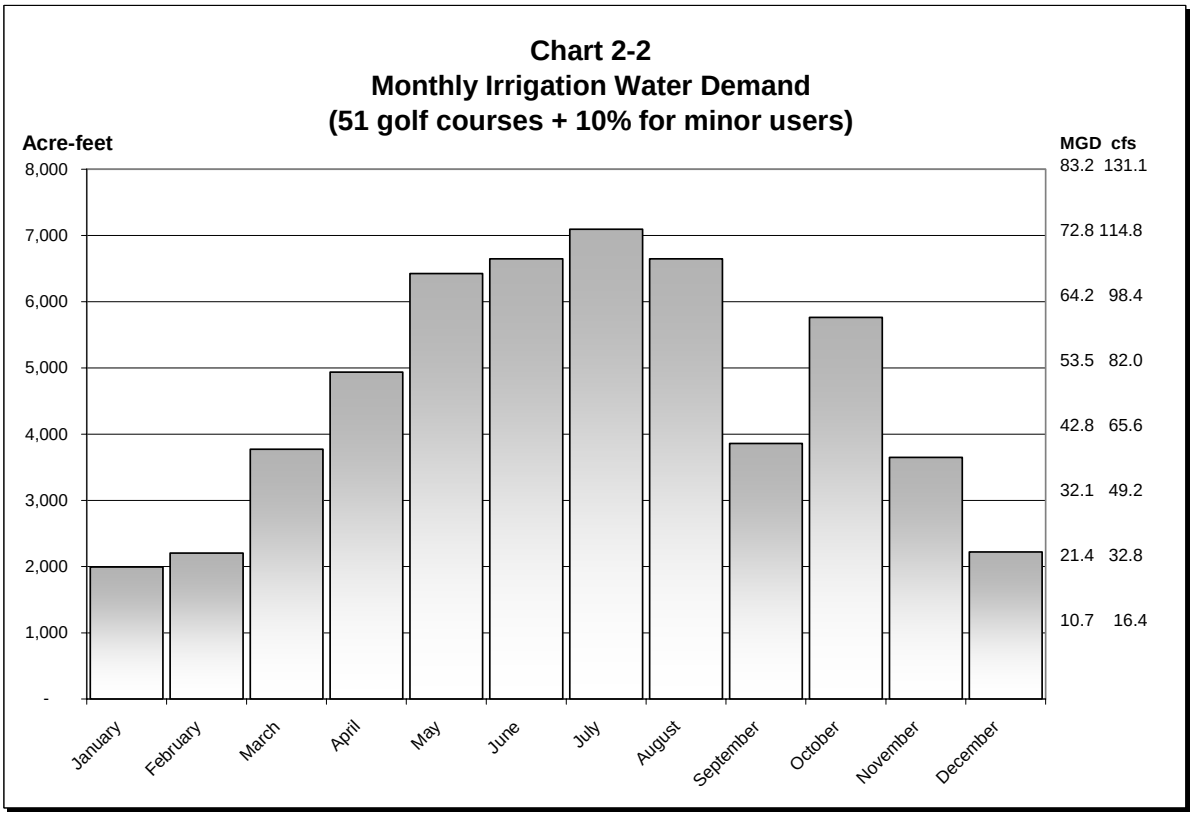
Chart 2-1 shows the monthly pattern of irrigation in the area. **Chart 2-2** combines the data in Table 2-1 and Chart 2-1 to show the anticipated monthly Mid-Valley area demand. Combining the information from Table 2-1 and Chart 2-1, the average 18-hole golf course uses approximately 975 acre-feet per year (0.87 million gallons per day (MGD)). The highest demand occurs in July, when each golf course uses an average of 3.88 acre-feet per day (1.26 MGD).

Table 2-1
Projected Mid-Valley Use of Irrigation Water (2015)

Golf Course	Holes/18-Hole Equivalents	2015 Projected Water Use[1] (acre-feet per year)
Desert Willow[2]	36	1800
Portola Country Club[2]	18	900
The Golf Center, Palm Desert[2]	9	450
Woodhaven Country Club	18	994
Palm Desert Country Club	27	1,999
Palm Desert Resort Country Club	18	1,157
Indian Ridge Country Club[2]	36	923
Palm Valley Country Club	36	1,664
Avondale	18	793
Emerald Desert Country Club	9	333
Desert Falls Country Club	18	1,522
The Lakes Country Club	27	2,308
The Oasis	18	931
The Golf Resort at Indian Wells	36	1,845
Indian Wells Country Club	27	885
El Dorado Country Club	18	307
Desert Horizons Country Club	18	867
Marriott's Shadow Ridge[3] (built since 2000)	18	923
Santa Rosa Country Club[2]	18	746
Suncrest Country Club	9	714
Chaparral Country Club	18	951
Monterey Country Club	27	1,628
Date Palm Country Club	18	619
Marriott's Desert Springs Resort	36	1587
Palm Desert Greens Country Club[2]	18	884
Toscana Country Club[4]	36	1800
Rancho Portola, future course at T4S/R6E Sec 33	18	923
The Eagle, future course at T4S/R6E Sec 31	36	1,845
Rancho Las Palmas Resort Country Club, Marriott's	27	1,236
Date Palm Country Club	18	619
Sunrise Country Club	18	961
Thunderbird Country Club	18	574
The Springs Club	18	1,289
Desert Island Golf and Country Club	18	852
Rancho Mirage Country Club	18	1,236
Tamarisk Country Club	18	692
The Club at Morningside Heights	18	1,205
Westin Mission Hills Resort	36	1,854
Mission Hills Country Club	54	5,747
Private at NW corner Hope and Sinatra[5]	9	450
Private at top of Magnesia Canyon[5]	18	900
Total golf course irrigation	**51**	**50,194**
Average demand per golf course (18 hole equivalent)		**975**
Minor irrigation (assumed to equal 10% of golf course use)		**5,019**
Total irrigation demand in Mid-Valley area		**55,213**

[1] Unless otherwise noted, projected 2015 usage is from the District's Water Management Plan. Projections for 2105 assume implementation of water conservation measures.
[2] Golf courses currently receiving recycled water. Use assumed to be 900 acre-feet per year.
[3] Marriott's Shadow Ridge was constructed to facilitate later conversion to recycled water (low pressure system). It is currently using groundwater.
[4] Toscana Country Club signed agreements with the District in August 2004 to use recycled water. Construction is underway.
[5] These are closely-held private courses. The Magnesia Canyon course obtains water from a private well located below the cove. Use assumed to be 900 acre-feet per year.


Chart 2-1
Monthly Irrigation Water Demand
Percent of Annual Use
14.0%
12.0%
10.0%
8.0%
6.0%
4.0%
2.0%
0.0%
3.6%
4.0%
6.8%
8.9%
11.6%
12.0%
12.8%
12.0%
7.0%
10.4%
6.6%
4.0%
January
February
March
April
May
June
July
August
September
October
November
December


Chart 2-2
Monthly Irrigation Water Demand
(51 golf courses + 10% for minor users)
Acre-feet
MGD cfs
8,000
7,000
6,000
5,000
4,000
3,000
2,000
1,000
-
83.2 131.1
72.8 114.8
64.2 98.4
53.5 82.0
42.8 65.6
32.1 49.2
21.4 32.8
10.7 16.4
January
February
March
April
May
June
July
August
September
October
November
December

2.2 Impacts on Golf Course Operations

While the golf courses recognize the necessity of the project they operate in a highly competitive market and are concerned with equity among all golf courses. If the project is implemented in a manner that puts one golf course at a disadvantage to another, there may be severe financial impacts. The golf courses have a number of concerns with the projects impact on their operations and costs.

The golf courses are concerned with water quality. Canal water has higher suspended solids than groundwater or recycled water. Canal water and recycled water both have higher total dissolved solids (salt or TDS) and a different mix of salts than groundwater. The golf courses must manage their operations to avoid or minimize damage from the suspended solids and salts.

Converting to Canal water or recycled water from groundwater will require an investment in their irrigation system by the golf courses. The golf courses have an investment in their existing groundwater production system that they do not want to abandon. Use of recycled water requires compliance with State regulations.

As will be discussed later, use of Canal water (pumped from the Canal 24 hours a day and applied to the golf courses at night) will require storage. To the extent this storage is on the golf course there is a cost to the golf courses.

The District has set in place a collaborative effort with the golf courses in the Mid-Valley area to address issues related to use of Canal water, recycled water and groundwater on the courses.

3 Mid-Valley Recycled Water Facilities

Water Reclamation Plant 10 (WRP 10) is located within the Mid-Valley area south of Hovley Lane and east of Cook Street. Since 1987, WRP 10 has been providing recycled water (tertiary treated) to golf courses, homeowners associations, and the Palm Desert High School. The WRP 10 permitted influent capacity is 18.0 MGD (55 acre-feet per day). The permitted recycling capacity is 15.0 MGD (46 acre-feet per day). In 2003, the plant treated 3,752 million gallons of influent (11,515 acre-feet). Historically, inflow has increased by approximately five percent per year. This section describes the current system and proposes an approach to maximizing the use of recycled water.

3.1 Recycled Water Program at WRP 10

Recycled water facilities at WRP 10 include a 5-million-gallon earth-embankment reservoir with a floating roof and a pump station with both "high-pressure" and "low pressure" pumps. The high-pressure system delivers water at sprinkler pressure. The low-pressure system delivers to impoundments on the golf courses. Total pumping capacity is approximately 20,000 gallons per minute (gpm) or 45 cubic feet per second (cfs). The high-pressure pumps have a peak flow of approximately 12,000 gpm or 27 cfs. **Table 3-1** lists the customers served by the recycled system; **Sketch 3-1** shows the layout of the distribution lines. With modest additions, the current recycled water distribution system can serve much of the Mid-Valley area south of Gerald Ford Drive and east of Monterey Avenue.

Table 3-1
Current WRP 10 Recycled Water Customers

Indian Ridge Country Club	Silver Sands HOA
Santa Rosa Country Club	Casa Blanca HOA
Palm Desert Greens Country Club	Palm Desert High School
Portola Country Club	Desert Willow Golf Resort
The Golf Center, Palm Desert	Mountain View Falls HOA4
Marriott's Desert Springs Resort	Toscana Country Club
Vista Del Montanas HOA	

Table 3-2 shows the treatment and use of WRP 10 influent during 2003. Only about one-third of influent was recycled. In August 2004, the District and Toscana Country Club signed an agreement to serve that golf course with recycled water. During hot weather, Toscana Country Club will need 2 to 2.5 MGD (6 to 8 acre-feet per day) to serve two 18-hole golf courses. With this addition to the recycled system, summer use of recycled water from WRP 10 will come closer to the potential supply. Still, only about one-half of the influent will be recycled. Further expansion of recycled water use is limited by the inability to meet demand during the high-demand months. Providing Canal water to the recycled system

during high-demand months would allow additional golf courses to be connected to the system.

Table 3-2
Treatment and Use of WRP 10 Influent

Month (1993 actual)	Inflow		Percolated (Secondary Treated)		Recycled (Tertiary Treated)		On-Site Use	
	(acre-feet)	(million gallons)	(acre-feet)	(million gallons)	(acre-feet)	(million gallons)	(acre-feet)	(million gallons)
January	1,029	335	754	246	151	49	124	40
February	920	300	789	257	92	30	40	13
March	1,075	350	745	243	235	77	96	31
April	1,038	338	724	236	301	98	14	4
May	991	323	472	154	495	161	23	8
June	924	301	196	64	547	178	182	59
July	894	291	294	96	467	152	132	43
August	937	305	280	91	507	165	150	49
September	902	294	390	127	339	110	173	56
October	950	309	464	151	323	105	162	52
November	997	325	676	220	169	55	152	50
December	986	321	698	227	176	57	112	36
Total	11,642	3,792	6,482	2,111	3,802	1,238	1,358	442

Source: CVWD. Alan Harrell, e-mail. July 27, 2004

3.2 Expansion of the Recycled Water Program at WRP 10

Sketch 3-1 also shows golf courses that could be added to the recycled system, if the supply of recycled water were adequate. These include Marriott's Shadow Ridge, Palm Desert Resort, Woodhaven, The Oasis, Palm Desert Country Club, Lakes Country Club, Desert Falls Country Club, Avondale Golf Club, Palm Valley Country Club, Emerald Desert Country Club and RV Resort and the NorthStar development east of Interstate 10. The existing irrigation system at Marriott's Shadow Ridge (north of Frank Sinatra Drive, between Monterey Avenue and Portola Avenue) was designed to accommodate conversion to recycled water from the low-pressure recycled system. The recycled water pump station and recycled water distribution systems at WRP 10 are sized for these expanded deliveries.

4 Proposed Facilities and Phasing

This section develops an initial layout for the Mid-Valley Pipeline facilities. The facilities are sized presuming the project was sized to deliver enough Canal water to eliminate groundwater pumping. First, the integrated use of Canal water and recycled water is discussed and flow rates are established for Canal water. Then, pipeline alignments and pump station locations for a proposed transmission system are reviewed. The distribution systems necessary to serve the golf courses are discussed next. Finally three phases are proposed for connecting golf courses to the project.

Additional information will be collected from discussions with golf courses during predesign studies. It is anticipated that this information will result in changes to the alignments and to the sizes of some facilities. Because each golf course is unique and the layout of its irrigation system is not known, the optimal location and size of each service connection cannot be determined at this stage. Due to uncertainty in this analysis, an allowance of ten-percent is included in the sizing of facilities.

4.1 Required Canal Water Flow

Section 2 established the monthly demand for irrigation water. Section 3 reviewed the availability of recycled water and showed that expansion of the existing recycled water is limited by the inability to meet summer irrigation demand with the relatively constant supply of recycled water. The most efficient use of water is to maximize use of recycled water and then import Canal water to supply the remaining demand.

Chart 4-1 shows the monthly demand for irrigation water in the Mid-Valley area (year 2015) and the proportion of that demand that could be served by recycled water. Peak monthly demand in July is 7,095 acre-feet when only 894 acre-feet of recycled water are available. The remaining 6,201 acre-feet must be met with Canal water. A delivery rate of 104 cfs is required to deliver this amount from the Canal. Including a ten-percent increase for uncertainty and to allow for daily peaking, the recommended Canal water delivery rate to WRP 10 would be 114 cfs. A Canal Water Transmission System would deliver this water from the Canal to WRP 10 for distribution.

Two distribution systems are proposed. One an expansion of the existing Recycled Water System would distribute a blend of recycled and Canal water, the proposed Canal Water Distribution System would distribute Canal water only. Both of these systems would start with pump stations at WRP 10.

Chart 4-2 shows, on a monthly basis, the amount of Canal water that would have to be added to the recycled system to allow the envisioned expansion of that system.

Chart 4-1
Monthly Demand for Canal Water and Recycled Water
(51 golf courses plus 10 percent for minor users)

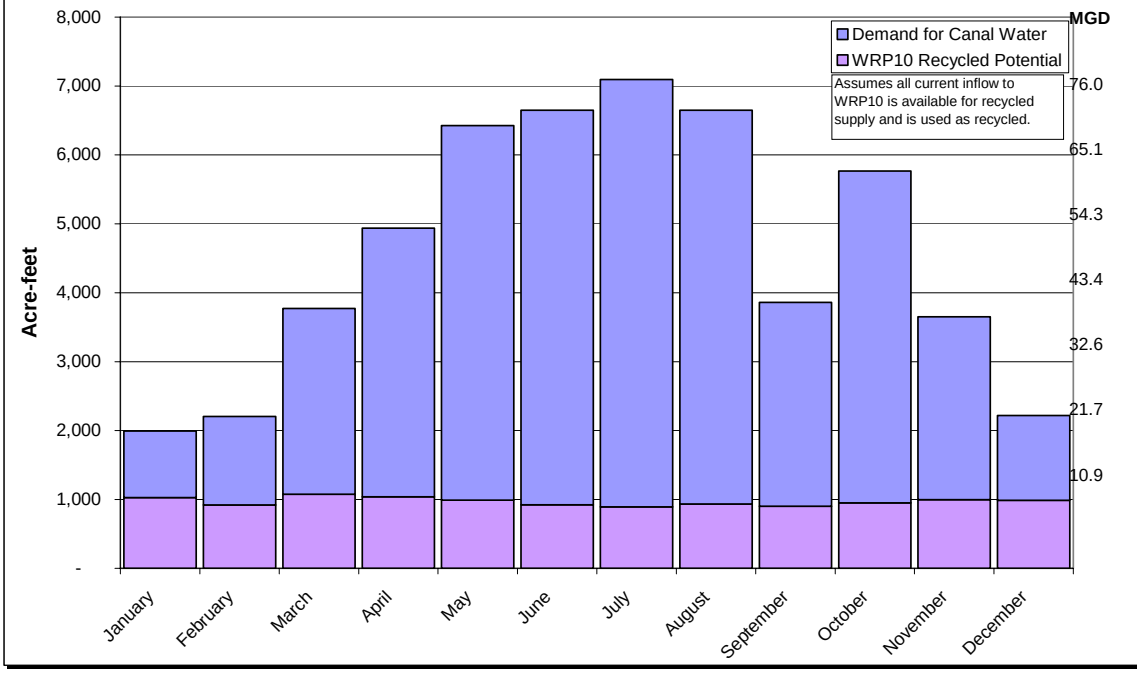
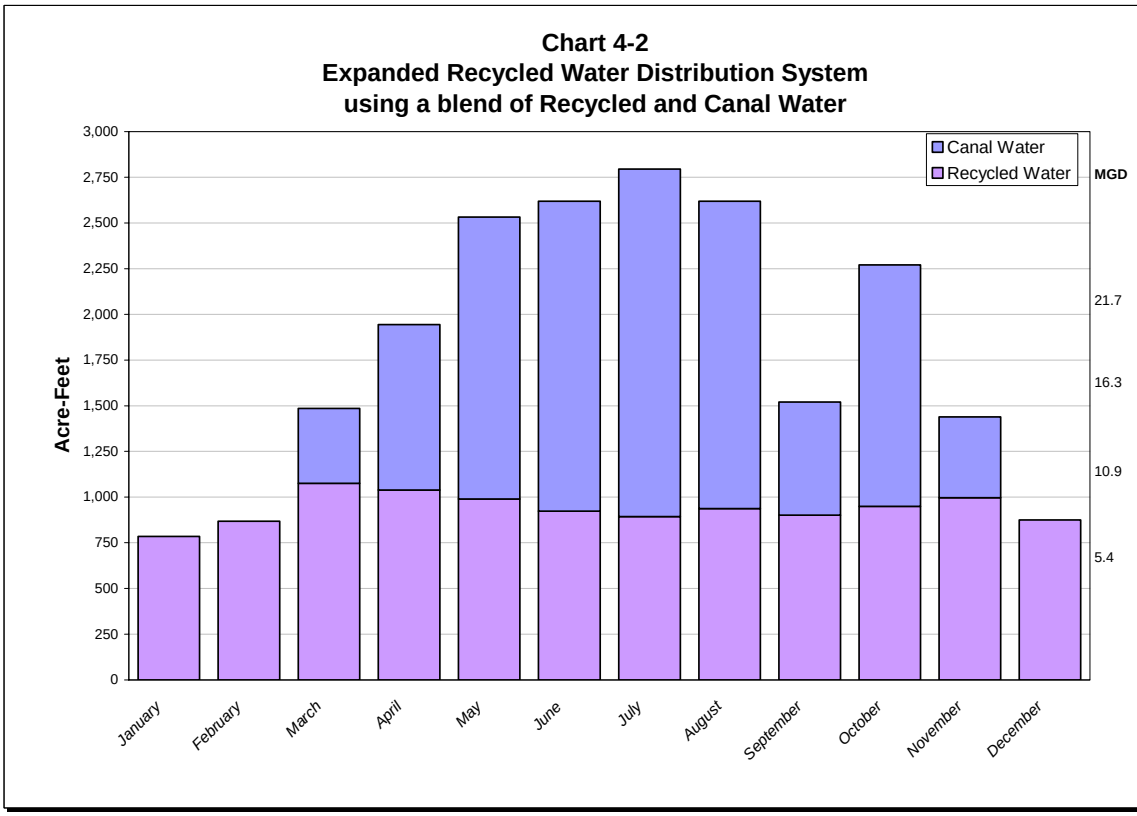


Chart 4-2
Expanded Recycled Water Distribution System
using a blend of Recycled and Canal Water



4.2 Canal Water Transmission System

The Canal Water Transmission System from the Canal to WRP 10 would consist of Pump Station 1 located adjacent to the Canal, a Transmission Line, a Receiving Impoundment at WRP 10 and service connections to adjacent golf courses. These facilities are discussed below.

4.2.1 Pump Station 1

Pump Station 1 would be sized to deliver the projected remaining demand for irrigation water after maximum use is made of recycled water produced by WRP 10. The pump station would operate 24-hours a day to minimize impacts on Canal operations. Imperial Irrigation District, which provides electrical power in this area, does not have time-of-use rates eliminating a reason to avoid pumping during peak hours by constructing a larger pump station. It is anticipated that control of transients (water hammer) will require construction of pressure vessels at the pump station. Screening for removal of debris will be included at Pump Station 1. Sediment removal may not be practical at this location.

Depending on the location selected for the pump station, noise impacts and aesthetics could potentially impact adjacent land uses. Noise mitigation measures could include enclosures, walls and earth berms. Aesthetic considerations could affect the design perimeter walls and require landscaping. A larger site than is needed for the facilities could also mitigate noise and aesthetic impacts.

A preliminary estimate of the required area for the pump station is 0.7 acres, not including any additional land for mitigating noise and aesthetic impacts.

4.2.2 Transmission Line

Two alignments for the Transmission Line from the Canal to WRP 10 have been evaluated. The Coachella Stormwater Channel Alignment (Stormwater Channel Alignment) generally follows the Coachella Stormwater Channel. The 42nd Avenue/Hovley Lane Alignment (42nd Avenue Alignment) follows public streets for the majority of its route. **Sketch 4-1** shows these two alignments. **Sketches 4-2 to 4-16** show more detail for the Stormwater Channel Alignment. **Sketches 4-17 to 4-22** show more detail for the 42nd Avenue Alignment.

The Stormwater Channel Alignment presents two options. The pipeline could be constructed in the levee or in the invert. Construction in the levee presents challenges with restricted space and utility conflicts (Sketch 4-5 and 4-6). Construction in the invert presents challenges with scour and existing drop structures. The best option may vary in different portions of the alignment.

The pump station for the Stormwater Channel Alignment would be located at the intersection of the canal and the Stormwater Channel (Sketch 4-2). The District is currently evaluating

the availability of land at this location for the Pump Station. Each of the four corners is a possibility although it appears that the west corner (currently owned by Heritage Palms Golf Club) will be acquired by Imperial Irrigation District for an electrical substation. Discussions with Imperial (Randy Gray, April 12, 2005) indicate that Imperial will need the entire site for the substation.

The pump station for the 42nd Avenue Alignment would be located along the canal and south of Indio Highway. Land on the west side of the Canal from Indio Highway to the extension of Avenue 43, a distance of 1600 feet is currently vacant. But, significant development is occurring in the vicinity (Sketch 4-17).

District staff and Bookman-Edmonston met with staff from the cities of Indio, Indian Wells, La Quinta and Palm Desert, and the County of Riverside in February and May 2005. The cities and county all indicated a preference for the Stormwater Channel Alignment in order to reduce construction impacts. The City of Indian Wells noted that construction of a pipeline through the Golf Resort at Indian Wells (which straddles the channel) is consistent with their intent to remodel the course. While the 42nd Avenue Alignment is shorter, constructing along a major street presents significant challenges including traffic control, maintaining access for adjacent property owners, utility conflicts and restricted construction zones.

4.2.3 Receiving Impoundment

As Pump Station 1 will operate 24-hours a day and golf course irrigation occurs at night there is a need for significant storage. The storage will occur either at District facilities or on the golf courses. Generally golf courses irrigate for 12 hours or less while Pump Station 1 will operate 24 hours. At peak operation of 114 cfs, approximately 114 acre-feet of storage would be required. While each golf course is unique, they typically have been designed with adequate storage to allow their wells to operate up to 18-hours a day. If, on the average, the golf courses have storage to take deliveries over 18 hours, then an additional 60 acre-feet of storage is needed. This additional storage could be constructed at WRP 10, on golf courses or at District owned sites on distribution pipelines.

A Receiving Impoundment at WRP 10 will be required to allow matching flows entering WRP 10 from the Canal with flows being delivered from the plant to the golf courses.

District plans for WRP 10 include construction of a 5 million-gallon (MG) or 15 acre-foot impoundment adjacent to the existing recycled water reservoir. Assuming that distribution from WRP 10 to golf courses occurs over 18-hours, this would allow operation of the transmission system at 30 cfs or approximately one-quarter of ultimate capacity.

While additional storage will be needed for the complete project, a 5 MG receiving impoundment is included with the transmission system. The impoundment will include sediment removal facilities, a connection to the existing recycled water reservoir and allowances for future connection to the proposed Canal Water Distribution System.

4.2.4 Adjacent Golf Courses

Whichever route is selected for the transmission line, it will be possible to connect some golf courses directly to the transmission line. The Golf Resort at Indian Wells has expressed interest in connecting to the transmission system if the line is routed along the Stormwater Channel.

4.3 Recycled Water System Extension

The existing Recycled Water System will need to be extended to make the additional deliveries made possible by the addition of Canal water to the recycled system. The extension is not addressed in this report.

4.4 Canal Water Distribution System

As discussed in Section 2, the District and the golf course operators are collaborating to fully understand the opportunities and constraints in delivering Canal water to the golf courses. This section lays out a possible configuration in order to develop an understanding of the feasibility and cost of a distribution system. Two variations in the configuration are examined. The first variation is enlarging the system to allow all deliveries to the distribution system to occur at mid-peak or off-peak energy rates (Southern California Edison provides service to WRP 10 and time-of-use rates are available). The second variation is dividing the system into two pressure zones by including an additional pump station with the goal of reducing energy consumption.

Sketch 4-23 shows a possible layout for the Canal Water Distribution System. With this layout, 21 golf courses would connect to this system. The remaining 29 Mid-Valley area golf courses either are served by the recycled system or by branches off the main Transmission Line between Pump Station 1 and WRP 10.

The golf courses to be served by the Canal Water Distribution System have a peak demand of 72 cfs using the criteria established above and 24-hour a day delivery. An 18-hour delivery period would increase the maximum daily flow rate to approximately 96 cfs. The pump station supplying the Canal Water Recycled System has been designated as Pump Station 2.

From Pump Station 2, the distribution system extends to the northwest with approximately 78,000 lineal feet of pipeline ranging from 48- to 24-inches in diameter. An additional 39,000 lineal feet of smaller-diameter pipelines will be required to branch out to the golf courses throughout the region.

After Pump Station 2, the flow is split at the intersection of Portola Avenue and Country Club Drive to create a looped system. This not only gives the District the ability to back feed its customers if a pipeline were damaged, but also allows smaller diameter pipe to be used. The looped system utilizes several branch systems to serve the outlying customers. The branch systems are labeled Branch 3 through Branch 6 on Sketch 4-23.

Sizing of the system is discussed below. Making deliveries over 24-hours and over 18-hours are both evaluated. Also, adding a lift station along the system is evaluated.

4.4.1 24-Hour Delivery

A 24-hour a day delivery schedule minimizes the size requirements for the distribution system. However, with continuous delivery the pump systems are operating during on-peak peak energy charge periods and delivering water to golf courses at times of low use (typically watering occurs at night and early morning, off-peak hours). The sections below evaluate the system requirements for both pump station alternatives under the continuous delivery scenario.

4.4.1.1 Single Pump Station at WRP 10 (Single pressure zone)

Under this alternative, the entire Canal Water Distribution System would be served by a proposed Pump Station 2 at WRP 10. The maximum flow would be 72 cfs, with a required pumping head of approximately 390 feet. **Chart 4-4** illustrates the hydraulic grade through the system. While developing the system pressure needs, a requirement of 20 psi delivery pressure at each golf course was assumed and an additional 10 ft of head was added at those delivery points to account for elevation uncertainties and depth of pipe. The triangles indicate pressure requirements for the branches off the main distribution facilities.

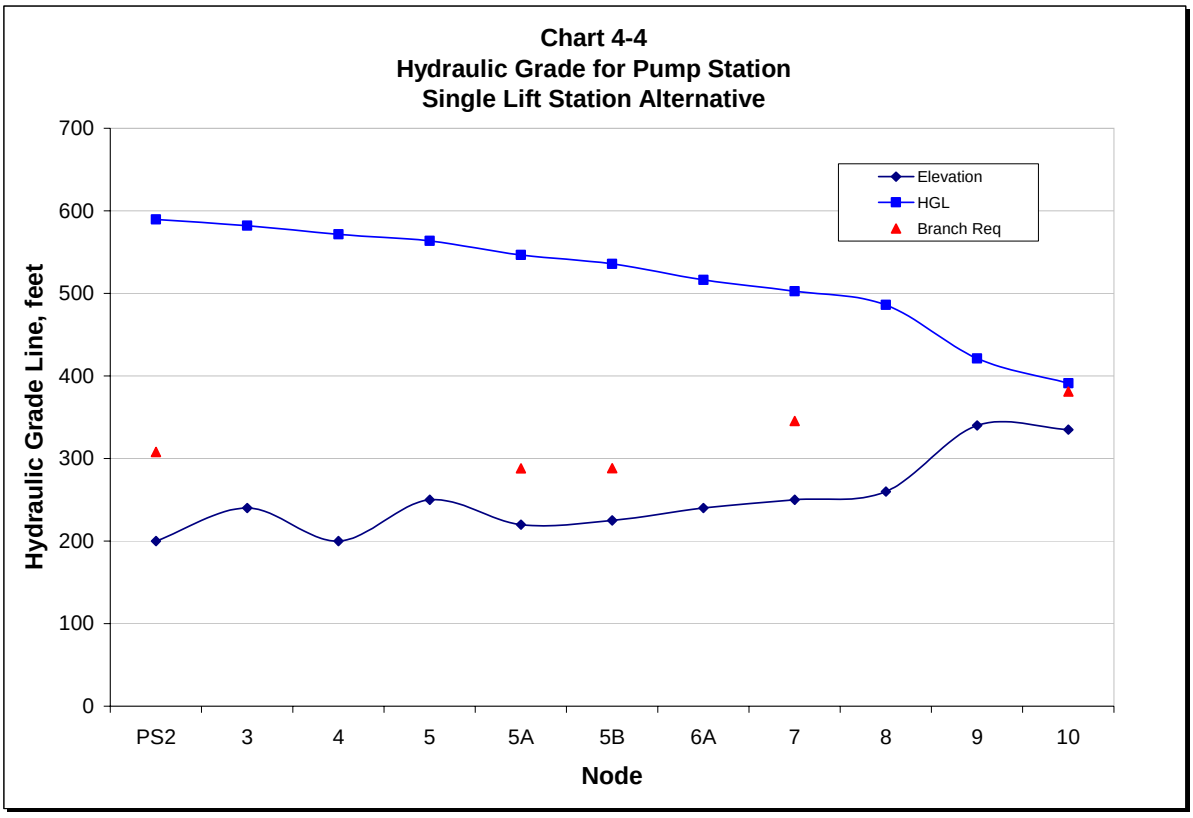
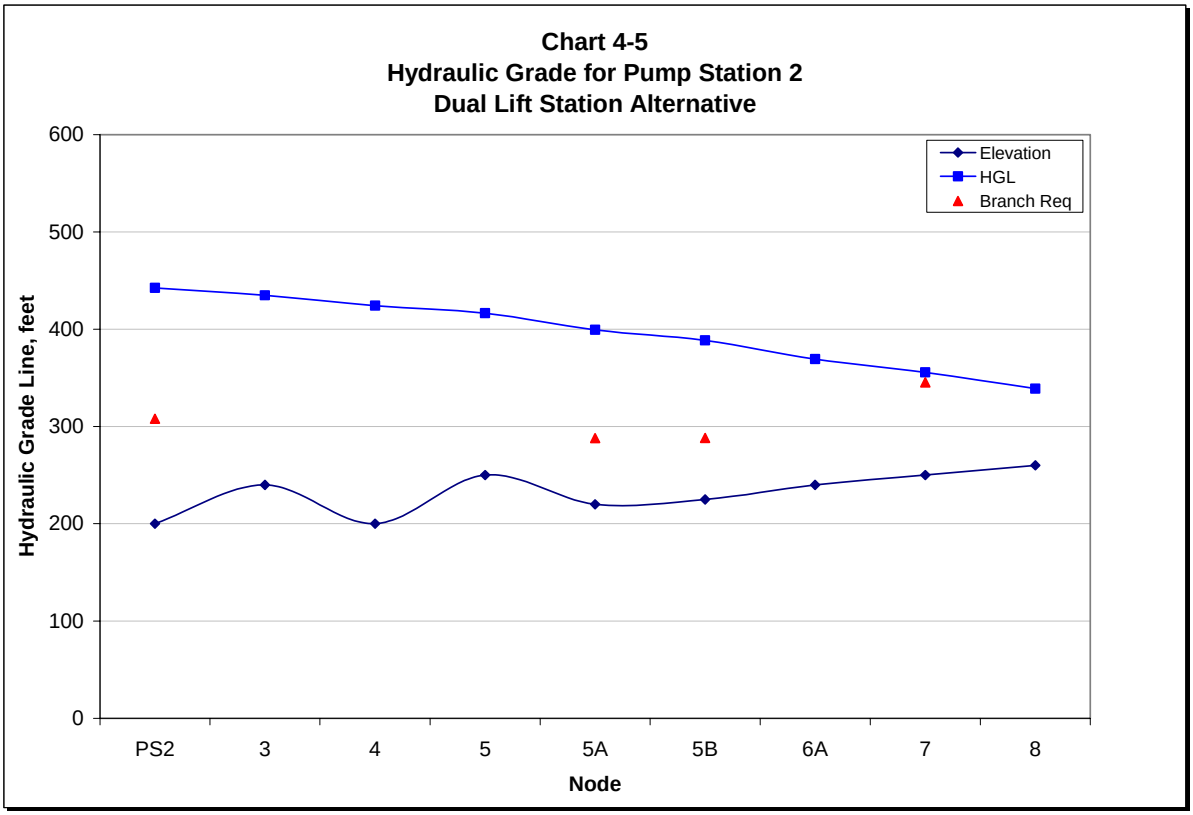


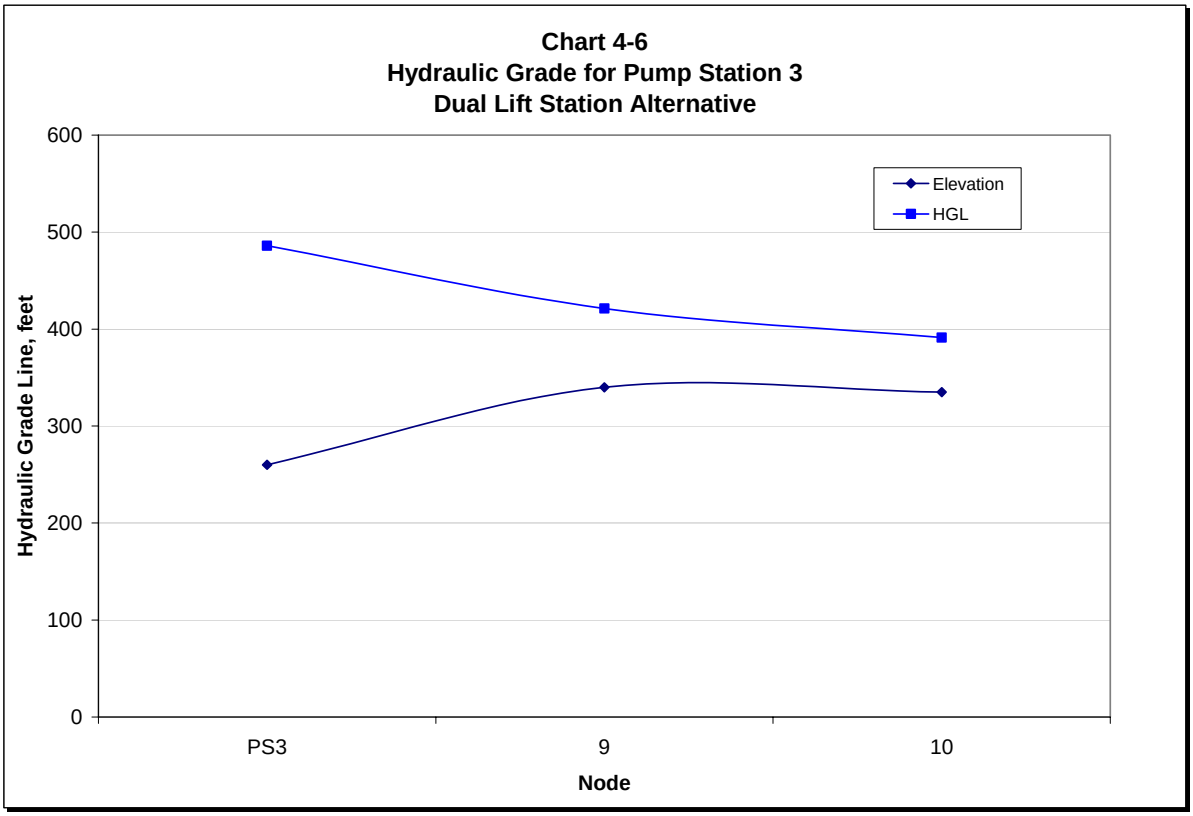
Chart 4-4 illustrates that pumping head is wasted in the initial legs of this system in order to provide the necessary pressure at the northern most golf course. The opportunity to save energy by dividing the distribution system into two pressure zones is examined next.

4.4.1.2 Additional Pump Station (Two pressure zones)

The elevations of the golf courses to be served by this system vary for a few feet to 180 feet above WRP 10. Delivering water to the lower golf courses directly from Pump Station 2 and including another pump station to lift Canal Water to the higher golf courses would reduce the lift requirement and energy demand of the Pump Station 2. Were the added pump station, Pump Station 3, added near the intersection of Bob Hope Drive and Frank Sinatra Drive, the lift of Pump Station 2 would be reduced from 390 feet to 242 feet with the same flow characteristics. There is a vacant section of land on the northeast side of this intersection. **Chart 4-5** shows the hydraulic grade for Pump Station 2 at WRP 10 under this alternative.



Pump Station 3, serving the northern most golf courses would be sized to deliver a flow of 20 cfs with a total dynamic head of 226 feet. **Chart 4-6** below shows the hydraulic grade through the system downstream of Pump Station 3, located at the intersection of Frank Sinatra Drive and Bob Hope Drive.



4.4.2 18-Hour Delivery Scenario

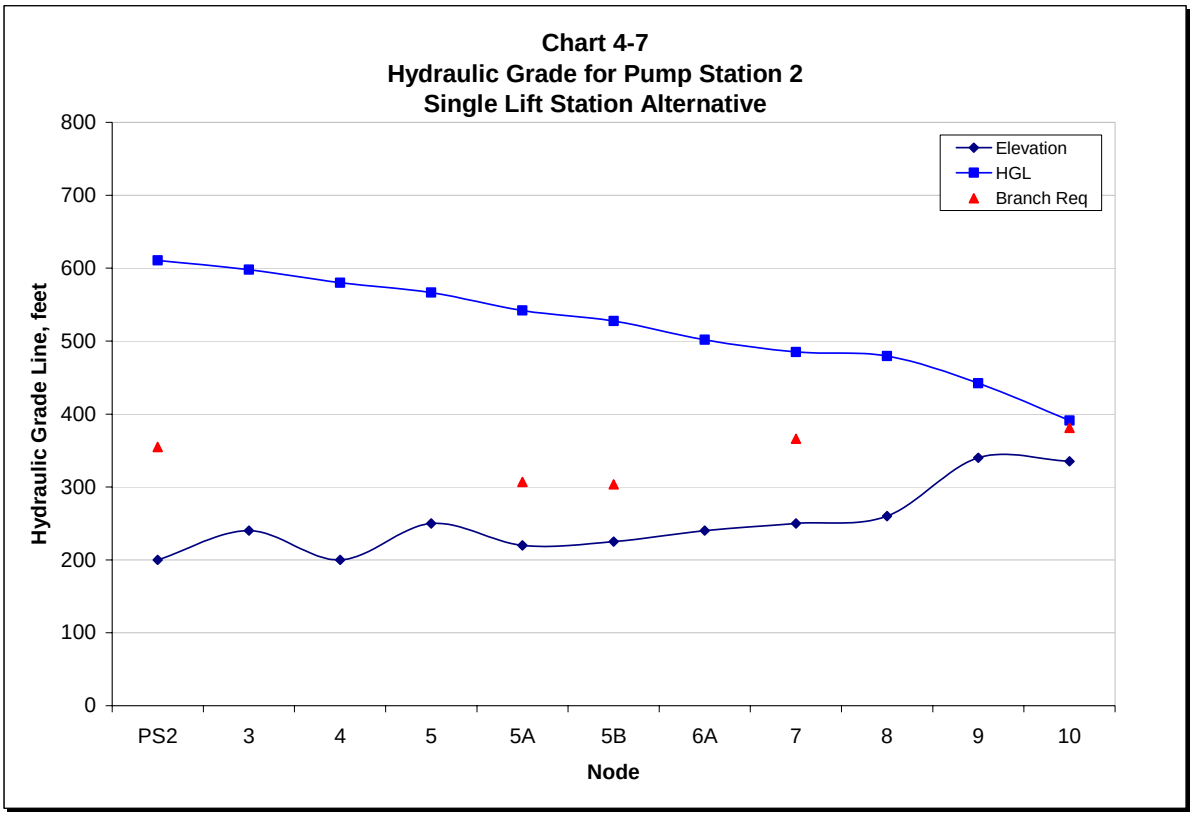
An 18-hour a day delivery schedule better matches delivery with demand. This option also allows the District to avoid pumping during on-peak hours (Noon to 6:00 PM). However, decreasing the daily operation period from 24-hour to 18-hour the flow requirements for sizing the distributions and pumping systems are increased by 33 percent. Additional storage would also be required at WRP 10 as deliveries from the Canal will be on a 24-hour basis. The sections below evaluate the system requirements for both pump station alternatives under the 18-hour delivery scenario.

4.4.2.1 Additional storage at WRP 10

The required storage at WRP 10 would be approximately six hours of Pump Station 1's peak flow rate of 114 cfs or 56 acre-feet (18 MG), although deliveries made directly from the Transmission System prior to WRP 10 would reduce the requirement by a small amount. The Transmission System portion of the project includes a 15-acre-foot (5 MG) receiving impoundment. The additional storage requirement would be approximately 41 acre-feet.

4.4.2.2 Single Pump Station at WRP 10 (Single pressure zone)

Under this alternative the new pump station at WRP 10 would require a maximum flow of 96 cfs, with a required pumping head of approximately 529 feet. **Chart 4-7** illustrates the hydraulic grade through the system with one pump station operating at WRP 10. The same delivery pressure requirements and assumptions were made with this alternative.



4.4.2.3 Additional Pump Station (Two pressure zones)

The evaluation of two pressure zones for the 18-hour delivery scenario is similar to the evaluation made for the 24-hour scenario in Section 4.4.1 and is not repeated here.

4.5 Golf Course Connections and On Site Conversions

In addition to the service laterals and meters required for each golf course, various on-site conversions will be necessary. These conversions are site specific and will differ for each golf course. On going discussions with the golf course operators will allow further definition of these requirements. The golf courses would be connected to the project in phases. Phase 1 would include those golf courses that could be connected to the Canal Water Transmission System without additional pumping. Phase 2 would be golf courses that could be connected to the expanded recycled water system. Phase 3 would be the remaining courses that would be connected to the proposed Canal Water Distribution System. **Table 4-1** shows which golf courses would be in each phase. The goals for Phase 1 are ambitious. It is likely that

physical or institutional limitations will prevent some of these courses from being included in Phase 1.

Table 4-1
Proposed Phasing Goals for Golf Course participation in Mid-Valley In-Lieu Program

Golf Course	Holes/18-Hole Equivalents	2015 Water Use (af/y)	Proposed Phase		
			Phase 1	Phase 2	Phase 3
Desert Willow	36	1,800	1,800		
Portola Country Club	18	900	900		
The Golf Center, Palm Desert	9	450	450		
Woodhaven Country Club	18	994		994	
Palm Desert Country Club	27	1,999		1,999	
Palm Desert Resort Country Club	18	1,157		1,157	
Indian Ridge Country Club	36	923	923		
Palm Valley Country Club	36	1,664		1,664	
Avondale	18	793		793	
Emerald Desert Country Club	9	333		333	
Desert Falls Country Club	18	1,522		1,522	
The Lakes Country Club	27	2,308		2,308	
The Oasis	18	931		931	
The Golf Resort at Indian Wells	36	1,845	1,845		
Indian Wells Country Club	27	885		885	
El Dorado Country Club	18	307		307	
Desert Horizons Country Club	18	867	867		
Marriott's Shadow Ridge	18	923		923	
Santa Rosa Country Club	18	746	746		
Suncrest Country Club	9	714			714
Chaparral Country Club	18	951			951
Monterey Country Club	27	1,628			1,628
Date Palm Country Club	18	619			619
Marriott's Desert Springs Resort	36	1,587	1,587		
Palm Desert Greens Country Club	18	884	884		
Toscana Country Club	36	1,800	1,800		
Future course at T4S/R6E Sec 33	18	923			923
Future course at T4S/R6E Sec 31	36	1,845			1,845
Rancho Las Palmas Resort Country Club, Marriott's	27	1,236			1,236
Date Palm Country Club	18	619			619
Sunrise Country Club	18	961			961
Thunderbird Country Club	18	574			574
The Springs Club	18	1,289			1,289
Desert Island Golf and Country Club	18	852			852
Rancho Mirage Country Club	18	1,236			1,236
Tamarisk Country Club	18	692			692
The Club at Morningside Heights	18	1,205			1,205
Westin Mission Hills Resort	36	1,854			1,854
Mission Hills Country Club	54	5,747			5,747
Private at NW corner Hope & Sinatra	9	450			450
Private at top of Magnesia Canyon	18	900			900
Indian Springs County Club[6]			900		
Projected water use			12,702	13,816	24,295
Current recycled water use			4,000		
Potential Conversions			8,702	13,816	24,295

Note: See notes on Table 2-1 for additional information on golf courses.

5 Project Cost

This section covers the capital cost of facilities discussed in Section 4 and addresses operating costs to the extent necessary to allow selection between different alternatives. The Transmission System for the Canal to WRP 10 is discussed first, then the Canal Water Distribution System. All costs are in year 2005 dollars. Detailed cost estimates are included in **Appendix C**. Section 7 makes recommendations for which alternatives should be carried forward to design or further evaluation.

5.1 Canal Water Transmission System

Section 4 discussed the requirements for the Transmission System including Pump Station 1 (114 cfs), a Transmission Line and a Receiving Impoundment at WRP 10. It described two alternative alignments for the Transmission Line: the 42nd Avenue/Hovley Lane Alignment and the Stormwater Channel Alignment. It also discussed whether the Stormwater Channel Alignment would be in the channel levee or the invert. **Table 5-1** summarizes the projected capital cost of each alignment and various sizes of the Canal Water Transmission System.

Table 5-1
Canal Water Transmission System Capital Cost
Includes Pump Station 1 and 5 MG storage at WRP 10
(2005 Price Level. Includes design and construction management)

Pipe Diameter (inches)	42nd Avenue/ Hovley Lane Alignment	Coachella Stormwater Channel Alignment	
		Levee	Invert
54	$ 27,509,799	$ 29,266,322	$ 29,914,107
60	$ 30,328,335	$ 32,716,761	$ 32,889,852
66	$ 33,652,274	$ 36,728,243	$ 36,389,973
72	$ 37,392,524	$ 41,145,454	$ 40,261,509

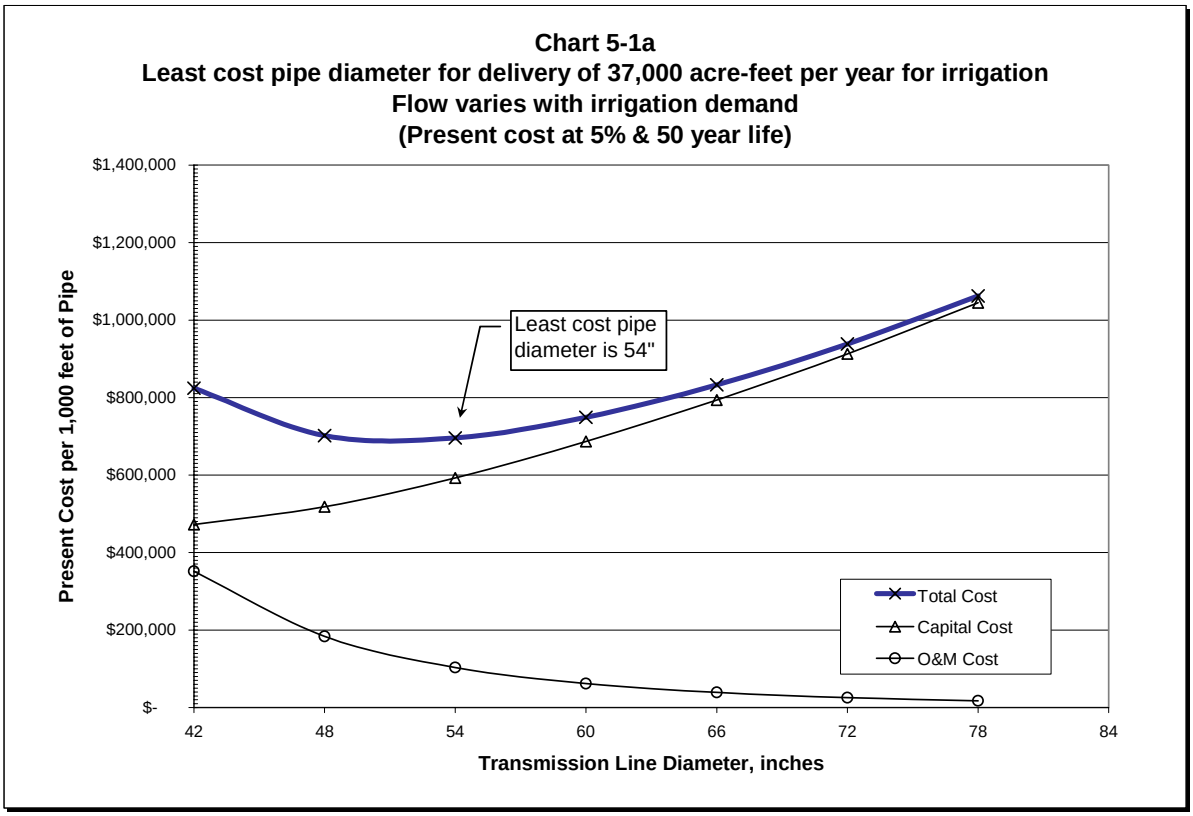
The capital cost of each pipe diameter varies by approximately ten percent between the alignments. Given uncertainty of predicting the construction climate more than a year from now and the preliminary nature of these estimates, the capital cost for each alignment is essentially the same.

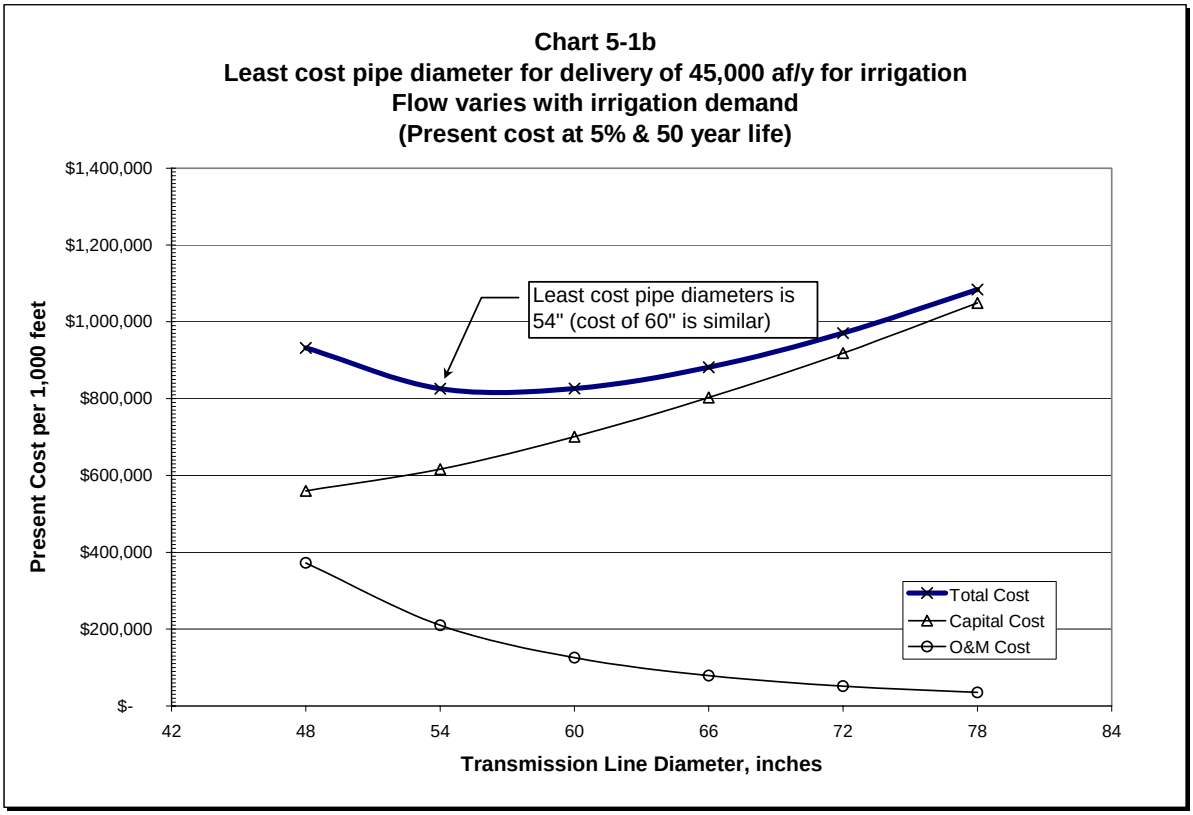
The next step of evaluating the cost of the Transmission System is evaluation of the operation and maintenance costs of different pipe diameters. Two different operational goals were considered in evaluating the most cost efficient diameter for the Transmission Line:

(1) The District's Water Management Plan goal of delivering 37,000 acre-feet per year of Canal water to the Mid-Valley area for irrigation use. Deliveries peak during the summer.

(2) Replacing all groundwater pumping for irrigation in the Mid-Valley area by delivering 45,000 acre-feet per year. Deliveries peak during the summer.

This evaluation includes the capital cost to construct the pipe and pumping capacity to overcome friction losses operation and maintenance costs including energy to overcome friction losses, electrical connection costs for the pumping plant, maintenance of the pipeline and maintenance of the pump capacity. A set of three charts demonstrates the varying capital cost and operation and maintenance cost for different pipe diameters under each of these operational goals using a fixed length of 1,000 feet of pipe. The larger the pipe diameter, the higher the capital cost and the lower the operation and maintenance costs. If these two costs are summed for each pipe diameter, the lowest cost pipe diameter can be determined. **Chart 5-1a** shows the cost to deliver 37,000 acre-feet per year for irrigation using different diameters. **Chart 5-1b** shows the cost to deliver 45,000 acre-feet per year for irrigation.





While these graphs provide guidance on selection of pipe diameter, they do not by themselves determine the correct size. The goals for the Mid-Valley Pipeline, the need for flexibility in its operations and uncertainty all need to be considered. Chart 5-1a suggests that a 54-inch pipeline would most efficiently meet the goal of the Water Management Plan, but may not be the most efficient size were the project able to entirely replace use of groundwater. Chart 5-1b shows that a 60- or 66-inch line would be preferred for delivering 45,000 acre-feet per year of irrigation water. The District may also choose a pipe diameter larger than the apparent optimal size due to uncertainty and to allow flexibility in operations.

5.2 Canal Water Distribution System

One alignment was developed for the Canal Water Distribution System. This alignment was then expanded into four variations be evaluating two delivery scenarios and by evaluating splitting the system into two pressure zones.

The two delivery scenarios examined were 24-hour delivery and 18-hour delivery. The 24-hour delivery option would require storage at the golf courses. The 18-hour delivery option would require storage at WRP 10 and either at the golf courses or along the distribution system, but would avoid pumping at on-peak rates.

The second variation splits the system into two pressure zones by including a pump station located in the vicinity of Frank Sinatra and Bob Hope Drives. This third pump station reduces the average lift and energy costs.

Table 5-2 shows the capital cost of each option.

Table 5-2
Canal Water Distribution System Capital Cost
(2005 Price Level. Includes design and construction management. Does not include supervision and administration by District staff)

	Single Pressure Zone	Dual Pressure Zone
Canal Water Distribution System, Pump Station 2 at 72 cfs for 24-hour Delivery	$ 37,090,824	$ 40,603,627
Canal Water Distribution System, Pump Station 2 at 96 cfs for 18-hour Delivery	$ 40,132,982	$ 44,654,383
Notes: Does not include supervision and administration by District staff		

With the caution that the on going collaborative effort between the District and the golf courses is expected to provide insights that will impact the design of the Canal Water Distribution System, partial evaluation of the operation and maintenance costs of each of these four variations has been made.

A key advantage of 18-hour operation compared to 24-hour operation would be the ability to avoid pumping from Noon to 6:00 PM during summer week days when on-peak rates are in effect. The pump stations would be located within Southern California Edison's service area and would operate under time of use rates. Evaluation of the probable pumping schedule for 24-hour operation shows that only about 7 percent of pumping would occur during the on-peak time period, approximately 72 percent would occur during off-peak time periods with the remaining at mid-peak. The energy savings from 18-hour deliveries would be on the order of $60,000 per year. This annual savings would justify approximately $1.5 million dollars of construction (50 year life, 3 percent interest rate). The cost estimate in Table 5-2 shows an increased capital cost of three to four million to enlarge the system to facilitate 18-hour delivery. While there are still issues with the location of storage and system operations to be resolved, it appears that 18-hour delivery cannot be justified based on savings in energy costs.

Splitting the Canal Water Distribution System into two pressure zones reduces the lift of the 23,000 acre-feet of water delivered to the lower zone by 180 feet. This reduction would result in an annual savings in energy of $550,000 assuming a cost of $ 0.10/kWh and a pump efficiency of 0.8. This reduction easily justifies the additional cost of approximately $ 4 million. Including the second pressure zone may have additional advantages of facilitating construction of the distribution system in phases.

Additional storage (beyond that built when the Canal Water Transmission System is constructed) will be required as the distribution system is expanded. Some of this storage will occur on golf courses and some will be District owned. For purposes of cost estimating,

an additional 15 MG (45 acre-feet) has been assumed. While some of this storage may be located along the distribution system, space should be reserved at WRP 10 for future storage.

5.3 Mid-Valley Pipeline Cost

Table 5-3 presents an evaluation of the capital cost and cost per acre-foot of the Mid-Valley Pipeline. The table focuses on the anticipated deliveries of the project and on the construction of the Canal Water Transmission System. Thus, the cost of the Canal Water Distribution System is kept constant for each alternative. Four different diameters for the Canal Water Transmission System and two different annual delivery goals are shown. The annual operation and maintenance cost is predominately energy for pumping. This analysis shows that the cost per acre-foot of water delivered varies between $170 and $208.

Table 5-3
Cost of Mid-Valley Pipeline
(2005 price level. 5% and 50 year life)

	Diameter of the Canal Water Transmission System			
	54-inch	**60-inch**	**66-inch**	**72-inch**
Capital Costs (2005 price level)				
Canal Water Transmission System (Stormwater Channel Alignment, Invert)	$ 29,300,000	$ 32,900,000	$ 36,400,000	$ 40,300,000
Canal Water Distribution System (18-hour deliveries, dual lift)	44,700,000	44,700,000	44,700,000	44,700,000
On site improvements to golf courses	Not included	Not included	Not included	Not included
Expansion of recycled water system	Not included	Not included	Not included	Not included
Capital Cost	$ 73,900,000	$ 77,500,000	$ 81,000,000	$ 84,900,000
37,000 acre-feet per year of canal water delivered (Goal of Water Management Plan)				
Equivalent annual capital cost	$ 4,050,000	$ 4,250,000	$ 4,440,000	$ 4,650,000
Annual Operation and Maintenance cost	3,030,000	3,010,000	3,020,000	3,040,000
Equivalent annual cost	$ 7,080,000	$ 7,260,000	$ 7,460,000	$ 7,690,000
Equivalent annual cost per acre-foot	$ 191	$ 196	$ 202	$ 208
45,000 acre-feet per year of canal water delivered (all pumping of groundwater in Mid-Valley eliminated)				
Equivalent annual capital cost	$ 4,050,000	$ 4,250,000	$ 4,440,000	$4,650,000
Annual Operation and Maintenance cost	3,610,000	3,540,000	3,510,000	3,520,000
Equivalent annual cost	$ 7,660,000	$ 7,790,000	$ 7,950,000	$ 8,170,000
Equivalent annual cost per acre-foot	$ 170	$ 173	$ 177	$ 182

6 Eliminated Alternatives and Limitations

This section reviews alternatives that were considered and eliminated, the limitations of this paper, and the refinements that require additional data collection and analysis.

6.1 Alternatives Considered and Eliminated

A number of design criteria and alternatives were evaluated earlier in this evaluation or in previous studies and eliminated.

The Conjunctive Use/Stored Water Study (Bookman-Edmonston, 2000) proposed a distribution system for Canal water that was not integrated with the recycled water system. Integration of the two systems as proposed in the current study will allow more recycled water to be used and either reduce the demand on Canal water or allow a further reduction of groundwater pumping.

The Conjunctive Use/Stored Water Study also proposed two goals. In addition to the program described in this paper, a smaller goal of delivering approximately 13,000 acre-feet/year of Canal water to the Mid-Valley area was considered. The Coachella Valley Water Management Plan (Montgomery Watson Harza, 2002a) selected the larger program with a goal of 37,000 acre-feet/year.

Consideration was given to sizing the pump station at the Canal, Pump Station 1, for less than 24-hour a day operation. This option was eliminated due to the impacts of Canal operations. The capacity of the Canal in the vicinity of the proposed pump station is 675 cfs. The pump station would be approximately 150 cfs, 22 percent of the Canal capacity and a much larger percent on normal flow. In addition, the pump station and pipeline would cost more due to the larger size.

6.2 Additional Analysis

As implementation of the Mid-Valley Pipeline proceeds there are a number of issues and opportunities to be addressed in more detail.

The cost estimate for constructing the Transmission Line in the invert of the Stormwater Channel assumes a depth of burial of 10-feet below the existing channel invert. This matches the construction of existing slope protection which was typically constructed to 10-feet below the channel invert. Additional investigation of the potential depth of scour is necessary should the Stormwater Channel Alignment be selected in order for the District to make an informed decision of the risks.

While it is believed that CEQA requirements will not be a significant restraint, there is a possibility that construction in the Stormwater Channel invert could raise some concerns.

Discussions with the regulatory agencies have not been initiated. The Mid-Valley Pipeline is included in the District's *Program Environmental Impact Report for Coachella Valley Water Management Plan and State Water Project Entitlement Transfer (PEIR)*. In that CEQA documentation, the Mid-Valley Pipeline is discussed as two separate projects: Conversion of Upper Valley Golf Courses to Exchange Water and Upper Valley Golf Course Conversion to Recycled Water. The PEIR includes the requirement for project-specific mitigation measures. For the Mid-Valley Pipeline, those measures address construction impacts.)

The on going collaborative effort between the District and the golf courses will provide additional insights into the best implementation.

The location and amount of storage needs additional investigation.

Decisions on the location of storage can significantly affect the sizing of the Canal Water Distribution System. Locating storage at WRP 10 increases the size of Pump Station 2 and of the pipelines in the distribution system.

The District has initiated evaluation of the availability of land for the pump station should the Stormwater Channel alignment be selected. The District is also evaluating their existing easements and land acquisition requirements for construction of the Transmission Line in the Stormwater Channel. This paper presumes that land will be available for Pump Station 1 and Pump Station 3. The District has initiated investigation of the availability of land for Pump Station 1. It is premature to investigate the availability of land for Pump Station 3, unless development in the vicinity proposed for that pump station raises the opportunity for the District to obtain the necessary land by dedication.

The cost of extending the recycled water distribution system has not been addressed. The District typically funds these extensions as part of the contractual agreements made with the golf course that will be served by the extension. The arrangements made for construction and payment are negotiated as part of each agreement and vary.

The route for the Canal Water Distribution System requires additional investigation. Additional review of existing underground utilities may affect route selection. In particular, there are major storm drains in Portola Avenue. The specific arrangement of on-site facilities at each golf course will also affect the layout of the distribution systems. Cook Street may be widened by the city of Palm Desert during the summer of 2006 and may install a storm drain in Portola Street in either 2006 or 2007. This may provide an opportunity to coordinate portions of construction. In general, the city has expressed a preference for construction in the Stormwater channel.

Use of the Mid-Valley Pipeline to return water to the Canal was previously proposed (Bookman-Edmonston, 2000) and is still an option. This paper has not further evaluated the feasibility.

7 Recommendations

The evaluation in this concept paper is adequate to recommend that the District fund implementation of the Mid-Valley Pipeline. The first phase of construction should be the Canal Water Transmission System to deliver Canal water to WRP 10 with deliveries to golf courses where practical.

The on-going collaborative efforts with golf courses should continue to assure timely resolution of challenges with making deliveries to the golf courses.

Planning for the design and construction of expansion the existing recycled system and construction of the proposed Canal Water Distribution System should be initiated in order that deliveries of Canal water to golf courses can start soon after construction of the Transmission Facilities is complete.

A more detailed discussion of these recommendation and the steps required for implementation follows.

7.1 Canal Water Transmission System

The proposed Canal Water Transmission System includes Pump Station 1 at the Coachella Canal, the Transmission Line from the Canal to WRP 10 and a the Receiving Impoundment at WRP 10. These facilities should be sized to allow delivery of up to 37,000 acre-feet of Canal water for irrigation purposes and should be integrated with the existing Recycled Water System. Where feasible, turnouts should be provided to golf courses near the transmission facilities. The cost difference between a 54-inch and 60-inch diameter Transmission Line is small. The smaller diameter reduces capital costs while the larger diameter reduces operation and maintenance costs and provides more flexibility in operations. Further evaluation during pre-design is warranted to select the pipeline diameter.

The Stormwater Channel Alignment is recommended over the Hovely Lane/42nd Avenue Alignment due to reduced construction impacts. Additional investigations will be necessary to determine whether construction in the invert or on the levee – or a combination – is the best option.

District staff has initiated selection of property for the pump station to be located at the canal under the presumption that the Stormwater Channel Alternative will be selected. Once a selection is made, the District should assure that the selected site remains available.

The opportunities to connect golf courses directly to the Canal Water Transmission System have not been fully explored. These opportunities should be explored during predesign and design of the system.

The cost for the transmission facilities, including design and construction management, but not including supervision and administration by District staff is from $ 30 million for a 54-inch pipeline to $33 million for a 60-inch pipeline at 2005 price level.

7.2 Expansion of the Recycled Water System

District staff should continue collaboration with golf courses near the existing recycled system with the intent of entering contracts for delivery of water once the transmission system is in operation. Previous expansions have generally been constructed at the expense of the golf courses that the expansion serves. Contractual arrangements have ranged from the golf course constructing the required extension to the golf course paying for construction by the District through their payments for delivered water.

7.3 Canal Water Distribution System

Additional planning is required to determine the best alignment and sizing of the Canal Water Distribution System. This planning effort should include a collaborative effort with the golf courses and extensive coordination with the cities. Cost for the Canal Water Distribution System including design and construction management is estimated at $37 million to $45 million at 2005 price level.

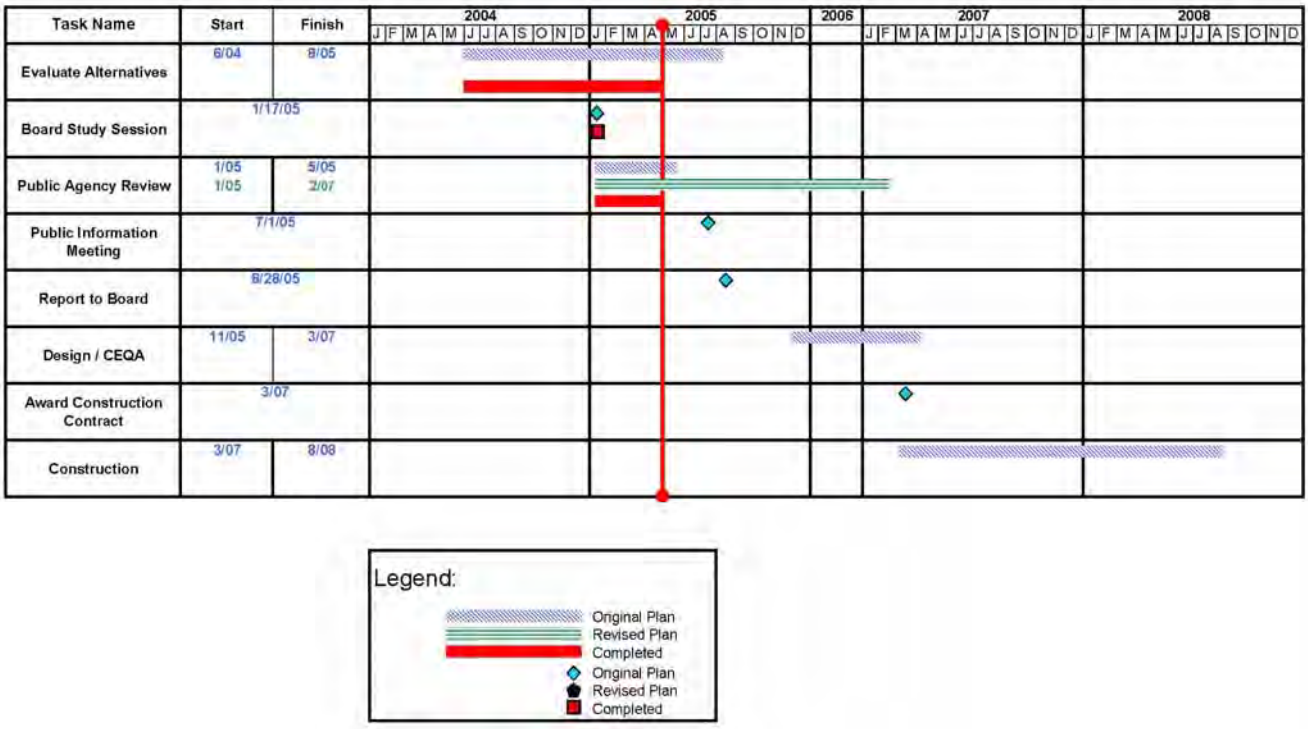
7.4 Phasing of deliveries

Implementation requires significant coordination with the golf courses. During design of the Canal Water Transmission System discussions should occur with golf courses that possibly can be connected to the Canal Water Transmission System. During design and construction, discussions should occur with the golf courses than can be connected to an expanded recycled water system. During construction, discussions should occur with the golf courses that can be connected to the Canal Water Distribution System. Table 4-1 in Section 4 divides the Mid-Valley area golf courses into Phases 1, 2 and 3 respectively based on this criterion.

7.5 Preliminary Schedule

A preliminary design and construction schedule through design and construction of the Transmission system is shown in **Chart 7-1**. Planning and design efforts for construction of the Canal Water Distribution System would continue during this period. Implementation of the distribution system and enlargement of the Recycled Water Distribution System would be initiated with the completion of the Transmission System.

Chart 7-1
Preliminary Schedule through construction of
Canal Water Transmission System



Appendix A

References

Bookman-Edmonston, 2000. Conjunctive Use/Surplus Water Storage. Prepared for Coachella Valley Water District and Metropolitan Water District of Southern California.

Coachella Valley Water District, 2002. Resolution no. 2002-213.

Montgomery Watson Harza, 2002a. Draft Program Environmental Impact Report for Coachella Valley Water Management Plan and State Water Project Entitlement Transfer. Prepared for Coachella Valley Water District.

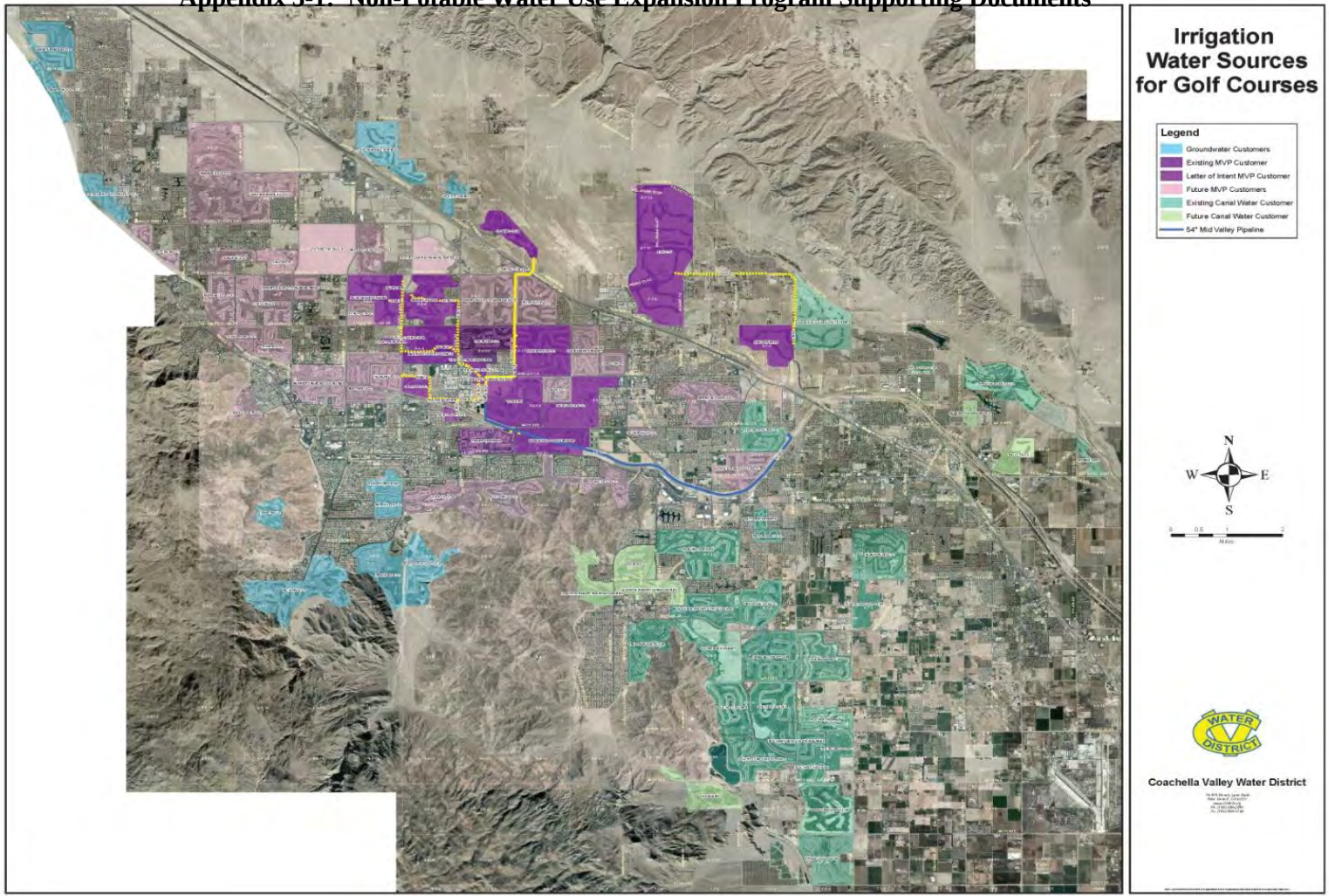
Montgomery Watson Harza, 2002b. Final Program Environmental Impact Report for Coachella Valley Water Management Plan and State Water Project Entitlement Transfer. Prepared for Coachella Valley Water District.

Montgomery Watson Harza, 2002c. Coachella Valley Final Water Management Plan. Prepared for Coachella Valley Water District.

NONPOTABLE WATER

Board Report

November 27, 2012

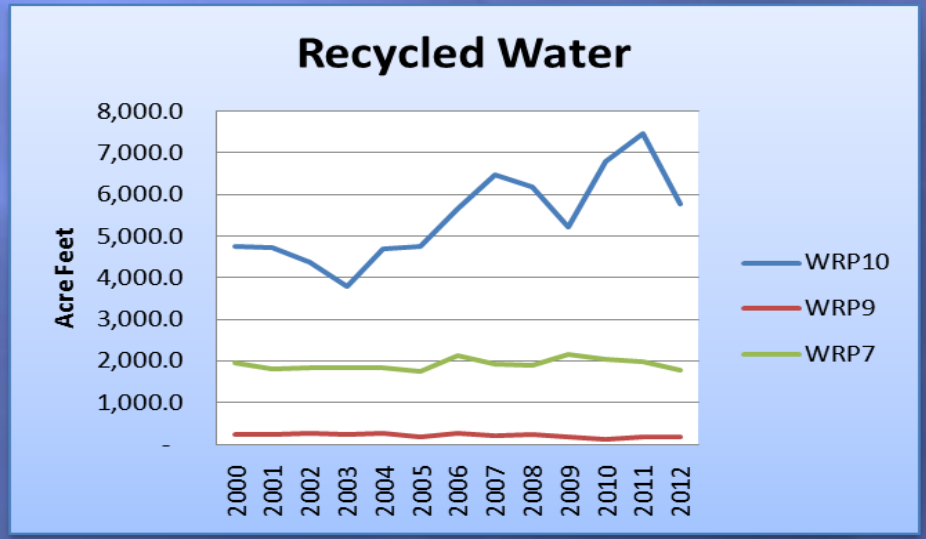

Irrigation Water Sources for Golf Courses
Legend
Groundwater Customers
Existing MVP Customer
Letter of Intent MVP Customer
Future MVP Customers
Existing Canal Water Customer
Future Canal Water Customer
54" Mid Valley Pipeline
N
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Coachella Valley Water District

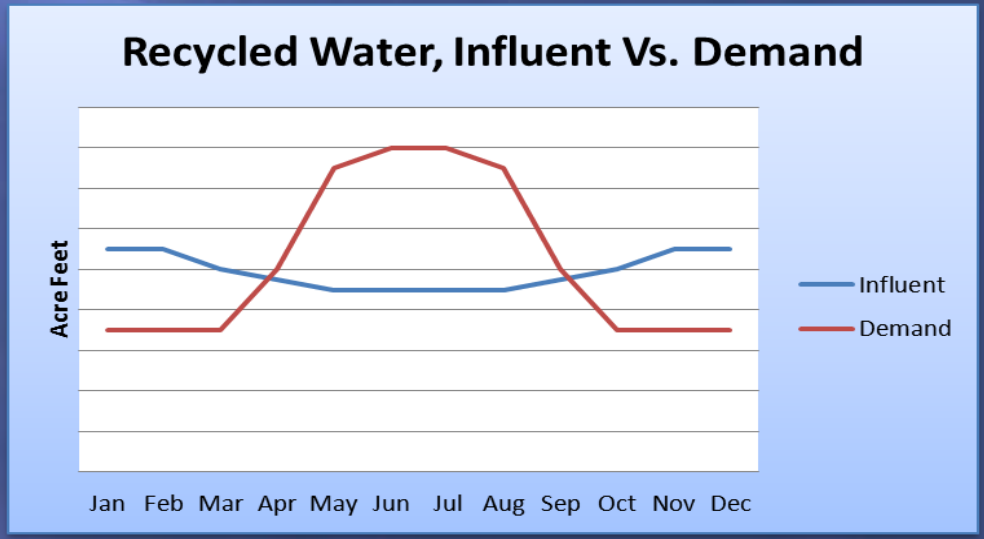
Keeping it going

- Monthly Meeting between Trades and Support, Operations, Engineering and Service (TOES)
  - Updates on user issues, maintenance items, and new construction
- Golf Course Committee
  - Singular purpose of ensuring that all water sources are efficiently used on golf courses
  - Operations, Engineering, and Service Depts.

Appendix 3-1: Non-Potable Water Use Expansion Program Supporting Documents

Acre Feet Recycled Water			
	WRP10	WRP9	WRP7
2000	4,766.0	232.4	1,946.9
2001	4,726.1	229.9	1,809.7
2002	4,373.0	282.7	1,842.6
2003	3,800.4	232.7	1,846.8
2004	4,684.7	262.7	1,855.9
2005	4,760.8	181.6	1,758.8
2006	5,665.4	278.4	2,129.0
2007	6,479.4	220.7	1,926.2
2008	6,172.5	235.3	1,898.9
2009	5,215.6	188.5	2,160.8
2010	6,789.0	129.6	2,050.6
2011	7,454.3	188.8	1,979.4
2012	5,767.2	189.8	1,794.8

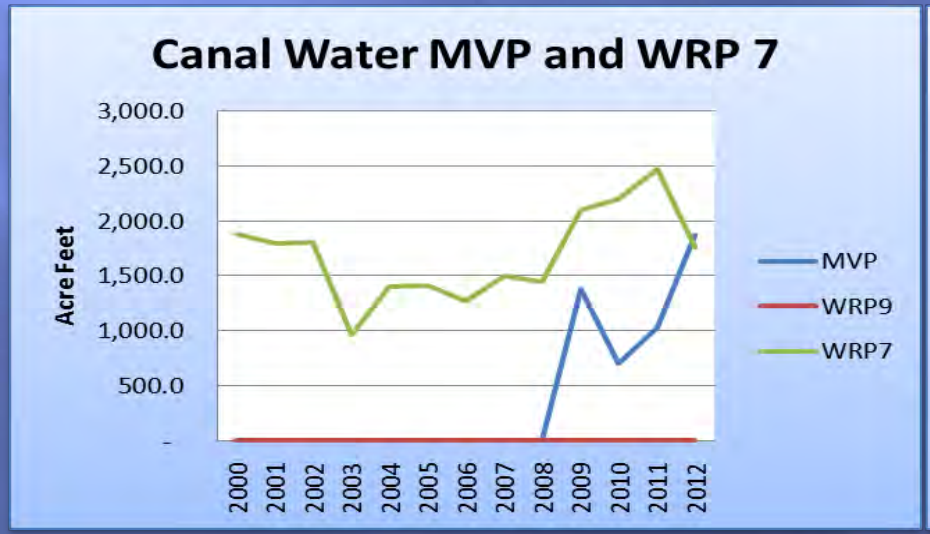


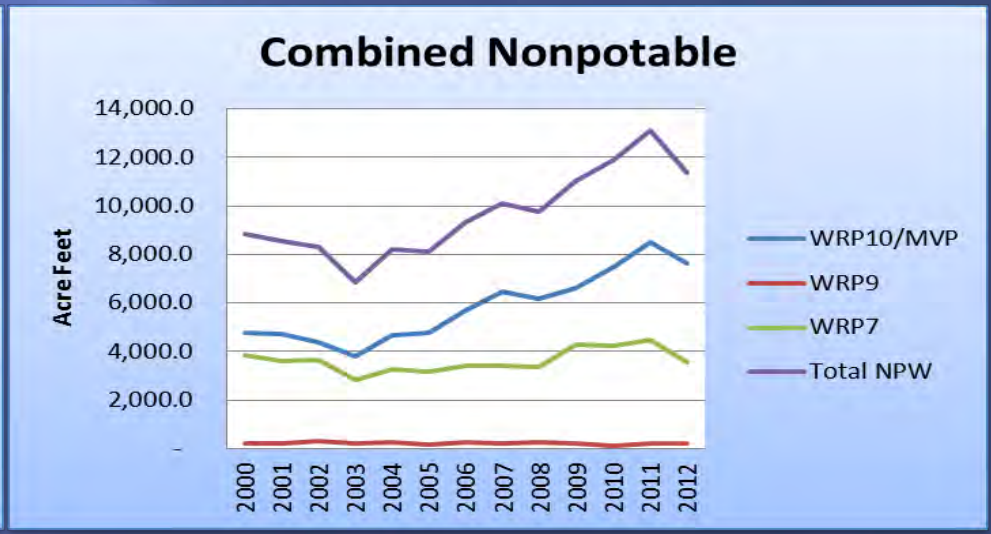


Appendix 3-1: Non-Potable Water Use Expansion Program Supporting Documents

	Acre Feet Canal Water		
	MVP	WRP9	WRP7
2000	-	-	1,886.7
2001	-	-	1,799.5
2002	-	-	1,801.1
2003	-	-	964.4
2004	-	-	1,405.7
2005	-	-	1,408.0
2006	-	-	1,269.9
2007	-	-	1,500.6
2008	-	-	1,443.5
2009	1,381.0	-	2,101.5
2010	706.2	-	2,199.5
2011	1,028.6	-	2,474.9
2012	1,866.8	-	1,765.6

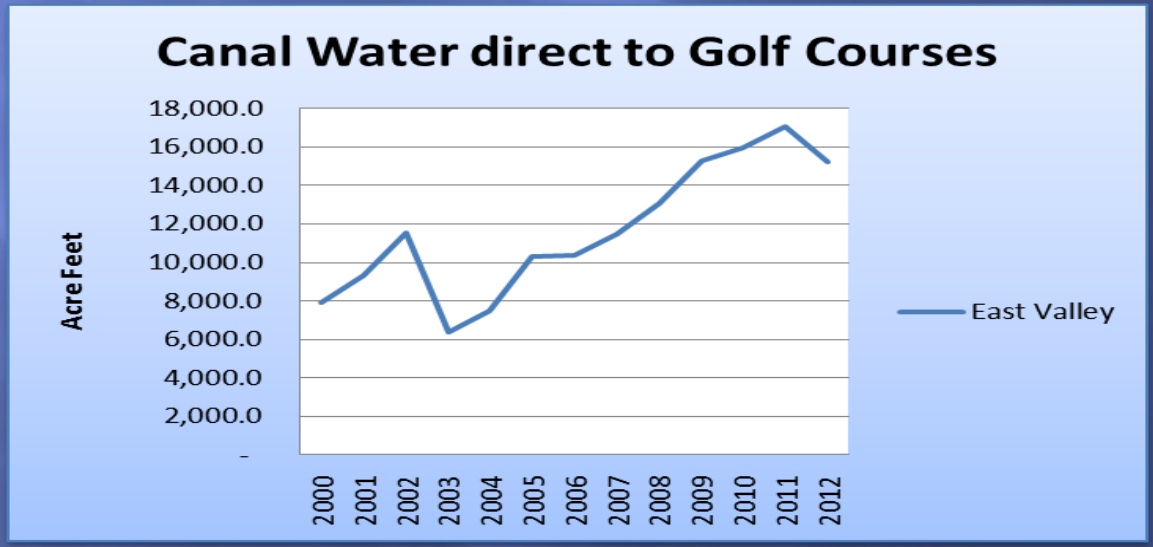
	Acre Feet Nonpotable Water			
	WRP10/MVP	WRP9	WRP7	Total NPW
2000	4,766.0	232.4	3,833.6	8,832.0
2001	4,726.1	229.9	3,609.2	8,565.2
2002	4,373.0	282.7	3,643.7	8,299.4
2003	3,800.4	232.7	2,811.2	6,844.3
2004	4,684.7	262.7	3,261.6	8,209.0
2005	4,760.8	181.6	3,166.8	8,109.2
2006	5,665.4	278.4	3,398.9	9,342.7
2007	6,479.4	220.7	3,426.8	10,126.9
2008	6,172.5	235.3	3,342.4	9,750.2
2009	6,596.6	188.5	4,262.3	11,047.4
2010	7,495.2	129.6	4,250.1	11,874.9
2011	8,482.9	188.8	4,454.3	13,126.0
2012	7,634.0	189.8	3,560.4	11,384.2





Appendix 3-1: Non-Potable Water Use Expansion Program Supporting Documents

	Canal Water
	East Valley
2000	7,884.1
2001	9,335.6
2002	11,540.6
2003	6,385.1
2004	7,511.3
2005	10,290.3
2006	10,395.7
2007	11,469.7
2008	13,041.0
2009	15,282.9
2010	15,927.8
2011	17,076.7
2012	15,215.0



Water Code

- California Water Code Section 32600 – 32603 says that if the Board determines…
  - Adequate quality
  - Less than or equal to cost of alternate water supply
  - Not detrimental to public health
  - Complies with any State water quality control plan
  - Will not adversely affect water rights, water quality, plants, fish or wildlife

  …then golf courses (and others) are required to use nonpotable water.

When we talk Rates

- California Water Code Section 32600 – 32603 says that if the Board determines…
  - Adequate quality
  - **Less than or equal to cost of alternate water supply**
  - Not detrimental to public health
  - Complies with any State water quality control plan
  - Will not adversely affect water rights, water quality, plants, fish or wildlife

  …then golf courses (and others) are required to use nonpotable water.

Rates, per Acre Foot

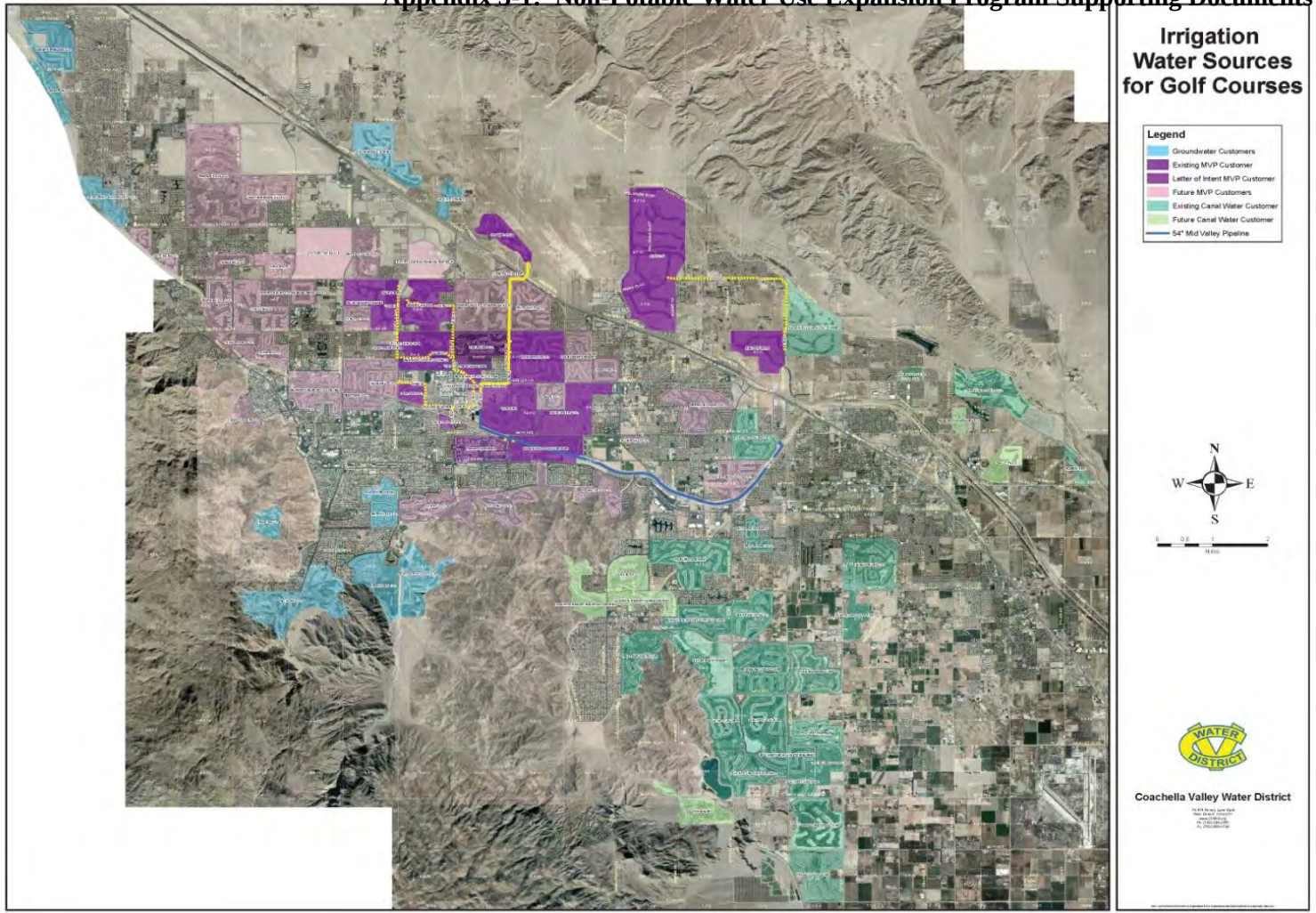
- Mid Valley
  - NPWC = .85(RAC + PC)
  - Average is $139, high is $154.62, low is $127.92
- WRP 9
  - NPWC = .70(RAC + PC), $112.34
- WRP 7 (ID #1)
  - Canal Rate, Class 2, plus Quagga and Pumping
  - $42.15 + $5.00 + $6.00 = $53.15
- East Valley Golf
  - Canal Rate, Class 2, plus Quagga and pumping charge if applicable

Connecting New Users

- Currently targeting golf courses adjacent to existing distribution system
- Meet with the course and obtain a letter of intent
- Complete preliminary design
- Agree on cost sharing and all other aspects of connection – signed agreement
- Complete final design and construct

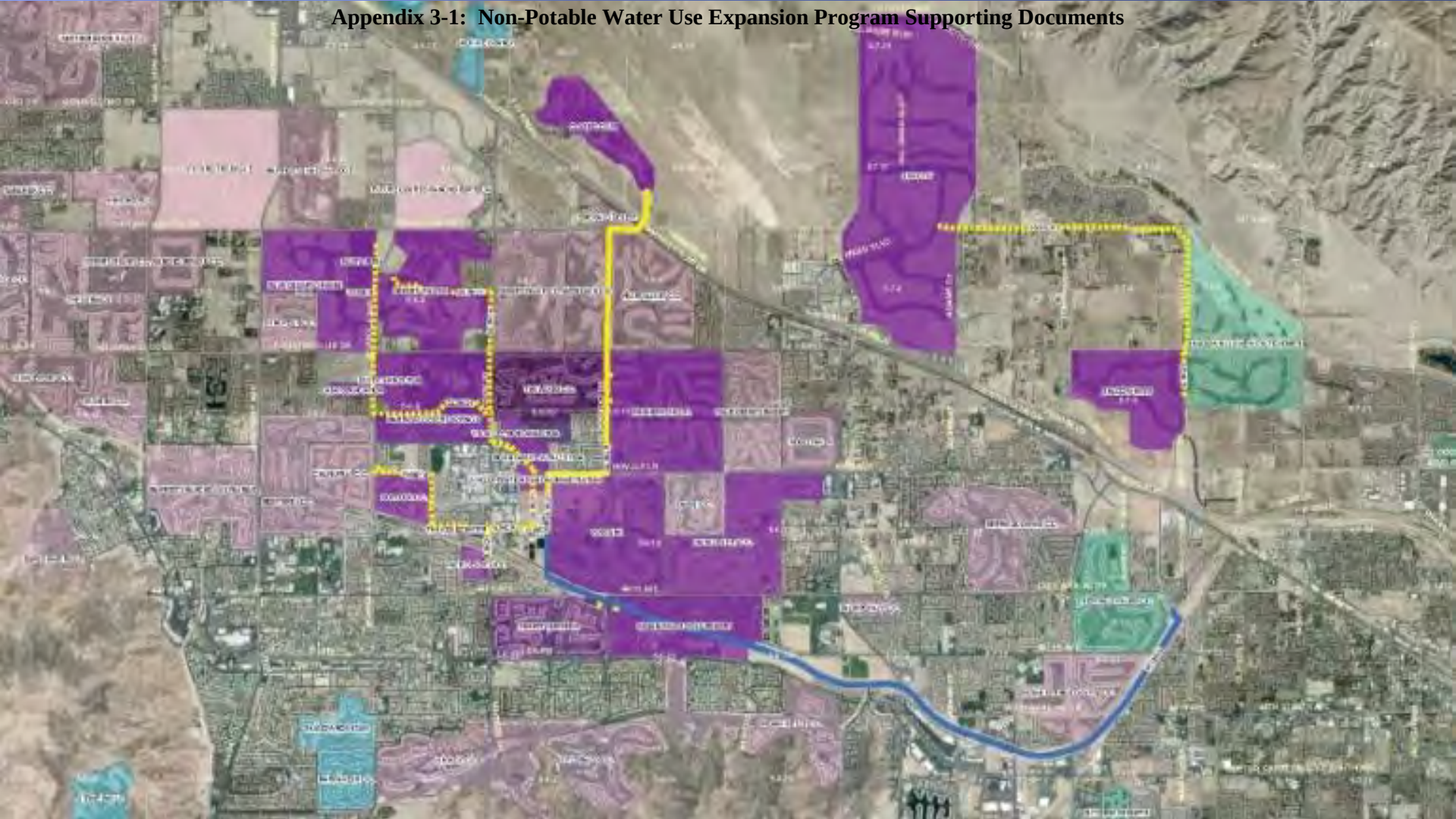
Milestones 2012

- Indian Wells Golf Resort began taking Canal Water through the Mid Valley Pipeline in August – expect 2,000 AF annual use.
- Connected the landscaped areas at CVWD's Palm Desert Buildings
- Classic Club nearing final agreement
- Desert Horizons signed Letter of Intent, Preliminary Design nearing completion
- Lakes Country Club Signed a Letter of Intent
- Hydraulic Model of WRP 10 distribution system updated
- Meeting with Shadow Ridge and Chaparral re: LOI



14 Served
2 LOI
37 Targeted
29 Served
6 Targeted
13 Groundwater

Appendix 3-1: Non-Potable Water Use Expansion Program Supporting Documents



Coachella Valley Water District





2010 Urban Water Management Plan

Final Report

July 2011

Appendix 3-1: Non-Potable Water Use Expansion Program Supporting Documents

Section 3
System Demands

3.3.2 Other Uses and System Losses

3.3.2.1 Wholesale Water Demand Projections

CVWD does not rely on a wholesale agency for its urban water supply. The agency currently draws 100 percent of its supply from local groundwater, portion of which is replenished as described in Section 3.3.2.2. In the future, CVWD will augment this groundwater supply with Colorado River water as described in Section 4. UWMP Guidebook **Table 12** is not applicable.

CVWD does not currently sell water to other agencies. There is a possibility the agency may sell water to other Coachella Valley water agencies in the future, but this demand has not been quantified yet. Hence, UWMP Guidebook **Table 9** is not provided.

3.3.2.2 Groundwater Recharge

CVWD and DWA operate groundwater recharge programs in the upper Whitewater River and Mission Creek subbasins. CVWD is also conducting pilot recharge tests in the lower Whitewater River subbasin at the Martinez Canyon Pilot Recharge Facility. As part of the CVWMP, CVWD intends to significantly expand its groundwater recharge program in the Whitewater River subbasin.

CVWD recently completed construction the Thomas E. Levy (Levy) Groundwater Replenishment Facility in the lower Whitewater River Subbasin with a capacity to 40,000 AFY. Due to water delivery limitations at this facility, CVWD is currently recharging approximately 32,500 AFY at this facility.

Groundwater is also being directly recharged on the Martinez Canyon alluvial fan. CVWD completed construction of a pilot recharge facility and several monitoring wells in this area in March 2005. This facility is designed to recharge approximately 3,000 AFY. According to the 2010 CVWMP, CVWD plans to construct a full-scale facility at Martinez Canyon to recharge 20,000 AFY by 2025. Additionally, CVWD and the City of Indio plan are considering construction of a facility to recharge about 10,000 AFY in the City of Indio to directly benefit groundwater levels in the city.

Groundwater recharge in the Mission Creek subbasin commenced in 2004 using SWP Exchange water. This program is jointly administered by CVWD and DWA with facilities constructed and operated by DWA.

Table 3-16 presents the current estimated groundwater recharge demand for the period 2005-2035.

3.3.2.3 Non-Potable Water Demand Projections

CVWD delivers Coachella Canal water and recycled water for non-potable irrigation uses. The Canal water distribution system is not a part of the domestic system, but is discussed in this section for completeness.

The primary use of Canal water is for agricultural irrigation. However, Canal water is also used for golf course and other landscape irrigation as well as groundwater recharge in the East Valley. Recycled water is used for golf course and common area irrigation in the West Valley.

Table 3-16
Projected Groundwater Recharge Demand

Year [1]	Recharge Facility (AFY)					
	Whitewater Spreading Facility [2]	Levy Spreading Facility	Martinez Canyon Spreading Facility	Indio [2]	Mission Creek Spreading Facility [3]	Total
2005	165,600	4,000	800	0	24,700	195,100
2010	87,400	32,500	4,000	0	8,200	132,100
2015	72,300	40,000	4,000	5,000	9,900	131,200
2020	88,800	40,000	4,000	5,000	10,700	148,500
2025	78,000	40,000	20,000	10,000	10,700	158,700
2030	78,700	40,000	20,000	10,000	10,700	159,400
2035	82,000	40,000	20,000	10,000	11,100	163,100

Source: CVWD, 2010 CVWMP Update
Notes:
1- Values shown for 2010 are based on anticipated operations. Actual values may be higher based on imported water availability. Values for 2015 through 2035 represent average annual values based on anticipated water availability.
2- Values are estimated. Site of the recharge facility in Indio is still under investigation.
3- Water recharged at Whitewater and Mission Creek facilities is the joint responsibilities of CVWD and DWA. Amounts will vary based on hydrologic conditions and groundwater pumping.

Local groundwater is produced for agricultural, golf course and other irrigation by many private pumpers. In the West Valley, groundwater production and usage is metered and reported to CVWD to determine groundwater replenishment assessments for each producer who pumps more than 25 AF annually. In the East Valley, CVWD implemented a groundwater replenishment assessment in January 2005. Because many wells in the East Valley are not yet metered, there is incomplete information on current non-potable water demand for groundwater. Groundwater pumping for non-potable use within the CVWD service area was estimated to be about 142,000 acre-ft in 2010 (CVWMP 2010 Update). In the absence of the CVWMP, this pumping is projected to increase to about 196,000 AFY in 2035.

Implementation of the CVWMP includes the conversion of a portion of the non-potable groundwater pumping to Canal water or recycled water to reduce groundwater overdraft. The CVWMP estimated the future demand for agricultural and other non-potable water use through the year 2035 that would be served by CVWD. Those demand estimates are presented in **Table 3-17**.

As described in the CVWMP, future urban growth in the East Valley is expected to occur equally (50 percent each) on agricultural and vacant parcels, thereby decreasing future agricultural and overall non-potable water demands. However, future golf course and municipal non-potable water demands will increase. It is not expected that the full Canal water allocation under the Quantification Settlement Agreement (see Section 4 for details) will be utilized in the future due to decreasing overall non-potable water demand and lack of infrastructure to deliver Canal water to potable water customers. In addition, CVWD's Canl water allocation will gradually increase in the future as described in Section 4.

3.3.2.4 System Losses

CVWD has very little system water loss in its domestic system. The average percentage water loss of total water production over the last five years is 3.2 percent. It is assumed that future system water loss will be equal to this percentage. **Table 3-18** provides future projections of system water loss based on

Appendix 3-2: Supporting Documents for *Coachella Valley Salt and Nutrient Management Program*

Recycled Water Policy

1. *Preamble*

California is facing an unprecedented water crisis.

The collapse of the Bay-Delta ecosystem, climate change, and continuing population growth have combined with a severe drought on the Colorado River and failing levees in the Delta to create a new reality that challenges California's ability to provide the clean water needed for a healthy environment, a healthy population and a healthy economy, both now and in the future.

These challenges also present an unparalleled opportunity for California to move aggressively towards a sustainable water future. The State Water Resources Control Board (State Water Board) declares that we will achieve our mission to "preserve, enhance and restore the quality of California's water resources to the benefit of present and future generations." To achieve that mission, we support and encourage every region in California to develop a salt/nutrient management plan by 2014 that is sustainable on a long-term basis and that provides California with clean, abundant water. These plans shall be consistent with the Department of Water Resources' Bulletin 160, as appropriate, and shall be locally developed, locally controlled and recognize the variability of California's water supplies and the diversity of its waterways. We strongly encourage local and regional water agencies to move toward clean, abundant, local water for California by emphasizing appropriate water recycling, water conservation, and maintenance of supply infrastructure and the use of stormwater (including dry-weather urban runoff) in these plans; these sources of supply are drought-proof, reliable, and minimize our carbon footprint and can be sustained over the long-term.

We declare our independence from relying on the vagaries of annual precipitation and move towards sustainable management of surface waters and groundwater, together with enhanced water conservation, water reuse and the use of stormwater. To this end, we adopt the following goals for California:

- Increase the use of recycled water over 2002 levels by at least one million acre-feet per year (afy) by 2020 and by at least two million afy by 2030.
- Increase the use of stormwater over use in 2007 by at least 500,000 afy by 2020 and by at least one million afy by 2030.
- Increase the amount of water conserved in urban and industrial uses by comparison to 2007 by at least 20 percent by 2020.
- Included in these goals is the substitution of as much recycled water for potable water as possible by 2030.

The purpose of this Policy is to increase the use of recycled water from municipal wastewater sources that meets the definition in Water Code section 13050(n), in a manner that implements state and federal water quality laws. The State Water Board expects to

develop additional policies to encourage the use of stormwater, encourage water conservation, encourage the conjunctive use of surface and groundwater, and improve the use of local water supplies.

When used in compliance with this Policy, Title 22 and all applicable state and federal water quality laws, the State Water Board finds that recycled water is safe for approved uses, and strongly supports recycled water as a safe alternative to potable water for such approved uses.

2. *Purpose of the Policy*

a. The purpose of this Policy is to provide direction to the Regional Water Quality Control Boards (Regional Water Boards), proponents of recycled water projects, and the public regarding the appropriate criteria to be used by the State Water Board and the Regional Water Boards in issuing permits for recycled water projects.

b. It is the intent of the State Water Board that all elements of this Policy are to be interpreted in a manner that fully implements state and federal water quality laws and regulations in order to enhance the environment and put the waters of the state to the fullest use of which they are capable.

c. This Policy describes permitting criteria that are intended to streamline the permitting of the vast majority of recycled water projects. The intent of this streamlined permit process is to expedite the implementation of recycled water projects in a manner that implements state and federal water quality laws while allowing the Regional Water Boards to focus their limited resources on projects that require substantial regulatory review due to unique site-specific conditions.

d. By prescribing permitting criteria that apply to the vast majority of recycled water projects, it is the State Water Board's intent to maximize consistency in the permitting of recycled water projects in California while also reserving to the Regional Water Boards sufficient authority and flexibility to address site-specific conditions.

e. The State Water Board will establish additional policies that are intended to assist the State of California in meeting the goals established in the preamble to this Policy for water conservation and the use of stormwater.

f. For purposes of this Policy, the term "permit" means an order adopted by a Regional Water Board or the State Water Board prescribing requirements for a recycled water project, including but not limited to water recycling requirements, master reclamation permits, and waste discharge requirements.

3. *Benefits of Recycled Water*

The State Water Board finds that the use of recycled water in accordance with this Policy, that is, which supports the sustainable use of groundwater and/or surface water, which is

sufficiently treated so as not to adversely impact public health or the environment and which ideally substitutes for use of potable water, is presumed to have a beneficial impact. Other public agencies are encouraged to use this presumption in evaluating the impacts of recycled water projects on the environment as required by the California Environmental Quality Act (CEQA).

4. *Mandate for the Use of Recycled Water*

a. The State Water Board and Regional Water Boards will exercise the authority granted to them by the Legislature to the fullest extent possible to encourage the use of recycled water, consistent with state and federal water quality laws.

(1) The State Water Board hereby establishes a mandate to increase the use of recycled water in California by 200,000 afy by 2020 and by an additional 300,000 afy by 2030. These mandates shall be achieved through the cooperation and collaboration of the State Water Board, the Regional Water Boards, the environmental community, water purveyors and the operators of publicly owned treatment works. The State Water Board will evaluate progress toward these mandates biennially and review and revise as necessary the implementation provisions of this Policy in 2012 and 2016.

(2) Agencies producing recycled water that is available for reuse and not being put to beneficial use shall make that recycled water available to water purveyors for reuse on reasonable terms and conditions. Such terms and conditions may include payment by the water purveyor of a fair and reasonable share of the cost of the recycled water supply and facilities.

(3) The State Water Board hereby declares that, pursuant to Water Code sections 13550 *et seq*., it is a waste and unreasonable use of water for water agencies not to use recycled water when recycled water of adequate quality is available and is not being put to beneficial use, subject to the conditions established in sections 13550 *et seq*. The State Water Board shall exercise its authority pursuant to Water Code section 275 to the fullest extent possible to enforce the mandates of this subparagraph.

b. These mandates are contingent on the availability of sufficient capital funding for the construction of recycled water projects from private, local, state, and federal sources and assume that the Regional Water Boards will effectively implement regulatory streamlining in accordance with this Policy.

c. The water industry and the environmental community have agreed jointly to advocate for $1 billion in state and federal funds over the next five years to fund projects needed to meet the goals and mandates for the use of recycled water established in this Policy.

d. The State Water Board requests the California Department of Public Health (CDPH), the California Public Utilities Commission (CPUC), and the California Department of Water Resources (CDWR) to use their respective authorities to the fullest extent practicable to assist the State Water Board and the Regional Water Boards in increasing the use of recycled water in California.

5. *Roles of the State Water Board, Regional Water Boards, CDPH and CDWR*

The State Water Board recognizes that it shares jurisdiction over the use of recycled water with the Regional Water Boards and with CDPH. In addition, the State Water Board recognizes that CDWR and the CPUC have important roles to play in encouraging the use of recycled water. The State Water Board believes that it is important to clarify the respective roles of each of these agencies in connection with recycled water projects, as follows:

a. The State Water Board establishes general policies governing the permitting of recycled water projects consistent with its role of protecting water quality and sustaining water supplies. The State Water Board exercises general oversight over recycled water projects, including review of Regional Water Board permitting practices, and shall lead the effort to meet the recycled water use goals set forth in the Preamble to this Policy. The State Water Board is also charged by statute with developing a general permit for irrigation uses of recycled water.

b. The CDPH is charged with protection of public health and drinking water supplies and with the development of uniform water recycling criteria appropriate to particular uses of water. Regional Water Boards shall appropriately rely on the expertise of CDPH for the establishment of permit conditions needed to protect human health.

c. The Regional Water Boards are charged with protection of surface and groundwater resources and with the issuance of permits that implement CDPH recommendations, this Policy, and applicable law and will, pursuant to paragraph 4 of this Policy, use their authority to the fullest extent possible to encourage the use of recycled water.

d. CDWR is charged with reviewing and, every five years, updating the California Water Plan, including evaluating the quantity of recycled water presently being used and planning for the potential for future uses of recycled water. In undertaking these tasks, CDWR may appropriately rely on urban water management plans and may share the data from those plans with the State Water Board and the Regional Water Boards. CDWR also shares with the State Water Board the authority to allocate and distribute bond funding, which can provide incentives for the use of recycled water.

e. The CPUC is charged with approving rates and terms of service for the use of recycled water by investor-owned utilities.

6. *Salt/Nutrient Management Plans*

a. *Introduction.*

(1) Some groundwater basins in the state contain salts and nutrients that exceed or threaten to exceed water quality objectives established in the applicable Water Quality Control Plans (Basin Plans), and not all Basin Plans include adequate implementation procedures for achieving or ensuring compliance with the water quality objectives for salt or nutrients. These conditions can be caused by natural soils/conditions, discharges of waste, irrigation using surface water, groundwater or recycled water and water supply augmentation using surface or recycled water. Regulation of recycled water alone will not address these conditions.

(2) It is the intent of this Policy that salts and nutrients from all sources be managed on a basin-wide or watershed-wide basis in a manner that ensures attainment of water quality objectives and protection of beneficial uses. The State Water Board finds that the appropriate way to address salt and nutrient issues is through the development of regional or subregional salt and nutrient management plans rather than through imposing requirements solely on individual recycled water projects.

b. *Adoption of Salt/ Nutrient Management Plans.*

(1) The State Water Board recognizes that, pursuant to the letter dated December 19, 2008 and attached to the Resolution adopting this Policy, the local water and wastewater entities, together with local salt/nutrient contributing stakeholders, will fund locally driven and controlled, collaborative processes open to all stakeholders that will prepare salt and nutrient management plans for each basin/sub-basin in California, including compliance with CEQA and participation by Regional Water Board staff.

(a) It is the intent of this Policy for every groundwater basin/sub-basin in California to have a consistent salt/nutrient management plan. The degree of specificity within these plans and the length of these plans will be dependent on a variety of site-specific factors, including but not limited to size and complexity of a basin, source water quality, stormwater recharge, hydrogeology, and aquifer water quality. It is also the intent of the State Water Board that because stormwater is typically lower in nutrients and salts and can augment local water supplies, inclusion of a significant stormwater use and recharge component within the salt/nutrient management plans is critical to the long-term sustainable use of water in California. Inclusion of stormwater recharge is consistent with State Water Board Resolution No. 2005-06, which establishes sustainability as a core value for State Water Board programs and

also assists in implementing Resolution No. 2008-30, which requires sustainable water resources management and is consistent with Objective 3.2 of the State Water Board Strategic Plan Update dated September 2, 2008.

(b) Salt and nutrient plans shall be tailored to address the water quality concerns in each basin/sub-basin and may include constituents other than salt and nutrients that impact water quality in the basin/sub-basin. Such plans shall address and implement provisions, as appropriate, for all sources of salt and/or nutrients to groundwater basins, including recycled water irrigation projects and groundwater recharge reuse projects.

(c) Such plans may be developed or funded pursuant to the provisions of Water Code sections 10750 *et seq.* or other appropriate authority.

(d) Salt and nutrient plans shall be completed and proposed to the Regional Water Board within five years from the date of this Policy unless a Regional Water Board finds that the stakeholders are making substantial progress towards completion of a plan. In no case shall the period for the completion of a plan exceed seven years.

(e) The requirements of this paragraph shall not apply to areas that have already completed a Regional Water Board approved salt and nutrient plan for a basin, sub-basin, or other regional planning area that is functionally equivalent to paragraph 6(b)3.

(f) The plans may, depending upon the local situation, address constituents other than salt and nutrients that adversely affect groundwater quality.

(2) Within one year of the receipt of a proposed salt and nutrient management plan, the Regional Water Boards shall consider for adoption revised implementation plans, consistent with Water Code section 13242, for those groundwater basins within their regions where water quality objectives for salts or nutrients are being, or are threatening to be, exceeded. The implementation plans shall be based on the salt and nutrient plans required by this Policy.

(3) Each salt and nutrient management plan shall include the following components:

(a) A basin/sub-basin wide monitoring plan that includes an appropriate network of monitoring locations. The scale of the basin/sub-basin monitoring plan is dependent upon the site-specific conditions and shall be adequate to provide a reasonable,

cost-effective means of determining whether the concentrations of salt, nutrients, and other constituents of concern as identified in the salt and nutrient plans are consistent with applicable water quality objectives. Salts, nutrients, and the constituents identified in paragraph 6(b)(1)(f) shall be monitored. The frequency of monitoring shall be determined in the salt/nutrient management plan and approved by the Regional Water Board pursuant to paragraph 6(b)(2).

(i) The monitoring plan must be designed to determine water quality in the basin. The plan must focus on basin water quality near water supply wells and areas proximate to large water recycling projects, particularly groundwater recharge projects. Also, monitoring locations shall, where appropriate, target groundwater and surface waters where groundwater has connectivity with adjacent surface waters.

(ii) The preferred approach to monitoring plan development is to collect samples from existing wells if feasible as long as the existing wells are located appropriately to determine water quality throughout the most critical areas of the basin.

(iii) The monitoring plan shall identify those stakeholders responsible for conducting, compiling, and reporting the monitoring data. The data shall be reported to the Regional Water Board at least every three years.

(b) A provision for annual monitoring of Emerging Constituents/ Constituents of Emerging Concern (e.g., endocrine disrupters, personal care products or pharmaceuticals) (CECs) consistent with recommendations by CDPH and consistent with any actions by the State Water Board taken pursuant to paragraph 10(b) of this Policy.

(c) Water recycling and stormwater recharge/use goals and objectives.

(d) Salt and nutrient source identification, basin/sub-basin assimilative capacity and loading estimates, together with fate and transport of salts and nutrients.

(e) Implementation measures to manage salt and nutrient loading in the basin on a sustainable basis.

(f) An antidegradation analysis demonstrating that the projects included within the plan will, collectively, satisfy the requirements of Resolution No. 68-16.

(4) Nothing in this Policy shall prevent stakeholders from developing a plan that is more protective of water quality than applicable standards in the Basin Plan. No Regional Water Board, however, shall seek to modify Basin Plan objectives without full compliance with the process for such modification as established by existing law.

7. *Landscape Irrigation Projects*

a. *Control of incidental runoff.* Incidental runoff is defined as unintended small amounts (volume) of runoff from recycled water use areas, such as unintended, minimal over-spray from sprinklers that escapes the recycled water use area. Water leaving a recycled water use area is not considered incidental if it is part of the facility design, if it is due to excessive application, if it is due to intentional overflow or application, or if it is due to negligence. Incidental runoff may be regulated by waste discharge requirements or, where necessary, waste discharge requirements that serve as a National Pollutant Discharge Elimination System (NPDES) permit, including municipal separate storm water system permits, but regardless of the regulatory instrument, the project shall include, but is not limited to, the following practices:

(1) Implementation of an operations and management plan that may apply to multiple sites and provides for detection of leaks, (for example, from broken sprinkler heads), and correction either within 72 hours of learning of the runoff, or prior to the release of 1,000 gallons, whichever occurs first,

(2) Proper design and aim of sprinkler heads,

(3) Refraining from application during precipitation events, and

(4) Management of any ponds containing recycled water such that no discharge occurs unless the discharge is a result of a 25-year, 24-hour storm event or greater, and there is notification of the appropriate Regional Water Board Executive Officer of the discharge.

b. *Streamlined Permitting*

(1) The Regional Water Boards shall, absent unusual circumstances (i.e., unique, site-specific conditions such as where recycled water is proposed to be used for irrigation over high transmissivity soils over a shallow (5' or less) high quality groundwater aquifer), permit recycled water projects that meet the criteria set forth in this Policy, consistent with the provisions of this paragraph.

(2) If the Regional Water Board determines that unusual circumstances apply, the Regional Water Board shall make a finding of unusual circumstances based on substantial evidence in the record, after public notice and hearing.

(3) Projects meeting the criteria set forth below and eligible for enrollment under requirements established in a general order shall be enrolled by the State or Regional Water Board within 60 days from the date on which an application is deemed complete by the State or Regional Water Board. For projects that are not enrolled in a general order, the Regional Water Board shall consider permit adoption within 120 days from the date on which the application is deemed complete by the Regional Water Board.

(4) Landscape irrigation projects that qualify for streamlined permitting shall not be required to include a project specific receiving water and groundwater monitoring component unless such project specific monitoring is required under the adopted salt/nutrient management plan. During the interim while the salt management plan is under development, a landscape irrigation project proponent can either perform project specific monitoring, or actively participate in the development and implementation of a salt/nutrient management plan, including basin/sub-basin monitoring. Permits or requirements for landscape irrigation projects shall include, in addition to any other appropriate recycled water monitoring requirements, recycled water monitoring for CECs on an annual basis and priority pollutants on a twice annual basis. Except as requested by CDPH, State and Regional Water Board monitoring requirements for CECs shall not take effect until 18 months after the effective date of this Policy. In addition, any permits shall include a permit reopener to allow incorporation of appropriate monitoring requirements for CECs after State Water Board action under paragraph 10(b)(2).

(5) It is the intent of the State Water Board that the general permit for landscape irrigation projects be consistent with the terms of this Policy.

c. *Criteria for streamlined permitting.* Irrigation projects using recycled water that meet the following criteria are eligible for streamlined permitting, and, if otherwise in compliance with applicable laws, shall be approved absent unusual circumstances:

(1) Compliance with the requirements for recycled water established in Title 22 of the California Code of Regulations, including the requirements for treatment and use area restrictions, together with any other recommendations by CDPH pursuant to Water Code section 13523.

(2) Application in amounts and at rates as needed for the landscape (i.e., at agronomic rates and not when the soil is saturated). Each irrigation project shall be subject to an operations and management plan, that may apply to multiple sites, provided to the Regional Water Board that specifies the agronomic rate(s) and describes a set of reasonably practicable measures to ensure compliance with this requirement, which may include the development of water budgets for use areas, site

supervisor training, periodic inspections, tiered rate structures, the use of smart controllers, or other appropriate measures.

(3) Compliance with any applicable salt and nutrient management plan.

(4) Appropriate use of fertilizers that takes into account the nutrient levels in the recycled water. Recycled water producers shall monitor and communicate to the users the nutrient levels in their recycled water.

8. *Recycled Water Groundwater Recharge Projects*

a. The State Water Board acknowledges that all recycled water groundwater recharge projects must be reviewed and permitted on a site-specific basis, and so such projects will require project-by-project review.

b. Approved groundwater recharge projects will meet the following criteria:

(1) Compliance with regulations adopted by CDPH for groundwater recharge projects or, in the interim until such regulations are approved, CDPH's recommendations pursuant to Water Code section 13523 for the project (e.g., level of treatment, retention time, setback distance, source control, monitoring program, etc.).

(2) Implementation of a monitoring program for constituents of concern and a monitoring program for CECs that is consistent with any actions by the State Water Board taken pursuant to paragraph 10(b) of this Policy and that takes into account site-specific conditions. Groundwater recharge projects shall include monitoring of recycled water for CECs on an annual basis and priority pollutants on a twice annual basis.

c. Nothing in this paragraph shall be construed to limit the authority of a Regional Water Board to protect designated beneficial uses, *provided* that any proposed limitations for the protection of public health may only be imposed following regular consultation by the Regional Water Board with CDPH, consistent with State Water Board Orders WQ 2005-0007 and 2006-0001.

d. Nothing in this Policy shall be construed to prevent a Regional Water Board from imposing additional requirements for a proposed recharge project that has a substantial adverse effect on the fate and transport of a contaminant plume or changes the geochemistry of an aquifer thereby causing the dissolution of constituents, such as arsenic, from the geologic formation into groundwater.

e. Projects that utilize surface spreading to recharge groundwater with recycled water treated by reverse osmosis shall be permitted by a Regional Water Board within one year of receipt of recommendations from CDPH. Furthermore, the Regional Water Board shall give a high priority to review and approval of such projects.

9. *Antidegradation*

a. The State Water Board adopted Resolution No. 68-16 as a policy statement to implement the Legislature's intent that waters of the state shall be regulated to achieve the highest water quality consistent with the maximum benefit to the people of the state.

b. Activities involving the disposal of waste that could impact high quality waters are required to implement best practicable treatment or control of the discharge necessary to ensure that pollution or nuisance will not occur, and the highest water quality consistent with the maximum benefit to the people of the state will be maintained.

c. Groundwater recharge with recycled water for later extraction and use in accordance with this Policy and state and federal water quality law is to the benefit of the people of the state of California. Nonetheless, the State Water Board finds that groundwater recharge projects using recycled water have the potential to lower water quality within a basin. The proponent of a groundwater recharge project must demonstrate compliance with Resolution No. 68-16. Until such time as a salt/nutrient management plan is in effect, such compliance may be demonstrated as follows:

(1) A project that utilizes less than 10 percent of the available assimilative capacity in a basin/sub-basin (or multiple projects utilizing less than 20 percent of the available assimilative capacity in a basin/sub-basin) need only conduct an antidegradation analysis verifying the use of the assimilative capacity. For those basins/sub-basins where the Regional Water Boards have not determined the baseline assimilative capacity, the baseline assimilative capacity shall be calculated by the initial project proponent, with review and approval by the Regional Water Board, until such time as the salt/nutrient plan is approved by the Regional Water Board and is in effect. For compliance with this subparagraph, the available assimilative capacity shall be calculated by comparing the mineral water quality objective with the average concentration of the basin/sub-basin, either over the most recent five years of data available or using a data set approved by the Regional Water Board Executive Officer. In determining whether the available assimilative capacity will be exceeded by the project or projects, the Regional Water Board shall calculate the impacts of the project or projects over at least a ten year time frame.

(2) In the event a project or multiple projects utilize more than the fraction of the assimilative capacity designated in subparagraph (1), then a Regional Water Board-deemed acceptable antidegradation analysis shall be performed to comply with Resolution No. 68-16. The project proponent shall provide sufficient information for the Regional Water Board to make this determination. An example of an approved method is the method used by the State Water Board in connection with Resolution No. 2004-0060 and the Regional Water Board in connection with Resolution No. R8-2004-0001. An integrated approach (using surface water, groundwater, recycled water, stormwater, pollution prevention, water conservation, etc.) to the implementation of Resolution No. 68-16 is encouraged.

d. Landscape irrigation with recycled water in accordance with this Policy is to the benefit of the people of the State of California. Nonetheless, the State Water Board finds that the use of water for irrigation may, regardless of its source, collectively affect groundwater quality over time. The State Water Board intends to address these impacts in part through the development of salt/nutrient management plans described in paragraph 6.

(1) A project that meets the criteria for a streamlined irrigation permit and is within a basin where a salt/nutrient management plan satisfying the provisions of paragraph 6(b) is in place may be approved without further antidegradation analysis, provided that the project is consistent with that plan.

(2) A project that meets the criteria for a streamlined irrigation permit and is within a basin where a salt/nutrient management plan satisfying the provisions of paragraph 6(b) is being prepared may be approved by the Regional Water Board by demonstrating through a salt/nutrient mass balance or similar analysis that the project uses less than 10 percent of the available assimilative capacity as estimated by the project proponent in a basin/sub-basin (or multiple projects using less than 20 percent of the available assimilative capacity as estimated by the project proponent in a groundwater basin).

10. *Emerging Constituents/Chemicals of Emerging Concern*

a. *General Provisions*

(1) Regulatory requirements for recycled water shall be based on the best available peer-reviewed science. In addition, all uses of recycled water must meet conditions set by CDPH.

(2) Knowledge of risks will change over time and recycled water projects must meet legally applicable criteria. However, when standards change, projects should be allowed time to comply through a compliance schedule.

(3) The state of knowledge regarding CECs is incomplete. There needs to be additional research and development of analytical methods and surrogates to determine potential environmental and public health impacts. Agencies should minimize the likelihood of CECs impacting human health and the environment by means of source control and/or pollution prevention programs.

(4) Regulating most CECs will require significant work to develop test methods and more specific determinations as to how and at what level CECs impact public health or our environment.

b. *Research Program.* The State Water Board, in consultation with CDPH and within 90 days of the adoption of this Policy, shall convene a "blue-ribbon" advisory panel to guide future actions relating to constituents of emerging concern.

(1) The panel shall be actively managed by the State Water Board and shall be composed of at least the following: one human health toxicologist, one environmental toxicologist, one epidemiologist, one biochemist, one civil engineer familiar with the design and construction of recycled water treatment facilities, and one chemist familiar with the design and operation of advanced laboratory methods for the detection of emerging constituents. Each of these panelists shall have extensive experience as a principal investigator in their respective areas of expertise.

(2) The panel shall review the scientific literature and, within one year from its appointment, shall submit a report to the State Water Board and CDPH describing the current state of scientific knowledge regarding the risks of emerging constituents to public health and the environment. Within six months of receipt of the panel's report the State Water Board, in coordination with CDPH, shall hold a public hearing to consider recommendations from staff and shall endorse the recommendations, as appropriate, after making any necessary modifications. The panel or a similarly constituted panel shall update this report every five years.

(3) Each report shall recommend actions that the State of California should take to improve our understanding of emerging constituents and, as may be appropriate, to protect public health and the environment.

(4) The panel report shall answer the following questions: What are the appropriate constituents to be monitored in recycled water, including analytical methods and method detection limits? What is the known toxicological information for the above constituents? Would the above lists change based on level of treatment and use? If so, how? What are possible indicators that represent a suite of CECs? What levels of CECs should trigger enhanced monitoring of CECs in recycled water, groundwater and/or surface waters?

c. *Permit Provisions.* Permits for recycled water projects shall be consistent both with any CDPH recommendations to protect public health and with any actions by the State Water Board taken pursuant to paragraph 10(b)(2).

11. *Incentives for the Use of Recycled Water*

a. *Funding*

The State Water Board will request CDWR to provide funding ($20M) for the development of salt and nutrient management plans during the next three years (i.e., before FY 2010/2011). The State Water Board will also request CDWR to provide priority funding for projects that have major recycling components; particularly those that decrease demand on potable water supplies. The State Water Board will also request priority funding for stormwater recharge projects that augment local water supplies. The State Water Board shall promote the use of the State Revolving Fund (SRF) for water purveyor, stormwater agencies, and water recyclers to use for water reuse and stormwater use and recharge projects.

b. *Stormwater*

The State Water Board strongly encourages all water purveyors to provide financial incentives for water recycling and stormwater recharge and reuse projects. The State Water Board also encourages the Regional Water Boards to require less stringent monitoring and regulatory requirements for stormwater treatment and use projects than for projects involving untreated stormwater discharges.

c. TMDLs

Water recycling reduces mass loadings from municipal wastewater sources to impaired waters. As such, waste load allocations shall be assigned as appropriate by the Regional Water Boards in a manner that provides an incentive for greater water recycling.

PREPARED FOR
COACHELLA VALLEY WATER DISTRICT

Coachella Valley Water Management Plan Update

DRAFT REPORT



December 2010

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Appendix 3-2: Coachella Valley Salt and Nutrient Management Program Supporting Documents

COACHELLA VALLEY WATER MANAGEMENT PLAN 2010 UPDATE

Draft Report

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December, 2010

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to the SWP. The SWP extension would terminate at the Whitewater and Mission Creek spreading facilities. The preliminary construction cost estimate for the aqueduct is between $800 million and $1.5 billion. This project could significantly increase the cost of providing water to Coachella Valley customers, and it would provide water only for recharge in the West Valley, as there are no plans to convey SWP water to the East Valley recharge sites due to the distance, cost, and lack of supply.

Another alternative is the treatment of Colorado River water before recharge. One of the primary deterrents to this alternative is cost. According to preliminary estimates developed for CVWD, the cost of treating Canal water would range from $538 per AF (TDS = 500 mg/L) to $685 per AF (TDS = 250 mg/L). Costs for treating Metropolitan Colorado River aqueduct water (Whitewater) would range from $460 per AF (TDS = 500 mg/L) to $595 per AF (TDS = 250 mg/L). Urban water users in the Valley on an average consume approximately one AF of water annually per connection. Based on this figure, treatment of Colorado River water before recharge could increase the annual water bill for an average customer by up to $450. For major pumpers such as golf courses, the annual impact would be as much as a three to seven fold increase over their current costs.

In summary, the use of Colorado River water for recharge increases salinity in the Valley groundwater basin. The impact of the salinity increase has not been clearly identified. Potential alternatives being investigated to mitigate this condition have high costs. The scope and importance of this Valley-wide issue makes it an ideal candidate for discussion in a forum such as the Integrated Regional Water Management Plan (IRWMP).

5.1.2.2 Recycled Water Use Policy

Recycled municipal wastewater has historically been used for irrigation of golf courses, other municipal greenbelts and landscaped areas in the Coachella Valley. Based on file data from CVWD and DWA, recycled water usage in the West Valley is approximately 12,400 AFY (8,200 AFY CVWD usage, 4,200 AFY DWA usage). Recycled water usage in the East Valley is approximately 700 AFY and is mainly for agricultural irrigation, duck clubs and fish farms. As discussed in **Section 4.5**, the amount of municipal wastewater available for reuse is expected to increase 150 percent by 2045. This water represents a valuable resource that needs to be put to beneficial use to reduce groundwater overdraft.

The SWRCB adopted a Recycled Water Use Policy in February 2009 to regulate the quality and the quantity of recycled water used throughout the state. The goals of this policy are to:

- increase the use of recycled water by at least 1 million AFY over the 2002 levels by 2020 and by 2 million AFY by 2030,
- increase the use of stormwater by at least 500,000 AFY over 2007 levels by 2020 and by 1 million AFY by 2030,
- increase urban and industrial water conservation by 20 percent over the 2007 levels by 2020, and
- substitute potable water with recycled water to the maximum possible extent by 2030.

This policy provides guidelines for appropriate criteria to be used by regulating agencies (Regional and State Water Boards) for issuing permits for recycled water projects. The State will address the conservation and storm water use goals of this policy (listed above) under separate policies.

According to the policy, substitution of recycled water, which is sufficiently treated and which does not have any adverse health or environmental impacts, for potable water, groundwater, or surface water is considered to have beneficial effects.

- The SWRCB has also established a mandate to increase the beneficial use of recycled water within California by 200,000 AFY by 2020 and by an additional 300,000 AFY by 2030.
- Agencies producing recycled water and not putting it to beneficial use shall make this water available to other water purveyors for reuse on reasonable terms and conditions.
- Pursuant to the California Water Code Section 13550 *et seq*., the SWRCB considers it a waste and unreasonable use of water by water agencies if recycled water of adequate quality is available and not put to beneficial use.

These mandates are contingent upon sufficient funding available for the construction of recycled water projects. Development and use of additional recycled water within the Coachella Valley will contribute toward meeting these goals and mandates.

The policy defined the roles of the SWRCB, the Regional Boards, the California Department of Public Health (CDPH), DWR and California Public Utilities Commission (CPUC) in connection with recycled water projects. The policy also requires the preparation of salt/nutrient management plans as discussed below.

5.1.2.3 Salt/Nutrient Management Plans

Some groundwater basins in the state contain salts and nutrients that exceed or threaten to exceed the water quality objectives established by the applicable Basin Plan. At this time, not all Basin Plans incorporate measures for achieving compliance with the water quality objectives for salts and nutrients (SWRCB, Recycled Water Use Policy, February 2009). Over and above recycled water, there are a number of other sources adding salt/nutrients to groundwater such as waste discharge and irrigation using surface water. Consequently, the SWRCB recognized that regulation of recycled water alone will not address these conditions.

The SWRCB Recycled Water Use Policy described previously requires every region in the state to develop a salt/nutrient management plan by 2014. The salt/nutrient management plans are intended for management of all sources contributing salt/nutrients on a basin-wide or watershed-wide basis to ensure that water quality objectives are achieved. The content and length of the plans will vary based on factors such as size and complexity of the basin, source water quality, hydrogeology, stormwater recharge, aquifer water quality and other factors. As specified in the policy, the plans will include:

- Basin/subbasin-wide water quality monitoring plan with an appropriate network of monitoring locations
- Annual monitoring of emerging constituents (e.g., personal care products or pharmaceuticals, endocrine disruptors)
- Water recycling and stormwater recharge/use goals and objectives
- Salt and nutrient source identification, basin/subbasin assimilative capacity and loading estimates
- Transport of salts and nutrients
- Implementation measures to manage salt and nutrient loading in the basin on a sustainable basis
- Anti-degradation analysis

The local water and wastewater entities, together with local salt/nutrient contributing stakeholders, will fund locally driven and controlled salt/nutrient management plans. The plans are to be developed using collaborative processes open to all stakeholders and will include compliance with CEQA and participation by Regional Board staff. The plans are to address and implement provisions for all sources of salt and/or nutrients to groundwater basins, including recycled water irrigation projects and groundwater recharge reuse projects.

5.1.2.4 Anti-degradation vs. Maximum Benefit

SWRCB's Resolution No. 68-16, also referred to as the Anti-degradation Policy, is incorporated into all Basin Plans. The policy applies to high quality waters (surface water as well as groundwater) and requires that the high quality be maintained to the maximum extent possible. The policy allows for degradation if the change is consistent with maximum benefit to the people of the state, such a change does not adversely affect the beneficial uses, and does not result in water quality lower than the acceptable standards.

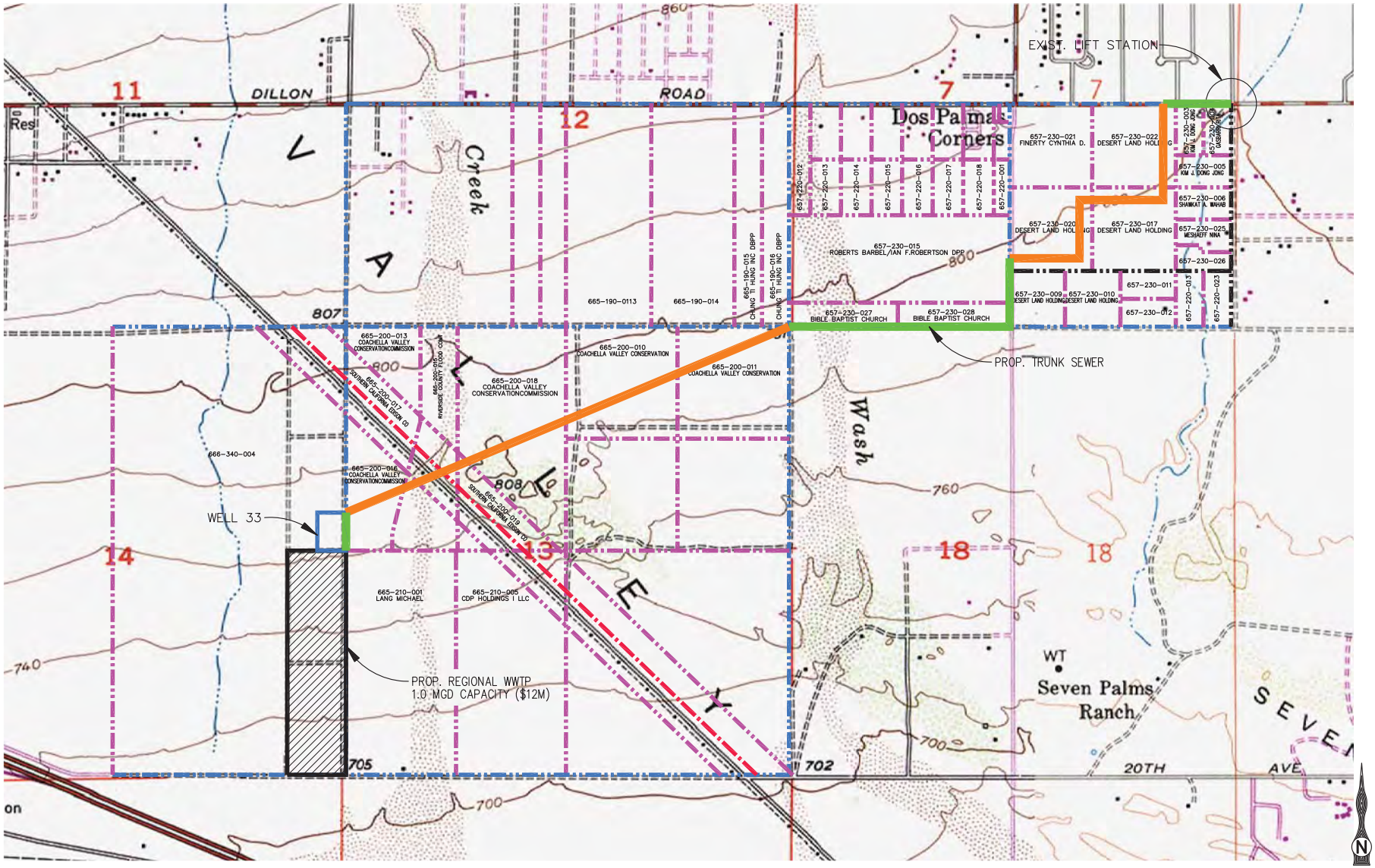
The policy also considers the use of recycled water for landscape irrigation in accordance with this policy as a beneficial use. Regardless of the source, irrigation activities over time result in degradation of groundwater quality. The SWRCB intends to address this impact by requiring development of salt/nutrient management plans described earlier.

Historically, the Regional Board has recognized the importance of groundwater recharge using Colorado River water to control overdraft and in spite of the higher TDS of this supply. Consequently, the Board has not taken a formal position on recharge with Colorado River water but has encouraged water conservation and recycling (Regional Board, 2006). It will continue to be important that CVWD, DWA and the other valley water agencies and tribes work together to with the Regional Board to develop policies and implementation plans that balance overdraft elimination with water quality protection.

5.1.2.5 Emerging Constituents/Chemicals of Emerging Concerns

There are provisions in the SWRCB Recycled Water Policy to regulate emerging contaminants (ECs). The policy acknowledges the incomplete and evolving knowledge of ECs and provides

Appendix 3-3: Supporting Documents for *Groundwater Quality Protection Program – Sub-Area D-2*



LEGEND:
- PUBLIC RIGHT OF WAY
- EASEMENT ACQUISITION

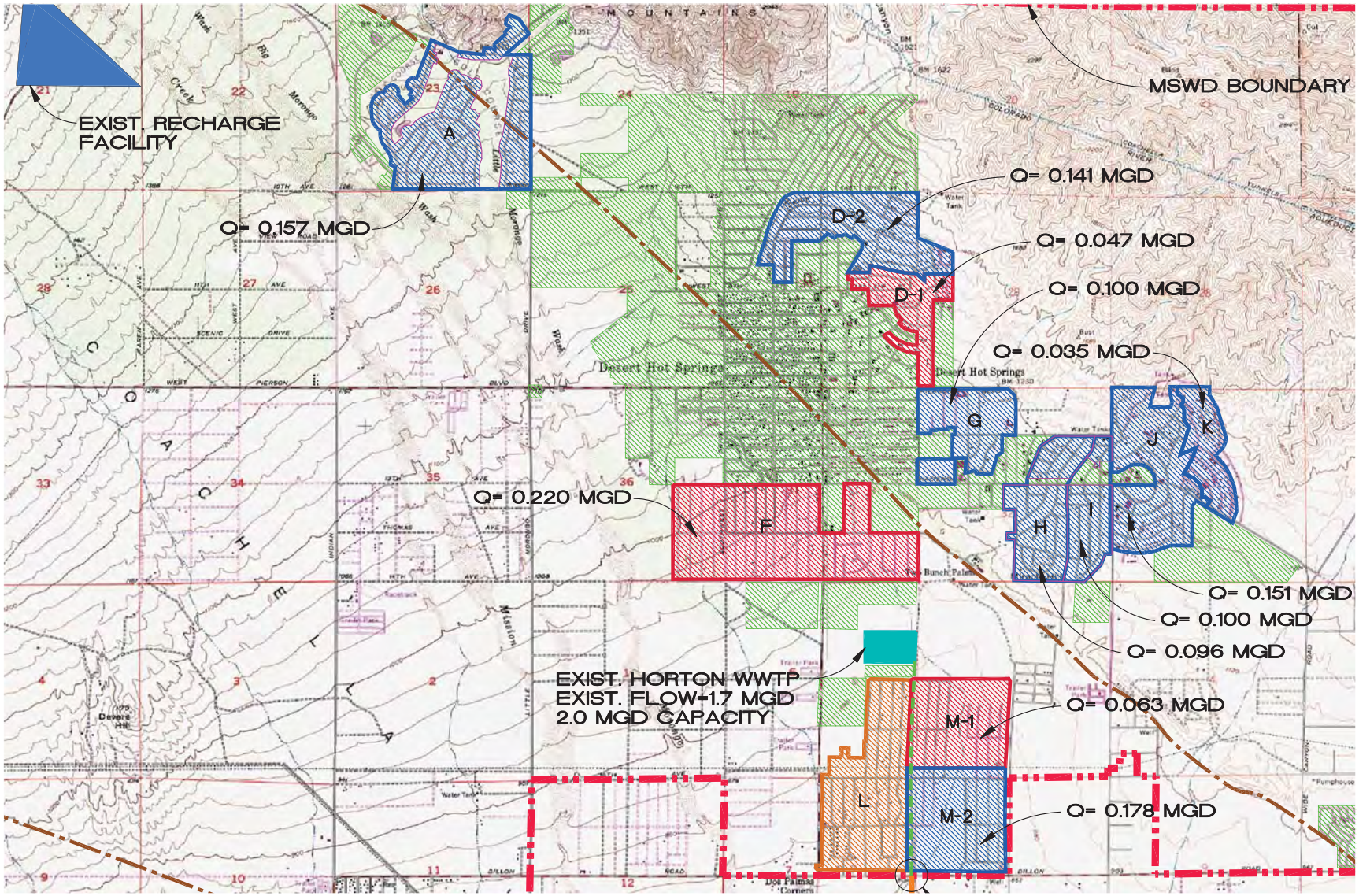
SCALE: 1" = 500'

TKE ENGINEERING, INC.
2305 CHICAGO AVENUE
RIVERSIDE, CA 92507
(951) 680-0440
FAX: (951) 680-0490

MISSION SPRINGS WATER DISTRICT

TRUNK SEWER

S:\CADD\110-34 Little Morongo Treatment Plant Trunk Sewer\Sewer Exhibit for EDA Zoomed Section_2nd Exhibit_02-4-13.dwg



SCALE: 1" = 1,200'

TKE ENGINEERING, INC.
2305 CHICAGO AVENUE
RIVERSIDE, CA 92507
(951) 680-0440
FAX: (951) 680-0490

MISSION SPRINGS WATER DISTRICT

GROUNDWATER PROTECTION PROGRAM

S:\CAD\110-10 Water Management Plan\Sewer Exhibit for EDA Zoomed Section_02-4-13.dwg

Linda S. Adams
Secretary for
Environmental
Protection

Division of Financial Assistance
1001 I Street • Sacramento, California 95814 • (916) 341-5700 FAX (916) 341-5707
Mailing Address: P.O. Box 944212 • Sacramento, California • 94244-2120
Internet Address: http://www.waterboards.ca.gov

Arnold Schwarzenegger
Governor

AUG 22 2007

Mr. Arden Wallum
Project Director
Mission Springs Water District
66575 Second Street
Desert Hot Springs, CA 92240

Dear Mr. Wallum:

MISSION SPRINGS WATER DISTRICT (DISTRICT); RIVERSIDE COUNTY; GROUND WATER PROTECTION PROJECT: PHASE IV (PROJECT); GRANT AGREEMENT NO. 06-158-557-0

Thank you for the opportunity to review the Initial Study/Mitigated Negative Declaration (IS/MND) from the District for the proposed Project. Since the State Water Resources Control Board (State Water Board) is a responsible agency under the California Environmental Quality Act (CEQA) and is funding the District's Project, it must make its own findings based on the lead agency's CEQA document.

For the proposed Project, the District is the lead agency. We have reviewed the IS/MND and Mitigation Monitoring Program from the District and consider the documents adequate for our purposes. In addition, the District followed the CEQA process and filed a Notice of Determination with the Governor's Office of Planning and Research on March 1, 1999. The District has since re-approved the Project and IS/MND in a letter dated May 15, 2007.

Thank you again for the submittal of the environmental information. If you have any questions regarding the environmental review process, please contact Ms. Michelle L. Jones at (916) 341- 6983 or MLJONES@waterboards.ca.gov.

Sincerely,

Barbara L. Evoy, Deputy Director
Division of Financial Assistance

Enclosure

cc: Mr. Mike Kashak
Grant Manager
California Regional Water Quality Control Board
Colorado River Basin Region
73-720 Fred Waring Drive, Suite 100
Palm Desert, CA 92260

Ms. Natalie McMahon
Grant Contact
Mission Springs Water District
66575 Second Street
Desert Hot Springs, CA 92240

Ms. Marilyn McKay
Mission Springs Water District
66575 Second Street
Desert Hot Springs, CA 92240

Mr. Doug Wylie
California Regional Water Quality Control Board
Colorado River Basin Region
73-720 Fred Waring Drive, Suite 100
Palm Desert, CA 92260

FINDINGS:

1. The City adopted an IS/MND for the Mission Springs Water District Sewer Improvement Project on February 16, 1999 (State Clearinghouse No. 1998091062), which includes the funded Project. The City filed an NOD with the Governor's Office of Planning and Research on March 1, 1999, and has since re-approved the Project and IS/MND in a letter dated May 15, 2007.

2. State Water Board staff finds that the IS/MND, MMP, and the supporting documents provide an adequate disclosure of the environmental relationships of all water quality aspects of the Project.

3. Adequate public participation was provided through the California Environmental Quality Act process through a public comment period.

4. State Water Board staff have reviewed and considered the IS/MND, MMP, and the supporting documents and determined that the Project will not result in any significant adverse water quality impacts.

8/22/07

Barbara L. Evoy, Deputy Director
Division of Financial Assistance

Date

S:\DatabasesWeb&IT\RegionalProgramsUnit\Michelle\Mission Springs EnvClearance.doc

State Water Resources Control Board
Environmental Clearance

Mission Springs Water District (District)
Ground Water Quality Protection Project: Phase IV (Project)
Grant Agreement No. 06-158-557-0

BACKGROUND:

The Project involves the conversion of approximately 600 existing septic disposal systems to a sewer conveyance and treatment system. The District provides water and sewer services to several communities. The Project is located in north central Riverside County, within and adjacent to the City of Desert Hot Springs. The Project includes only Area L—Phases 1 and 2 of the Mission Springs Water District Sewer Improvement Project.

The primary objective of the Project is to permanently alleviate wastewater discharge from individual wastewater disposal systems into the Desert Hot Springs and Mission Creek Municipal Aquifers. Thousands of individual wastewater disposal systems have been identified as a significant threat to public potable groundwater resources. This Project will permanently remove these known pollution sources and facilitate water recycling.

The District prepared for its Sewer Improvement Project an Initial Study/Mitigated Negative Declaration (IS/MND) that was distributed to the public and circulated through the State Clearinghouse (State Clearinghouse No. 1998091062) for review from September 18, 1998 through October 19, 1998. The District received no comments. The District approved the IS/MND, Mitigation Monitoring Program (MMP), and the Project on February 16, 1999, and filed a Notice of Determination (NOD) with the Governor's Office of Planning and Research on March 1, 1999. The District re-approved the Project and IS/MND in a letter dated May 15, 2007.

Project tasks include: (1) performing public outreach, (2) preparing project design, (3) constructing pipelines from approximately 46,200 linear feet of eight-inch vitrified clay sewer pipeline, 30,200 linear feet of four-inch vitrified clay sewer laterals, and requisite appurtenances in the public right-of-way to approximately 1,200 parcels, (4) generating as-built drawings and pre- and post-construction and abatement photo documentation, (5) obtaining and submitting written Rights-of-Entry agreements, and (6) abating approximately 600 individual wastewater disposal systems and connecting properties to the public wastewater collection system.

This Project will help protect the beneficial uses of the Mission Creek and Desert Hot Springs aquifers (located within the Coachella Valley Ground Water Basin) as set forth in the Colorado River Basin Regional Water Quality Control Board Basin Plan. Existing and potential beneficial uses of the Mission Creek and Desert Hot Springs aquifers that will be preserved by this Project include: (1) industrial service supply, (2) agriculture supply, and (3) municipal and domestic supply. State Water Board staff have reviewed the IS/MND, MMP, and supporting environmental documents and determined that the Project will not result in any significant adverse water quality impacts.

Brent Gray

From: Marilyn McKay
Sent: Wednesday, March 04, 2009 11:53 AM
To: Brent Gray
Subject: FW: NOD for MSWD 06-158-557-0

From: Marilyn McKay
Sent: Monday, August 06, 2007 3:34 PM
To: Michael Kashak
Subject: NOD for MSWD 06-158-557-0

Hi Mike:

I believe we have found the documentation that would satisfy the request for MSWD's NOD on the Groundwater Protection Project. Attached in PDF format are the following:

Search results from the State Clearinghouse showing the NOD filed and received on March 1, 1999, as part of SCH #98091062
The text of the NOD dated February 16, 1999, identifying the MND previously submitted with application for Agreement 06-158-557-0
Cancelled check for recording fees, processed by the Riverside Recorder on March 4, 1999

Please let me know if anything else is required. We have one eye on the clock and realize this work needs to be completed by September 1, 2008. We are more than ready to assist with any other questions, so that we may move forward and accomplish our commitments in the agreement.

Please call if anything else is needed.

Thanks,
Marilyn

Marilyn E. McKay
Mission Springs Water District
760/329-5169, ext. 144
Fax 760/329-2482

MSWD
Mission Springs Water District

66575 Second Street, Desert Hot Springs, CA 92240 • www.mswd.org • p 760.329.6448 • f 760.329.2482

May 15, 2007

California Regional Water Quality Board
Colorado River Basin
73-720 Fred Waring Drive, Suite 100
Palm Desert, CA 92260

Attn: Michael Kashak, Environmental Scientist

RE: CEQA Recertification for Area L Phase 1 and 2 Sewer Improvement Project (Grant ID # 06-158-557-0)

This letter is to confirm that the approved CEQA document (Mitigated Negative Declaration) for the Sewer Improvement Capital Project known as Area L Phases 1 and 2 for the Mission Springs Water District in the County of Riverside is still accurate, deemed complete, and in compliance with the official environmental documents dated and filed with the RCWQB February 16, 1999. The District finds that there are no changes in the environmental setting or in the original scope of work as described in the original project documents. The original NEPA document has also been accepted by the EPA as provided in the original project submittal. The District feels that no further environmental work or CEQA documentation will be required to continue design and construction associated with this project. Please see the attached letter from our engineer and environmental consultant regarding their findings.

If you have any further questions, please contact me at (760) 329-6448.

Sincerely,

Arden Wallum
General Manager

Board of Directors:
Randy Duncan
President
John Furbee
Vice President
John Brown
Mary Gibson
Nancy S. Wright

General Manager:
Arden Wallum

MSWD is a Groundwater Guardian Affiliate

Notice of Determination

Mission Springs Water District Sewer Improvement Project

To: ☒ Office of Planning and Research
☒ State Clearinghouse (#98091062)
☒ Riverside County Clerk

From: Mission Springs Water District
(Lead Agency)
66575 Second Street
Desert Hot Springs, CA 92240-3711

Lead Agency Contact:	John L. Morgan, General Manager (760) 329-6448
Project Title:	Mission Springs Water District Sewer Improvement Project
Location of Project:	The proposed improvements are located nearly entirely within the City of Desert Hot Springs, Riverside County, California. A limited portion of the improvement area is located within adjacent unincorporated Riverside County, within the City's sphere of influence.
Description of Project:	The proposed project is the conversion of approximately 5,000 existing septic disposal systems to a sewer conveyance and treatment system. The phased construction includes approximately 62.8 miles of sewer line and a one million gallon per day (1 mgd) expansion of the district's existing Horton Wastewater Treatment Plant (WWTP). The proposed improvements are in furtherance of the district's long-term goal to control potential sources of groundwater contamination.
Findings and Determinations:	The agency has made findings and determinations: (a) The project will not be growth inducing; (b) Certain negative impacts of the Project, if any, will be during the construction phase and can be mitigated by proper design, construction practices and following the Mitigation Monitoring Program described on Exhibit "B"; (c) The Initial Study shows there is no substantial evidence that the Project, with mitigation, will have a significant effect on the environment.
Approval of Project:	February 16, 1999
Environmental Impact Report:	No environmental impact report has been prepared Pursuant to the California Environmental Quality Act.

Mitigated Negative Declaration:	A mitigated negative declaration has been issued pursuant to the California Environmental Quality Act. A true and correct copy of the mitigated negative declaration is attached hereto and made a part hereof.
Documents:	Copies of all documents incident to issuance of the Mitigated Negative Declaration may be obtained at the cost of reproduction or inspected at the Office of the Agency.
Dated: February 16, 1999	**Mission Springs Water District**
	By: John L. Mayer

COUNTY OF RIVERSIDE
OFFICE OF THE ASSESSOR-COUNTY CLERK-RECORDER
P. O. BOX 751
RIVERSIDE, CA 92502-0751
Telephone: (951) 486-7000
Fax: (951) 486-7020

FAX COVER SHEET

To: Mission Springs Water Dist.

Attn: Marilyn

Phone: _____ Fax: 760-329-2480

From: Tammie Marshall Phone: (951) 486-7405

Date of Transmittal: 8/9/07

Total number of pages, including cover sheet: 2

Message or Special Instructions:

This Fax message, including any attachments, is intended for the sole viewing and use of the individual or entity to which it is addressed, and may contain confidential and privileged information, which is prohibited from disclosure. Any unauthorized review, use, disclosure, distribution, or the taking of any action in reliance on the information contained in this Fax, including attachments, is prohibited. If you are not the intended recipient, you are hereby notified that any dissemination or copy of this Fax, or any attachment, is strictly prohibited. If you have received a copy of this Fax in error, please notify the sender immediately, and destroy all copies of the original message, including attachments.

Assessor-County Clerk-Recorder
2720 Gateway Drive
Riverside, CA 92507

SEWER IMPROVEMENT PROJECT-MISSION SPRINGS WATER DISTRICT

SCH Number: 1998091062

Type: NOD

Project Description

CONVERSION OF APPROX 5,000 EXISTING SPETIC DISPOSAL SYSTEMS TO A SEWER CONVEYANCE AND TREATMENT SYSTEM THROUGH THE PHASED CONSTRUCTION OF APPROX 62.8 MILES OF SEWERLINE & ONE MILLION GAL PER DAY EXPANSION OF THE DISTRICTS EXISTING HORTON WASTEWATER TREATMENT PLANT.

Project Lead Agency

Mission Springs Water District

Contact Information

Primary Contact:
GEOGE THACKER
MISSION SPRINGS WATER DISTRICT
760 329-6448

Project Location

County: RIVERSIDE
City: DESERT HOT SPRINGS
Region:
Cross Streets: MISSION LAKES, LONG CANYUON, DILLON
Parcel No:
Township: 2S3S
Range: 5e
Section: 4-8
Base:
Other Location Info:

Determinations

This is to advise that the ☐ Lead Agency ☐ Responsible Agency has approved the project described above on 1/1/1900 and has made the following determinations regarding the project described above.

1. The project ☐ will ☒ will not have a significant effect on the environment.
2. ☐ An Environmental Impact Report was prepared for this project pursuant to the provisions of CEQA.
   ☐ A Negative Declaration was prepared for this project pursuant to the provisions of CEQA.
3. Mitigation measures ☒ were ☐ were not made a condition of the approval of the project.
4. A Statement of Overriding Considerations ☐ was ☐ was not adopted for this project.
5. Findings ☐ were ☒ were not made pursuant to the provisions of CEQA.

Final EIR Available at:

Date Received: 3/1/1999

CEQAnet HOME | NEW SEARCH

MISSION SPRINGS WATER DISTRICT
66-575 SECOND STREET
DESERT HOT SPRINGS, CALIF. 92240

No. 016098

90-3040
3222

PAY EXACTLY ****1,328**** DOLLARS AND *NO* CENTS

DATE	CHECK NO.	AMOUNT
02-23-99	16098	*****1,328.00

TO THE ORDER OF
RIVERSIDE COUNTY CLERK/RECORDER
P O BOX 751
RIVERSIDE, CA 92502-0751

Palm Springs Savings Bank
A division of Hemet Federal Savings
Palm Springs Office (800) 969-3100
66585 Pierson Boulevard
Desert Hot Springs, California 92240

MISSION SPRINGS WATER DISTRICT
(NOT NEGOTIABLE AFTER 90 DAYS)

⑈016098⑈ ⑆322270081⑆ 22 301 298 0⑈ ⑈001328⑈00

J BRIDGES ACT CLK
FOD RIV CTY TRENS
ANTTTL 78.00
CHECK # $78.00
7252 222 222
0001-003 3/ 4/99

⑆122000661⑆ 1

1500 E TEMPLE LA CA 35

8471-19

PROCESSED

ALBERT A. WEBB ASSOCIATES

WO: 2007-0010

3788 McCray Street • Riverside, CA 92506
Phone: 951.686.1070 • Fax: 951.788.1256
www.webbassociates.com

May 11, 2007

Dan Patneaude
Engineering Manager
Mission Springs Water District
66575 Second Street
Desert Hot Springs, CA 92240

Subject: Mission Springs Water District's Sewer Improvement Project

Dear Mr. Patneaude:

We have reviewed the adopted Mitigated Negative Declaration (MND) for the above-referenced project, dated February 16, 1999. Accordingly, it is our opinion that the impacts associated with this project, along with the adopted mitigation/monitoring measures described in the MND, are still accurate and reasonable. Therefore, no further CEQA work needs to be conducted.

We appreciate the opportunity to be of service. If you have any questions regarding our opinion, please contact us at 951-686-1070.

Sincerely,

ALBERT A. WEBB ASSOCIATES

Keith Gardner, Director
Planning and Environmental Services

cc: Alvaro Garcia

Marilyn McKay

m: Scatliffe.Uedico@epa.gov
t: Thursday, January 18, 2007 9:27 AM
Marilyn McKay
Cc: Stahl.Elizabeth@epamail.epa.gov
Subject: Mission Springs NEPA Documents

Hello Marilyn:

I have reviewed the NEPA documents for the Mission Springs Water District Desert Hot Springs grant. My review determined that the original Finding of No Significant Impact and the underlying analysis that supported this decision are still relevant and accurate. No further analysis is needed at this time. If you have any questions please let me know.

Thanks, Uedico.

MISSION SPRINGS WATER DISTRICT
Desert Hot Springs, California

Sewer Improvement Project
Project Report

Prepared by

Albert A. Webb Associates
Engineering Consultants
Riverside, California

June, 1997

REGISTERED PROFESSIONAL ENGINEER
WALLANCE H. FRANZ
No. 26979
Exp. 3-31-01
CIVIL
STATE OF CALIFORNIA

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J Overview of Mission Springs Water District and Background Information for Proposed Sewer Project
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I. INTRODUCTION

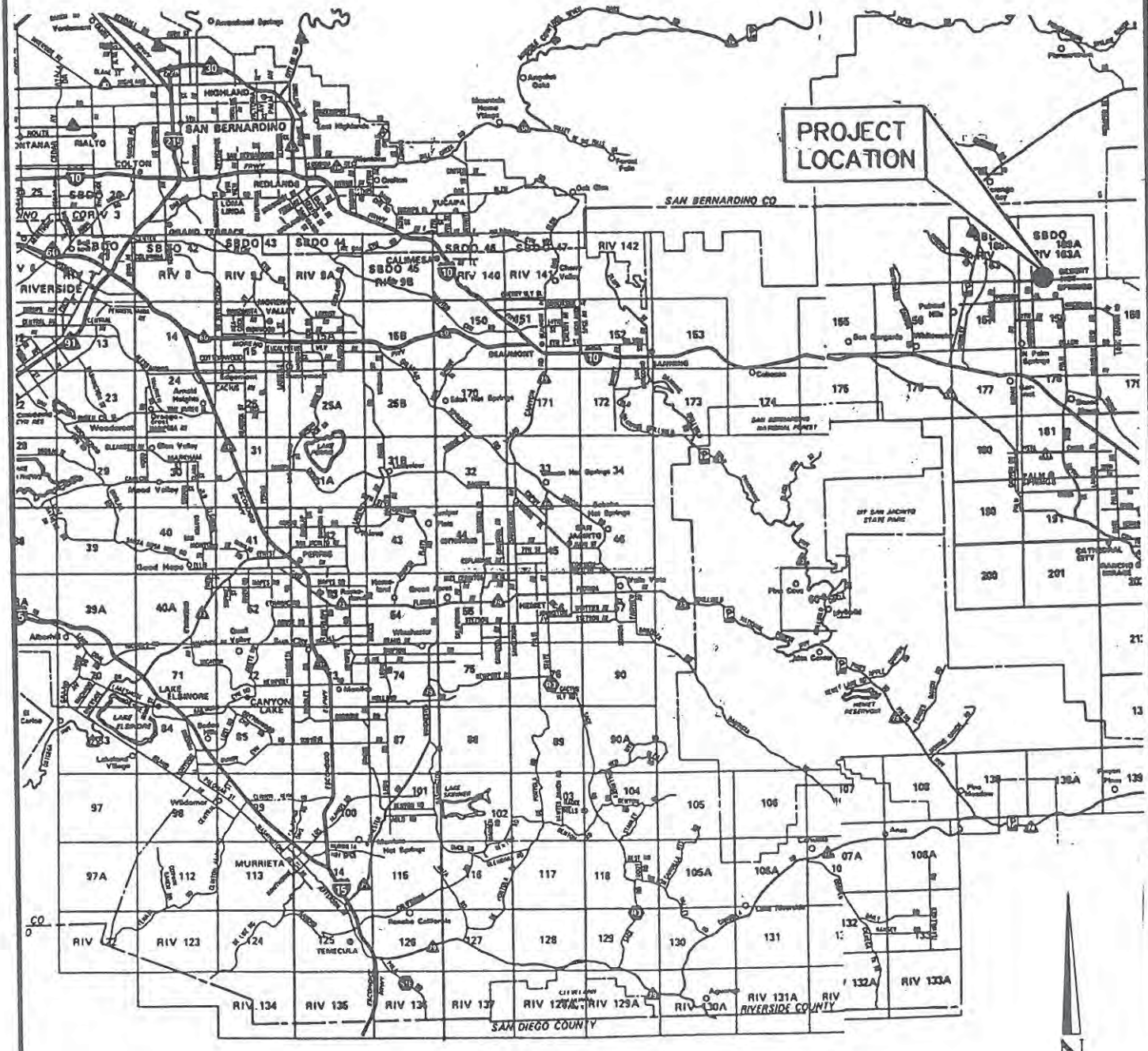
Organization and Boundaries

Mission Springs Water District (District or MSWD) is a California special district that was incorporated in 1953 after the consolidation of two smaller mutual water companies. By the 1970s, the District's original jurisdiction of one square mile had grown to its current size of approximately 133 square miles. MSWD provides water and sewer services to the communities of Desert Hot Springs, North Palm Springs, Desert City, West Garnet, West Palm Springs Village, Painted Hills, a small portion of Palm Springs, the Mission Lakes and Desert Crest country clubs, Dillon Mobile Home Park, Holmes Trailer Park and Calente Springs Recreational Vehicle Park (See Figures I-1 and I-2 for vicinity map and District boundaries). The District currently serves a resident population of approximately 25,000 and also serves seasonal residents and visiting spa clientele that expand the service population by as much as 100% during the high season. The District has 35 full-time employees and an annual budget of $3.7 million.

The approximately 14 square mile portion of the MSWD service area that constitutes the project area for the sewer collection system improvements proposed under this program includes approximately 6,000 acres located within the corporate limits of the City of Desert Hot Springs and another approximately 3,000 acres of immediately adjacent unincorporated lands.

Water Service

The Mission Creek Subbasin of the Upper Coachella Valley Groundwater Basin is currently the sole source of water supply for the project area. The subbasin is estimated to contain 1.2 million acre-feet of water, with an average depth to groundwater varying from 300



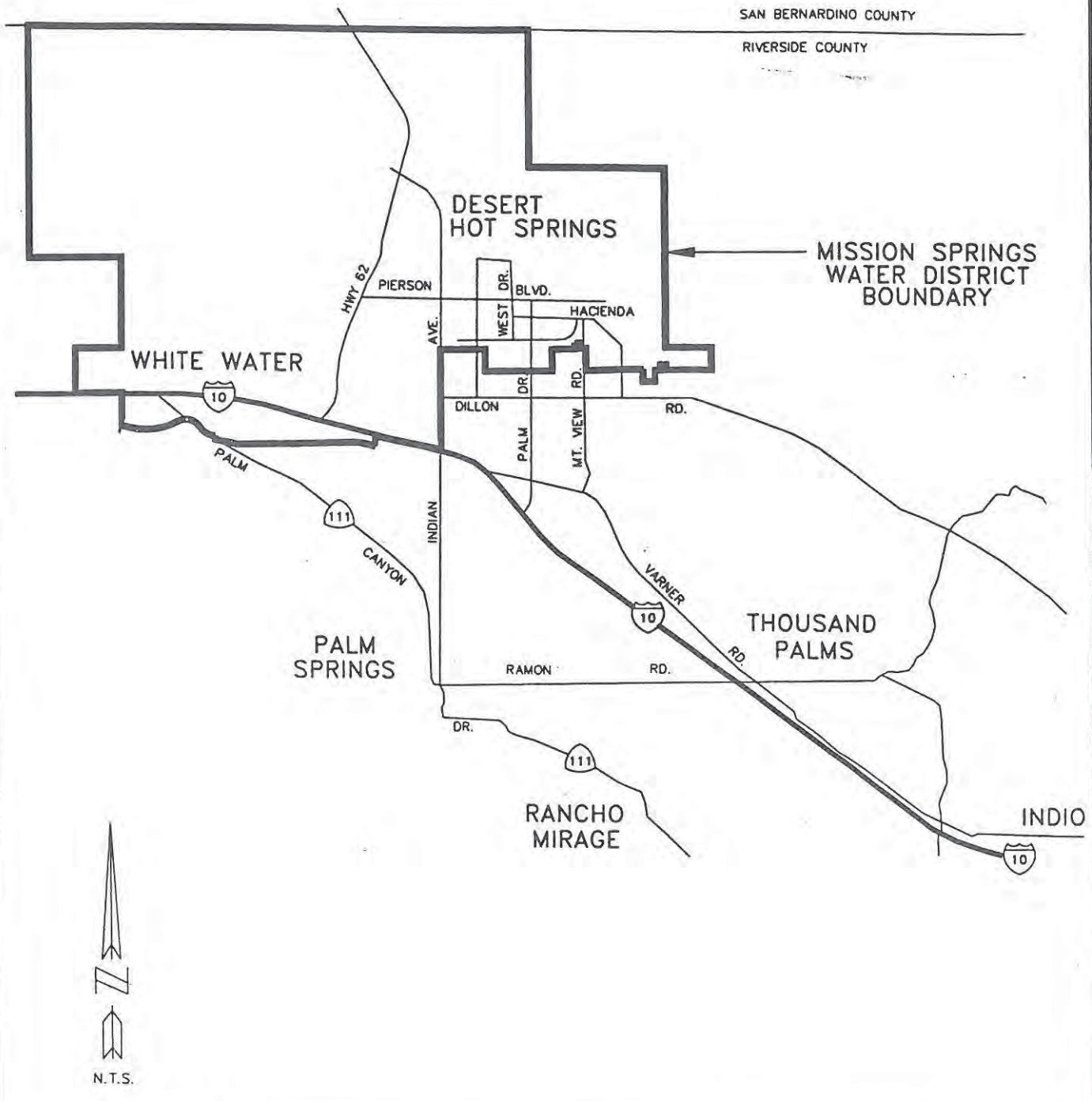
ALBERT A. WEBB ASSOCIATES
ENGINEERING CONSULTANTS

MISSION SPRINGS WATER DISTRICT

VICINITY MAP

W.O. 96-0195

FIGURE I-2



ALBERT A. WEBB ASSOCIATES
ENGINEERING CONSULTANTS

MISSION SPRINGS WATER DISTRICT

LOCATION MAP

W.O. 96-0195

to 550 feet below land surface. Sources of recharge for the local groundwater basin presently consist of percolation of surface runoff (including natural and irrigation sources), subsurface inflow from upgradient groundwater basins, and seepage from individual septic systems.

The water supply system operated by MSWD includes 9 wells, 23 reservoirs with a combined storage capacity of 18.5 million gallons, 10 pump stations, and about 232 miles of pipeline. The District maintains about 7,700 water connections, with a current average demand of nearly 6 million gallons per day. The current maximum demand which is approximately twice this amount, is largely a reflection of the surge in weekend and seasonal population associated with the spas and winter tourism.

Plans for future water supply development include a proposal for conjunctive use of the local groundwater resource as a joint project between several water purveyors in the Coachella Valley region. Under this proposal, water conveyed through the Colorado River Aqueduct would be stored in the local groundwater basin for subsequent withdrawal.

Water - The Economic Connection

In addition to its function as the sole source of supply, the local groundwater resource is also a substantial component of the local economic base, with the Desert Hot Springs Subbasin supporting a commercial spa industry that comprises nearly half of the local economy.

Sewer Service

The District currently operates two wastewater treatment plants, serving a total of about 2,700 customers. The Horton Wastewater Treatment Plant has a capacity of 1,000,000 gallons per day and plans and specifications are available for expansion to 2,000,000 gallons per day. Funding for this expansion is currently being pursued. This treatment facility primarily uses an extended aeration process for treatment and disposes the treated effluent by

way of percolation ponds. A separate, smaller system (180,000 gallons per day capacity) serves a country club development and mobile home park outside the study area. A network of 38 miles of sewers and one pump station complete the existing wastewater treatment system.

Wastewater treatment for the remaining approximately 5,000 customers in the MSWD is by means of individual septic systems. This method of disposal has been the predominant method of wastewater treatment in the Desert Hot Springs community for five decades.

There is substantial concern that continued reliance on individual septic systems may seriously impact the future of the local water supply and the local economy. The presently operating well system does not evidence human fecal coliform or nitrate concentrations in excess of maximum contaminant levels for these parameters; however, evidence of contamination of the local groundwater resource from septic system seepage has been detected in one District well. Several wells were abandoned in the 1970s as a result of excessive coliform, bacteriological, and nitrate levels attributed to contamination by septic tank seepage.

Although a community treatment system is available, the local community has demonstrated substantial resistance to connecting to the system. Local history reflects the substantial turmoil that resulted in the 1960s and 1970s when MSWD proposed assessments to finance community-wide connection. Although there may be several reasons for community opposition, it is evident that the economic ramifications (approximately $5,500 per service connection fee) were a substantial factor in past community opposition. In light of the considerable time that has passed, heightening risk of groundwater contamination, and apparent favorable changes in community attitude toward use of centralized treatment, this sewer system improvement project is one of the District's highest priorities.

Proposed Project Background

The Mission Springs Water District (MSWD) is located in the northern portion of the Coachella Valley and encompasses the City of Desert Hot Springs. "A fault called the Mission Creek Fault (Plate 1) a splay of the San Andreas Fault, obliquely bisects the City and creates two groundwater aquifers. Geothermal groundwater is found east of the northwest - trending fault zone, and potable water is located to the west of the fault."[1] The geothermal groundwater is used by local resorts and spas which attract many tourists to the area. The Mission Springs Water District obtains it's entire water supply from wells located in the potable water aquifer.

The problem the District must mitigate is the potential of widespread groundwater contamination from the dense concentration of private sewage disposal systems (septic systems) in the area.

"In 1995, there were about 5,230 septic tank systems in the city of Desert Hot Springs and surrounding communities. Contamination of ground water resulting from the increasing quantity of wastewater discharge into the unsaturated zone is a major concern to the District. The underlying alluvial aquifer on the west side of the city of Desert Hot Springs is the sole source of public water supply and alternate sources of water are not available. Wastewater contains contaminants, such as nitrogen, bacteria, and organic chemicals, that may degrade the quality of ground water and render it unsuitable for potable consumption. Because the Mission Creek subbasin is a sole source aquifer for Desert Hot Springs and surrounding communities, it is prudent to determine the potential for ground-water contamination from septic tank wastewater."[1]

Report's Purpose

The primary purpose of this study is to provide sufficient information for the technical and economic evaluation of the feasibility of mitigating the potential for groundwater contamination from private sewage disposal systems. Specifically, this document is to serve as a project report in order for the District to obtain grants, low interest loan money, and/or special appropriation funding for the implementation of the proposed project.

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[1] United States Department of the Interior, U.S. Geological Survey, letter report to John Morgan, General Manager of MSWD, dated June 17, 1996.

This report consists of a systematic approach whereby all the related elements could be assembled and analyzed relative to the proposed project. Based on this analysis, a basic strategy for development of a plan to provide wastewater system improvements was made considering engineering and environmental constraints.

Scope of the Report

In order to accomplish the objectives of this report, the scope of the study included the following:

1. Review and evaluation of existing applicable reports and planning documents;
2. Review of environmental characteristics;
3. Review of demographic conditions and trends;
4. Development of a proposed project that will mitigate contamination concerns;
5. Develop project cost estimates;
6. Obtain public input;
7. Review potential funding mechanisms.

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II. PROJECT PURPOSE AND NEED

Existing Situation

As previously discussed, the proposed project's purpose is the mitigation of groundwater contamination risks from the high concentration of private sewage disposal systems.

"There are a total of about 5,230 septic systems on record with MSWD as of October 3, 1995 (Nona Crawford, MSWD, written commun., 1995). The majority are active all year long and the rest are in operation seasonally when part-time residents occupy dwellings during the mild winters. A small sampling of subsurface waste disposal system densities in Desert Hot Springs, overlying both the thermal and cold ground-water subbasins, indicated that between 1.6 and 2.0 systems per acre was typical, which is 2.3 to 2.8 times, respectively, the recommended density of 0.7 systems per acre (Desert Water Agency [DWA] and University of California, Riverside [UCR], 1993) pg. 16). The density of systems in the Mission Lakes area, which completely overlie the cold water subbasin, was even higher, at 2.4 systems per acre. Septic systems generally consist of two parts - a septic tank or pit and a seepage pit area. Bacterial digestion in the tank reduces the volume of collected solids, and converts organic matter into simple chemical compounds and septage (DWA and UCR, 1993). After passing through the septic tank, wastewater enters a seepage pit area and migrates downward into the soil. Dispersion areas must provide sufficient surface area to allow wastewater penetration into surrounding soil. If active septic systems are spaced too close together, wastewater maybe unable to penetrate the soil at a rate equivalent to or greater than production. When failure occurs, wastewater rises to ground surface and the bacteriological component causes a nuisance (offensive odors) and public health risks (from disease).

"The fecal matter of humans may contain human enteroviruses, viruses that infect and replicate in the intestinal tract, and parasites, such as Giardia. Members of the enterovirus group include viruses that cause poliomyelitis, aseptic meningitis, myocarditis, and diseases that cause severe central nervous system disorders (DWA and UCR, 1993). Enteroviruses are incapable of living outside of primate cells; thus, their detection is conclusive evidence of relatively recent (less than one year) contamination by human waste. Another group of viruses, coliphage, is also present in human fecal matter because they infect Escherichia coli, a bacterium that is always present in human intestinal tracts. The chemical and physical characteristics of coliphage are similar to enteroviruses, so coliform counts are often used as indicators for the presence of enteroviruses because the methods of detection in water and soil samples are relatively easy and rapid.

"Even if the wastes being processed through the septic tank system undergo complete biological decomposition and the viruses expire, one of the byproducts is nitrate (NO_3). Nitrate does not sorb out of the soil as do the majority of soluted compounds. Nitrate either remains in solution and percolates downward or it can be converted to nitric oxide (NO), nitrous oxide (N_20), and dinitrogen (N_2) by denitrification. Denitrification is the process of degradation of organic carbon by nitrate-respiring micro-organisms in the absence of oxygen."[1]

[1] United States Department of the Interior, U.S. Geological Survey, letter report to John Morgan, General Manager of MSWD, dated June 17, 1996.

The USGS conducted a septic tank groundwater contamination study in the Upper Mojave River Basin which is environmentally similar to the Mission Springs Water District's area. The contamination potential from septic tank systems is illustrated by the following described results of the USGS study.

"Because of the similarity in environment, results from the ground-water contamination potential study recently completed by the USGS in the Upper Mojave River Basin area, southeast of Victorville, are summarized here and similar calculations are presented for the Mission Creek subbasin. Although the lithology and aridity are similar between these two areas, depths to water table around Victorville were considerably shallower, ranging from 112 to 254 ft between 1988-89 in 12 boreholes at 8 residences, with an average depth of 150 ft (Umari and others, 1995, Table 3).

"Rates of vertical movement of a wastewater-wetting front, calculated from three different types of data collected in the Mojave study, ranged from 0.07 ft/d for unconsolidated, poorly sorted older alluvium and moderately to well-consolidated older fan deposits to 1.0 ft/d for unconsolidated silty sand and gravel. Based on those rates, travel time for the wastewater-wetting front to move down 150 ft through the unsaturated zone ranged from about 6 years to 6 months, although the movement rates of wastewater (solute) itself are significantly slower (Umari and others, 1995, pg. 53). Thus, the wetting front from pits constructed prior to the mid-1980s would have reached the water table by the time of the study. There were no elevated fecal coliform counts in any soil samples nor elevated nitrate concentrations in ground water samples collected near the water table; however, monitoring is continuing at two sites (Umari and others, 1995, pg. 79). There were about 46,000 unsewered residences in the study area of the Upper Mojave River Basin. It was estimated that, assuming an average discharge of 70 gal/d/person and 2.5 people per household, annual septic-tank wastewater discharge would have been 9000 acre-ft/yr, equal to about 18% of the estimated natural recharge. Concentration of total nitrogen in the wastewater ranged from 2.2 to 63 mg/L and averaged 46 mg/L (Umari and others, 1995). Water-quality mixing-model simulations made on the basis of the data collected in the Victorville study indicate that predicted nitrate-N concentrations in ground water would exceed 10 mg/L (equivalent to 45 mg/L as NO_3) in less than 20 years under most reasonable assumptions for the various model parameters. Data collected on nitrate-respiring bacterial activity in the unsaturated zone coupled with the model simulations support the existence of a nitrogen-removal process and dilution by vertical mixing with low-nitrate ground water as mechanisms contributing to the non-elevated concentrations of nitrate in the samples collected."[1]

Preliminary analysis of the Mission subbasin are as follows.

"As stated previously, the depth to water ranges from 300 to 550 ft below land surface in the Mission Creek subbasin. Using the range of 0.07 to 1.0 ft/day for the vertical rates of water movement that were measured in the Mojave River Basin study, the travel times for the wastewater wetting front to reach the water table in the Mission Creek subbasin range

[1] United States Department of the Interior, U.S. Geological Survey, letter report to John Morgan, General Manager of MSWD, dated June 17, 1996.

from a minimum of 0.8 years (300 ft/1.0 ft/day/365 d/yr) to a maximum of 21.5 years (550 ft/0.07 ft/d/365/yr). The actual rates of wastewater (solute) will be significantly less than the rates for the wetting front, so the period of time for the wastewater to arrive at the water table will increase accordingly. Because many of the septic tank systems have been in operation for more than 25 years, these travel time estimates suggest that wastewater should be reaching the water table in the Mission Creek subbasin."[1]

It should be noted, however, that the water levels of the hot water side (Desert Hot Springs Groundwater Basin) are much higher (less than 35 feet of depth from the surface) than that of the cold water side (Mission Springs Groundwater Basin). Therefore, the hot water side is more susceptible to contamination from the private sewerage disposal systems in the Mission Springs service area. Contamination of the hot water side is subject to traversing the fault and spreading the contamination into the cold water side groundwater, affecting the District's water supply wells and other users of the regional groundwater basin.

"There are an estimated 5,230 households utilizing septic tank systems in the Desert Hot Springs area. Assuming an average daily septic-tank discharge of 23.4 ft^3 (Umari and others, 1995), annual septic-tank wastewater discharge is estimated to be 1,000 acre-ft/yr [(5,230 households x 23.4 ft^3/d/household x 365 days/yr)/43,560 ft^2/acre)]. Previous estimates of natural recharge to the area were about 6,000 acre-ft/yr (California Department of Water Resources, 1964). Therefore, the estimated septic tank discharge is equal to about 17% of the natural recharge to the area.

"The total nitrogen concentration in septic wastewater is high (22 to 63 mg/L as nitrogen or 90 to 280 mg/L as nitrate) based on results from the Mojave River Basin study (Umari and others, 1995). The above absence of widespread high nitrate concentrations in ground water in the area indicate that either a significant fraction of the nitrogen present in wastewater is no longer present when it mixes into the ground water, or the nitrate is confined to shallow depths below the water table that have not been sampled."[1]

The District has collected information during recent years regarding the District's water supply wells, private hot water wells, individual privately-owned sewerage disposal systems, and the hot and cold water sides of the groundwater basin bisected by the Mission Creek Fault. This information reveals cases where effluent from privately-owned sewerage disposal systems has commingled with the hot water side of the basin at

[1] United States Department of the Interior, U.S. Geological Survey, letter report to John Morgan, General Manager of MSWD, dated June 17, 1996.

locations where the groundwater is shallow or surfacing in the vicinity of Desert Hot Springs. As an example, during the mid-1970s District records indicate that water supply Well Nos. 10, 11, and 21 were abandoned and plugged due to contamination of the well water from privately-owned septic tank wastewater disposal systems in adjacent areas, as evidenced by fecal chloroform, failed bacteriological tests and high nitrate levels. Since 1992, District surveys documented about 100 privately-owned sewerage disposal systems which failed and needed to be pumped from 2 to 16 times per year. The District continues to receive unsolicited comments supportive of constructing sewers.

Problem Definition

From the previous discussion, it is apparent that since there are numerous private sewage disposal systems in the District, at densities greater than the recommended, the potential for groundwater contamination is very high. This potential for groundwater contamination is evidenced by the previously quoted United States Department of the Interior U.S. Geological Survey Study (Appendix A) and a study prepared by Michigan Technological University (Appendix B).

Appendix C documents the concerns of various regulatory agencies including the California Regional Water Quality Control Board (Colorado River Basin; Region 7), the City of Desert Hot Springs, and the Department of Health Services Office of Drinking Water. Appendix D and Plate 1 provides information for septic systems that have been pumped more than once and which are not located in existing assessment districts that have constructed sewerlines. Plate 1 also shows the locations of the areas with a high concentration of septic systems in relationship to the District's water supply wells. As can be seen on Plate 1, the concentrated areas of septic systems lie in upstream locations relative to the District's wells. Hence, there is a high probability that groundwater contamination by the septic systems could migrate and seriously impact the only water supply source for the District.

Solution Alternatives

The best solution and most cost effective method of mitigating the potential for groundwater contamination is to construct sewer pipelines that collect the sewage and transport the wastewater to the existing treatment plant that safely disposes the treated effluent in an approved, regulated manner. Construction of the sewer pipelines would eliminate the risk for groundwater contamination and hence maintain and/or improve the groundwater quality for the various interests utilizing the basin for their water needs.

Other possible solution alternatives, such as well head treatment or groundwater basin cleanup, are a reactive type of response to the problem and could be "too little, too late". Treatment could also change the taste of the water, judged best untreated in a recent water purveyor competition (Appendix E). Should the groundwater basin incur mass contamination, these types of alternatives would be extremely costly and take too long to implement, thus resulting in the loss of a safe water supply for the region.

Consequences of Inaction

As is normally the case in situations such as the one that is occurring within the District's groundwater basins, inaction will only lead to a larger and more devastating problem. Even if future development would not occur, over time, pollution will eventually reach the groundwater. The additional growth that is developing will only accelerate the problem. The local hot springs encourage a large amount of tourism in the area. Contamination of the Hot Springs would severely impact tourism and the business community at large. Contamination of the water supply for the area would have catastrophic consequences.

Study Area Determination

Upon review of Plate 1, it is evident that elimination of the highly concentrated septic systems, especially those which could immediately impact existing water supply

wells should be included within the study area. Secondly, areas where septic systems have and are failing should be included in the proposed sewer improvement project area. Finally, since it is more economical to extend pipelines from existing sewered areas, the study area should include areas where sewers can be easily extended. Based upon these criteria, the proposed sewer improvement area (study area) was determined as shown on Plate 1.

As will be discussed in the following chapters, the proposed sewer improvement areas were divided into thirteen sewer service areas. A review of these service areas was made to determine the number of sewered and unsewered parcels and those which were developed and those which are undeveloped. A summary of this information is shown on Table II-1. As can be seen on Table II-1, there are approximately 3,633 developed parcels within the study area that are presently unsewered.

TABLE II-1

MISSION SPRINGS WATER DISTRICT
SEWER IMPROVEMENT PROJECT
SUMMARY OF SERVICE AREA PARCEL CHARACTERISTICS

SERVICE AREA DESIGNATION	TOTAL NO. OF PARCELS			NO. OF SEWERED PARCELS			NO. OF UNSEWERED PARCELS		
	NO. OF PARCELS	NO. OF DEVELOPED PARCELS	NO. OF UNDEVELOPED PARCELS	NO. OF PARCELS	NO. OF DEVELOPED PARCELS	NO. OF UNDEVELOPED PARCELS	NO. OF PARCELS	NO. OF DEVELOPED PARCELS*	NO. OF UNDEVELOPED PARCELS
A	890	690	200	29	23	6	861	667	194
B	268	150	118	0	0	0	268	150	118
C	442	243	199	0	0	0	442	243	199
D	1010	438	572	18	5	13	992	433	559
E	509	257	252	0	0	0	509	257	252
F	1207	491	716	65	26	39	1142	465	677
G	229	76	153	36	23	13	193	53	140
H	410	124	286	46	16	30	364	108	256
I	410	149	261	77	23	54	333	126	207
J	635	305	330	69	23	46	566	282	284
K	262	154	108	0	0	0	262	154	108
L	842	443	399	16	10	6	826	433	393
M	916	262	654	0	0	0	916	262	654
TOTAL	8030	3782	4248	356	149	207	7674	3633	4041

* Number of developed parcels (structures) were determined from Riverside County Assessor Records and aerial photographs. Actual dwelling unit count will be greater when multiple-family structures are determined.

III. PROJECT AREA CHARACTERISTICS

Political Setting

The study area is situated in eastern Riverside County in southern California and includes lands both within the incorporated City of Desert Hot Springs and adjacent unincorporated lands. The approximately 14-square-mile study area represents just less than 10% of the entire approximately 133-square-mile jurisdiction of Mission Springs Water District.

Physical Environment

The study area lies at the base of the Little San Bernardino Mountains in the north end of the Coachella Valley. Dominant physical characteristics are the mountains, the broad floodplains associated with numerous intermittent drainages and the San Andreas Fault zone. Open space lands managed by the Federal Bureau of Land Management, immediately adjoining the study area and further beyond in Joshua Tree National Park, are beyond the influence of the proposed improvements.

The mountains, drainages and fault noted above are all important features of the local groundwater resource, protection of which is the purpose of the proposed improvements.

The study area overlies two groundwater subbasins that are defined by the Mission Creek Fault. The Mission Creek Subbasin lies to the west of the northwest/southeast trending fault, with the Desert Hot Springs Subbasin to the east. The groundwater resources in each of these subbasins are substantially different, with the Desert Hot Springs

basin producing hot mineral waters and the Mission Creek Subbasin producing high-quality water suitable for domestic supply. The hot mineral waters drawn from wells to the east of the fault support the spa industry which is the backbone of the local economy. Wells located to the west of the fault provide the sole source of local domestic water supply.

With its central role as life support and economic support, the local groundwater resource has been the subject of considerable attention in the political, social, and economic development of the local community. The Mission Springs Water District and the previous individual and mutual water companies, as developers of the water resource have demonstrated an ongoing commitment to protection of the local resource. Ongoing monitoring programs and groundwater investigations aimed at gaining a better understanding of local hydrogeology are an important component of water district operations.

Sediments in the area are alluvial fan or stream wash deposits characterized by sands and silts. The thickness of water-bearing sediments in the Mission Springs subbasin is estimated at 800 to 1,000 feet, with the water table situated 300 to 550 feet below ground surface. The Desert Hot Springs basin is much shallower, with water at a depth of about 35 feet. At a few locations within the study area, groundwater surfaces as springs, primarily along the Mission Creek Fault.

The area receives less than five inches of rainfall per year; however, considering rates of evapotranspiration, rainfall represents a negligible source of groundwater recharge. Major sources of recharge are tributary area runoff, subsurface inflow from the surrounding mountains, irrigation return flow and seepage from individual wastewater disposal systems,

as well as limited volumes of irrigation runoff. Tributary runoff comes from intermittent drainages flowing from the surrounding mountains - including the Little Morongo and Long Canyon drainages which are tributary to the Desert Hot Springs Subbasin, and the Mission Creek, Big Morongo Canyon and Dry Morongo Wash drainages which are tributary to the Mission Creek Subbasin.

Water movement within the basins is generally to the southeast. Since 1952, a steady, moderate decline in the water levels has been experienced, attributed to groundwater extractions. The Mission Creek Fault has long been understood to act as an effective barrier to groundwater movement between the two subbasins. However, evidence of migration across this barrier has been documented in the area just southeast of the study area. An ongoing study by researchers at Michigan Technological University is pursuing development of a computer model to evaluate the possibility of migration of flows from the Desert Hot Springs Subbasin to the Mission Creek Subbasin (Appendix B).

Septic tank wastewater disposal systems have been in use in the study are for three to four decades, and the residency status of the local community has shifted from a primarily resort destination to a community with year-round residents. In the 1970s, three domestic wells were abandoned due to evidence of excessive coliform, bacteriological and nitrate concentrations. The elevated level of these contaminants was attributed to seepage from septic disposal systems prevalent in the study area. More recently, sampling records for the period 1970 to 1996 evaluated in conjunction with a groundwater study by the United States Geological Survey (USGS) identified increasing nitrate levels in District Well Number 22. The USGS conclusion is that this result suggests that septic-tank

wastewater has contaminated the shallow part of the saturated zone. Of particular concern relative to protection of the local groundwater resource is the potential for nitrate contamination because conventional water treatment has no significant effect on nitrate removal. Nitrate is one of the by-products of the biological decomposition that occurs in septic systems. Nitrate binds to the soil and is dissolved into solution as it percolates toward the water table. It is important to note that the quality of water presently extracted from District production wells in the Mission Creek Subbasin is of such high quality that no treatment is required prior to delivery. In contrast, the high mineral content of groundwater in the Desert Hot Springs Subbasin has limited its use for domestic purposes.

There are still more that 5,000 parcels within the study area utilizing individual septic disposal systems overlaying the recharge areas for both the thermal and cold water resources. Investigations conducted as part of the previously-mentioned USGS study indicate that septic systems in the Desert Hot Springs area at a density 2.3 to 2.8 times the recommended density (based on local soil conditions) of 0.7 systems per acre. The USGS estimates that the volume of septic tank discharge is equal to about 17% of the natural recharge to the area. USGS study conclusions regarding septic tank seepage based upon a similar study in the Victorville area suggested that septage should reach the groundwater within about 25 years, and that given the longer history of use in the study are, the absence of widespread nitrogen contamination could be attributed to confinement of nitrate contamination to the shallow depths not sampled due to the substantially deeper location of District wells. Further investigations involving new sampling wells that will sample at varying depths have been recommended.

It should be noted that data provided by the USGS from one of their recent groundwater contamination transport studies in the desert area near Victorville, California indicates that contamination (wastewater wetting front) from privately-owned septic tank wastewater disposal systems traveled downwards towards the groundwater through the upper unsaturated portion of the Mojave River Groundwater Basin at velocities ranging between 0.07 - 1.00 vertical feet per day, depending upon the soil type and characteristics. District water supply well information indicates static water levels in the wells are dropping from about 0.6 ft/yr to about 2.6 ft/yr. Hence, based upon the Mojave River groundwater investigation, it would appear that the wastewater wetting front is moving faster than the drop in the static water levels of the wells.

Demographics

Because the study area for the proposed improvements is largely located within the City of Desert Hot Springs, much of the following information is compiled from local, state and federal tabulations for the City.

Desert Hot Springs began as a resort community with the desert climate and mineral hot springs attracting elderly persons both as permanent residents and as tourists. Because of the moderate cost of homes and proximity to jobs in nearby Palm Springs and the greater Coachella Valley area, there has been a trend toward younger families moving into the area as permanent residents. Based upon 1990 Census block-group level data, the population of the study area is approximately 15,200 (11,670 within the City and 3,530 outside the City). For comparison, the 1996 State Department of Finance population estimate for the City of Desert Hot Springs is 14,850. Also of importance relative to local population is the

dramatic change in population on weekends and during the winter, when the influx of tourists can result in a doubling of the population.

Reflecting the dominance of young families, the median age of the study area population is 35 years, with approximately equal proportions of the population over the age of 65 and under the age of 18, about 26% each (1990 Census). Ethnically, the study area population is predominately white (approximately 84%), with approximately 18% of the population considering themselves of Hispanic origin.

The study area includes 8,049 total dwelling units, with 1,826 vacant units (1990 Census). The 1990 Census also indicates that 830, or about 10%, of the dwelling units within the study area are held for occasional use. The largest percentage of the housing stock is detached, single-family units (52%), with about 30% of the housing stock within multiple-unit structures of less than 10 units (29%). Mobile homes make up about 5% of the housing stock.

The median household income in the study area is $21,303 (1990 Census), with more detailed block group-level data indicating median incomes ranging from $14,665 to $45,417 (Plate 2). The 1990 Census reported approximately 800 households (about one in eight) within the study area received public assistance and that approximately 1,000 households (about one in six) had an income below the poverty level.

The State of California Department of Finance population projections data for Riverside County reports a 1990 population of 1,195,400 and projected populations of 1,775,00 and 2,406,700 for the years 2000 and 2010, respectively. These figures represent

an average annual growth rate of approximately 4% for the years 1990-2000 and 3% for the years 2000-2010. Applying these growth rates to the 1990 study area population of 15,201 yields estimated 2000 and 2010 populations of about 22,500 and 30,200, respectively.

Demographic information is summarized on Table III-1.

TABLE III-1

MISSION SPRINGS WATER DISTRICT
SEWER IMPROVEMENT PROJECT
SUMMARY OF DEMOGRAPHIC INFORMATION

BLOCK GROUP #	LOCATION	POPULATION	MEDIAN HOUSEHOLD INCOME	HOUSEHOLDS ON PUBLIC ASSISTANCE	MEDIAN AGE	AGE 55 & OLDER	AGE 65 & OLDER	AGE 18 & UNDER	HOUSEHOLDS BELOW POVERTY LEVEL	ETHNICITY (WHITE)	ETHNICITY (HISPANIC)
1	DHS City	1,698	$33,259	31	33	377	246	505	62.0	1,495	197
1	Outside city	81	$45,417	0	50.6	37	19	13	9.0	80	4
1	Total	1779	$33,616	31	34	414	265	518	71	1575	201
2	DHS City	2,523	$14,665	220	31	619	441	659	235.0	1,974	601
2**	Total	2523	$14,665	220	31	619	441	659	235.0	1974	601
3	DHS City	609	$31,823	0	30.1	104	70	205	19.0	510	98
3	Outside city	694	$20,250	17	47.3	294	209	123	18.0	622	88
3	Total	1303	$26,250	17	39	398	279	328	37	1132	186
4	DHS City	4,308	$16,983	278	27	693	468	1,378	424.0	3,453	1,088
4**	Total	4308	$16,983	278	27	693	468	1378	424.0	3453	1088
5	DHS City	306	$15,859	42	61.5	176	129	55	20.0	237	33
5	Outside city	1,049	$18,992	46	35	314	230	294	40.0	869	212
5	Total	1355	$17,388	88	41	490	359	349	60	1106	245
6	DHS City	690	$23,382	55	29.9	154	100	195	29.0	616	95
6**	Total	690	$23,382	55		154	100	195	29.0	616	95
7	DHS City	868	$31,858	26	36.1	242	156	201	26.0	783	103
7	Outside city	40	$39,688	12	40.8	10	3	8	0.0	39	8
7	Total	908	$32,578	38	36	252	159	209	26	822	111
8	DHS City	140	$16,136	0	30.7	20	7	40	11.0	127	15
8	Outside city	790	$18,500	46	63	492	351	78	57.0	746	65
8	Total	930	$18,000	46	58	512	358	118	68	873	80
9	DHS City	526	$31,250	28	31	128	78	172	23.0	422	148
9	Outside city	879	$41,328	0	52.3	409	207	113	40.0	838	43
9	Total	1405	$40,417	28	44	537	285	285	63	1260	191
TOTALS	DHS City	11,668	$20,687	680	31	2,513	1,695	3,410	849.0	9,617	2,378
	Outside city	3,533	$23,039	121	48	1,556	1,019	629	164.0	3,194	420
GRAND TOTAL		15201		801	35	4069	2714	4039	1,013.0	12811	2798

Notes:
**All of block group is within the City of Desert Hot Springs boundary
Population and housing statistics are based on the 100% count base of the census data
Income statistics area based on the sample component of the census data
Ethnicity percentage calculations are subject to rounding errors
The NW corner study area includes a small portion of Tract 445.01. This area is largely uninhabited and therefore not included in the above census data and calculations.

IV. PROPOSED IMPROVEMENTS

The proposed improvements were developed based upon the following process:

- Determination of Projected Wastewater Flows;
- Determination of Design Criteria;
- Development of Preliminary Sewer Layouts and Service Areas;
- Development of Cost Estimating Criteria;
- Determination of Construction and Project Costs.

Projected Wastewater Flow

The objective of this section is to project the quantity of tributary wastewater flow to the proposed facilities in order to determine their sizes. Specifically, the sizes of the facilities that would need to be determined in this report consist of pipelines and treatment plant capacity. The sizes of the pipelines have previously been determined in a Sewer Master Plan dated November, 1991, prepared by NBS/Lowry, Incorporated. The referenced Sewer Master Plan designates the vast majority of the proposed pipelines to be 8-inch in diameter. It should be noted, however, that these pipeline sizes will need to be verified during the design process based upon criteria to be presented in following sections.

The determination of the quantity of the projected wastewater flow is also required to confirm there is adequate treatment capacity at the District's wastewater treatment plant. As previously indicated on Table II-1 within the study area there are approximately 3,633 developed (those with a structure) parcels that are currently unsewered. The 3,633 parcels include buildings with multiple family structures. Therefore, the actual number of equivalent dwelling units (EDUs) will be greater than the number of parcels. The District is presently reviewing the actual number of equivalent dwelling units that are located on the 3,633 developed parcels. Once this review is complete, an accurate estimate of additional wastewater flow can be made.

However, in order to estimate an "order of magnitude" projected increase in wastewater flow at the treatment plant upon completion of the proposed project, the following methodology was used. Based upon local knowledge of the study area, it is estimated that there could be about a third more dwelling units in the study area than there are parcels. Therefore, it is currently estimated that there could be about 4,800 (3,633 x 1.33±) existing unsewered equivalent dwellings units in the study area. Based upon 1990 census data, Table III-1 shows the area population to be 15,201 people with a total number of occupied dwelling units of 7,053 including 830 units held for seasonal use. Hence, there are about 2.2 people/DU. The District uses an average per capita wastewater flow of 100 gpd/capita. Therefore, the average wastewater flow per dwelling unit is estimated to be 220 gpd/DU. However, for planning purposes, the District uses a wastewater generation factor of 240 gpd/DU. Based upon the estimated number of new connections of existing dwelling units and a wastewater generation factor of 240 gpd/DU, a flow increase at the treatment plant of about 1,152,000 gpd can be expected.

The District is currently in the process of expanding their Horton Wastewater Treatment Plant, to which 100% of the study area is tributary, from 1.0 mgd to 2.0 mgd. A report entitled "Mission Springs Water District Project Report For The Expansion of The Horton Wastewater Treatment Plant from 1.0 mgd to 2.0 mgd" dated November 10, 1994 prepared by NBS/Lowry, Incorporated indicates the average daily flow to the Horton Facility to be 0.768 mgd. Therefore, upon completion of the treatment plant expansion there would appear to be sufficient capacity for connection of the dwelling units which are a part of this project.

Design Criteria

Wastewater System design criteria basically falls into one of four wastewater facility components: (1) collection; (2) transportation; (3) treatment; and (4) effluent disposal. Specific design criteria applicable to this project are for collection and

transportation facilities. Therefore, assumptions applicable to these two components are discussed below. It should be noted that the following criteria is from the Mission Springs Water District's Standards for Sanitary Sewers dated December, 1972.

Wastewater Flows

The flow used for the design capacity for sewers and sewage lift stations shall be the "computed peak flow", which shall be determined on the basis of projected land use and average daily per capita flow. The average daily per capita flow for the Mission Springs Water District is 100 gallons per capita per day.

Sewer flows shall be computed from projected land use and population density over the area tributary to the sewer reach under consideration. The following peaking factors shall be applied to the sewer flows as determined above:

Average Flow (mgd)	Peak Factor
0.00 - 0.01	4.0
0.05	3.4
0.10	3.2
0.20	3.0
0.30	2.8
0.50	2.7
0.80	2.6
1.00	2.5
1.50	2.4
2.50	2.3
4.00	2.2
6.00	2.1
10.00	2.0
15.00	1.9
30.00	1.8

Design flows from commercial, industrial, hotels, motels, campgrounds, etc. are determined in consultation with the District.

Collection Sewers

Collection sewers in this report are considered to be pipes less than 10 inches in diameter. These pipes should be designed under peak conditions to be flowing one-half full. Sewer diameters are determined by means of Manning's formula, using a roughness coefficient of 0.013.

Trunk Sewers

The capacity to be provided in each section of a trunk sewer is based on the peak rate of flow calculated for the area tributary to that section. For each area this rate is the summation of peak domestic, commercial, and industrial rates plus storm water inflow which is known as the peak wet weather flow.

Trunk sewer lines are sized on the principle of conducting wastewater at a minimum velocity of 2 ft/sec when flowing 50 percent full, and are sized to carry peak hourly flows without surcharge. A mean pipe friction coefficient of roughness of n = 0.013 is used for tentative new pipe sizing.

When possible, the pipelines should be designed to flow by gravity. Pump stations should be installed only when existing topography prevents gravity flow or to avoid excessive trench depths.

A summary of design criteria for gravity flow sewer pipelines as follows:

The preliminary hydraulic sizing of gravity sewers should be based on Manning's formula, with a roughness coefficient (n) equals to 0.013. A safety factor should be included in the design of all collection lines to account for errors due to the variability of the initial approximation of flow and partial clogging of the sewer. The method of accounting for the inherent variables is to limit the depth of flow. The following list shows the design depth of flow ratio:

Pipe Diameter (In Inches)	Ratio of Depth of Sewage Flow to Diameter of Sewer
8	0.50
10 and greater	0.75

Since low velocities in the sewers will cause deposition of solids and result in sulfide problems, minimum slopes should be set to maintain a flow velocity of not less than 2 feet per second during maximum flows. The following is a list of the minimum allowable slopes:

Pipe Diameter (In Inches)	Minimum Slope (Feet/100 feet)
8	.40
10	.29
12	.22
15	.16
18	.12
21	.10
24 and greater	.08

Manholes shall be located at all junctions, all changes in direction, and all changes in pipe size. Where the distance between manholes required for the foregoing reasons exceeds 350 feet, good judgment should be used in placing intermediate manholes at points of probable sewer intersections, or lacking other reasons, at approximately equal intervals. In general, the maximum of 350 feet should be observed.

Vitrified clay pipe material, unless otherwise indicated, is assumed to be used in future construction for purposes of comparative cost evaluation. However, final recommendation of any specific sewer pipe material will be made at the time of final design.

Initially, some of the new trunks or interceptors may not have sufficient velocity (greater than 2 fps) to prevent deposition of solids. These lines may require special preventative maintenance of other control procedures for the first few years to prevent the formation of hydrogen sulfide and subsequent damage to the pipe.

Inverted Siphons

The purpose of an inverted siphon is to carry the flow under an obstruction such as a stream or depressed highway and to regain as much elevation as possible after the obstruction has been passed. Self-cleaning velocities (2 to 3 fps) should be obtained at least once a day, even during the early years of operation. To insure adequate minimum velocities, it may be necessary to use multiple lines. Flow in these lines can be regulated by control structures such as overflow weirs. Inverted siphons may require cleaning more often than gravity sewers.

A conservative Hazen-Williams C of 100 (Manning n from 0.014 to 0.018) should be used to calculate head loss. Material that would be considered for siphons include VCP and concrete lined ductile iron pipe. Final selection of pipe materials would be made during the detailed design phase.

Force Mains

Force mains are designed to flow full with minimum velocities required to prevent deposition of suspended solids. Velocities normally fall within a range of from 3 to 5 fps. A velocity of 2 fps is considered to be sufficient to prevent settling of solids, but velocities of from 2.5 to 3 fps are required to resuspend those which already have accumulated in the force main. If flushing velocities are attained once or twice a day, excessive deposits are not likely to occur.

Material that would be considered for force mains is mortar-lined ductile iron pipe. Final selection of pipe materials would be made during the detailed design phase.

Diameters were calculated using the Hazen-Williams formula with a coefficient of roughness equal to 110.

Pump Stations

Pump stations should be planned to have three units of equal size. One or two units could operate at one time with the third unit acting as a standby in case one of the primary units fail. Two pumping units operating at the same time should be sized to handle the peak hourly flow. Large pump stations should be designed for staged construction where necessary. Large pump stations provide for complete separation of wet and dry wells with easy access to both. The smaller pump stations are assumed to be a packaged unit type that are installed below grade and access is made through a manhole structure. In all cases, standby drives or power units will be provided in cases where bypassing cannot be allowed around the pump station.

Preliminary Sewer Layouts and Service Areas

In order to determine preliminary sewer layouts and service areas, tributary wastewater flow areas had to be developed. The tributary sewage flow areas (service areas) shown on Plate 3 were developed based on two criteria. First, in undeveloped regions, tributary sewage flow areas were determined from Riverside County Flood Control Topographic Maps (1 inch equals 400 feet). Thus, only generalized tributary areas could be determined due to the accuracy of the maps. The exact drainage boundaries may vary when future engineering plans are developed. Therefore, in the undeveloped areas, the wastewater was assumed to flow based on the natural drainage patterns of the existing topography.

In the developed areas of the study area, the tributary sewage flow areas were based on the layout of the existing collection system. These areas are also approximate since many areas adjacent to existing sewer lines may be able to drain differently than originally assumed.

To permit an analysis of the finances necessary to construct new sewers, preliminary layouts or designs of the proposed facilities were made for each service area. These layouts are preliminary. Many factors may change with a more focused design engineering report. Hence, it is expected that relocation and/or resizing of some of the facilities may be required at a later date as a result of detailed engineering analysis during the preparation of construction drawings and specifications.

The proposed sewage pump station (service areas L & M) should be designed so ready expansion can occur when necessary. Thus, mechanical equipment may be installed at various stages of development. In general, large trunk and interceptor sewers should be designed for long-term requirements.

Gravity flow pipelines should be designed with the latest pipe materials providing rubber or plastic ring joints to assure a permanent water tightness. Vitrified clay pipe material, unless otherwise indicated, is assumed to be used in future construction of gravity pipelines for purposes of comparative cost evaluation. Final recommendation of any specific sewer pipe material, however, will be made at the time of final design.

Based upon the locations of the existing sewerlines, capital improvement projects proposed by the District, and the tributary topographical areas previously discussed, the study area was divided into thirteen sewer service areas. These thirteen service areas are shown on Plates 3 through 9.

Cost Estimation Criteria

Proper and consistent cost estimation is essential in determining the feasibility of a proposed project. Construction costs for all plans are based upon preliminary layouts of proposed facilities. For estimating purposes, the prices of comparative work were obtained from a variety of available sources of current information such as recent project bid data,

literature publications, telephone and personal contacts with manufacturers and suppliers of equipment.

In reviewing the cost estimates presented herein for the proposed projects, it is essential to realize that changes in estimates during final design will alter the totals to some degree, and that future changes in the cost of material, labor, and equipment will certainly cause comparable changes in the cost summarized herein. Some of the specific cost estimating factors are discussed in the following subsections. The cost data presented herein is comprised of two primary components: estimated construction costs and estimated project costs.

Estimated Construction Costs

The basic estimated construction costs apply to preliminary design and layout of the major facilities required for the proposed facilities. In such layouts, detailed construction drawings and specifications are not required. Instead, reasonably close approximations of the size, location, route and cost of the various facilities were developed in sufficient detail to permit cost estimates to be made. Estimated construction costs were based upon what one might expect of a "low bid" price to construct the required improvements.

Estimated Project Costs

In addition to construction costs which are commonly referred to as "hard costs", incidental costs, commonly referred to as "soft costs", which are necessary during the planning, design, and construction of the project, must be included to obtain an overall or total project cost. Project costs include construction costs, construction contingencies, design engineering, surveying and mapping, geotechnical, legal and administration, inspection, environmental documentation (excluding an EIR and/or EIS) assessment engineering and finance. The total project cost in this report has been determined to be 1.45 times the estimated construction cost plus land acquisition costs. It should be noted that the total project costs include public right-of-way portions only (i.e. sewermain to

R-O-W line). Private side costs (i.e. abandonment of septic system and construction of the lateral from the R-O-W line to the structure) are not included. These private side costs are estimated to be $1,300-$2,100 per parcel. Additionally, sewer connection charges which are currently at $1,910/EDU are not included. The connection charge is comprised of two components: (1) wastewater treatment facility expansion (83%); and (2) interceptor line installation (17%).

A contingency allowance is made for uncertainties associated with preliminary design. Such factors as differences in final lengths and exact topography associated with the pipelines, unknown underground substructures, and changes made during construction, are a few of the many items which may increase contract costs and for which some allowance must be made in preliminary design estimates.

The cost of engineering services for major construction projects may include special investigations, predesign reports, surveys, foundation explorations, location of interfering utilities, detailed design, preparation of contract drawings and specifications, construction inspection, materials testing, and final inspection of the completed work. Depending on the size and type of the project, total engineering costs may range from 7 to 20 percent of the contract cost. The lower percentage applies to large projects and those which do not require a large amount of preliminary investigation. The higher percentage applies to smaller projects or to those which require a relatively large amount of preliminary work.

Legal costs would include items such as assistance in R-O-W acquisition, specification review, construction contract review and approval, coordination during construction, etc. Administrative costs would be those associated with contract administration, progress payments to the Contractor, change orders, notice of completion, etc. Assessment engineering and financing costs are those associated with securing funds to pay for the proposed improvements and determination of equitable method(s) of sharing the costs (i.e. costs to benefits). Environmental documentation includes those basic services

necessary to obtain environmental clearance to perform the construction. However, extensive environmental services such as those that would be necessary for an environmental impact report and/or environmental impact statement are not included.

Construction costs can be expected to undergo long-term changes in keeping with corresponding changes in the national economy. The best available barometer of these changes is the Engineering News-Record Construction Cost Index (ENR-CCI), which is computed from prices of construction materials and labor. For purposes of this report, cost data are based on an ENR-CCI Los Angeles of 6519 (September, 1996). By reference to the ENR-CCI at any future date, the estimated construction costs included herein can be adjusted to match the current costs at that future date. This allows the estimated costs to be updated to the time when actual construction is undertaken.

Cost Estimates

Total project costs for this report were derived based upon two components. The first component is costs relating to the collection system improvements within the thirteen sewer service areas (Plate 3). The second component is costs relating to the District's trunk sewer capital improvement projects that are required to provide service to several of the sewer improvement areas (Plate 3).

Construction and project costs were determined for each of the thirteen service areas of the first cost-estimating component and were based upon preliminary layouts of the proposed sewers in these service areas. Cost estimating data for construction was based upon the unit construction cost figures provided in Appendix F. Using the unit construction cost in Appendix F and the estimated quantity of sewer main and laterals, total estimated construction and project costs were determined for each of the thirteen service areas. Table IV-1 provides a summary of the total estimated construction and project costs for the thirteen proposed sewer areas.

TABLE IV-1

MISSION SPRINGS WATER DISTRICT
SEWER IMPROVEMENT PROJECT
PRELIMINARY PROJECT COST ESTIMATE

SERVICE AREA DESIGNATION	TOTAL SEWER MAIN PIPELINE LENGTH (LF)	ESTIMATED SEWER MAIN CONSTRUCTION COST [1,2]	NUMBER OF UNSEWERED PARCELS [3]	ESTIMATED SEWER LATERAL CONSTRUCTION COST [2,4]	TOTAL ESTIMATED CONSTRUCTION COST [2]	TOTAL ESTIMATED PROJECT COST [2,5]
A	46,400	$2,710,000	861	$990,000	$3,700,000	$5,370,000
B	8,500	$500,000	268	$310,000	$810,000	$1,170,000
C	17,800	$1,040,000	442	$510,000	$1,550,000	$2,250,000
D	47,700	$2,780,000	992	$1,150,000	$3,930,000	$5,700,000
E	27,400	$1,600,000	509	$590,000	$2,190,000	$3,180,000
F	44,200	$2,580,000	1142	$1,320,000	$3,900,000	$5,660,000
G	17,900	$1,040,000	193	$220,000	$1,260,000	$1,830,000
H	17,700	$1,030,000	364	$420,000	$1,450,000	$2,100,000
I	13,400	$780,000	333	$380,000	$1,160,000	$1,680,000
J	25,900	$1,510,000	566	$650,000	$2,160,000	$3,130,000
K	14,500	$850,000	262	$300,000	$1,150,000	$1,670,000
L	34,400	$2,410,000	826	$950,000	$3,360,000	$4,870,000
M	42,400	$2,470,000	916	$1,060,000	$3,530,000	$5,120,000
TOTALS	358,200	$21,300,000	7674	$8,850,000	$30,150,000	$43,730,000
CAPITAL IMPROVEMENT PLAN PIPELINES [8]						$2,356,000
TOTAL ESTIMATED SEWER IMPROVEMENT PROJECT COST [9]						$46,086,000

1 Cost of sewermain including manholes, wyes and mainline pavement removal, replacement and cap (refer to Appendix F for details).

2 Cost rounded to nearest $10,000

3 All parcels contiguous to existing sewermain within the service area were assumed to have existing sewer laterals. The remaining parcels within the service area whether undeveloped or developed were assumed to require a lateral to be constructed (refer to Table II-1 for details).

4 Cost of sewer laterals including lateral pavement removal, replacement, and cap (refer to Appendix F for details).

5 Project cost is 1.45 times construction cost. Project cost includes: construction cost, construction contingencies, engineering, legal, assessment engineering, geotechnical services, inspection, finance and District administration. Costs are based upon Engineering News Record (ENR) Construction Cost Index Los Angeles September, 1996 (ENR 6519). Right-of-way and land acquisition costs are not included.

6 Includes $200,000 and $200,000 allowances for construction of a sewage lift station and force main respectively.

7 Costs include public right of way portion only (i.e. sewermain to R-O-W line). Private side costs (i.e. abandonment of septic system and construction of the lateral from the R-O-W line to the structure) are not included. These private side costs are estimated to be $1,300-$2,100 per parcel.

8 Refer to Table IV-2

9 Sewer connection charges which are currently at $1,910/EDU are not included. The connection charge is comprised of two components: (1) wastewater treatment facility expansion (83%); and (2) interceptor line installation (17%).

The second cost-estimating component consists of District capital improvement projects (Plate 3) that are required to provide sewer service to several of the above mentioned sewer service areas. These projects are itemized on Table IV-2 along with their estimated project costs.

TABLE IV-2

MISSION SPRINGS WATER DISTRICT
SEWER IMPROVEMENT PROJECT
CAPITAL IMPROVEMENT PLAN PIPELINES
PRELIMINARY PROJECT COST ESTIMATE

ITEM NO.	PROJECT DESCRIPTION	TOTAL ESTIMATED PROJECT COST [1]
1	Two Bunch Palms Trail sewer extension - 1,950 linear feet of 8" vitrified clay pipe on Two Bunch Palms Trail from LaMesa to West Drive to serve the new elementary school	$220,000
2	Project #37 sewer interceptor - 2,900 linear feet of 8" vitrified clay pipe and 10,900 linear feet of 12" vitrified clay pipe to provide sewer service into the Corsini School area	$923,000
3	Project #37A addition - 2,500 linear feet of 8" vitrified clay pipe from Project #37 north on Mountain View Road	$136,000
4	Project #37B addition - 1,600 linear feet of 8" vitrified clay pipe from Project #37 north into the Miracle Hill area	$88,000
5	Project #37C addition - 3,300 linear feet of 8" vitrified clay pipe from Verbena Drive north and east into the Two Bunch Palms Trail area north of Miracle Hill	$289,000
6	Project #S2 sewer interceptor - 7,900 linear feet of 8" vitrified clay pipe from Eighth Street and West Drive north. Installation in West Drive, Mission Lakes Boulevard, Santa Cruz Road and Casa Grande Drive	$700,000
	TOTAL ESTIMATED PROJECT COST	$2,356,000

[1] Mission Springs Water District Annual Budget for fiscal year 1996-97.

V. PROJECT BENEFITS

From the background information previously presented, it is evident that a wastewater system improvement project is required that will significantly reduce the potential of and hopefully eliminate a groundwater contamination event. When the District expands it's Alan L. Horton Wastewater Treatment Plant from 1,000,000 gallons per day to 2,000,000 gallons per day, one of the primary benefits of the expansion will be to provide a safe and reliable facility to treat the area's wastewater.

As previously presented, the groundwater basin on the northeast side of the Mission Creek Fault (Plate 1) generally contains hot water at a depth of about 35-75 feet, or less in certain locations near the fault. The primary business activity and economic base of the community within the District's area centers upon commercial spas, mineral baths, hotels, motels, etc. which depend upon utilizing privately-owned hot water vertical wells for source of supply. The groundwater basin on the southwest side of the fault generally contains cold water at a depth of about 300-550 feet. The District's sole source of water supply for its domestic/fire protection system is from its pristine cold water vertical deepwells. Further, in near future, Colorado River water will also be available through a turnout in the aqueduct to resupply the Mission Creek Subbasin. Therefore, protection of the groundwater does not only protect the economic base of the community but also the only source of water supply for the District and surrounding agencies.

Construction of the proposed sewer project is planned to mitigate the threat of groundwater contamination, by sewering the 3,633 presently unsewered developed parcels. This proposed sewerline extension project will: (1) benefit the City's economic base mainly comprised of existing and future commercial spas, mineral baths, hotels, and motel businesses by protecting the quality of the hot side groundwater; (2) benefit the existing and future homeowners and businesses by eliminating the need for expensive,

repetitive pumping and/or replacement of individual, privately-owned failing sewerage disposal systems; (3) benefit all existing and future residential and business customers connected to the District's domestic/fire protection system by protecting the quality of the cold side groundwater; and (4) benefit other existing and future downstream users of the regional groundwater basin.

In summary, a sewer improvement project must be implemented that will accomplish the District's goal of mitigating the potential of groundwater contamination. The successful implementation of such an improvement project will benefit the community at large by maintaining the area's groundwater quality thus eliminating any catastrophic public health event.

VI. IMPLEMENTATION, PRIORITIES AND FUNDING

Implementation

Procedure

The items to be completed subsequent to this Project Report, necessary to implement the proposed phased sewer improvement project include:

1. Make applications for funding assistance.
2. Continue public participation.
3. Obtain environmental compliance.
4. Obtain necessary permits and easements.
5. Finalize funding programs and financial plan.
6. Establish final phased-construction priorities.
7. Complete final design plans and specifications.
8. Perform project construction.

Regulatory Compliance

During implementation of the proposed sewer improvement project, compliance is required with the regulations and policies of the California Regional Water Quality Control Board, the California Department of Health Services Office of Drinking Water, the Riverside County Environmental Health Department, and of the Federal, State, and/or County funding agencies involved in the final funding program(s), including California Environmental Quality Act (CEQA) and National Environmental Protection Act (NEPA) documentation as required.

Priorities

Implementation Plans

The implementation plan may need to be adjusted subsequent to further investigations and determinations including funding eligibility/availability, public participation/input, groundwater contamination studies, growth areas, development densities, septic system failure rates, environmental documentation, etc. — all of which can affect final financing plans and/or construction time schedules for all or any portion of the proposed sewer improvement project.

Funding

As shown on Plate 3, the proposed sewer project is phased into service areas A through M, plus trunk mains named Extension 37, Addition A, Addition B, Addition C, Extension S-2, and Two Bunch Palms Trail.

The District's and Webb's staff jointly determined the unit construction cost-estimating data for the sewermains and sewer laterals. This data is summarized in Appendix E. Sewermain unit construction costs total $58.30 per lineal foot (for 8" VCP), and lateral unit construction costs total $1,155 per each (4" VCP). Construction costs include VCP mains and laterals, pavement work, manholes, mobilization, traffic control, shoring and bracing, special construction items such as sand-cement slurry backfill under "tunneled" existing concrete facilities (i.e. curb and gutter), existing landscape and facility repair and/or replacement, ductile iron sewer pipe (where required), concrete encasement, etc.

Utilizing the unit construction costs developed in Appendix E, Table IV-1 subtitled Preliminary Project Cost Estimate summarizes for each service area A through M the sewermain length, sewermain construction cost, number of unsewered parcels, sewer lateral construction cost from main to R-O-W, total construction cost, and total estimated project cost. Project cost is 1.45 times construction cost to provide funding for construction contingencies, engineering, legal, assessment engineering, geotechnical services, inspection, finance, and District administration. Construction costs are based upon the ENR-LA index of 6519 (September, 1996). Private on-site costs for abandonment of septic system and construction of the lateral from the R-O-W line to the structure are not included. The District's sewer connection charge is also not included. The estimated project cost for the proposed sewer collection facilities for service areas A through M totals $43,730,000, for a total sewermain pipeline length of 358,200 lineal feet, including appurtenances.

Some years ago, final design-level plans were prepared for the District detailing the proposed sewer collection facilities for the service area A (Mission Lakes) portion of the entire project. During December 1996, for purposes of an independent check of current sewer construction costs in the Desert Hot Springs area, a qualified local sewer contractor priced the construction of the sewer collection facilities proposed for Mission Lakes, based upon the detailed plans previously prepared. The local sewer contractor's price was within $40,000 of the total estimated construction cost of $3,700,000 for Service Area A, thus indicating basic confirmation of the construction cost estimates utilized herein.

Regarding the sewer trunk mains named Extension S-2 and 37, Additions A, B, C, and Two Bunch Palms Trail, Table IV-2 summarizes for each facility the sewermain length and size, and estimated project costs. The estimated project cost for the proposed trunk sewermains totals $2,356,000 for a total trunk main length of 31,050 lineal feet, including appurtenances.

The overall estimated project cost for the proposed sewer collection facilities for service areas A through M including the proposed six (6) trunk sewermains totals $46,086,000 for a total sewermain pipeline length of 389,250 lineal feet, including appurtenances.

During the second half of 1996 the District borrowed $5,000,000 via an installment sale agreement. The purpose of the loan was to provide funding for: (1) the advance construction of these six (6) trunk sewermains; (2) reimbursement to the District for sewer expenses regarding increasing capacity of the existing Horton Wastewater Treatment Plant; (3) lining existing sewer mains in the Desert Crest Country Club area; (4) sewer hookup program development within existing Assessment District No.'s 1, 3, 4 and 7; (5) reserve for purchasing 90 acres for siting the proposed regional Wastewater Treatment Plant in the North Palm Springs area, and; (6) funding required accounts and costs appurtenant to the issuance and execution of the installment sale agreement. Table VI-1 lists by line-item the description and estimated project cost for each scheduled disbursement by the trustee from the installment sale trust account totaling $5,000,000. The District is presently underway to complete the various items of work listed in Table VI-1, with completion planned for some of the items in advance of processing the

TABLE VI-1

MISSION SPRINGS WATER DISTRICT
SEWER IMPROVEMENT PROJECT
DESCRIPTION AND ESTIMATED PROJECT COSTS
INSTALLMENT SALE AGREEMENT

LINE ITEM (#)	SCHEDULED DISBURSEMENTS FROM INSTALLMENT SALE AGREEMENT (1996) (Description)	TOTAL ESTIMATED PROJECT COST[1] ($)
1	Construct Trunk Sewermain Extension 37	$ 923,000
2	Construct Trunk Sewermain Addition A	$ 136,000
3	Construct Trunk Sewermain Addition B	$ 88,000
4	Construct Trunk Sewermain Addition C	$ 289,000
5	Construct Trunk Sewermain Extension S-2	$ 700,000
6	Construct Trunk Sewermain Two Bunch Palms	$ 220,000
7	Reimburse District for SRF Loan for Increased WWTP Capacity	$ 951,676
8	Reimburse District for Engineering for Increased WWTP Capacity	$ 270,000
9	Reimburse District for Lining Existing Main, Desert Crest Country Club	$ 545,000
10	Existing Assessment Districts 1, 3, 4 & 7. Add remaining unconnected developed properties to the sewer collection system	$ 79,800
11	Reserve for Purchase 90 Acres for Regional WWTP	$ 335,000
12	Construction Contingency and Costs of Securing Loan	$ 462,524
	TOTAL	$ 5,000,000

[1] District's estimated costs.

assessment district procedures involved with the construction of sewer collection facilities for service areas A through M (Plate 3). Those portions of the disbursement amounts made under the District's installment sale agreement, then determined to benefit one or more of the sewer service areas A through M, are planned to be added into the total project cost of each respective assessment district in proportion to benefit received; thereby reimbursing the District accordingly for such eligible costs.

Implementation Plans

The District is tentatively planning to implement phased-construction of the proposed sewer project; initially constructing the six (6) sewer trunk mains, followed by combining the project collection facility work for the 13 service areas A through M into individual or combined assessment districts. This tentative plan is subject to future adjustments due to the results of further considerations including the District's Board policies, funding, public input, technical, environmental, and other issues.

Preliminary Financial Analysis for the Project

The District is tentatively planning to implement phased-construction of the proposed sewer project; initially constructing the six (6) sewer trunk mains, followed by combining the project collection facility work for the 13 service areas A through M into individual or combined assessment districts. This tentative plan is subject to future adjustments due to the results of further considerations including the District's board policies, funding, public input, technical, environmental, and other issues.

The following analysis is performed to obtain an estimate of costs per unsewered parcel to evaluate financial feasibility. The total project costs were spread on an unsewered parcel basis and will require further analysis as each assessment district is formed. Presently only Service Area "A" has had an analysis completed that identifies equivalent dwelling units and other uses on which the costs were spread. The future more in-depth analysis will identify the land uses or potential land uses within each service area. A daily residential waste water discharge quantity will be used as a base unit to determine an equivalent dwelling unit amount for all other land uses (those other than single family residential). These other land uses include multifamily, commercial, industrial, institutional and recreational.

As can be seen on Table IV-1 Service Area "G", has a very low number of parcels, (193), with a fairly high construction cost $1,830,000. Upon review of Plate No. 8, it can be seen that a substantially large portion of this service area has not been sub-divided and consists of some larger parcels. When an analysis is performed for the potential land use of those large undivided parcels, the unsewered parcel count, or ultimately the equivalent dwelling units, will be increased significantly. The same type of analysis will be necessary for Service Area "J", "K" and "M". There is also a school and the Riverside County Housing Authority located near the terminus of Extension 37. In addition, there are some large areas beyond the boundaries of the proposed service areas that will eventually be served by Extension 37, and Sewer Additions "A" and "B". At the present time, the entire costs of the trunk sewer facilities have been assigned to the

aforementioned service areas which currently do not include potential service areas outside the proposed.

It should be noted that the Mission Springs Water District has a sewer connection fee that will be charged in addition to any assessment district costs and also there will be an on-site cost for the abandonment of the existing septic tank system and connection to the proposed sanitary sewer system.

The following is an analysis that provides estimated costs per parcel for individual and combined sewer service areas. It should be noted that these cost estimates do not take into consideration any cost reduction that would occur if grants can be obtained.

Service Area "A" (Plate 5)

- Total Number of Equivalent Dwelling Units (EDU's) are from Actual Counts Provided by the Staff of Mission Springs Water District and are calculated as follows:

  168 Condominiums x 0.75 = 126 Equivalent Dwelling Units (EDU's)
  901 Single Family Lots = 901 Equivalent Dwelling Units
  126 EDU's + 901 EDU's = 1,027 total EDU's

- Total Estimated Project Costs = $5,370,000

  - Assessment Calculation/DU

    $$\frac{\$5,370,000 \text{ Project Costs}}{1,027 \text{ EDU's}} = \$5,228.82/\text{EDU}$$

  - Annual Costs per EDU Based on a Bond Term for 20 Years at 7.5 Percent is $98.10 per $1,000 of Assessment

    $$\frac{\$5,228.82}{\$1,000} \times \$98.10 = \$512.95$$

Service Area "B" and "C" (Plate 6)

- Total Estimated Project Costs

Area "B"	$ 1,170,000
Area "C"	$ 2,250,000
Line S-2	$ 700,000
	$ 4,120,000

- Total Number of Unsewered Parcels from Table II-1

Area "B"	268
Area "C"	442
Total	710

- Total Cost Per Unsewered Parcel

$$\frac{\$4,120,000}{710} = \$5,802.82$$

- Annual Cost Per Unsewered Parcel Based on Bond Term of 20 Years at 7.5 Percent is $98.10 Per $1,000 of Assessments

$$\frac{\$5,802.82}{1,000.00} = \$98.10 = \$569.25/\text{per year}$$

Service Area "D" and "E" (Plate 6)

- Total Estimated Project Costs

Area "D"	$ 5,700,000
Area "E"	$ 3,180,000
	$ 8,880,000

- Total Number of Unsewered Parcels from Table II-1

Area "D"	992
Area "E"	509
Total	1,501

- Total Cost Per Unsewered Parcel

$$\frac{\$8,880,000}{1,501} = \$5,916.06$$

- Annual Cost Per Unsewered Parcel Based on Bond Term of 20 Years at 7.5 Percent is $98.10 Per $1,000 of Assessments

$$\frac{\$5,916.06}{1,000.00} = \$98.10 = \$580.37/\text{per year}$$

Service Area "F" (Plate 7)

- Total Estimated Project Costs

  Area "F" $ 5,660,000

- Total Number of Unsewered Parcels from Table II-1

  Area "F" 1,142

- Total Cost Per Unsewered Parcel

$$\frac{\$5,660,000}{1,142} = \$4,956.22$$

- Annual Cost Per Unsewered Parcel Based on Bond Term of 20 Years at 7.5 Percent is $98.10 Per $1,000 of Assessments

$$\frac{\$4,956.22}{1,000.00} = \$98.10 = \$486.20/\text{per year}$$

Service Area "G" (Plate 8)

- Total Estimated Project Costs

  Area "G" $ 1,830,000

- Total Number of Unsewered Parcels from Table II-1

  Area "G" 193

- Total Cost Per Unsewered Parcel

$$\frac{\$1,830,000}{193} = \$9,481.86$$

- Annual Cost Per Unsewered Parcel Based on Bond Term of 20 Years at 7.5 Percent is $98.10 Per $1,000 of Assessments

$$\frac{\$9,481.86}{1,000.00} = \$98.10 = \$930.17/\text{per year}$$

Service Area "H" (Plate 8)

- Total Estimated Project Cost

Area "H"	$ 2,100,000
Addition "C"	$ 289,000
Total	$ 2,389,000

- Total Number of Unsewered Parcels from Table II-1

Area "H" 364

- Total Cost Per Unsewered Parcel

$$\frac{\$2,389,000}{364} = \$6,563.18$$

- Annual Costs Per Unsewered Parcel Based on Bond Term of 20 Years at 7.5 Percent is $98.10 Per $1,000 of Assessments

$$\frac{\$6,563.18}{1,000.00} = \$98.10 = \$643.85/\text{per year}$$

Service Area "I", "J", and "K" (Plate 8)

- Total Estimated Project Cost

Area "I"	$ 1,680,000
Area "J"	$ 3,130,000
Area "K"	$ 1,670,000
Sewer Extension 37	$ 923,000
Addition "A"	$ 136,000
Addition "B"	$ 88,000
Total	$ 7,627,000

- Total Number of Unsewered Parcels from Table II-1

Area "I"	333
Area "J"	566
Area "K"	262
Total	1,161

- Annual Costs per Unsewered Parcel Based on a Bond Term of 20 Years at 7.5 Percent is $98.10 per 1,000 of Assessment

$$\frac{\$7,627,000}{1,161} = \$6,569.34$$

- Annual Costs Per Unsewered Parcel Based on Bond Term of 20 Years at 7.5 Percent is $98.10 Per $1,000 of Assessments

$$\frac{\$6,569.34}{1,000.00} = \$98.10 = \$644.45/\text{per year}$$

Service Area "L" and "M" (Plate 9)

- Total Estimated Project Costs

Area "L"	$ 4,870,000
Area "M"	$ 5,120,000
Total	$ 9,990,000

- Total Number of Unsewered Parcels from Table II-1

Area "L"	826
Area "M"	916
Total	1,742

- Total Costs per Unsewered Parcel

$$\frac{\$9,990,000}{1,742} = \$5,734.79$$

- Annual Costs Per Unsewered Parcel Based on Bond Term of 20 Years at 7.5 Percent is $98.10 Per $1,000 of Assessments

$$\frac{\$5,734.79}{1,000.00} = \$98.10 = \$562.58/\text{per year}$$

A summary of the forgoing costs is provided on Table VI-2. It should be noted that these costs are estimates only. The final costs will be based upon actual construction bids, incidental costs, and bond rates. Further, the following observations are noted.

- Service Area "B" and "C" include the total costs of line S-2. This line may be prorated to other service areas depending upon further analysis.

- Service Area "G" has only 193 parcels and a cost of $1,830,000. This parcel count is a bit misleading as there are some very large undeveloped properties within the Service Area and subsequent development will increase the number of unsewered parcels in this Service Area substantially.

- Service "H" includes the total cost of Addition "C". This line, more than likely will be prorated to other areas that are presently unsewered and are not part of this study.

TABLE VI-2

MISSION SPRINGS WATER DISTRICT
SEWER IMPROVEMENT PROJECT
PROJECT COST SUMMARY PER PARCEL[1, 2, 3, 14]

SEWER SERVICE AREA[4]	ESTIMATED PROJECT COST PER PARCEL[5, 6]	ESTIMATED ANNUAL DEBT SERVICE PER PARCEL[7, 8]
A	$5,230[9]	$515[9]
B, C[10]	$5,810	$570
D, E	$5,920	$585
F	$4,960	$490
G	$9,490[11]	$935
H[12]	$6,570	$645
I, J, K[13]	$6,570	$645
L, M	$5,740	$565

1 The District is tentatively planning to implement phased-construction of the proposed sewer project; initially constructing the six (6) 1996 capital improvement projects (Plate 3), followed by combining the project collection facility work for the 13 service areas A through M (Plate 3) into individual or combined assessment districts. This tentative plan, including the combination of service areas shown, is subject to future adjustments due to the results of further considerations including the District's board policies, funding, public input, technical, environmental, and other issues.

2 This analysis was performed to obtain an estimate of costs per unsewered parcel to evaluate financial feasibility. The total project costs were spread on an unsewered parcel basis and will require further analysis as each assessment district is formed. A future more in-depth analysis will identify the land uses or potential land uses within each service area and identify the number of equivalent dwelling units. When the analysis is performed for the potential land use of large undivided parcels, the unsewered parcel count, and ultimately the equivalent dwelling units, will be increased which would consequently reduce the costs per residential parcel. In addition, there are some large areas beyond the boundaries of the proposed service areas that will eventually be served by Extension 37, and Sewer Additions "A" and "B". At the present time, the entire costs of these trunk sewer facilities have been assigned to the appropriate service area which currently do not include potential service areas outside the proposed. Finally, the costs provided do not reflect any reduction in project costs should grants become available.

3 Costs are based upon Engineering New Record (ENR) Construction Cost Index, Los Angeles, September, 1996 (ENR 6519). Right-of-way and land acquisition costs are not included.

[4] Refer to Plate 3.

[5] Costs do not include "on-site" costs such as abandonment of the existing septic tank system and the private side lateral from the street right-of-way to the structure to be sewered. These private side costs are estimated to be $1,300 - $2,100 per residential parcel. Also, it does not include the District's sewer connection fee which is presently $1,910/EDU.

[6] Costs rounded up to nearest $10 increment.

[7] Costs rounded up to neared $5 increment.

[8] Annual cost per unsewered parcel based on bond term of 20 years at 7.5%.

[9] Estimated cost per EDU.

[10] Includes Line S-2 (Plate 3). This line may be prorated to other service areas depending on further analysis.

[11] Service Area "G" has only 193 parcels and a cost of $1,830,000. This parcel count is a bit misleading as there are some very large undeveloped properties within the Service Area and subsequent development will increase the number of unsewered parcels in this Service Area substantially.

[12] Includes Addition "C" (Plate 3). This line, more than likely, will be prorated to other areas that are presently unsewered and are not a part of this study.

[13] Includes Sewer Extension 37, Addition A, and Addition B (Plate 3). Service Areas "I", "J", and "K" have been assessed for all of Sewer Extension Number 37. In addition, there is a large County housing project and an elementary school included in these service areas that are only counted as one parcel. Subsequent analysis will identify the number of EDU's within these service area. In addition, there are significant areas beyond the boundaries of these service areas that will receive service from Sewer Extension Number 37.

[14] It should be emphasized that subsequent work will determine the exact amount of existing and future EDU's which will provide a more accurate depiction of costs to the customers.

- Service Areas "I", "J" and "K" have been assessed for all of sewer Extension Number 37. In addition, there is a large County housing project and an elementary school included in these service areas that are only counted as one parcel. Subsequent analysis will identify the number of EDU's within these service areas. In addition, there are significant areas beyond the boundaries of these service areas that will receive service from Sewer Extension Number 37.

- It should be emphasized that subsequent work will determine the exact amount of existing and future EDU's which will provide a more accurate depiction of costs to the customers.

Finally, as previously presented, the above mentioned costs do not include the costs of the abandonment of the existing septic tanks, the connection of the structure to the right-of-way line (on-site sewer lateral). In addition, there are sewer connection fees in the amount of $1,910/EDU that are required at the time of hook-up by the Mission Springs Water District.

Potential Funding Sources/Programs

A few years ago, the District made initial contact with the California State Water Resources Control Board (SWRCB) for financial assistance for extending the District's wastewater collection system into unsewered areas, resulting in the District being placed on their annual Priority List (Wastewater Collection System SRF Project No. C-06-4250-310) which was the first step towards possible funding assistance under the State Revolving Fund (SRF) Loan Program. The SWRCB's annual Priority List included this

proposed wastewater collection project at a $25,700,000 cost, and having a Priority Class D. This proposed project has continued to be placed on the SWRCB's annual Priority List each year, pursuant to their routine annual correspondence to the District, and the District's affirmative response. Appendix G contains a copy of the SWRCB's latest Notice to All Agencies dated November 7, 1996 including page 25 of the current Priority List showing Mission Springs Water District's wastewater collection project.

Last year, the District initiated written contact with U.S. Congressman Sonny Bono (44th District, California) and State Assemblyman Jim Battin (80th District), requesting their help and guidance in obtaining grants that would offset the high cost of this proposed wastewater collection project. Appendix H contains copies of the District's letters dated June 20, 1996, addressed to the legislator's local offices. Both Congressman Bono and Assemblyman Battin responded verbally to the District's General Manager John Morgan, offering their continuing assistance in this regard.

During December, 1996 as requested by the District, Webb reviewed and updated a comprehensive list of potential funding sources for this proposed sewer project including Federal, State and County agencies/programs, which tentatively identified for further review about three dozen sources. Webb next obtained and reviewed written summaries of each identified funding program, including phoning some agencies as required, for initial screening purposes and to verify names and addresses in preparation for transmitting the District's initial correspondence. This initial screening of the three dozen sources resulted in the preliminary selection of ten agencies, handling twenty potential funding programs, who are the contacts for reviewing the District's initial

correspondence regarding funding availability, eligibility, etc. Appendix I contains a listing of funding contacts including names and mailing addresses, along with the name/title of the one or more potential funding programs initially handled by each contact organization. Also, as requested by the District, Webb is currently completing preparation of the initial correspondence package for the District's transmittal to each funding contact organization. Appendix J contains a copy of said initial correspondence package titled "Overview of Mission Springs Water District and Background Information for Proposed Sewer Project" (Final Draft, dated April 7, 1997) including the attached 11" x 17" Plate 1 and Tables 2 through 4. The District plans to follow-up as required with all prospective grant/loan funding sources, including pre-applications, applications, meetings, etc.

In addition, the District plans to transmit copies of said initial correspondence package (Appendix J) to the appropriate Federal, State and County legislators, requesting Special Legislative Appropriation(s) for grant assistance to offset the high cost of this proposed wastewater collection project. The District plans to coordinate closely with the legislators involved with handling these special appropriations.

As shown on Plate 3, ten of the thirteen service areas planned for construction of sewer collection facilities under this project, and almost all of the six proposed sewer trunkmains, are located within the boundary of the City of Desert Hot Springs. The District plans to continue close coordination with the City regarding all aspects of this project, including exploring the possibility of the City applying for and possibly obtaining grant funds (such as Community Development Block Grant, or other funding

program available to cities) for a contribution in aid of construction towards the cost of project facilities located within the City.

The District is currently completing preparation of a letter requesting written responses supporting this proposed sewer project, explaining needs for sanitary sewers and recommending support through grants and loans. Appendix K contains a draft copy of the District's letter, along with the mailing list including regulators, legislators and various public organizations.

VII. PRELIMINARY ENVIRONMENTAL EVALUATION

Overview

The pipeline and lift station improvements proposed under this sewer improvement project are essentially limited to paved roads within areas of existing development in the City of Desert Hot Springs. The following limited lengths of pipeline are located outside of existing disturbance areas (i.e. paved roads) and are the focus of the following discussion:

Sewer Extension 37 (2900 linear feet of 8-inch diameter sewer and 10,900 linear feet of 12-inch diameter sewer to provide sewer service into the Corsini School area).

Addition B (1600 linear of 8-inch diameter sewer from Project 37 north into the Miracle Hill Area).

Terrace Way/Pomelo Drive Connection (approximately 400 linear feet of 8-inch diameter sewer to drain Pomelo Drive into Terrace Way).

Casa Grande/Santa Cruz Road Connection (approximately 400 linear feet of 8-inch diameter sewer connecting the Casa Grande sewer to the Santa Cruz Road sewer).

Mission Lakes Boulevard/Little Morongo Road Connection (it is anticipated that this section of 12-inch diameter sewer will be reconfigured to be constructed in Mission Lakes Boulevard. and Little Morongo Road).

Potential Issue Areas

The preliminary evaluation summarized below is based upon the impact areas outlined in the standard California Environmental Quality Act checklist form and the various federal statutory regulations that are typically considered in environmental evaluations pursuant to various federal programs. The following summarization of potential issues considers existing information from local general plans, established mapping resources and recent aerial photographs of the study area. The nature of the proposed improvements and conditions in the project area eliminate potential constraints related to land use and planning, population and housing, energy and mineral resources, hazards, noise, public services, aesthetics, recreation, coastal resources, agricultural lands, forest lands, wild and scenic rivers, and wilderness areas.

Geologic Problems

As noted in the preceding discussion of the physical setting, the study area is bisected by the Mission Creek Fault which is a splay of the San Andreas Fault, for which a Special Studies Zone is designated. While the potential magnitude of impact for the proposed pipelines and lift station is limited, the exposure nevertheless exists, and presents the potential for spills of raw waste in the event of a pipeline break or pump failure as a result of seismic activity. Established engineering design features and District operation (valves and shut-down procedures) address this potential.

Water

The out-of-street pipeline segments include crossings of intermittent drainages and alluvial fan areas within designated flood zones. The subsurface nature of proposed pipelines and nature of flood flows across the broad plains limit the exposure to damage related to scour and exposure of the pipelines. Standard engineering practice will ensure consideration of scour hazard and incorporation of necessary design features to protect the proposed improvements and the floodplain. If federal funding is pursued, compliance with the "practicable alternative" evaluation requirements of Executive Order 11988 may be required.

Air Quality

The study area is within a designated blowsand hazard area. Relative to air quality, this means that established construction methods may be required to control particulate emissions during facility construction.

Transportation/Circulation

The project may temporarily inconvenience local residents during construction of pipeline segments within local roads. Considering standard traffic control measures and the limited duration of potential impacts at any one location, this is not considered a significant issue.

Biological Resources

Based upon review of existing resources and informal consultation with United States Fish and Wildlife Service representatives, several federal and/or state-listed species

are potentially present in the project area, including the Coachella Valley fringe-toed lizard, desert tortoise, flat-tailed horned lizard, and San Bernardino gilaia. Habitat for the desert bighorn sheep is restricted to the mountains beyond the potential impact area. Also, a comprehensive plan for protection of the fringe-toed lizard is in place; although the project established a mitigation fee area which includes part of the study area for the proposed improvements, the proposed project is exempt from mitigation fees because it is a public works project.

Utilities

The proposed sewer conveyance facilities will result in delivery of additional flows to the District's Horton wastewater treatment plant. The Horton plant is presently designed to treat a volume of 1 million gallons per day, while receiving flows of approximately 0.8 mgd. Engineering plans and specifications are available for an expansion to a capacity of two million gallons per day and construction is scheduled to begin when additional capacity is required. The approximately 5,000 unsewered residences would represent an additional flow of about 1.1 million gallons per day based upon an average flow of 100 gallons per capita per day.

Cultural Resources

Considering known information about Indian occupation and historic settlement of the Desert Hot Springs area, there is some potential for existence of cultural resources within potential disturbance areas for the proposed improvements. Prior to any construction, a records search will be conducted and, if necessary, site-specific surveys by a qualified cultural resources specialist will be conducted.

Summary of Preliminary Environmental Evaluation

The proposed improvements are substantially located in existing developed areas and represent limited potential for environmental impacts. Established programs and practices are available to address potential issues related to seismicity and blowsand hazards. Further evaluation of potential impacts related to flood hazard, biological resources, and cultural resources may be required for portions of facilities located outside existing disturbance areas. While much of the proposed improvement project would likely be considered categorically exempt under the California Environmental Quality Act (CEQA) , and categorically excluded under the National Environmental Policy Act (NEPA), it is expected that out-of-road improvements and potential issues related to biological resources, flood hazard, and cultural resources will require preparation of an initial study to support adoption of a negative declaration under CEQA and preparation of an environmental assessment to support adoption of a finding of no significant impact (FONSI) under NEPA.

VIII. PUBLIC PARTICIPATION

Public Involvement to Date

The District's commitment to public involvement is evidenced by the fact that they have a community coordinator who is a full time employee of the District that prepares informational material for District customers and staff.

The Mission Springs Water District has been involved in educating the public about the protection of groundwater since the early 1990s. This public involvement began with a survey sent out to the customers served by the Mission Springs Water District to solicit their thoughts regarding septic tanks, water quality, sewers, and the cost of constructing additional sewers. The community responded by informing the District that they believed sewers were superior to septic tanks and they wanted sewers but they would not pay for them. Realizing the resistance to the installation of additional sewers throughout the District, the Board of Directors decided to first educate the community and then take another look at the problem. The educational process started about 1990 in the local schools. The District spoke to various civic groups including the Rotarians, retired community members, Mayor's Breakfast Meetings, The Hoteliers Association meetings and to each City Council person of the City of Desert Hot Springs. The Water District also started a quarterly eight page pamphlet called "The Pipeline". Topics covered in this pamphlet are all inclusive, everything of which the District needs to make the public aware of including the need for sewers and how important they are to protect the groundwater quality within the community. This pamphlet is sent to each customer. The District also instituted a *Waterways* column in the local newspaper that covers current news on District activities and water quality. This column is written by the District's Community Coordinator on an as-needed basis and offered by the newspaper as

a public service. This has proven very successful in the past and the District will continue to use it.

The Water District is one of the first Southern California communities to become a National Groundwater Foundation Member, which has evolved into the Groundwater Guardian Committee within the local Chamber of Commerce. This committee runs groundwater information programs which have made great progress in educating residents about their number one resource within the community - groundwater quality. From time to time, there is also a news program on the local cable channel discussing groundwater issues as they relate to the community as a whole. Efforts of the Groundwater Guardians resulted in the water being judged best untreated (second best against the other - four treated waters) in an international water tasting and competition, held in Berkeley Springs, West Virginia, February 22, 1997 (Appendix E).

Other sources of information provided to the public include the District's "Speakers' Bureau" which utilizes staff members to provide informational programs to various organizations throughout the District.

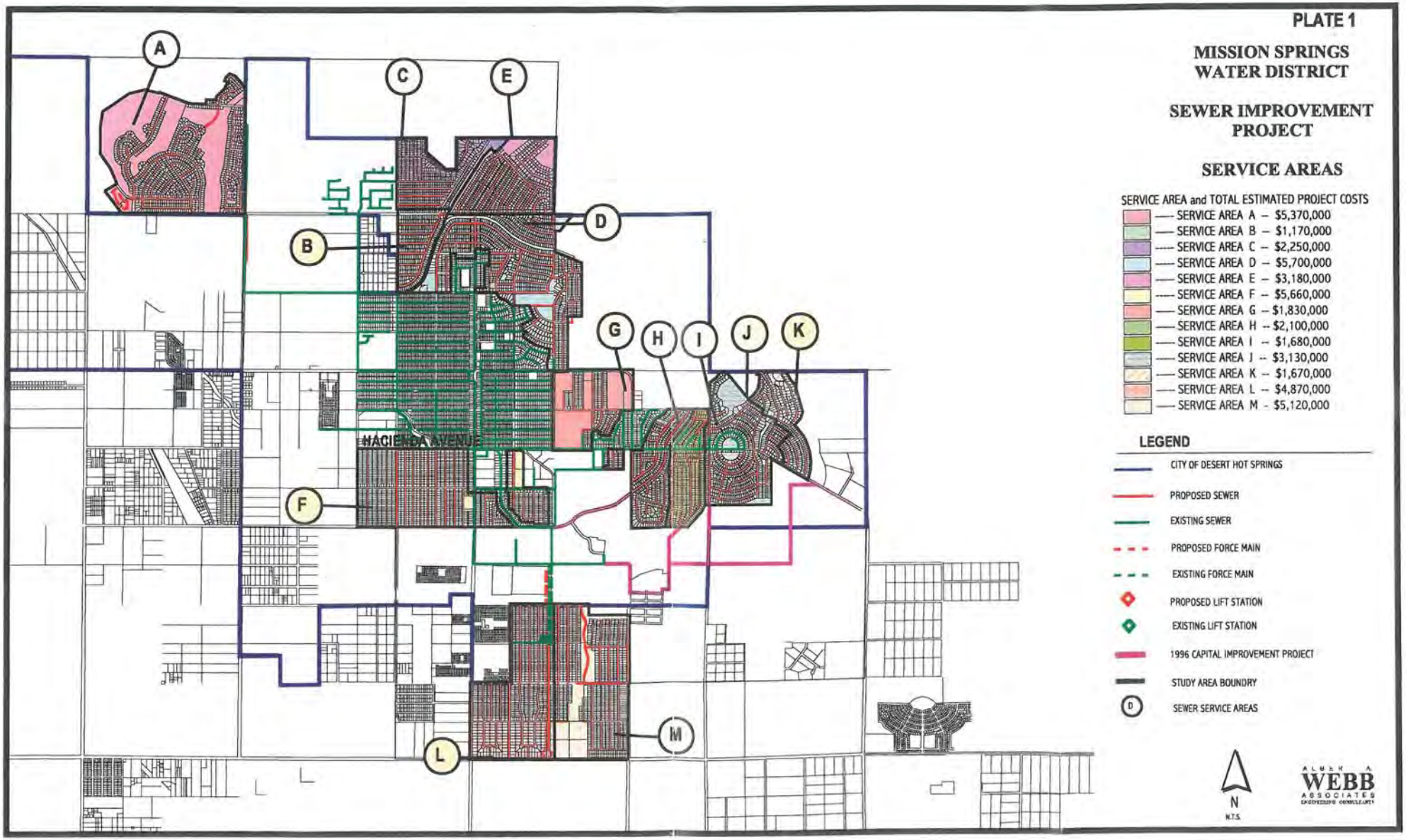
Description of the Proposed Program

The District, at the present time, is conducting numerous public informational meetings to educate the community on the potential groundwater pollution problems that the District and the community as a whole is facing. The public meetings include information on the geological makeup of the basin, including discussion of the Mission Creek Fault which causes hot water on the north side of the community and cold water on the south side of the community. Because of this fault the community is well known throughout Southern California for its spas and hot springs. This has enhanced the tourist industry in the community, and it is emphasized in these public meetings that to continue this tourist trade it is very necessary to protect the groundwater quality on both sides of the fault line. In addition to the geologic makeup of the basin, the president of the

Groundwater Guardian Committee gives talks about the groundwater guardian's goals and objectives. Also, there are presentations on assessment districts and other funding mechanisms to install the sanitary sewer systems and also the financial impact of doing nothing. In other words, the cost of cleaning up the groundwater is and will be much more expensive than preventing the pollution from occurring in the beginning. The Mission Springs Water District is also conducting site tours by bus for residents who are interested in viewing the District's existing facilities, including water wells, the wastewater treatment plant and other District facilities that relate to the sanitary sewer system. Also during these site tours the fault is pointed out and areas of heavy septic tank use and how they relate to the existing wells and the potential for the pollution of those wells. These site tours and workshops will continue for a period of time and will be followed up with meetings regarding the formation of assessment districts which will fund the construction and installation of the sanitary sewer systems. There will be continued mailings and hearings to keep the public involved, educated, and informed.

Summary of Project Related Outreach

In summary, the Mission Springs Water District is heavily involved in public education of the community as a whole about the need to protect the groundwater. Education of the community is evidenced by the eight-page pamphlet "The Pipeline", the *Waterways* column in the local newspaper, the Groundwater Guardian Committee and the continued public educational meetings and site tours. The Water District has a full-time employee who coordinates all of these activities to insure that the residents of the community and the customers of the Mission Springs Water District are fully aware and educated about the great resource they have - their groundwater.


PLATE 1
MISSION SPRINGS WATER DISTRICT
SEWER IMPROVEMENT PROJECT
SERVICE AREAS
SERVICE AREA and TOTAL ESTIMATED PROJECT COSTS
SERVICE AREA A -- $5,370,000
SERVICE AREA B -- $1,170,000
SERVICE AREA C -- $2,250,000
SERVICE AREA D -- $5,700,000
SERVICE AREA E -- $3,180,000
SERVICE AREA F -- $5,660,000
SERVICE AREA G -- $1,830,000
SERVICE AREA H -- $2,100,000
SERVICE AREA I -- $1,680,000
SERVICE AREA J -- $3,130,000
SERVICE AREA K -- $1,670,000
SERVICE AREA L -- $4,870,000
SERVICE AREA M - $5,120,000
LEGEND
CITY OF DESERT HOT SPRINGS
PROPOSED SEWER
EXISTING SEWER
PROPOSED FORCE MAIN
EXISTING FORCE MAIN
PROPOSED LIFT STATION
EXISTING LIFT STATION
1996 CAPITAL IMPROVEMENT PROJECT
STUDY AREA BOUNDRY
SEWER SERVICE AREAS
HACIENDA AVENUE
A
B
C
D
E
F
G
H
I
J
K
L
M
N
N.T.S.
ALBERT A WEBB ASSOCIATES

APPENDIX A

U.S.G.S. GROUNDWATER STUDY

MSWD
Mission Springs Water District

Directors
Nancy Wright
President
Dorothy Glass
Vice President
Mary Gibson
John Warner
Jack Webb

Officers
John L. Morgan
General Manager
Justine A. Mayo
Secretary
Consultants
Brunick, Alvarez & Battersby
Attorneys
NBS/Lowry
Engineers
Lund & Guttry
Auditors

October 18, 1996

A. Hubert Webb
c/o Albert A. Webb Associates
3788 McCray St.
Riverside, CA 92506

Groundwater Management - Mission Creek Subbasin

I was finally able to track down all of the participants for our meeting which has been set for Monday, December 2nd, at 10 a.m. This seemed to fit everyone's schedule.

Jack Oberle, General Manager of Desert Water Agency, has agreed to have the meeting at his agency and provide lunch. The location is:

1200 S. Gene Autry Trail
Palm Springs, CA 92262
(619-323-4971)

Please call me with the number of people you will be bringing so we know how many to expect.

Sincerely,

John L. Morgan
General Manager

Enclosure

66-575 Second Street, Desert Hot Springs, California 92240 • 619/329-6448
Fax 619/329-2482

United States Department of the Interior
U.S. GEOLOGICAL SURVEY
Water Resources Division
California District
Sacramento Projects Office
Federal Building, Room W-2233
2800 Cottage Way
Sacramento, California 95825
(916) 979-2615
Fax (916) 979-2668
http://water.wr.usgs.gov

June 17, 1996

Mr. John Morgan
Mission Springs Water District
66575 E. Second St.
Desert Hot Springs, CA 92240

Dear Whitey:
Attached is a short summary about our study of the contamination risk potential to the groundwater aquifers in your service area. It discusses the potential problem of contamination from septic tank systems, the factors influencing the groundwater situation, and some of the questions being examined in our analysis.

Please let me know if this is sufficient for your meeting with CVWD and DWA managers. I wish you well in your effort to talk and plan together to best utilize and protect your groundwater.

Sincerely,

Marti Ikehara

Marti Ikehara
Hydrologist

OPTIONAL FORM 99 (7-90)
FAX TRANSMITTAL
# of pages ▸ 3
To John Morgan
Dept./Agency MSWD
Fax # 619 329 2482
From Marti Ikehara
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NSN 7540-01-317-7368 5099-101 GENERAL SERVICES ADMINISTRATION

Mission Springs Water District (MSWD) requested the U.S. Geological Survey (USGS) to evaluate the potential risks of contamination to groundwater from septic tank systems in their service area which is centered in the city of Desert Hot Springs. Groundwater in the area, at the north end of Coachella Valley, is found both as a potable drinking-water supply and as a geothermally-heated resource. The two aquifers are separated by the Mission Creek Fault, a splay of the San Andreas Fault, which obliquely bisects the city. Geothermal groundwater is found east of the northwest-trending fault zone, and potable water is located to the west of the fault.

The USGS did not collect new data and examined existing data provided by MSWD and reviewed data from previous USGS studies of similar situations, most notably one in the Victorville area. Three primary aspects of this kind of a risk contamination study are the geology, the hydrology, and the septic tank operational characteristics. Data examined included water level, temperature, and chemistry data for cold and hot water wells; well construction data. Septic tank densities and areal extent and other potential sources of groundwater contamination were also reviewed.

Groundwater flow paths are critical in the study of groundwater contamination issues, and in this locale, the role of Mission Creek Fault as a barrier to or conduit for groundwater flow is a key question. Examination of the data provided indicates that the fault is currently an effective barrier to groundwater flow at the northern (upgradient) end of the hydrologic subbasins. On the basis of water chemistry and water level data, it appears that, in the past, some water from the thermal aquifer had migrated to the cold aquifer southeast of the city, south of Dillon Rd, between View and Corkhill Roads.

Factors influencing groundwater migration are recharge sources and conditions, and water quality considerations such as differing densities due to mineral content and water temperature. How do man-induced changes in the hydrologic regime affect groundwater? Could artificial recharge, whether intentional or incidental, exacerbate other problems? Factors influencing groundwater contamination are heavily influenced by the characteristics of the subsurface medium. Does the soil-contaminant reaction dissipate or alter or concentrate the contaminant? How do the physical properties of the subsurface lithology influence the mobility of the contaminant? One of the concerns in considering the thermal aquifer contamination potential is that the thermal groundwater is very shallow and actually seeps at the surface in some places near Miracle Hill. The risk of contamination to this resource from a number of sources is high under these circumstances.

One of the keys to protecting groundwater resources is to monitor various aspects of the aquifer(s), such as water levels or certain water chemistry parameters. Recommendations to be presented by the USGS in the final report will include suggestions about what to monitor and target locations. Early detection of changes in existing conditions, where no contamination has yet been measured, may enable changes in practices to eliminate or reduce the source of the contaminant.

Prepared by
Marti Ikehara
USGS Hydrologist

TRANSPORT OF CONTAMINANTS FROM WASTEWATER DISPOSAL SYSTEMS NEAR MISSION CREEK SUBBASIN, DESERT HOT SPRINGS, CALIFORNIA

PROBLEM

Septic tank wastewater disposal systems have been in use in the Desert Hot Springs community for three to four decades, and the city has changed from being a predominantly resort destination, noted for their natural hot water spas, to a community with year-round residents. In 1995, there were about 5,230 septic tank systems in the city of Desert Hot Springs and surrounding communities. Contamination of ground water resulting from the increasing quantity of wastewater discharge into the unsaturated zone is a major concern to the area's water purveyor, Mission Springs Water District (MSWD). The underlying alluvial aquifer on the west side of the city of Desert Hot Springs is the sole source of public water supply and alternate sources of water are not available. Wastewater contains contaminants, such as nitrogen, bacteria, and organic chemicals, that may degrade the quality of ground water and render it unsuitable for potable consumption. Because the Mission Creek subbasin is a sole source aquifer for Desert Hot Springs and surrounding communities, it is prudent to determine the potential for ground-water contamination from septic tank wastewater.

STUDY OBJECTIVES

The objectives of the proposed study are:

1. to measure the vertical distribution and concentrations of various chemical forms(species) of nitrogen and other compounds in the unsaturated zone and the shallow part of the saturated zone at two sites, and
2. to determine the potential for ground-water contamination from septic-tank wastewater.

DESCRIPTION OF STUDY AREA

Geography

Desert Hot Springs is an urban community of about 15,000 people (14,390 people in 1994, State Controller's office) situated at the far northern end of Coachella Valley in Riverside County, Southern California. It is about 60 mi east of Riverside, about 10 mi north of Palm Springs, and about 12 mi south of the town of Yucca Valley. Desert Hot Springs, at an altitude of about 1,100 ft, is at the base of the Little San Bernardino Mountains which extend to the north and east and rise to elevations exceeding 5,000 ft (fig. 1). This area receives less than 5 in. of rainfall per year, and has hot, dry summers and mild winters.

Geology

Other than the active stream channels, all of the sediments in the area are alluvial fan or stream wash deposits in former channels (California Division of Mines and Geology, 1968). Lithologic logs examined show that there are essentially no clay deposits, so the predominant sediments are sands and silts, with minor amounts of cementation. The absence of clay deposits suggests that the sediments are relatively permeable. The thickness of water-bearing sediments around the center of the Mission Springs subbasin is on the order of 800-1000 ft thick (Geotechnical Consultants, Inc., 1979, plate 8.)

A series of northwest-trending, principally strike-slip faults traverse this northern end of Coach-

ella Valley. One of these faults is the Mission Creek Fault, with the upthrown side on the northeast. This fault divides the ground-water system into a thermal-water aquifer on the northeast side, known as the Desert Hot Springs subbasin, and a cold-water aquifer on the southwest, known as the Mission Creek subbasin (fig. 1). Farther southwest are other faults, notably the Banning Fault and Garnet Hill Fault, which further compartmentalize the ground-water flow system. The faults have been mapped on the basis of geomorphology and botanic growth patterns visible in aerial photographs as well as evidence in the field. Cracks in manmade structures in the city delineate the location of Mission Creek Fault, and palm oases (Two Bunch Palms) and other heavy vegetative growth demarcate where ground-water surfaces as springs along this fault zone. Indirect evidence that Mission Creek Fault controls ground-water mobility are the differences in water levels and water chemistry, including temperature, on opposite sides of the divide. The low permeability of most faults, usually resulting from the presence of fault gouge, makes them effective barriers to ground-water flow. Fault gouge is pulverized, clayey material found between the walls of some faults and filling a fault zone. It is formed by the crushing and grinding of rock material as the fault developed, as well as by subsequent decomposition and chemical alteration caused by subsurface circulating solutions (Bates and Jackson, 1980, p. 224).

Hydrology

For the period 1949-78, annual rainfall averaged 4.7 inches at a rain gage (2S/5E-30P) in the northeast part of the city (Geotechnical Consultants, Inc., 1979). As is typical of arid desert environments with meager rainfall, potential evapotranspiration is much greater (on the order of 6 or 7 times) than average annual precipitation and results in negligible recharge from precipitation. At present, there are no artificial recharge facilities operated by MSWD, so the primary sources of recharge are tributary runoff, subsurface inflow from surrounding mountains, irrigation return flow and the water treated by individual wastewater disposal systems. The average seasonal tributary runoff from Mission Creek, the predominant (intermittent) stream in Mission Creek subbasin, was estimated to be 6,000 acre-ft for the period 1935-1957 (Department of Water Resources, 1964, p. 111). The average seasonal (annual) subsurface inflow from Morongo Valley through Big and Little Morongo Canyons was estimated to be about 200 acre-ft for the same period (Department of Water Resources, 1964, p. 113). An artificial source of recharge in the Mission Creek subbasin is return flow of irrigation water from the Mission Lakes Golf Course and surrounding residences, northwest of Desert Hot Springs. Another source of recharge is the wastewater from septic tank systems in the Mission Lakes area and the southwestern part of Desert Hot Springs.

None of the five named streams in the two subbasins are perennial, so there is no surface water outflow from the Mission Creek or Desert Hot Springs subbasins. Ground water springs, while important to the development of the city's economy, do not discharge significant quantities of water in terms of the water budget (Tyley, 1971). Evapotranspiration from the ground and from phreatophytes (native vegetation) is also a negligible source of ground-water discharge. The majority of ground-water discharge is pumpage from wells, both potable cold water and thermal water used in spa operations. MSWD owns 14 cold-water potable-supply wells, 9 of which are currently active (Table 1).

Water-level elevations observed in wells in Mission Creek subbasin indicate that ground-water flow is generally to the southeast in the western part of the basin, basically parallel to the fault boundaries, and to the south and southwest in the eastern part of the basin (fig. 2) . Three public-

supply wells in T2S/R4E-Section 36, MSWD Wells 22, 24, and 29, are probably altering the regional flow direction near the wells. The depth to water ranges from 300 to 550 ft in the area of Big Morongo Wash and Mission Creek channels, west of the city of Desert Hot Springs.

Ground-water quality

Water analyses done in 1993 from samples collected at the five MSWD wells in the Mission Creek subbasin that produce the majority of the water supplied for drinking water have been plotted as Stiff diagrams and are displayed adjacent to their locations (figure 3). Stiff diagrams display the relative amounts of the principal constituent cations and anions in milliequivalents per liter, and often include total dissolved solids (TDS). The cations shown are calcium (Ca), magnesium (Mg), and sodium plus potassium (Na + K) on the left side of the axis, and the anions are chloride (Cl), sulfate (SO_4), and bicarbonate (HCO_3) shown on the right. They were plotted in the same order (counterclockwise from the upper left) as those depicted on Plate 13 of Geotechnical Consultant's report for ready comparison with historic data. Comparisons between the 1993 and 1978 analyses show little change in the general chemical composition of these waters.

To date, human fecal coliform counts and nitrate concentrations of samples from public potable water supplies and thermal water wells have not exceeded maximum contaminant levels (MCL) for these parameters. Data from about 10 samples from 1970 to 1996 are provided (table 2) and graphed (figure 4) for nitrate (as NO_3), chloride (Cl), and sulfate (SO_4)for water from MSWD Well 22 and Well 23 and one sample from Well 30, which replaced Well 23 in production. In Well 22, variable nitrate (as NO_3) concentrations have been observed, increasing from a low of <1 ppm (parts per million, equivalent to milligrams per liter) in 1982 to a high of 6 ppm in 1993. This variability may suggest that septic-tank wastewater has contaminated the shallow part of the saturated zone.

CONTAMINATION RISKS FROM SEPTIC SYSTEMS

Of particular concern is the potential for nitrate to contaminate the aquifer because conventional water treatment has no significant effect on nitrate removal from water (National Academy of Sciences, 1974). Primary drinking water standards state that the MCL for nitrate concentration is either 45 mg/L as NO_3^- (promulgated by California Department of Health Services) or 10 mg/L as nitrogen (N)(promulgated by the U.S. Environmental Protection Agency [EPA]) (California Department of Water Resources, 1995). High levels of nitrate pose a risk to infants, particularly under 3 months old, who are bottle fed with formula prepared with tap water (U.S. EPA, 1986). Under certain circumstances, nitrate can be reduced to nitrite in the gastrointestinal tract and reach the bloodstream, reacting directly with hemoglobin to produce methemoglobin, consequently impairing transport of oxygen by the blood. Although many infants have drunk water that exceeded the MCL without developing the pediatric disease methemoglobinemia, serious and occasionally fatal poisoning of infants has occurred enough to warrant promulgation of water quality standards for this contaminant. The differences in susceptibility are not understood but appear to be related to a combination of factors including nitrate concentration, enteric bacteria, and the lower acidity that is characteristic of the digestive systems of baby mammals.

The issue of nitrate, bacteriological and virological contamination potential from septic system effluent to both the potable cold water and the thermal water resources is of significant concern.

There are a total of about 5,230 septic systems on record with MSWD as of October 3, 1995 (Nona Crawford, MSWD, written commun., 1995). The majority are active all year long and the rest are in operation seasonally when part-time residents occupy dwellings during the mild winters. A small sampling of subsurface waste disposal system densities in Desert Hot Springs, overlying both the thermal and cold ground-water subbasins, indicated that between 1.6 and 2.0 systems per acre was typical, which is 2.3 to 2.8 times, respectively, the recommended density of 0.7 systems per acre (Desert Water Agency [DWA] and University of California, Riverside [UCR], 1993) pg. 16). The density of systems in the Mission Lakes area, which completely overlie the cold water subbasin, was even higher, at 2.4 systems per acre (fig. 5). Septic systems generally consist of two parts--a septic tank or pit and a seepage pit area. Bacterial digestion in the tank reduces the volume of collected solids, and converts organic matter into simple chemical compounds and septage (DWA and UCR, 1993). After passing through the septic tank, wastewater enters a seepage pit area and migrates downward into the soil. Dispersion areas must provide sufficient surface area to allow wastewater penetration into surrounding soil. If active septic systems are spaced too close together, wastewater maybe unable to penetrate the soil at a rate equivalent to or greater than production. When failure occurs, wastewater rises to ground surface and the bacteriological component causes a nuisance (offensive odors) and public health risks (from disease).

The fecal matter of humans may contain human enteroviruses, viruses that infect and replicate in the intestinal tract, and parasites, such as Giardia. Members of the enterovirus group include viruses that cause poliomyelitis, aseptic meningitis, myocarditis, and diseases that cause severe central nervous system disorders (DWA and UCR, 1993). Enteroviruses are incapable of living outside of primate cells; thus, their detection is conclusive evidence of relatively recent (less than one year) contamination by human waste. Another group of viruses, coliphage, is also present in human fecal matter because they infect Escherichia coli, a bacterium that is always present in human intestinal tracts. The chemical and physical characteristics of coliphage are similar to enteroviruses, so coliform counts are often used as indicators for the presence of enteroviruses because the methods of detection in water and soil samples are relatively easy and rapid.

Even if the wastes being processed through the septic tank system undergo complete biological decomposition and the viruses expire, one of the byproducts is nitrate (NO_3^-). Nitrate does not sorb out of the soil as do the majority of soluted compounds. Nitrate either remains in solution and percolates downward or it can be converted to nitric oxide (NO), nitrous oxide (N_2O), and dinitrogen (N_2) by denitrification. Denitrification is the process of degradation of organic carbon by nitrate-respiring micro-organisms in the absence of oxygen.

CONTAMINATION POTENTIAL FROM SEPTIC TANK SYSTEMS

Results from a Septic Tank Study in Mojave River Basin

Because of the similarity in environment, results from a ground-water contamination potential study recently completed by the USGS in the Upper Mojave River Basin area, southeast of Victorville, are summarized here and similar calculations are presented for the Mission Creek subbasin. Although the lithology and aridity are similar between these two areas, depths to water table around Victorville were considerably shallower, ranging from 112 to 254 ft between 1988-89 in 12 boreholes at 8 residences, with an average depth of 150 ft (Umari and others, 1995, table 3).

Rates of vertical movement of a wastewater-wetting front, calculated from three different types of data collected in the Mojave study, ranged from 0.07 ft/d for unconsolidated, poorly sorted older alluvium and moderately to well-consolidated older fan deposits to 1.0 ft/d for unconsolidated silty sand and gravel. Based on those rates, travel time for the wastewater-wetting front to move down 150 ft through the unsaturated zone ranged from about 6 years to 6 months, although the movement rates of wastewater (solute) itself are significantly slower (Umari and others, 1995, pg. 53). Thus, the wetting front from pits constructed prior to the mid-1980s would have reached the water table by the time of the study. There were no elevated fecal coliform counts in any soil samples nor elevated nitrate concentrations in ground water samples collected near the water table; however, monitoring is continuing at two sites (Umari and others, 1995, pg. 79). There were about 46,000 unsewered residences in the study area of the Upper Mojave River Basin. It was estimated that, assuming an average discharge of 70 gal/d/person and 2.5 people per household, annual septic-tank wastewater discharge would have been 9000 acre-ft/yr, equal to about 18% of the estimated natural recharge. Concentration of total nitrogen in the wastewater ranged from 2.2 to 63 mg/L and averaged 46 mg/L (Umari and others, 1995). Water-quality mixing-model simulations made on the basis of the data collected in the Victorville study indicate that predicted nitrate-N concentrations in ground water would exceed 10mg/L (equivalent to 45 mg/L as NO_3) in less than 20 years under most reasonable assumptions for the various model parameters. Data collected on nitrate-respiring bacterial activity in the unsaturated zone coupled with the model simulations support the existence of a nitrogen-removal process and dilution by vertical mixing with low-nitrate ground water as mechanisms contributing to the non-elevated concentrations of nitrate in the samples collected.

Preliminary analysis of the Mission Creek subbasin

As stated previously, the depth to water ranges from 300 to 550 ft below land surface in the Mission Creek subbasin. Using the range of 0.07 to 1.0 ft/day for the vertical rates of water movement that were measured in the Mojave River Basin study, the travel times for the wastewater wetting front to reach the water table in the Mission Creek subbasin range from a minimum of 0.8 years (300 ft/1.0 ft/day/365 d/yr) to a maximum of 21.5 years (550 ft/0.07 ft/d/365 d/yr). The actual rates of wastewater (solute) will be significantly less than the rates for the wetting front, so the period of time for the wastewater to arrive at the water table will increase accordingly. Because many of the septic tank systems have been in operation for more than 25 years, these travel time estimates suggest that wastewater should be reaching the water table in the Mission Creek subbasin.

There are an estimated 5,230 households utilizing septic tank systems in the Desert Hot Springs area. Assuming an average daily septic-tank discharge of 23.4 ft^3 (Umari and others, 1995), annual septic-tank wastewater discharge is estimated to be 1,000 acre-ft/yr [(5,230 households x 23.4 ft^3/d/household x 365 days/yr)/43,560 ft^2/acre)]. Previous estimates of natural recharge to the area were about 6,000 acre-ft/yr (California Department of Water Resources, 1964). Therefore, the estimated septic tank discharge is equal to about 17% of the natural recharge to the area.

The total nitrogen concentration in septic wastewater is high (22 to 63 mg/L as nitrogen or 90 to 280 mg/L as nitrate) based on results from the Mojave River Basin study (Umari and others, 1995). The absence of widespread high nitrate concentrations in ground water in the area indicate

that either a significant fraction of the nitrogen present in wastewater is no longer present when it mixes into the ground water, or the nitrate is confined to shallow depths below the water table that have not been sampled. Additional studies are needed to determine the fate and transport of the septic tank wastewater.

STUDY APPROACH

The objectives of this study will be met by investigating the transport of septic-tank wastewater at two key sites. The rate of wastewater movement and changes in concentration of selected contaminants with depth in the unsaturated zone and the saturated zone will be monitored at each site. Both sites would be near wastewater systems that are active year-round, but one site would be representative of the older (>25 years) septic tank systems installed in Desert Hot Springs and shallower depth to ground water, and the other would be sited near the younger (< 25 years) systems in Mission Lakes and greater depths to water. The approximate locations (shown in fig. 4) are T2/R4E-Section 23, as close to Well 28 as practical yet near a septic tank system, and T2S/R5E-Section 31 near Southwest Drive.

Drilling and Data Collection

Drill-Core Samples: Because of the relatively large depth to water, the ODEX (overburden drilling by the excenter) method will be employed at both sites. Core samples of undisturbed sediments will be collected while drilling. Core samples will be collected continuously from land surface to a depth of 10 ft beneath the bottom of the seepage pit, then at 10- or 20-ft intervals to the water table. Core will be obtained in three sections of 6-in. hollow tubing. A sub-sample from each section will be analyzed for moisture content and grain size using standard soil laboratory analytical procedures. A second sub-sample from the middle section will be submitted for biological analysis. All remaining material will be immediately sealed in glass jars and frozen to protect against microbial activity.

Monitoring Instruments:

A suction lysimeter will be installed to allow periodic sampling to detect moisture in the unsaturated zone and to assess changes in pore-water chemistry. At each site, a water-quality well will be completed at three different depths to allow sampling at specific depths of the aquifer. The three depths of screened casing to be installed for each set of multiple wells are 1) within the top 10 ft, 2) at about 50 ft, and 3) at 100 ft below the water table.

Chemical and Biological Analyses of Core Samples: Field specific conductance will be measured and all other analyses would be done at the National Water Quality Laboratory of the USGS. Samples will be analyzed for dissolved nitrate, nitrite, chloride, and organic carbon and nitrogen will be extracted from the frozen samples. The concentration of each nitrogen species in soil and soil-water extracts from core samples and the suction lysimeters will be determined. Because bacterial growth and nitrogen transformations require a source of organic carbon, concentrations of organic carbon will be determined for some samples. Chloride concentrations will be determined because it is physically conservative and biologically unreactive, which makes it a useful tracer of the wastewater wetting front. Comparisons of chloride to nitrogen profiles will document the effect of nitrogen attenuation (denitrification) in the unsaturated zone. Soil cores will be analyzed in the on-site mobile laboratory for fecal coliform and fecal streptococcal bacteria.

Radioisotope Sampling
Hydrogen and oxygen isotopes will be used to distinguish sources of water in both the unsaturated and saturated zones.

FUNDING
The total cost for this study is $229,000 to accomplish the scope of activities outlined above. If Federal matching funds were to become available under the cooperative program, the USGS share of funding would then be 40 percent ($91,600) and the cooperator, Mission Springs Water District, would fund 60 percent ($137,400).

	FY 1997	FY 1998
Salaries and benefits	$87,700	$43,400
Drilling	63,800	–
Monitoring instrument materials	1,800	–
Sampling equipment and supplies	7,500	
Lab analytical costs and shipping	6,400	600
Travel	5,600	1,000
Contingency fund	9,400	–
Report production	–	1,800
Total	$182,200	$46,800

PERSONNEL, PRODUCTS and TIMEFRAME
The study will be conducted by a team of hydrologists in the California District. The team will consist of a GS-12 geochemist, a GS-11 hydrologist, and a GS-9 hydrologic technician or hydrologist. At the completion of the study, a Water Resources Investigation Report will be produced. It is anticipated that the study would be completed in two years. The data collection effort would extend for one year following acceptance of the project proposal, and the analysis and report production would be done in the following year.

APPENDIX B

MICHIGAN TECHNOLOGICAL UNIVERSITY GROUNDWATER STUDY

Michigan Technological University
1400 Townsend Drive, Houghton, Michigan 49931-1295

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September 12, 1996

Mr. J. L. Morgan
Mission Springs Water District
66-575 E. Second Street
Desert Hot Springs, CA 92240

Dear Whitey:

I hope you are doing well. Fall is approaching quickly here. I have enclosed a short report of our activities since I saw you last May in Desert Hot Springs. Please do not hesitate to contact me if you have any questions.

We are planning to come out to Desert Hot Springs to do our geophysical survey November 23–30. I will be calling you soon to talk about our trip and a few other items.

Sincerely,

Alex S. Mayer, Ph.D., P.E.
Assistant Professor
Geological and Environmental Engineering

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Report of Activities for the Project
Characterization of a Large Fault Zone as a Barrier to Fluid Flow:
The San Andreas Fault near Desert Hot Springs, California
For the Period 6/96 to 8/96

Alex S. Mayer, Ph.D, P.E.
Department of Geological Engineering and Sciences
Michigan Technological University
Houghton, Michigan
September 12, 1996

The purpose of this report is to describe our recent activities on the subject project. This work has been performed by Dr. Mayer and his graduate research assistant, Wesley May. Following is a summary of our activities for the period 6/96 to 8/96.

- Our work has focused on refining our groundwater model of the Desert Hot Springs/ Mission Creek sub-basins. We have completed the first two phases of our modeling efforts. These phases involved calibration of hydrogeological parameters. Calibration involves variation of the hydrogeological parameters while comparing our groundwater model output to existing groundwater level data from 1936 to 1967. When a reasonable match is obtained between model output and existing data, we assume that we have found the best estimate of the parameters. The calibrated parameters include transmissivities, storativities, and combined surface water/groundwater inflows and outflows. Calibration is necessary because independent values of the parameters are unavailable or the quality of the existing values is suspect. Accurate values of each of these parameters are critical to the ultimate success of our groundwater model.

- We have begun the the third phase of our modeling efforts. This phase involves using the calibrated parameters from Phases I and II in our groundwater model to simulate groundwater levels form 1968 to 1995. We are calling Phase III the "verification phase," because we will evaluate the quality of our model calibration. We will compare our model output to the observed 1968 to 1995 groundwater levels. This phase is nearing completion, but we need some additional well pumping rate data to complete our input data for the model. We are sending under separate cover a request for this additional data. When Phase III is completed, we will have our first estimates of the current groundwater flow rate across the fault zone.

- Following Phase III we will conduct a sensitivity analysis, which will be the last phase of the modeling work. In this phase, we will vary the hydrogeologic parameters that we believe to be uncertain. We will use the groundwater model output from the sensitivity analysis to put upper and lower bounds on our estimates of the groundwater flow rate across the fault zone.

- We are planning our field geophysical survey for this November. The geophysical survey will provide detailed information on groundwater levels on either side of the

fault zone. We will be using resistivity and possibly other survey methods to determine depth to the water table over a relatively large area. We will conduct a one-week geophysical survey in at least two areas: the Long Canyon break in the Miracle Hill scarp and the vegetated area near Two Bunch Palms. The Two Bunch Palms area is of interest because there is much evidence to suggest that the fault zone is an effective barrier here. The Long Canyon site is of interest because there is reason to believe that the fault zone is a less effective barrier in this area. If time permits, we will also survey the area around Mission Lakes, since this area is of special interest to MSWD. Also if time permits, we may use other geophysical instruments that could provide a "picture" of the fault zone structure. Dr. James Diehl of MTU will provide the geophysics expertise that we will need to conduct the survey. Our tentative plan is to conduct the survey November 23–30, 1996.

- We have extended the completion date for Wesley May's M.S. thesis to mid-November. The calibration work has taken longer than we originally expected. Mr. May has completed about one-third of written thesis, and as described above, has completed a substantial portion of the modeling work.

For further information, contact Dr. Alex S. Mayer, Department of Geological Engineering and Sciences, Michigan Technological University, 1400 Townsend Drive, Houghton, Michigan 49931.

Progress Report:

Characterization of a Large Fault Zone as a Barrier to Fluid Flow: The San Andreas Fault near Desert Hot Springs, California

Mr. Wesley L. May
Dr. Alex S. Mayer

Department of Geological Engineering & Sciences
Michigan Technological University
Houghton, Michigan

June 14, 1996

PURPOSE AND MOTIVATION

The purpose of this report is to provide an update on the current status of our modeling efforts for estimating the rate at which water is flowing across the Mission Creek Fault, a section of the San Andreas Fault in the Upper Coachella Valley.

SUMMARY

Data has been acquired in the form of water levels, pumpage rates and precipitation. A conceptual model of the groundwater flow system was created based on this information. Input files for the USGS MODFLOW (McDonald and Harbaugh, 1988) computer program were created. The first of three modeling phases has been completed with minor revisions to follow. This first phase consisted of a steady state calibration based on 1936 conditions. The second phase, a transient calibration based on the conditions from 1936-67, is currently in progress and will be completed in the next few weeks, allowing work on the third phase (1967-present) to begin.

FORMULATION OF CONCEPTUAL MODEL

The aquifer around Desert Hot Springs consists of Upper Pleistocene sedimentary deposits known as the Cabezon Fanglomerate and Ocotillo Conglomerate, and are overlain by recent alluvium and sand accumulations. The sedimentary deposits are bounded to the north by the metamorphic, pre-Mesozoic San Gorgonio Complex in the Little San Bernardino Mountains and to west by the Upper Miocene Coachella Fanglomerate in the San Bernardino Mountains. The main tectonic features in the area are the Mission Creek and Banning Faults. The Mission Creek is the most active tectonic feature in the area and evidence indicates that it is a barrier to fluid flow (Proctor, 1968).

Formulation of the conceptual model has required the gathering of quantitative and qualitative information. Water levels, well logs, previous research in modeling desert environments, previous modeling work in the Coachella Valley area, geologic descriptions of the area and the function of faults under impermeable conditions are just a few of the various types of information which have

been acquired for the creation and verification of the conceptual model.

The conceptual model of the study area consists of a single layer aquifer of unknown thickness, with varying transmissvities and storage coefficients. The aquifer is homogenous vertically and heterogeneous arealy. The conceptual model divides the study area into two unequal parts on either side of the Mission Creek Fault. The fault acts as a horizontal barrier to fluid flow (e.g. Proctor, 1968). The conceptual model is bounded by no-flow boundaries on the north, west, and the southern portion of the eastern boundary, and by constant flux boundaries to the south (Banning fault) and the northern portion of the eastern boundary (see Figure 1). Five area's of inflow and two area's of outflow exist within the study area.

Although it is likely that layers of different geologic materials exist, the processes responsible for the deposition of the aquifer materials make it hard to distinguish the consistency of the layers. That, in combination with the overall thickness and general uniformity of the deposit, led to the assumption that one single layer would be adequate.

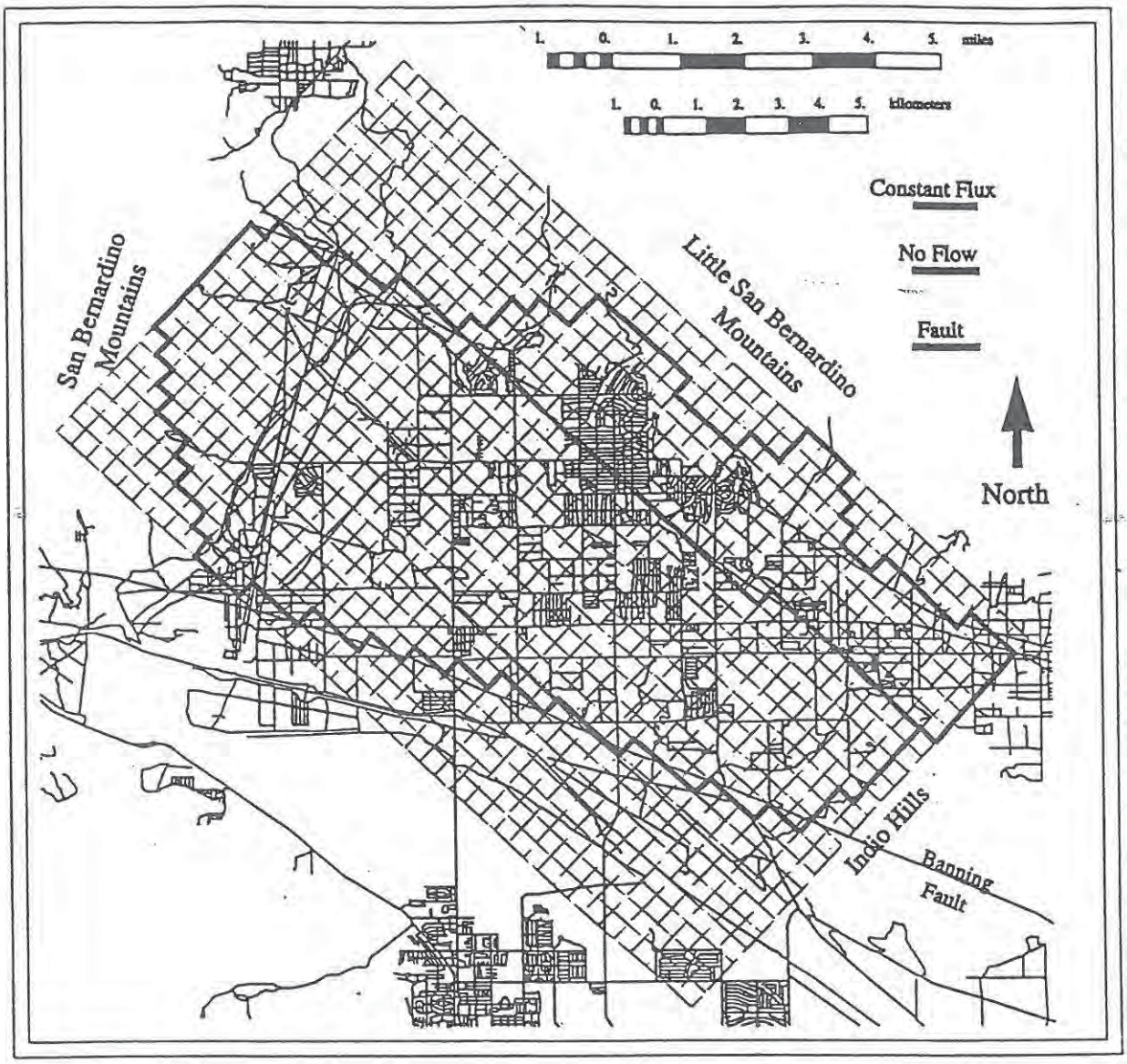
The Desert Hot Springs (DHS) subbasin comprises the northern part of the study area, and is bounded by the Little San Bernardino Mountains to the north and west, Mission Creek Fault to the south and a natural topographic divide to the east. The Mission Creek (MC) subbasin in the southern part of the study area is bounded by the San Bernardino Mountains to the west, Mission Creek Fault to the north, Banning Fault to the south, and the Indio Hills to the east.

The boundaries of the study area were based on the natural hydrogeology of the upper Coachella Valley Region. The San Bernardino (western no-flow boundary) and Little San Bernardino Mountains (northern no-flow boundary) to the west and north, provide no-flow boundaries based on their low hydraulic conductivity in relation to the study area. The Indio Hills (Indio Hills no-flow boundary) to the east, although semi-permeable, are also assumed to be no-flow. The eastern boundary of the DHS subbasin (eastern constant flux boundary) coincides with a natural topographic divide, and is considered a constant flux boundary. The final boundary is to the south, along the Banning Fault (Banning Fault constant flux boundary). Swain (1978) showed that there is a significant amount of groundwater flow across the Banning Fault, with the overall flow direction across the fault being from north to south.

MODFLOW MODEL

The groundwater flow model chosen for the project is the USGS's MODFLOW program. The horizontal flow barrier package (Hsieh and Freckleton, 1993) was added to the base USGS code. The horizontal flow barrier package allows for relatively simple modeling of the barrier behavior of the fault. The parameters used to develop the conceptual model were transferred into a form which could be used as input into the MODFLOW program.

Figure 1: Study Area Showing Boundaries and Grid



The MODFLOW model grid was oriented in such a way that it would most accurately represent the fault while minimizing the amount of inactive cells. The grid is oriented 42 ° east of north, with a uniform spacing of 500 m x 500 m (see Fig. 1). There are 46 columns and 26 rows and a total of 1196 cells within the model grid. Of the 1196 cells, 665 are active and 531 are inactive. The Mission Creek Fault is represented as a horizontal flow barrier within MODFLOW. The MODFLOW program assumes all horizontal barriers to be vertical. The Mission Creek fault is nearly vertical and it has been assumed that the vertical orientation will have little to no affect on the model. The Mission Creek horizontal flow barrier is placed into MODFLOW in the form of a K/b value, where K is the hydraulic conductivity and b is the horizontal thickness of the fault.

It is evident that the aquifer in the study area is unconfined. However, modeling an unconfined aquifer presents some difficulties for this study. In order for an unconfined aquifer simulation to be performed, the saturated thickness and the hydraulic conductivity of the aquifer are needed. The hydraulic conductivity is constant in time and could be determined through calibration. On the other hand, since the saturated thickness changes with time, it is difficult to determine the saturated thickness through calibration. Although, data is available on the saturated thickness at specific times, the accuracy of this data is questionable. Given the difficulty of calibrating to the saturated thickness and the inaccuracy of the existing saturated thickness data, it was decided to model the area under confined rather than unconfined conditions. This change would allow for the input of transmissivity value's that are constant in time, rather then a combination of saturated thickness and hydraulic conductivity. The transmissivity will be allowed to change in space, accounting for spatial variations in hydraulic conductivity and saturated thickness.

The assumption of confined conditions in an unconfined aquifer, brings up the question of what effects this assumption will have on the model as the water levels change. Historic water levels indicate a maximum drawdown of approximately 40 ft. for any one well. Taking into consideration that the saturated thickness in the vicinity of the major wells is anywhere from 700 ft. to 1000 ft., and calculating a transmissivity based on an estimated hydraulic conductivity, it can be seen that the effect on the model will be no more then 4%-6%. This percent error is considered insignificant for the purposes of this modeling effort.

CONCEPTUAL MODEL VERIFICATION

The procedure for the calibration and verification model consists of three separate phases. Phase I is a steady-state model run under the conditions which existed in the vicinity of Desert Hot Springs during 1936. Very little pumping was occurring at this time, making it ideal for a steady state model. The second phase is slightly more involved, as the model is now run from 1936-67 under transient conditions. Pumping was present in the area during this time, but was not a significant amount of the overall water budget. The third and final phase consists of modeling from 1967 to the present. During this time a large amount of pumping was occurring in the area, including a significant number of wells being used by the Mission Springs Water District (MSWD), Coachella Valley Water District (CVWD) and other local users.

PHASE I

WATER BUDGET CALIBRATION

The conceptual model has five inflow and two outflow areas, all of which represent a combination of the surface and subsurface flow. Little Morongo Canyon and Long Canyon both drain into the DHS subbasin, whereas Mission Creek, Big Morongo Canyon and the Dry Morongo Wash all drain into the MC subbasin. It should be noted that the previous model by Tyley (1971) assumed a combined flow from the Morongo Canyons to be flowing into the DHS subbasin. After studying both the topographic and geologic maps of the area, no justification could be found for the inflow from Big Morongo Canyon flowing into the DHS subbasin. Thus, inflow from the Big and Little Morongo Canyons have been evenly divided among the DHS subbasin and the MC subbasin. The inflow values for Mission Creek and the Big and Little Morongo Canyons are from Tyley (1971). The Long Canyon and Dry Morongo Wash inflow values are estimates based on comparisons with

the known values.

Representation of the constant flux boundaries was accomplished by designating the cells along the boundary as extraction cells. This allowed the flux rate to be controlled, as the total output along each of the regions was divided evenly among each of the cells. The Banning fault is currently represented by 40 extraction cells, each set at the same extraction rate. The eastern constant flux boundary has six extraction cells, with each set at the same extraction rate

Table 1: Phase I Water Budget

Inputs/Outputs	acre-ft./yr.	m^3/s
INFLOW		
Mission Creek	3,400	0.134
Dry Morongo Wash	875	0.035
Little Morongo Canyon	1,750	0.070
Big Morongo Canyon	1,750	0.070
Long Canyon	875	0.035
INFLOW TOTAL	8,650	0.344
OUTFLOW		
Eastern Constant Flux	1,510	0.060
Banning Constant Flux	7,140	0.284
OUTFLOW TOTAL	8,650	0.344

Table 1 shows the input and output values for the various streams and boundaries for the 1936 steady state model run. The steady state MODFLOW model simulation requires that the water budget balances. The flow across the eastern constant flux boundary was estimated by using current water levels to determine a gradient. The gradient was then multiplied by an estimated hydraulic conductivity for the aquifer to determine the outflow rate. The Banning Fault flux was used as the balancing term in the water budget.

TRANSMISSIVITY AND FAULT PROPERTY CALIBRATION

The phase I steady state MODFLOW simulation was calibrated by adjusting the transmissivities in the subbasins, as well as the K/b values for the Mission Creek Fault.
The data set used in the transmissivity and fault calibration were taken from Tyley's (1971) 1936 contour map of the actual water levels. The contour map was used because the original data points used for the creation of the contour maps could not be obtained. The 1936 contours were overlain onto the model grid and head values were assigned to various cells according to the intersections of the cell centers with the individual contours. These values were contoured using SURFER

(Surfer, 1989), and a head value for each of the active cells was obtained. These head values were used as the calibration data set for the 1936 steady state calibration.

Transmissivities were also obtained from Tyley (1971), but these values were later abandoned as it became evident that they produced poor results in terms of calibration. Several reasons for this can be considered. First, our study area is approximately a fourth of the size of that used by Tyley (1971). Also, the size of the previous model allowed for Long Canyon and Dry Morongo Wash to be ignored as input values. A third possibility might be found in a comparison of the analog method used by Tyley (1971) and the numerical method that is currently being used.

Calibration of phase I consisted of matching, as accurately as possible, the 1936 head values to the output from MODFLOW. Initial runs were compared visually and appropriate adjustments were made. As the changes in heads became more subtle, the method of least squares of the residuals was used to help determine the optimal configuration of transmissivities and K/b values.

CURRENT RESULTS

The current results indicate that the area can be represented by three areas of transmissivity ranging from 4,500 to 66,000 gal/day/ft. (Figure 2). The Mission Creek fault is currently represented by a single K/b value of 2.0×10^{-7} sec^{-1} at each cell over the length of the fault. The Mission Creek fault may need to be broken into two or more smaller sections, to account for lateral changes in permeability. Research conducted by Slade and Misen (1979) indicates the possibility of a lower permeability area along the fault from Miracle Hill to the Indio Hills.

Phase I of the model still needs some work. The current conditions do not represent the DHS subbasin as accurately as would be liked. There are several possibilities for this error. First, the water budget has not been completely solidified. It is assumed that when accurate values are obtained for the flow coming from the Long Canyon and Dry Morongo Wash areas, a better representation of inflows ad outflows will be obtained. Further work in determining the best transmissivities for the aquifer and K/b values for the fault should help as well. The transmissivity may need to be broken down into more than three sections, and may represent an even wider range of values then the present steady state model predicts. The fault may also be separated into smaller sections, representing changes in permeability as you move laterally along the fault.

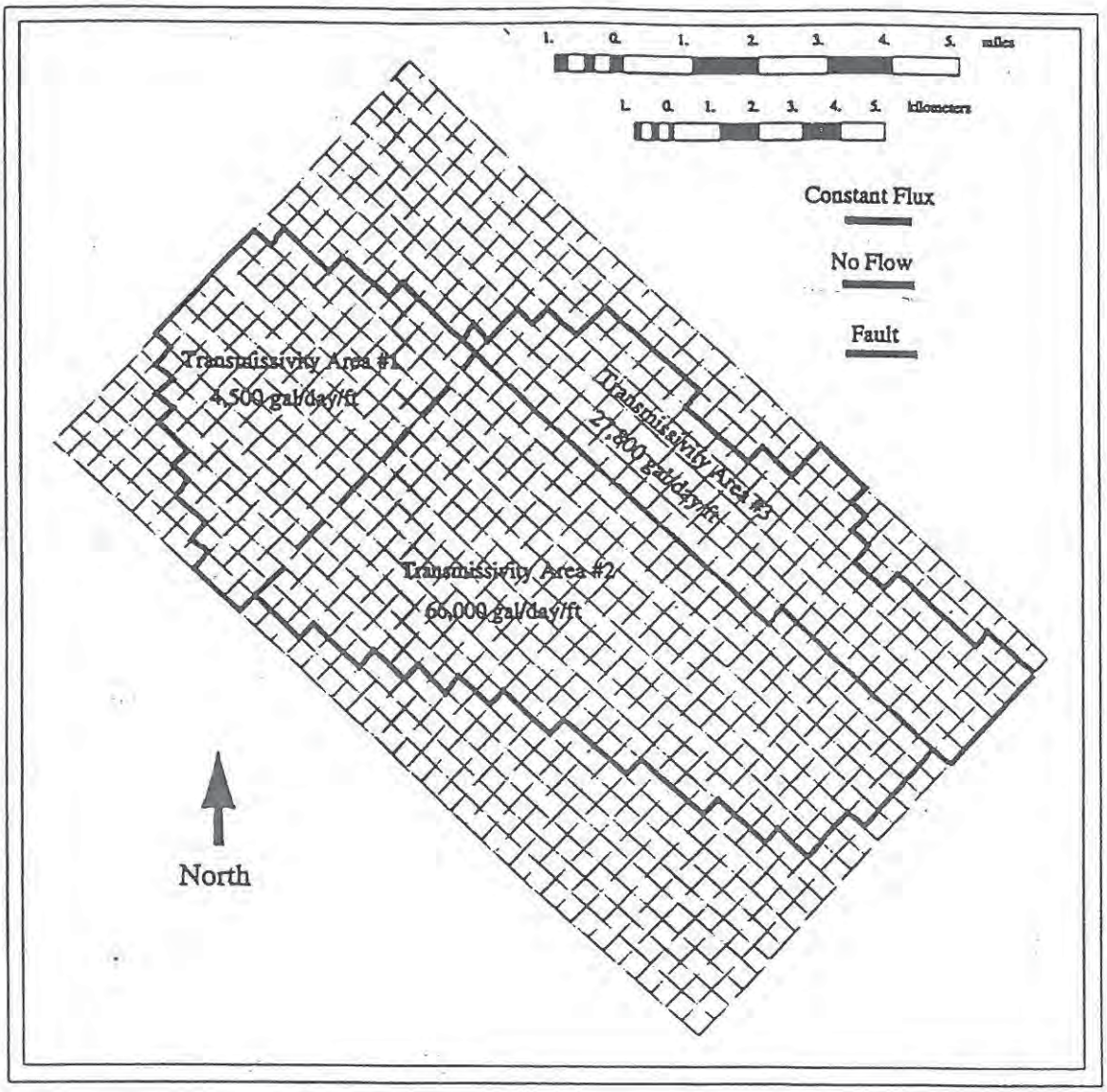
PHASE II

WATER BUDGET

The second phase of the MODFLOW simulation required the addition of the pumping wells into the water budget and MODFLOW was run under transient conditions. The original data points for the pumpage rates for the years 1936-1967, as used by Tyley (1971), have been obtained and input into the model. Tyley's model grid was different than ours, so the locations of the data points were interpreted appropriately.

The water budget inputs and outputs from phase I were left unchanged. The transient model requires the addition of a storage coefficient for each of the active cells.

Figure 2: Transmissivity Assignments from Phase I



STORAGE COEFFICIENT CALIBRATION

The MODFLOW model was run under transient conditions from 1936 to 1967, using a one year time step. Unlike the steady state model, a storage coefficient was needed for each of the cells in the transient model, and pumpage data for the active wells during this time period were added to the MODFLOW model as well.

The second phase was calibrated in approximately the same fashion as Phase I, except that only the storage coefficient was varied. The transmissivity and K/b values determined from Phase I were not changed in Phase II. The 1951 and 1967 contour maps from Tyley (1971) were converted to point vales in the same manner as in Phase I. These head values were compared to the model outputs in the same manner as in Phase I.

CURRENT RESULTS

Currently, a sufficient result has not been obtained for the second phase, although several observations have been made. First, large scale changes (order of magnitude) can be made in the storage coefficient, without dramatically changing the output heads from simulation to simulation. Also, the transient model confirms the basic principles of the storage coefficient. The higher the coefficient, the closer the output heads will be to the initial heads, and the lower the coefficient, the larger the difference between then initial and final heads.

Difficulties are occurring in the matching of the model output to the actual heads from Tyley (1971). The head values calculated by the first phase steady state MODFLOW simulation, although reasonable, are not a perfect match of the 1936 contour map values. This creates difficulties in the matching of contours during the second phase. It is hard to justify using the contour maps for 1951 and 1967 (Tyley, 1971) as the calibration goal, when the transient simulation input values as determined by MODFLOW in phase I, did not accurately match the 1936 water level contours.

We will continue to refine the transmissivity and storage coefficient to better match the 1936 and 1967 head values.

PRELIMINARY RESULTS

Some preliminary results have been obtained, which show the effect of various hydraulic conductivities on the amount of water which flows across the fault (Table 2). It should be noted that these values do not represent final results from the modeling.

As Table 2 shows, the amount of water flowing across the fault begins to decrease as the hydraulic conductivity increases. The same method used to obtain these values will eventually be used during the sensitivity analysis portion of the research. As the sensitivity of the model to changes in the permeability of the Mission Creek fault are examine.

Table 2: Flow Across Mission Creek Fault for given K

Hydraulic Conductivity (m/sec)	Flow Across Fault (acre-ft./yr.)
1.0×10^{-2}	950
1.0×10^{-3}	940
1.0×10^{-4}	840
1.0×10^{-5}	765

* All values based on a horizontal thickness of 50 m for the fault

FUTURE WORK

The second phase will be finished in the next few weeks, allowing work on the third phase to begin. Changes will continue to be made to the first and second phases and the conceptual model, as necessary. Eventually a sensitivity analysis of the Mission Creek fault will be completed. The sensitivity analysis will be used to determine the affect of the fault on the head values in the study area. The data obtained from the model will then be used to estimate the flow across the Mission Creek Fault from the DHS subbasin into the MC subbasin.

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APPENDIX C

VARIOUS REGULATOR AGENCY CONCERN/PROJECT SUPPORT DOCUMENTATION

STATE OF CALIFORNIA - CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY
PETE WILSON, Governor

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
COLORADO RIVER BASIN • REGION 7
73-720 FRED WARING DR., SUITE 100
PALM DESERT, CA 92260
Phone (619) 346-7491
FAX (619) 341-6820

MAY 17 1996

To: Septic Tank Users in the Coachella Valley

RE: Consideration of Alternatives to Subsurface Wastewater Disposal Systems (Septic Tanks)

The California Regional Water Quality Control Board issued a notice last year to all owners and operators in Coachella Valley having Waste Discharge Requirements, which permit the use of subsurface wastewater disposal systems to dispose of domestic wastewater. Since that time Regional Board staff has accumulated considerable evidence indicating that septic tanks have the potential to adversely impact ground water which supplies the Valley with its drinking water supply. Although subsurface wastewater disposal systems do provide some treatment of domestic wastewater, they are also known to be sources of surface and ground water pollution.

The most common problem associated with subsurface disposal systems is their location in high density development areas. The U.S. Environmental Protection Agency has designated areas with septic tank densities of greater than 1 system per 16 acres as areas of potential ground water pollution. Numerous cases of ground water pollution have been reported in areas of high septic tank density.

The types of pollution which have been identified include bacteria, viruses, ammonia, chlorides, phosphates, sodium, nitrates, and hazardous chemicals. Several monitoring reports recently received by this office show levels of volatile organic compounds in wastewater having concentrations exceeding the maximum contaminant levels allowed by the California Drinking Water Standards, apparently resulting from use of cleaning solvents at car and bus washes, and even at mobile home and RV parks. As a result of these discharges of pollutants, the owners or operators of many of these facilities have been required by the Regional Board to have qualified professionals conduct extensive soil sampling and/or cleanup of polluted soil and ground water at considerable expense.

Considering the extremely high cost associated with the cleanup of soil and ground water pollution, Regional Board staff believes that prevention of ground water pollution must be aggressively pursued. Thus, we are strongly recommending that septic tank users phase out the use of septic tanks, particularly where they receive hazardous chemicals or are located in high density developments, and consider alternative disposal methods such as connection to local municipal sewer collection systems as soon as possible.

If you have any questions or desire to meet with us, please contact Charles Springer at (619) 776-8940. We would be pleased to meet with you to discuss this further.

PHIL GRUENBERG
Executive Officer

CS/pkg

File: ST GC 1.1

STATE OF CALIFORNIA—HEALTH AND WELFARE AGENCY
DEPARTMENT OF HEALTH SERVICES
OFFICE OF DRINKING WATER
601 NORTH 7TH STREET
P. O. BOX 942732
RAMENTO, CA 94234-7320
.6) 323-6111
FAX (916) 327-6092

PETE WILSON Governor

RECEIVED
APR 3 0 1993
REGION 7

April 27, 1993

Mr. Phil Gruenberg
California Regional Water Quality Control Board
Colorado River Basin - Region 7
73-720 Fred Waring Dr., Suite 100
Palm Desert, CA 92260

Dear Mr. Gruenberg:

We have reviewed the report, submitted by the Desert Water Agency (DWA), regarding the study of the effects of subsurface wastewater disposal on groundwater quality in Cathedral City. We agree with the conclusions and recommendations of this report. We have the following responses and recommendations:

1. The immediate health threats posed by overflowing septic tanks and improper use of graywater in residential areas must be addressed. The State Department of Health Services has contacted the local health agency to ensure that they are aware of this situation and that violations are investigated and all possible corrective actions are taken until the area is sewered.

2. Based on the immediate health threat, we recommend that planning necessary for a sanitary sewer system to serve the Cathedral City area be initiated.

3. The DWA operates the domestic water supply system serving the Palm Springs and Cathedral City areas. The Agency obtains most of its water supply from twenty-four wells many of which are located along the Whitewater River channel and within the city limits of Palm Springs and Cathedral City. Well depths range from 450 to 1,123 feet deep, with perforations set at various depths ranging from 268 to 900 feet.

   Although this study was conducted by the Desert Water Agency, its implications may be applicable to other areas of Coachella Valley where subsurface disposal systems are used. Palm Desert Water & Services District, City of Indio, City of Coachella and Coachella Valley Water District all rely exclusively on groundwater from the basin for their domestic water supplies.

There is some debate as to the significance of finding coliphage viruses, or higher than normal nitrate levels individually in a monitoring well. However, the combined presence of coliphage, enteroviruses, and high nitrate levels, in the absence of other possible sources of contamination, definitively supports the premise that wastewater, of human origin, is present in the groundwater in the area of the monitoring wells.

The groundwater contamination found in this area does not pose an immediate threat to the DWA's wells since their wells pump from a greater depth in the aquifer, but it could pose a long-term threat to groundwater quality in the Whitewater River basin.

4. With regard to the Whitewater River basin in general and the number of public water systems relying solely on groundwater supplies, long-term protection of groundwater quality should be addressed in a comprehensive basin management plan. The plan should require all new developments within city boundaries and other areas where high density development may occur to be sewered. Areas presently served by subsurface wastewater disposal systems (within city boundaries) should be connected to wastewater collection and treatment facilities as they become available.

If you have any questions regarding this letter please contact Ms. Toby Roy at (619) 525-4159.

Sincerely,

Clifford A. Sharpe, P.E., Chief
Field Operations Branch
Office of Drinking Water

cc: Riverside County Department of Health
1737 Atlanta Ave., Bldg. H-5
Riverside, CA 92507
Attn: John Silva

Desert Water Agency
P.O. Box Drawer 1710
Palm Springs, CA 92263
Attn: Gordon Lewis

DEPARTMENT OF HEALTH SERVICES
DRINKING WATER FIELD OPERATIONS BRANCH
1350 FRONT STREET, ROOM 2050
SAN DIEGO, CA 92101
(619) 525-4159
FAX (619) 525-4383

April 16, 1997

RECEIVED
APR 24 1997
ALBERT A. [illegible] CIVIL ENGINEERS

John L Morgan
Mission Springs Water District
66-575 Second Street
Desert Hot Springs, CA 92240

Dear Mr. Morgan:

On March 10, 1997, we received the information you sent on the transport of contaminants from wastewater disposal systems in your groundwater basin and the potential adverse impacts to water quality. It is my understanding the Mission Springs Water District is considering installation of sewers to replace existing septic tanks in an effort to protect the quality of water in your groundwater basin. We support your efforts to protect your groundwater supply by providing municipal sewer service.

Septic tanks can be a source of nitrate, virological and bacteriological contamination in the basin and will have a long term detrimental impact on the quality of water produced by your wells. In addition, future groundwater disinfection regulations will take location and number of septic tanks into consideration when determining disinfection requirements for water systems.

Protecting drinking water supplies and preventing contamination is a high priority for this Department. Recent changes to the Federal Safe Drinking Water Act mandate that States take a more proactive approach to protecting groundwater supplies. As a result, this Department is in the process of adopting a Well Head Protection Program (WHPP) to encourage water systems to take actions which will prevent contamination from occurring. We recommend that you implement a WHPP to further identify areas which are contributing to your water supply and establish well head protection zones for your sources. Attached is some information which you may find useful for establishing a WHPP in your area.

If you have any questions regarding this letter, or need any technical assistance in setting up a WHPP, please contact Brian Bernados or me at (619) 525-4497.

Sincerely,

Toby J. Roy

Toby J. Roy, P.E.
District Engineer

Attachment
cc: Riverside County Environmental Health Services

COUNTY OF RIVERSIDE • HEALTH SERVICES AGENCY
DEPARTMENT OF ENVIRONMENTAL HEALTH

April 22, 1997

John L. Morgan
Mission Springs Water District
66-575 Second Street
Desert Hot Springs, CA. 92240

Dear Mr. Morgan,

The Department of Environmental Health is very supportive of your Districts position regarding the elimination of septic tanks within the Mission Springs Service Area.

Although properly designed and installed individual subsurface sewage disposal systems (septic) can function for many years in desert areas, the adverse impact on ground water can be significant, especially when dwelling/unit density exceeds one per 1/2 acre. This department has already noted elevated nitrate levels in the shallow ground water aquifers in some portions of your service area (as you know, nitrate levels in drinking water of more than 45 parts per million may cause a serious blood disorder in infants call Methemoglobinemia).

Finding an affordable method to finance public sewers is always a problem. If you haven't already contacted the County Economic Development Agency regarding possible grants or low interest loans. I suggest you call Vickie Burt at (760) 863-7060.

Sincerely,

Donovan E. Park,
Assist. Public Health Engineer

John M. Fanning, Director
4065 County Circle Drive • Riverside, CA 92503 • Phone (909) 358-5316 • FAX (909) 358-5017
(Malling Address – P.O. Box 7600 • Riverside, CA 92513-7600)

printed on recycled paper

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
COLORADO RIVER BASIN • REGION 7
73-720 FRED WARING DR., SUITE 100
PALM DESERT, CA 92260
Phone (619) 346-7491
FAX (619) 341-6820

FEB 13 1997

John L. Morgan, General Manager
Mission Springs Water District
66-575 Second Street
Desert Hot Springs, CA 92240

RE: Septic Tank Use

We strongly support and encourage the use of community sewerage systems rather than septic tank systems in your community. Community sewerage systems lead to a better treated and better controlled discharge than do septic tank systems. Septic tank systems, as discovered numerous times throughout our Region, can serve as a repository for hazardous wastes and anything else dumped into them. We have accumulated considerable evidence indicating that septic tank systems have the potential to adversely impact groundwater which serves as the Coachella Valley's drinking water supply.

Once groundwater has been polluted, it is extremely expensive to clean. One case involving a septic tank and subsurface disposal system required the discontinued use of a major municipal supply well. Thus, the community served by that particular well lost the capital investment associated with the well construction. Also, the drinking water demand which that well satisfied required replacement. Unfortunately, the burden of groundwater clean up and overall costs of such sites is often paid by the public. Small businesses and property owners rarely possess the funds needed to adequately clean the groundwater to the safe levels for municipal use. Groundwater clean up projects are extremely expensive.

Community sewerage systems, on the other hand, provide excellent protection of groundwater resources and relieve the homeowner of the burden associated with maintenance and rehabilitation of the septic tank system. Inappropriate wastes entering sewerage systems, and eventually the environment, can be controlled or identified and abated through an effective pretreatment program. Wastewater treated by a community sewerage system is of significantly better quality and can be reused for irrigation or process water. When percolated back to the water table, the quality of community system treated wastewater is much more protective of the groundwater. Threat of nitrate pollution in the groundwater is reduced through the generation and removal of the sewage sludge. Also, operation, maintenance, and conveyance of wastewater is the responsibility of trained and experienced professionals. Such individuals are dedicated to the protection of human health and the environment. Community sewerage systems alleviate the homeowner from having to deal with costly septic tank pumpings, hazardous disposal field failures, and costly disposal field replacement. It is well established that all disposal fields eventually fail. Overall, it is in the interest of the community to support community sewage treatment systems.

In most cases, community sewage treatment systems are not prohibitively expensive. Various institutions have low interest loans available with up to forty year lending periods. Some institutions combine some grant money with the loans. The State Revolving Fund is California's funding source through the Clean Water Act. It provides direct low-interest loans with interest rates at approximately one-half the interest rate of the most recent sale of a State general obligation bond. Loan terms for the State Revolving Fund Loan cannot exceed twenty years. Loans can also be obtained through private corporations. By obtaining low-interest loans, communities have found that community sewage treatment systems are generally affordable and cost-effective. Our contact person for the State

Revolving Fund Loan is Suhas Chakraborty. He can be reached at (619) 776-8961.

Should you have any questions regarding this matter, please do not hesitate to phone Todd Thompson at (619) 776-8941.

PHIL GRUENBERG
Executive Officer

TT/hs

File Ref: ST GC 1.1

SACRAMENTO ADDRESS:

NANCY LUCCHESI NEWBILL
CHIEF OF STAFF

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Senate

California Legislature

DAVID G. KELLEY
SENATOR
37TH DISTRICT

CHAIRMAN
CONSTITUTIONAL AMENDMENTS COMMITTEE

DISTRICT ADDRESS

DOROTHY MOELTER
DISTRICT COORDINATOR

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☐ 73-710 FRED WARING DRIVE, #108
PALM DESERT, CA 92260
(619) 346-2099
(619) 346-0341 FAX
1(800) 824-5200

February 28, 1997

Mr. John L. Morgan
General Manager
Mission Springs Water District
66-575 Second Street
Desert Hot Springs, CA 92240

Dear Mr. Morgan:

Thank you for your recent correspondence regarding the elimination of septic tanks in the Desert Hot Springs area.

I understand the need for the construction of sewers to replace septic tanks. I commend the water district for taking steps to start this process. I support that effort.

As I sit on the Agriculture and Water Resources Committee, I understand the great need to protect our state's groundwater. I commend the district for making the community aware of the importance of our groundwater. Certainly it is less costly to use preventative measures versus cleanup.

Desert Hot Springs sits in a unique area in the Coachella Valley and is famous for it's mineral spring spas which attract many tourists. So the importance of sewers from the standpoint of economy and safety is something the citizens of Desert Hot Springs deserve.

This project, undertaken by Mission Springs Water District, has my full support.

Best regards,

DAVE KELLEY

DK/bc

Desert Hot Springs Groundwater Guardian Team

February 21, 1997

John L. Morgan
General Manager
Mission Springs Water District
66575 Second Street
Desert Hot Springs Ca.

Dear Mr. Morgan:

The Groundwater Guardian Team has worked with the Water District for the past several years, protecting our wonderful natural resource-our water.

It is important for you to know that the Groundwater Guardian Committee is behind the Mission Springs Water District 100%, in its efforts to construct sewers in Desert Hot Springs. We are all aware that the one thing that will contaminate our wonderful hot mineral water and our pure drinking water is inadequate septic systems.

We sincerely hope that the lending institutions as well as local, state and federal agencies will be aggressive in giving their support in this critical process.

Thank you for your efforts in protecting our wonderful water. If there is anything that the Groundwater Guardian Committee can do, please give us the opportunity.

Sincerely,

Mac H. Villines
Chairman, Groundwater Guardian Committee

Wednesday, February 19, 1997

Mission Springs Water District
John Morgan, Manager
66575 E. 2nd
Desert Hot Springs, CA 92240

Dear John,

Desert Hot Springs Sunrise Rotary Club realizes the importance of clean, fresh, mineral water for our potable water supplies and the need for our hot water for our spas and resorts in the community.

We certainly support the board's and your efforts to construct municipal sewers in the Desert Hot Springs area. Any effort that we can help you with in this regard will certainly be considered by our rotary club.

Sincerely,

Colleen Peters
President



Desert Hot Springs Women's Club

P.O. BOX 955 * DESERT HOT SPRINGS, CA. 92240

March 4, 1997

Mr. John L. Morgan
General Manager
Mission Springs Water District
66575 Second Street
Desert Hot Springs CA 92240

Dear Mr. Morgan,

Your letter of February 12, 1997 was read at our monthly business meeting today. The information regarding the community sewer system was most informative.

As citizens we are also deeply concerned about the pollution of our groundwater. You are to be commended for your efforts in aleviating this problem.

Most Sincerely,

Gretchen McBride

Gretchen McBride, Corresponding Secretary

APPENDIX J

OVERVIEW OF MISSION SPRINGS WATER DISTRICT AND BACKGROUND INFORMATION FOR PROPOSED SEWER PROJECT

ALBERT A.
WEBB
ASSOCIATES
ENGINEERING CONSULTANTS

April 7, 1997
Final Draft

OVERVIEW OF MISSION SPRINGS WATER DISTRICT AND BACKGROUND INFORMATION FOR PROPOSED SEWER PROJECT

The District is a public agency located in the Desert Hot Springs area of Riverside County, California, which currently provides sewer service to about 2,700 developed parcels, and provides water for domestic purposes and fire protection to about 7,800 developed parcels. The District's service area includes the City of Desert Hot Springs along with additional County area surrounding the City, totaling about 133 square miles. For orientation purposes, the District is located northerly of Palm Springs, CA.

The proposed sewer project plans for a phased series of line extensions, scheduled by priority, for construction of collection and trunk line facilities required to sewer the 5,000 unsewered developed parcels within the District. Refer to attached Plate 1. About 3,500 of the presently unsewered developed parcels lie within the City limits, with about 1,500 unsewered developed parcels located within the County area nearby the City. Septic tank wastewater disposal systems have been in use in the Desert Hot Springs community for five decades.

The Mission Creek Fault bisects the District's service area, oriented in a NW to SE direction through the City of Desert Hot Springs and the adjacent County area. The groundwater basin on the NE side of the fault generally contains hot water at a depth of about 35-75 feet or less in certain locations near the fault. The primary business activity and economic base of the community within the District's area centers upon commercial spas, mineral baths, hotels, motels, etc. which depends upon utilizing privately owned hot water vertical wells for source of supply. The groundwater basin on the SW side of the fault generally contains cold water at a depth of about 300-550 feet. The District's sole source of water supply for its domestic/fire protection system is from its pristine cold water vertical deepwells.

Sewerage disposal for currently developed parcels within the District's boundary is accomplished in two ways. The District's Horton Wastewater Treatment Plant provides secondary treatment to the sewerage generated by the 2,700 developed parcels which are presently sewered. The District is presently underway with a separately funded phased program to construct additional wastewater treatment capacity as required to handle future influent flows. The disposal of treatment plant effluent is accomplished by utilizing percolation ponds located adjacent to the plant on the SW (cold water) side of the Mission Creek Fault. Sewerage disposal for the 5,000 unsewered developed parcels is provided by individual, privately owned disposal systems mainly consisting of septic tanks followed by either vertical seepage pits or horizontal leach lines. Individual, privately owned disposal systems are located on both (hot and cold water) sides of the

fault. A survey of the existing septic tank wastewater disposal systems within the District indicates a high-density ranging from 1.6-2.4 systems per acre, which is 2.3 to 3.4 times the recommended density of 0.7 disposal systems per acre.

The District has collected information during recent years regarding the District's water supply wells, private hot water wells, individual privately owned sewerage disposal systems, and the hot and cold water sides of the groundwater basin bisected by the Mission Creek Fault. This information reveals cases where effluent from privately owned sewerage disposal systems has commingled with the hot water side of the basin at locations where the groundwater is shallow or surfacing in the vicinity of Desert Hot Springs. As an example, even years ago during the mid-1970s, District records indicate that water supply Well Nos. 10, 11 and 21 were abandoned and plugged due to contamination of the well water from privately owned septic tank wastewater disposal systems in adjacent areas, as evidenced by fecal choloform, failed bacteriological tests and high nitrate levels. Since 1992, District surveys documented about 100 privately owned sewerage disposal systems which failed and needed to be pumped from 2 to 16 times per year. The District continues to receive unsolicited comments supportive of constructing sewers.

The District recently made separate arrangements with the U.S. Geological Survey (USGS) and Michigan Technological University (Michigan Tech) to conduct groundwater studies in the vicinity of the Mission Creek Fault in the Desert Hot Springs area. The USGS report confirms further potential contamination of the shallow hot water side groundwater due to failures of privately owned sewerage disposal systems. The Michigan Tech study is nearly completed, and a preliminary status report confirms that the Mission Creek Fault is not impervious, thereby allowing hot water side groundwater to flow in places across the fault and commingle with the cold water. The Michigan Tech study will include a computer model of the groundwater basins in the vicinity of Desert Hot Springs.

Therefore, the hot water side groundwater is presently subject to contamination from the failure of private sewerage disposal systems in the Mission Springs service area, and subject to traversing the fault and spreading the contamination into the cold water side groundwater, affecting the District's water supply wells and other users of the regional groundwater basin. Additional correspondence from the USGS summarizes one of their recent groundwater contamination transport studies in the desert area near Victorville, California; documenting that contamination (wastewater-wetting front) from privately-owned septic tank wastewater disposal systems traveled downwards towards the ground water through the upper unsaturated portion of the Mojave River groundwater basin at velocities ranging between 0.07 - 1.00 vertical feet per day, depending upon the soil type and characteristics. A further local groundwater basin study and report should be prepared as a part of the preliminary engineering scope of work for this proposed sewer project, to assist in finalizing priorities for the various portions of the construction, by further documenting transport of contaminants into both the hot and cold water groundwater basins from the privately-owned septic tank wastewater disposal systems in the Desert Hot Springs community. Sewers are essential to the future of the Desert Hot Springs community. Prevention of groundwater contamination is inexpensive when compared to cleanup costs.

Construction of the proposed sewer project is planned to mitigate the threat of groundwater contamination, by sewering the 5,000 presently unsewered developed parcels. This sewer line extension project will: (1) benefit the City's economic base mainly comprised of existing and future commercial spas, mineral bath, hotel, and motel businesses by protecting the quality of the hot side groundwater, (2) benefit the existing

and future homeowners and businesses by eliminating the need for expensive, repetitive pumping and/or replacement of individual, privately owned failing sewerage disposal systems, (3) benefit all existing and future residential and business customers connected to the District's domestic/fire protection system by protecting the quality of the cold side groundwater, and (4) benefit other existing and future downstream users of the regional groundwater basin.

The proposed sewer project is phased into service areas A through M, totaling 358,200 linear feet of sewer main, with a total estimated project cost of $43,730,000, plus trunk main extensions having an estimated project cost of $2,356,000. The District needs phased financial assistance in order to fund a proposed sewer project of this large magnitude.

Tables 2 - 4 (attached) summarize the service area parcel characteristics, construction cost estimating data, and preliminary construction and project cost estimates. The following Table 1 lists preliminary priorities for each service area designation, along with the preliminary project cost estimate for each priority. It is estimated that the phased construction program would be completed over a period of about 12 years.

TABLE 1

Preliminary Estimated (1) Priority	Service Area Designation/ District Capital Improvement Project	Preliminary Project Cost Estimate
1	Trunk Ext. 37	$ 923,000(4)
2	H, I, J - N'ly (2)	$ 1,450,000
3	H, I, J - S'yl (3) & addtl. a, b, c	$ 5,973,000(4)
4	K	$ 1,670,000
5	Two Bunch Palms Sewer Ext.	$ 220,000(4)
6	B & Trunk Ext. S-2	$ 1,870,000(4)
7	C	$ 2,250,000
8	E	$ 3,180,000
9	A	$ 5,370,000
10	D	$ 5,700,000
11	F	$ 5,660,000
12	G	$ 1,830,000
13	L	$ 4,870,000
14	M	$ 5,120,000
	Total:	$ 46,086,000

(1) Priorities are subject to revision, based upon additional preliminary engineering studies and funding criteria.

(2) North of Hacienda Avenue.

(3) South of Hacienda Avenue.

(4) See Plate 1

The Mission Springs Water District's financial audit report for FY1995-96 shows the following for the sewer district portion of the report:

Total Assets, less accumulated depreciation and amortization	$12,573,000
Total Current Assets	$3,240,000
Total Current Liabilities	$763,000
Total Operation Expenses, excluding depreciation	$606,000
Net Income, excluding depreciation	$685,000
Total Long-Term Debt	$997,000[1]

Research of the U.S. Census Data for 1990 by block group number 1-9 in the general vicinity of Desert Hot Springs indicates median household income ranging from $14,665 (Block 2) to $45,417 (Block 1), lists 808 households on public assistance, 1,013 households below poverty level, and shows a total population of 15,264 (11,668 within the City and 3,596 outside the City). Approximately 16.7 percent of the total population of 15,264 are senior citizens over the age of 65. Approximately 24.6 percent of this total population are over the age of 55. The census data also indicates a total of 8,049 dwelling units (5,494 within the City) of which 1,826 are vacant including 830 units held for seasonal use.

Upon comparing the sewer district current financial status with respect to the proposed $46,086,000 sewer project, it is evident that the District needs financial assistance, compatible with the phased construction planned under the priority schedule.

[1] During the current FY 1996-97, the District borrowed an additional $5,000,000 long-term debt for use by the sewer district.

ALBERT A. WEBB ASSOCIATES
ENGINEERING CONSULTANTS

TABLE 2

MISSION SPRINGS WATER DISTRICT
SEWER IMPROVEMENT PROJECT

SUMMARY OF SERVICE AREA PARCEL CHARACTERISTICS

SERVICE AREA DESIGNATION	TOTAL NO. OF PARCELS			NO. OF SEWERED PARCELS			NO. OF UNSEWERED PARCELS		
	NO. OF PARCELS	NO. OF DEVELOPED PARCELS	NO. OF UNDEVELOPED PARCELS	NO. OF PARCELS	NO. OF DEVELOPED PARCELS	NO. OF UNDEVELOPED PARCELS	NO. OF PARCELS	NO. OF DEVELOPED PARCELS*	NO. OF UNDEVELOPED PARCELS
A	890	690	200	29	23	6	861	667	194
B	268	150	118	0	0	0	268	150	118
C	442	243	199	0	0	0	442	243	199
D	1010	438	572	18	5	13	992	433	559
E	509	257	252	0	0	0	509	257	252
F	1207	491	716	65	26	39	1142	465	677
G	229	76	153	36	23	13	193	53	140
H	410	124	286	46	16	30	364	108	256
I	410	149	261	77	23	54	333	126	207
J	635	305	330	69	23	46	566	282	284
K	262	154	108	0	0	0	262	154	108
L	842	443	399	16	10	6	826	433	393
M	916	262	654	0	0	0	916	262	654
TOTAL	8030	3782	4248	356	149	207	7674	3633	4041

* Number of developed parcels (structures) were determined from Riverside County Assessor Records and aerial photographs. Actual dwelling unit count will be greater when multiple-family structures are determined.

96-195/PAR_CHAR.xls
4-7-97

ALBERT A. WEBB ASSOCIATES
ENGINEERING CONSULTANTS

TABLE 3

MISSION SPRINGS WATER DISTRICT
SEWER IMPROVEMENT PROJECT

PRELIMINARY PROJECT COST ESTIMATE

SERVICE AREA DESIGNATION	TOTAL SEWER MAIN PIPELINE LENGTH (LF)	ESTIMATED SEWER MAIN CONSTRUCTION COST [1,2]	NUMBER OF UNSEWERED PARCELS [3]	ESTIMATED SEWER LATERAL CONSTRUCTION COST [2,4,7]	TOTAL ESTIMATED CONSTRUCTION COST [2]	TOTAL ESTIMATED PROJECT COST [2,5]
A	46,400	$2,710,000	861	$990,000	$3,700,000	$5,370,000
B	8,500	$500,000	268	$310,000	$810,000	$1,170,000
C	17,800	$1,040,000	442	$510,000	$1,550,000	$2,250,000
D	47,700	$2,780,000	992	$1,150,000	$3,930,000	$5,700,000
E	27,400	$1,600,000	509	$590,000	$2,190,000	$3,180,000
F	44,200	$2,580,000	1142	$1,320,000	$3,900,000	$5,660,000
G	17,900	$1,040,000	193	$220,000	$1,260,000	$1,830,000
H	17,700	$1,030,000	364	$420,000	$1,450,000	$2,100,000
I	13,400	$780,000	333	$380,000	$1,160,000	$1,680,000
J	25,900	$1,510,000	566	$650,000	$2,160,000	$3,130,000
K	14,500	$850,000	262	$300,000	$1,150,000	$1,670,000
L	34,400	$2,410,000[6]	826	$950,000	$3,360,000	$4,870,000
M	42,400	$2,470,000	916	$1,060,000	$3,530,000	$5,120,000
TOTALS	358,200	$21,300,000	7674	$8,850,000	$30,150,000	$43,730,000

1 Cost of sewermain including manholes, wyes and mainline pavement removal, replacement and cap (refer to Table 2 for details).

2 Cost rounded to nearest $10,000

3 All parcels contiguous to existing sewermain within the service area were assumed to have existing sewer laterals. The remaining parcels within the service area whether undeveloped or developed were assumed to require a lateral to be constructed (refer to Table 1 for details).

4 Cost of sewer laterals including lateral pavement removal, replacement, and cap (refer to Table 2 for details).

5 Project cost is 1.45 times construction cost. Project cost includes: construction cost, construction contingencies, engineering, legal, assessment engineering, geotechnical services, inspection, finance and District administration. Costs are based upon Engineering News Record (ENR) Construction Cost Index Los Angeles September, 1996 (ENR 6519). Right-of-way and land acquisition costs are not included.

6 Includes $200,000 and $200,000 allowances for construction of a sewage lift station and force main respectively.

7 Costs include public right of way portion only (i.e. sewermain to R-O-W line). Private side costs (i.e. abandonment of septic system and construction of the lateral from the R-O-W line to the structure) are not included. These private side costs are estimated to be $1,300-$2,100 per parcel.

ALBERT A. WEBB ASSOCIATES
ENGINEERING CONSULTANTS

TABLE 4

MISSION SPRINGS WATER DISTRICT
SEWER IMPROVEMENT PROJECT

REVIEW OF DIVIDING SERVICE AREAS H, I, AND J

SERVICE AREA DESIGNATION	TOTAL ESTIMATED PROJECT COST [1]	TOTAL ESTIMATED PROJECT COST NORTH OF HACIENDA AVE.	TOTAL ESTIMATED PROJECT COST SOUTH OF HACIENDA AVE.
H	$2,100,000	$550,000	$1,550,000
I	$1,680,000	$190,000	$1,490,000
J	$3,130,000	$710,000 [2]	$2,420,000
TOTAL	$6,910,000	$1,450,000	$5,460,000

[1] Refer to Table 3.

[2] Approximately 49 percent of the service are north of Hacienda Avenue is tributary to proposed sewers south of Hacienda Avenue. Therefore, the sewerline cost associated with 49 percent of the area north of Hacienda has been included with the costs south of Hacienda Avenue.

COUNTY OF RIVERSIDE • HEALTH SERVICES AGENCY
DEPARTMENT OF ENVIRONMENTAL HEALTH

April 22, 1997

John L. Morgan
Mission Springs Water District
66-575 Second Street
Desert Hot Springs, CA. 92240

Dear Mr. Morgan,

The Department of Environmental Health is very supportive of your Districts position regarding the elimination of septic tanks within the Mission Springs Service Area.

Although properly designed and installed individual subsurface sewage disposal systems (septic) can function for many years in desert areas, the adverse impact on ground water can be significant, especially when dwelling/unit density exceeds one per 1/2 acre. This department has already noted elevated nitrate levels in the shallow ground water aquifers in some portions of your service area (as you know, nitrate levels in drinking water of more than 45 parts per million may cause a serious blood disorder in infants call Methemoglobinemia).

Finding an affordable method to finance public sewers is always a problem. If you haven't already contacted the County Economic Development Agency regarding possible grants or low interest loans. I suggest you call Vickie Burt at (760) 863-7060.

Sincerely,

Donovan E. Park,
Assist. Public Health Engineer

John M. Fanning, Director
4065 County Circle Drive • Riverside, CA 92503 • Phone (909) 358-5316 • FAX (909) 358-5017
(Mailing Address – P.O. Box 7600 • Riverside, CA 92513-7600)

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DEPARTMENT OF HEALTH SERVICES
DRINKING WATER FIELD OPERATIONS BRANCH
1350 FRONT STREET, ROOM 2050
SAN DIEGO, CA 92101
(619) 525-4159
FAX (619) 525-4383

April 16, 1997

RECEIVED

APR 24 1997

ALBERT A. [illegible]
CIVIL ENGINEERS

John L Morgan
Mission Springs Water District
66-575 Second Street
Desert Hot Springs, CA 92240

Dear Mr. Morgan:

On March 10, 1997, we received the information you sent on the transport of contaminants from wastewater disposal systems in your groundwater basin and the potential adverse impacts to water quality. It is my understanding the Mission Springs Water District is considering installation of sewers to replace existing septic tanks in an effort to protect the quality of water in your groundwater basin. We support your efforts to protect your groundwater supply by providing municipal sewer service.

Septic tanks can be a source of nitrate, virological and bacteriological contamination in the basin and will have a long term detrimental impact on the quality of water produced by your wells. In addition, future groundwater disinfection regulations will take location and number of septic tanks into consideration when determining disinfection requirements for water systems.

Protecting drinking water supplies and preventing contamination is a high priority for this Department. Recent changes to the Federal Safe Drinking Water Act mandate that States take a more proactive approach to protecting groundwater supplies. As a result, this Department is in the process of adopting a Well Head Protection Program (WHPP) to encourage water systems to take actions which will prevent contamination from occurring. We recommend that you implement a WHPP to further identify areas which are contributing to your water supply and establish well head protection zones for your sources. Attached is some information which you may find useful for establishing a WHPP in your area.

If you have any questions regarding this letter, or need any technical assistance in setting up a WHPP, please contact Brian Bernados or me at (619) 525-4497.

Sincerely,

Toby J. Roy

Toby J. Roy, P.E.
District Engineer

Attachment
cc: Riverside County Environmental Health Services

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
COLORADO RIVER BASIN - REGION 7
73-720 FRED WARING DR., SUITE 100
PALM DESERT, CA 92260
Phone (619) 346-7491
FAX (619) 341-6820

FEB 13 1997

John L. Morgan, General Manager
Mission Springs Water District
66-575 Second Street
Desert Hot Springs, CA 92240

RE: Septic Tank Use

We strongly support and encourage the use of community sewerage systems rather than septic tank systems in your community. Community sewerage systems lead to a better treated and better controlled discharge than do septic tank systems. Septic tank systems, as discovered numerous times throughout our Region, can serve as a repository for hazardous wastes and anything else dumped into them. We have accumulated considerable evidence indicating that septic tank systems have the potential to adversely impact groundwater which serves as the Coachella Valley's drinking water supply.

Once groundwater has been polluted, it is extremely expensive to clean. One case involving a septic tank and subsurface disposal system required the discontinued use of a major municipal supply well. Thus, the community served by that particular well lost the capital investment associated with the well construction. Also, the drinking water demand which that well satisfied required replacement. Unfortunately, the burden of groundwater clean up and overall costs of such sites is often paid by the public. Small businesses and property owners rarely possess the funds needed to adequately clean the groundwater to the safe levels for municipal use. Groundwater clean up projects are extremely expensive.

Community sewerage systems, on the other hand, provide excellent protection of groundwater resources and relieve the homeowner of the burden associated with maintenance and rehabilitation of the septic tank system. Inappropriate wastes entering sewerage systems, and eventually the environment, can be controlled or identified and abated through an effective pretreatment program. Wastewater treated by a community sewerage system is of significantly better quality and can be reused for irrigation or process water. When percolated back to the water table, the quality of community system treated wastewater is much more protective of the groundwater. Threat of nitrate pollution in the groundwater is reduced through the generation and removal of the sewage sludge. Also, operation, maintenance, and conveyance of wastewater is the responsibility of trained and experienced professionals. Such individuals are dedicated to the protection of human health and the environment. Community sewerage systems alleviate the homeowner from having to deal with costly septic tank pumpings, hazardous disposal field failures, and costly disposal field replacement. It is well established that all disposal fields eventually fail. Overall, it is in the interest of the community to support community sewage treatment systems.

In most cases, community sewage treatment systems are not prohibitively expensive. Various institutions have low interest loans available with up to forty year lending periods. Some institutions combine some grant money with the loans. The State Revolving Fund is California's funding source through the Clean Water Act. It provides direct low-interest loans with interest rates at approximately one-half the interest rate of the most recent sale of a State general obligation bond. Loan terms for the State Revolving Fund Loan cannot exceed twenty years. Loans can also be obtained through private corporations. By obtaining low-interest loans, communities have found that community sewage treatment systems are generally affordable and cost-effective. Our contact person for the State

Revolving Fund Loan is Suhas Chakraborty. He can be reached at (619) 776-8961.

Should you have any questions regarding this matter, please do not hesitate to phone Todd Thompson at (619) 776-8941.

PHIL GRUENBERG
Executive Officer

TT/hs

File Ref: ST GC 1.1

APPENDIX K

DISTRICT LETTER AND MAILING LIST SOLITICING PROJECT SUPPORT

Mission Springs Water District

Directors
Nancy Wright
President
Dorothy Glass
Vice President
Mary Gibson
John Warner
Jack Webb

Officers
John L. Morgan
General Manager
Justine A. Mayo
Secretary
Consultants
Brunick, Alvarez & Battersby
Attorneys
NBS/Lowry
Engineers
Lund & Guttry
Auditors

January 27, 1997

Ms. Toby Roy
California Department of Health Services
Office of Drinking Water
1350 Front St., Room 2050
San Diego, CA 92101

Dear Ms. Roy:

As recommended in numerous letters from the Regional Water Quality Control Board, the district has taken an assertive stance to eliminate the use of septic tanks within the Desert Hot Springs area. However, we need your support!

The following will give you some history on what has occurred in our community in regards to sewers:

During the early 70's, Mission Springs Water District decided to construct a treatment plant along with a collection system. The plant was built with a loan and the collection system was built through the use of assessment districts

At that time, the Board of Directors fought the community in order to build the collection system. Needless to say, the assessment districts split the community and the outcome was the recall of four board members. However, that battle started the collection system on its way which was ultimately built. Those same memories of yesteryear linger today. No sewers have been constructed by the district since then. It's easy to see why.

In about 1990, the board decided to ask residents in the community what they thought about sewers, septic tanks, water quality and the cost of sewers. The community responded by telling us they wanted sewers, that sewers were superior to septic systems, but they would not pay for them. The board backed off then and decided we should take a different approach. They decided to first educate the community and then take a closer look at the problem.

66-575 Second Street, Desert Hot Springs, California 92240 • 619/329-6448
Fax 619/329-2482

The education process started about the same year in local schools. We spoke to everyone who would listen to us about preservation of our groundwater and why sewers were needed. We spoke to Rotarians, various civic groups, retired community members, at Mayor's Breakfast meetings, Hoteliers' Assn. meetings, and to each council member. We took every opportunity to tell everyone about sewers. We started a quarterly, 8-page pamphlet called the *Pipeline* which was filled with the same information. This was sent to each customer. We instituted a *Waterways* column in the local paper covering current news on district activities and water quality.

Our community is one of the first in southern California to become a National Groundwater Foundation member which has evolved into a Groundwater Guardian Committee within the local Chamber of Commerce. This Committee runs groundwater programs which have made great progress educating the residents about their number one resource -- the hot and cold water.

It's been an uphill battle but we feel it's time to proceed again with the formation of assessment districts and construction of sewers. We are certainly aware of how inexpensive prevention is when compared to cleanup.

The Mission Springs Water District just recently borrowed $5 Million to start the ball rolling. We are presently securing easements for future collection and interceptor systems. Albert A. Webb Associates, our engineering firm, is looking at demographics, the possibility of securing grants and low-interest loans, and will be meeting with community members along with our staff to get the process underway.

The United States Geological Survey along with Michigan Technological University just completed a study for us that shows a very high probability of pollution from septic systems working its way into our potable water supply. We must move on this matter quickly!

The district will be sending requests to lending institutions as well as local, state and federal agencies to secure grants and loans for sewer projects. A letter from your agency explaining the need for sanitary sewers and recommending support through grants and loans will certainly be very helpful in this matter.

If there is any other information I can provide, please call. I will contact you next week to discuss this request.

Sincerely,

John L. Morgan

John L. Morgan
General Manager

Ms. Toby Roy
California Dept. of Health Services
Office of Drinking Water
1350 Front St., Rm. 2050
San Diego, CA 92101
(619) 525-4159

Mr. Don Park
Environmental Health Dept.
46209 Oasis, Rm. 209
Indio, CA 92201
(619) 863-7000

Dr. Alex Mayer
Michigan Technological University
Dept. of Geological Engineering and Sciences
1400 Townsend Dr.
Houghton, MI 49931-1295
(906) 487-3372

Mrs. Susan Seacrest
Groundwater Guardian Foundation
P. O. Box 22558
Lincoln, NE 68542
(402) 434-2740

Desert Hot Springs City Council
65950 Pierson Blvd.
Desert Hot Springs, CA 92240

The Honorable Sonny Bono
House of Representatives
324 Cannon Office Building
Washington, DC 20515
619-230-1076

The Honorable David Kelley
California State Senate
73710 Fred Waring Dr., Ste 108
Palm Desert, CA 92260
619-346-2099

Coleen Peters, President
Sunrise Rotary
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66350 Pierson
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Mac Villines, President
Noon Rotary
c/o Palm Springs Savings Bank
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Desert Hot Springs, CA
(619) 329-4411

Eva Lees, President
DHS Women's Club
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(619) 329-6893

Ardella Cook, President
Soroptimist International
9631 Brookline
Desert Hot Springs, CA 92240

Jack Oberle, General Manager
Desert Water Agency
P. O. Box 1710
Palm Springs, CA 92263
619-323-4971

Hank Schmidt, President
Hoteliers' Association
c/o The Lido Palms Motel-Spa
12801 Tamar
Desert Hot Springs, CA 92240
(619) 329-6033

Mac Villines, President
Groundwater Guardian Committee
D.H.S. Chamber of Commerce
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Desert Hot Springs, CA 92240
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Mr. Phil Gruenberg, Executive Officer
State Water Resources
Control Board — Region 7
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Lindsay Roberts, Association Manager (Paid position) State Section –
California Water Environment
Control
7677 Oakport, Ste. 525
Oakland, CA 94621
(510) 382-7800

The Honorable Jerry Lewis
House of Representatives
1150 Brookside Ave., Ste J-5
Redlands, CA 92363
(909) 792-5901

Robert Wilburn, City Manager
City of Desert Hot Srings
65950 Pierson Boulevard
Desert Hot Springs, CA 92240
(619) 329-6411

CAUD
Becky ~~Cain,~~ President
League of Women Voters
1730 M St. NW, Ste. 1000
Washington, DC 20036
(202) 429-1965

Report & thesis
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5. FEB. 97

DESERT SENTINEL
SERVING DESERT HOT SPRINGS, CALIFORNIA—THE NATION'S HEALTH CENTER

INTERNATIONAL WATER TASTING COMPETITION

Forget the rest; local water is BEST, panel says

The only untreated water in the municipal category, Desert Hot Springs water takes second place in a West Virginia international competition.

BY JOHN WATERS JR.
Desert Sentinel Editor

Just as Williamsburg, Tenn. is know as the home of "Old No. 7," the signature brew of the Jack Daniels Whisky empire, Desert Hot Springs may become known as the home of Old No. 27, the well which produced the nation's best-testing untreated municipal water.

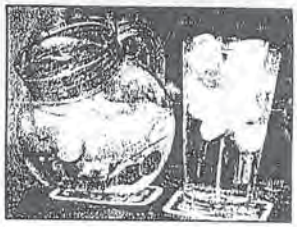
"The decision comes as no surprise to me."

-- Augusta "Gus" Merchall, long-time resident

Residents of Desert Hot Springs have long touted the city's clean-tasting water, which flows naturally from the surrounding mountains, but last Saturday, judges at the largest ever "Toast to the Tap: International Water Tasting and Competition" held in Berkeley Springs, W. Va. declared the local water the second best tasting in the municipal water category. Desert Hot Springs' water is the only water among the five top winners that is not treated, making it the best tasting natural water in the municipal category in the country.







Desert Sentinel photos by John Waters Jr.

Tracing the water – From above (counter-clockwise), the course of the best untreated water in the municipal category of last week's water testing in W.Virginia makes its way down San Gorgonio Mountain, through Mission Creek and into the Mission Creek Subbasin where it is pumped by Ol' No. 27 and Chuck Dodd, of the Mission Springs Water District before it ends up in a pitcher at your home.

"Their determination comes as no surprise to me," said Augusta "Gus" Merchall. "We have enjoyed our water since we moved here in 1953.

"A lot of families come here to live or visit, and they are really surprised how good the water tastes," Merchall said after hearing the news Monday. "I've known how good the water is for a long time, since the days of Dr. Robert Bingham, who made the water famous when he used it to treat people for arthritis and other ailments many years ago. I also used to go to Coffee's spa. There was a public bib there where people would go everyday and fill up their water jugs."

Saturday's competition included 82 different kinds of water from 23 states and four countries, including France, Italy and Canada.

After the sniffing, swishing, scanning and sipping was done, the water of Dubuque, Iowa was rated number one in the municipal category. Desert Hot Springs, with the only untreated water in the category, came in second, followed by Dover, Delaware. Metropolitan Water District of Southern California landed the fourth place and the fifth place went to the 1995 winner in the municipal group, Kent, Ohio.

There were 38 water companies competing in the municipal category.

The only other water winner from California came from the Napa Valley. Calistoga Sparkling Mineral Water took home the top honors in the sparkling water division, out-sparkling France's Perrier Sparkling Mineral Water.

"This is wonderful news for the community," Don Coleman, community coordinator for Mission Springs Water District said Monday. "It really confirms everything that we have known for years, only now we are going to get world-wide publicity for our water, and that has got to be good for the city.

Mission Springs Water District supplies water to Desert Hot Springs and several surrounding communities.

"On the other hand," he added. "It underscores why we need to protect the quality of our water."

Judges for the "Toast of the Tap" included freelance writers and media representatives from National Public Radio, Beverage Industry Magazine, Spa Goer magazine, National Geographic Traveler, the Washington Post, the National Drinking Water Clearinghouse and others.

Dr. Paul Ross, a Ground Water Guardian, researched information on the water contest, and the Mission Springs Water District submitted the sample, collected from well number 27, located near North Palm Springs, in the contest.

"I just found out how we could enter the contest," Ross said. "Don Coleman did the rest.

"Our water is our claim to fame," he added. By checking our history, you'll see our water was discovered. Then they discovered its healing aspects and our town evolved around the water. We have something no one else has. I'm thrilled we did so well."

Reprinted with permission of the Desert Sentinel newspaper.

Thursday, February 27, 1997 issue

Letters requesting aid with sewer project
Mailed to following on January 30, 1997

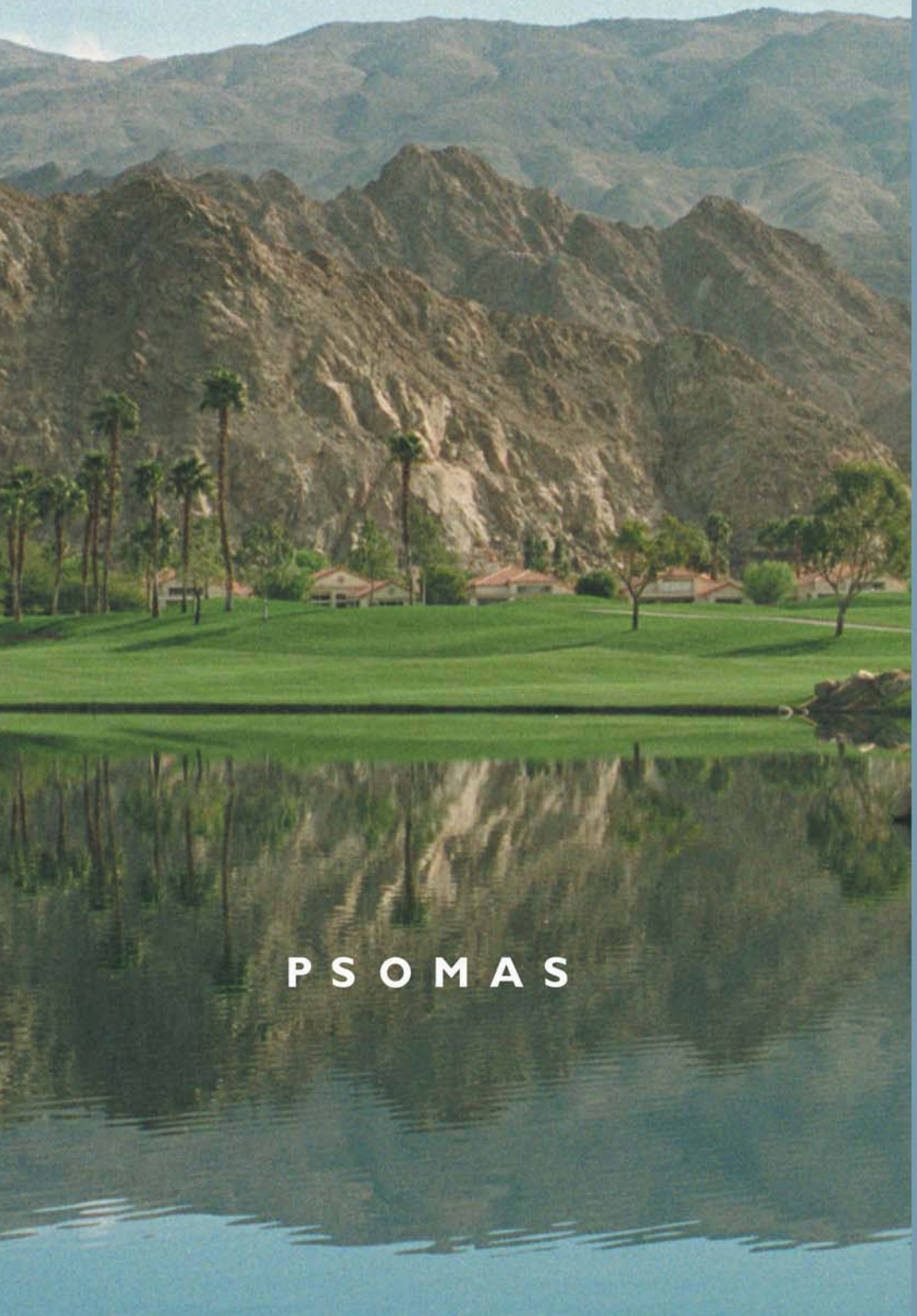
Lobbists
~~Charlotte Townsend (Bobby)~~ BOBBIE LARSEN — CALLED 2/12/97 — LTR NVR REC'D — RESENDING + TOLD HER WE'D FOLLOW UP NEXT WEEK
California Association of
Sanitation Agencies
925 L. Street, Ste. 1400
Sacramento, CA 95614
(916) 446-0388

Bill Killian, President SPOKE TO JEAN
California Rural Water Assoc.
6920 Fair Oaks Blvd., Ste. 100
Carmichael, CA 95608
(916) 944-0236

Billy Turner, President
Water Environment Federation
601 Wythe Street
Alexandria, VA 22314-1994
(703) 684-2400

MISSION SPRINGS WATER DISTRICT

Water Recycling Feasibility Study



Resource Protection and Wastewater Infrastructure,

Desert Hot Springs, CA

PSOMAS

March 2007

RESOURCE PROTECTION AND WASTEWATER INFRASTRUCTURE, DESERT HOT SPRINGS, CALIFORNIA

WATER RECYCLING FEASIBILITY STUDY – PHASE I

With funding assistance from U.S. Bureau of Reclamation

March 2007

Prepared for:
MISSION SPRINGS WATER DISTRICT
66575 Second Street
DESERT HOT SPRINGS, CA

Prepared by:
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APPENDICES

Appendix A: Financial Proforma

LIST OF ABBREVIATIONS

AD	Assessment District
ADD	Average Daily Demand
AF	Acre Feet
AFY	Acre Feet per Year
CRA	Colorado River Aqueduct
CVWD	Coachella Valley Water District
DHS	Department of Health Services
DRIPP	Desalination Research and Innovation Partnership Program
DWA	Desert Water Agency
DWR	Department of Water Resources
EDU	Equivalent Dwelling Unit
GPM	Gallons Per Minute
MAF	Million Acre Feet
Max	Maximum
MCL	Maximum Contaminant Level
MDD	Maximum Daily Demand
MFR	Multi-Family Residential
MG	Million Gallons
MGD	Million Gallons per Day
Min	Minimum
MPN	Most Probable Number
MSWD	Mission Springs Water District
MWD (SC)	Metropolitan Water District of Southern California
SB	Senate Bill
SFR	Single Family Residential
SGPWA	San Gorgonio Pass Water Agency
SWP	State Water Project
TDS	Total Dissolved Solids
URS	URS Corporation
UWMP	Urban Water Management Plan
WWTP	Wastewater Treatment Plant

EXECUTIVE SUMMARY

Mission Springs Water District (MSWD) has contracted Psomas to assist in the development of the *Water Recycling Feasibility Study – Phase I* to assess the feasibility of implementing a water recycling system in MSWD's service area. In November 2004, Psomas completed the Phase I Water Recycling Appraisal study, which detailed MSWD's existing groundwater conditions, threats to existing water quality, availability of recycled water, as well as a proposed plan to implement future recycled water use in the Mission Creek Sub-basin. This report aims to further analyze the feasibility of implementing a recycled water system throughout MSWD's service area.

The entire MSWD service area was reviewed to assess the feasibility of implementing a water recycling system. The District's service area consists of 135 square miles including the City of Desert Hot Springs, 10 smaller communities in Riverside County, and communities in the City of Palm Springs. The District's water source is 100 percent groundwater, drawn from nine active production wells, providing water service to approximately 23,000 people as well as sewer service to approximately 8,000 people in Desert Hot Springs, Desert Crest Country Club and Dillon Mobile Home Park. ***Figure 1-1*** shows the extents of the MSWD service area.

MSWD currently operates two wastewater treatment plants (WWTPs) currently serving a total of approximately 6,000 developed parcels. The plants are the Horton Treatment Plant and the Desert Crest Treatment Plant, with capacities of 2,300,000 gal/day (2,576 AFY) and 180,000 gal/day (202 AFY), respectively. It should be noted that the Horton WWTP has only been permitted to 2,000,000 gal/day. The District's wastewater treatment plants currently treat wastewater using a secondary treatment process.

Regional groundwater levels have been declining in recent years. Due to the large reliance on groundwater drawn from the Mission Creek Sub-basin, implementation of a recycled water system is needed to assist in enhancing the reliability of groundwater within the MSWD service area. With the development of the recycled water system, a number of landscape and irrigation users that are currently dependent on potable water will receive recycled water supply, thus reducing the demand on groundwater pumping. Several existing and proposed projects throughout the MSWD service area include golf courses and landscaping, which make up a significant portion of the District's current water demand.

If recycled water is not utilized to irrigate the golf course and other proposed landscape uses proposed in this report, the alternative water source would be the continued and future use of groundwater. Currently, groundwater is supplemented by CVWD and DWA through their exchange agreement with MWD which provides Colorado River Aqueduct (CRA) water in exchange for State Water Project (SWP) water for recharge into the Whitewater and Mission Creek groundwater sub-basins. CVWD and DWA have considered the feasibility of providing additional water supplies to the Coachella Valley through an extension of the SWP from the high desert in the Apple Valley area to the vicinity of the recharge basins. This would require an approximate 99-mile pipeline

delivering up to 300 cfs peak capacity. The total cost for developing this source is estimated at approximately $1,036 per acre-foot.

The availability of recycled water in MSWD's service area is limited to water generated as part of the wastewater treatment associated with sewage collected from sewered residential developments, commercial and industrial properties. Since the majority of the wastewater that is recycled in the early phases of the proposed plan will be used for recharging the groundwater basin and irrigation on unrestricted golf courses, the type of treatment is assumed to be equivalent to DHS requirements for Disinfected Tertiary Recycled Water.

Alternative recycled water production and supply methods were considered and analyzed for meeting landscape irrigation demands in the Desert Hot Springs area. The alternatives analysis discussion is divided into treatment and distribution alternatives:

Treatment Alternatives:

Alternative 1: In this alternative, tertiary treated effluent from the Horton Plant would supply irrigation demands to Tuscan Hills, Mission Lakes, Highland Falls and Palmwood. Around the year 2020, a Regional WWTP would be constructed to assist in treating wastewater flows in the District. The Regional WWTP would supplement irrigation demands at Highland Falls, Palmwood, and Mission Lakes, and provide recycled water to any other developments that are constructed south of Pierson Blvd. ***Figure 4-1*** shows existing and proposed treatment plants associated with Alternative 1.

Alternative 2: In this alternative, shown in ***Figure 4-3***, the Horton Plant would again supply tertiary treated recycled water to Tuscan Hills, Mission Lakes, Highland Falls and Palmwood beginning in 2015. Around 2020, a satellite plant would be required near Indian Avenue and Pierson Avenue. This satellite plant would treat wastewater from Highland Falls, Palmwood, and surrounding developments, and also provide tertiary treated recycled water to the golf courses in Palmwood and Highland Falls. Excess untreated wastewater would be routed through existing sewer lines to Horton Plant during the winter months. During high demand summer months, stored recycled water at the Horton Plant percolation ponds would supplement treated wastewater from the satellite plant. By 2035, a Regional WWTP may be necessary to supplement irrigation demands throughout the District, especially if there are new development projects south of Pierson Blvd.

Distribution Alternatives:

Alternative 1: Figure 4-1 shows the preliminary routing and sizing of pipelines and pump stations for Alternative 1. Booster Station Pump 1, located at Horton WWTP, is sized based on ultimate conditions that include supply from the proposed Regional WWTP. Once the Regional WWTP is online and incorporated into the recycled water distribution system, peak irrigation demands can be met.

The pipeline alignment shown in ***Figure 4-1*** would require two booster pump stations to supply recycled water to the Highland Falls and Palmwood developments. Both stations, shown as Booster Pumps 3A and 3B, have been sized to meet projected peak demands.

Alternative 2: Alternative 2, shown on ***Figure 4-2***, includes an alternative pipeline alignment which would allow the use of only one booster pump station to supply the Highland Falls and Palmwood developments. This alternative pipeline alignment, however, does not follow existing roadways up to the Palmwood development. All other aspects of Alternatives 1 and 2 are the same. A final routing would have to be developed in consultation with MSWD including engineering and environmental review.

Alternative 3: Alternative 3 corresponds to the treatment alternative which includes the Satellite Plant at Indian and Pierson, and is shown in ***Figure 4-3***. This alternative involves a total of 5 booster pump stations as follows: Booster Pump 1 at Horton WWTP will supply recycled water to Tuscan Hills and Mission Lakes, and supplement recycled water for use in Highland Falls and Palmwood developments. Booster Pump 2 at the Regional WWTP will supply additional flow as development continues within Desert Hot Springs. Booster Pump 4 will be located at the Indian/Pierson Satellite WWTP and will pump to Booster Pumps 3A and 3B, which will supply Highland Falls, Palmwood, and Mission Lakes.

Three scenarios for treatment and distribution alternatives were explored during the economic analysis of alternatives. The first scenario includes Treatment Alternative 1 and Distribution Alternative 1, as described above. The second scenario involves Treatment Alternative 1 and Distribution Alternative 2, as shown on ***Figure 4-2***. The third scenario entails Treatment Alternative 2 and Distribution Alternative 3. ***Table ES-1*** summarizes these scenarios and includes capital and O&M costs for each.

Table ES-1
Scenarios for Recycled Water Production and Supply

	Scenario 1	**Scenario 2**	**Scenario 3**
Treatment	$25,500,000	$25,500,000	$28,000,000
Distribution	$26,310,000	$24,530,000	$26,020,000
Storage	$3,000,000	$3,000,000	$3,000,000
Total Capital	$54,810,000	$53,030,000	$57,020,000
Annual Capital (1)	$2,830,000	$2,740,000	$2,940,000
Annual O&M - treatment (2)	$803,000	$803,000	$1,178,000
Annual O&M - distribution (3)	$3,159,000	$3,166,000	$2,872,000
Total Annual	$6,792,000	$6,709,000	$6,990,000

Notes:
(1) Interest rate is 4.608%, over 50 years.
(2) Tertiary treatment O&M costs estimated at $0.11 per gpd per year. Satellite plant O&M costs estimated at $0.26 per gpd per year
(3) From Tables 4-3 and 4-4.

The most costly scenario, as presented in ***Table ES-1***, totals $6.99 million per year. Dividing the annual cost by the average irrigation demand of 7,998 AFY results in a cost of $874 per acre-foot for recycled water produced and delivered using the scenario described above. As described above, the cost of providing additional water supplies to the Coachella Valley through development of the Desert Aqueduct totals $1,040 per acre-foot.

Several funding sources are readily available to meet recycled water capital funding needs. These include sewer connection fees, reclamation connection fees, domestic water connection fees, sewer user rates, and reclaimed water sales. In addition, there are several programs which can assist municipalities to attenuate the large up-front capital investment of a recycled water program.

Tertiary treatment capital costs can be funded by increasing the current sewer connection fee of new sewer users. Capital costs for the recycled water distribution and storage system may be funded by a reclamation connection fee charged to new developments when connecting to the recycled water system, as well as through an increase in domestic water connection fees. Operation and maintenance (O&M) yearly costs for tertiary treatment and recycled water distribution can be funded by sewer user rates and recycled water sales. Bond sales and matching grants may be considered during the first years of the program, when income from user rates and fees will not yet be available. The revenue from rates and fees will ensure that a repayment stream is adequate to cover the cost of the bonds, making this recycled water program financially feasible.

1 Introduction

1.1 Overview

Mission Springs Water District (MSWD) was established in 1953 and was formerly called the Desert Hot Springs County Water District. The MSWD service area consists of 135 square miles including the City of Desert Hot Springs, 10 smaller communities in Riverside County, and communities in the City of Palm Springs. MSWD's water source is 100 percent groundwater, drawn from nine active production wells, providing water service to over 23,000 people as well as sewer service to approximately 8,000 people in Desert Hot Springs, Desert Crest Country Club, and Dillon Mobile Home Park.

1.2 Purpose

Mission Springs Water District (MSWD) has contracted Psomas to assist in the development of the Water Recycling Feasibility Study – Phase I to assess the feasibility of implementing a water recycling system in MSWD's service area. In November 2004, Psomas completed the Phase I Water Recycling Appraisal study, which detailed MSWD's existing groundwater conditions, threats to existing water quality, availability of recycled water, as well as a proposed plan to implement future recycled water use in the Mission Creek Sub-basin. This report aims to further analyze the feasibility of implementing a recycled water system throughout MSWD's service area.

1.3 Study Area

1.3.1 MSWD Service Area

The entire MSWD service area will be reviewed to assess the feasibility of implementing a water recycling system. As previously noted, the District's service area consists of 135 square miles including the City of Desert Hot Springs, 10 smaller communities in Riverside County, and communities in the City of Palm Springs. The District's water source is 100 percent groundwater, drawn from nine active production wells, providing water service to approximately 23,000 people as well as sewer service to approximately 8,000 people in Desert Hot Springs, Desert Crest Country Club and Dillon Mobile Home Park.

The existing MSWD distribution system consists of three independent water distribution systems: 1) Desert Hot Springs and surrounding area system – encompasses the City of Desert Hot Springs and surrounding unincorporated areas of Riverside County, 2) Palm Springs Crest System, and 3) West Palm Springs Village System.

MSWD offices are located in Desert Hot Springs, California. MSWD's largest water supply and distribution system serves the community of Desert Hot Springs and surrounding communities of West Garnet, located south of Interstate 10 (I-10) and West of Indian Avenue, and North Palm Springs. The two smaller systems, Palm Springs Crest

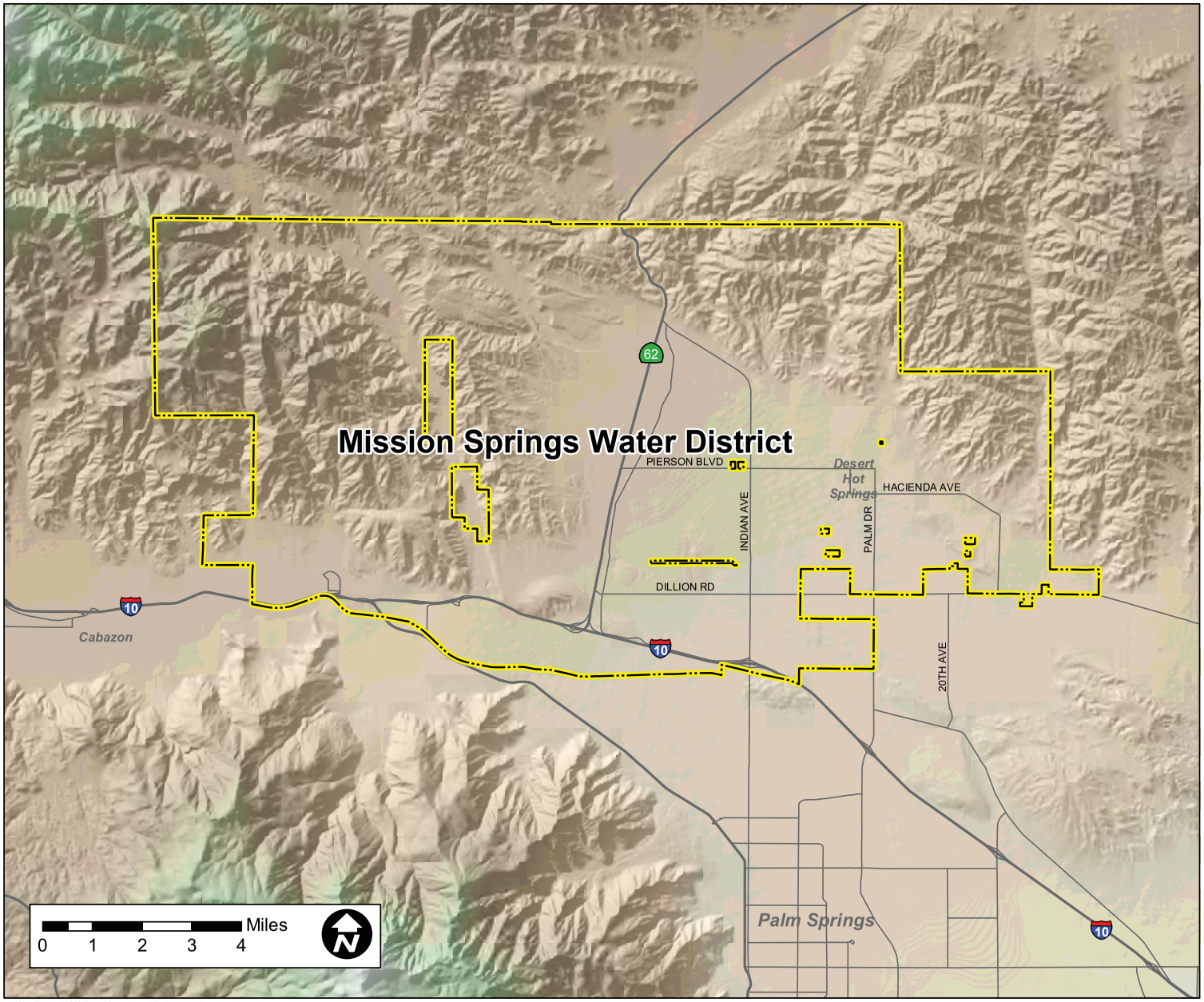
System and West Palm Springs Village System, are located approximately five miles west of Desert Hot Springs. These two communities are located on the north side of I-10 abutting the Morongo Indian Reservation. ***Figure 1-1*** shows the MSWD Service Area location.

1.3.2 Sub-basin Description

Major surface water features in the area are the Whitewater River, Mission Creek, San Gorgonio River, Little and Big Morongo Washes, and Long Canyon. The MSWD service area and groundwater Sub-basins are presented on ***Figure 1-2***.

MSWD is located in the northwestern portion of the Upper Coachella Valley, in eastern Riverside County. Its service area contains a portion of the Upper Coachella Groundwater Basin and includes Mission Creek Sub-basin, Garnet Hill Sub-basin, Whitewater Sub-basin, San Gorgonio Pass Sub-basin, and the Desert Hot Springs Sub-basin. These sub-basins were formed by the large and active faults that make up the San Andreas Fault system. The Mission Creek Sub-basin is the largest source of groundwater for the MSWD service area. The Mission Creek Fault and the Banning Fault bound the northern and southern edges of the Sub-basin, respectively, and are the major groundwater controls. Both act to limit groundwater movement as these faults have folded sedimentary deposits, displaced water-bearing deposits, and caused once permeable sediments to become impermeable (California Department of Water Resources [DWR], 1964). All of the sub-basins, except for Desert Hot Springs are “cold-water” basins that can provide potable water. The Desert Hot Springs Sub-basin is a “hot-water” basin that is highly mineralized with water temperatures exceeding 100 degrees Fahrenheit and is not used to supply potable water. However, this hot, highly mineralized water is important to the economy as it supports numerous spa resorts and hotels within the city of Desert Hot Springs.

Although the MSWD service area boundary overlies several sub-basins, currently all of the producing water supply wells for the main MSWD System are located within the Mission Creek Sub-basin, with the exception of MW-33 which is located in the Garnet Hill Sub-basin. The Palm Springs Crest System and the West Palm Springs Village System are both supplied by wells that draw from the Cabazon Storage Unit of the San Gorgonio Pass Sub-basin. Currently, proposed development within the MSWD service area will rely predominantly on groundwater until recycled water is made available by MSWD.



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Water Recycling Feasibility Study
Desert Hot Springs

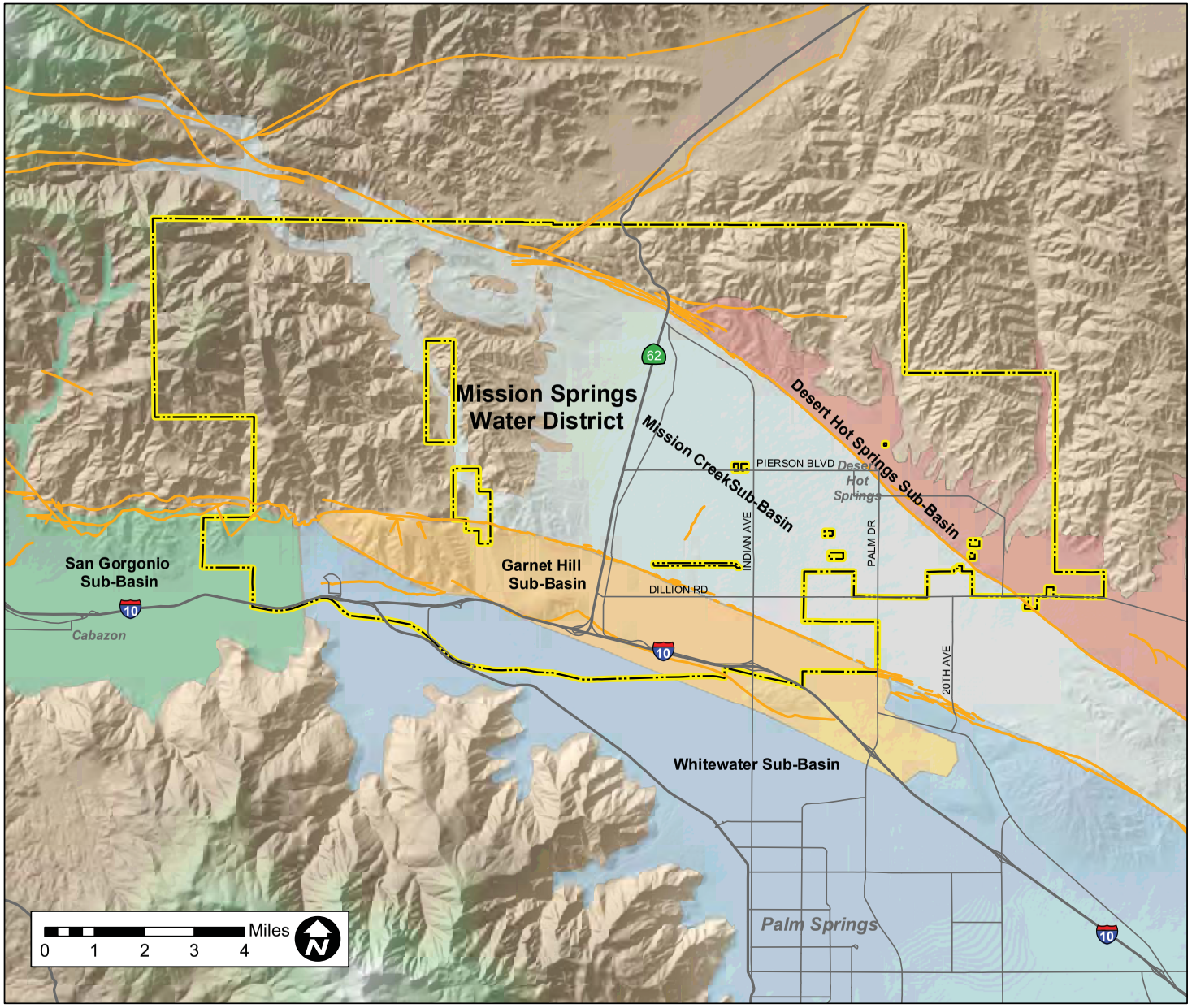
Legend

MSWD Service Area Boundary

MSWD Service Area

PSOMAS

Figure 1-1



Water Recycling Feasibility Study
Desert Hot Springs

Legend

- MSWD Service Area Boundary
- Known Fault Lines

UWMP Sub-Basins

- Desert Hot Springs Sub-Basin
- Mission Creek Sub-Basin
- Garnet Hill Sub-Basin
- Whitewater Sub-Basin
- San Gorgonio Sub-Basin

MSWD Groundwater Sub-Basins

MSWD PSOMAS

Figure 1-2

1.3.3 Wastewater Treatment Plants

MSWD currently operates two wastewater treatment plants (WWTP) serving a total of approximately 6,000 developed parcels. The plants are the Horton Treatment Plant, located on Verbena Drive about ½ mile south of Two Bunch Palms Trail, and the Desert Crest Treatment Plant, located about ½ mile southeast of the intersection of Dillon Road and Long Canyon Road, with capacities of 2,300,000 gal/day (2,576 AFY) and 180,000 gal/day (202 AFY), respectively. The Horton WWTP, however, has only been permitted to 2,000,000 gal/day. The disposal of effluent from both the Horton and Desert Crest treatment plants is accomplished by utilizing percolation ponds located within the plants on the southwest (cold water) side of the Mission Creek Fault. In addition, effluent is used for irrigation and wash-down at the plants. The District's wastewater treatment plants currently treat wastewater using a secondary treatment process. See ***Table 1-1*** for capacity and current average flow of existing WWTPs.

MSWD's existing wastewater conveyance system consists of a network of nearly 77 miles of sewer pipeline concentrated in the central portion of the study area where the majority of the populace and businesses reside. The Desert Crest Country Club community first received sewer service in the early 1960s with the outlying tracts established later in the early 1970s. Most of the MSWD sewer pipelines were constructed in the early 1970s and include lines along Ocotillo Road, Palm Drive, and Mission Lakes Boulevard. In the early 1980s, improvements to the pipeline system were added to tracts west of West Drive.

There is an ongoing program to incorporate existing residences currently on septic systems to sewer collectors that have been constructed or are in the process of being constructed.

Table 1-1
Capacity and Average Flow for 2006 (MGD) -
Existing WWTP

WWTP	Capacity	Average
Horton	2.3	1.3
Desert Crest	0.18	0.05
Total	2.48	1.35

2 Problems and Needs

2.1 Water Management Problems

Water reclamation and reuse will provide a solution to MSWD's 100% reliance on groundwater supply by providing an additional source to meet existing and future golf course and landscape irrigation demands. The groundwater supply from the Sub-basins within MSWD's service area is of excellent quality, with the exception of Desert Hot Springs Sub-basin. Therefore, the use of high quality potable water supply for non-potable uses, including irrigation, reduces the reliability of potable supplies for the region.

MSWD's water source includes groundwater, emergency inter-connections, and imported water for groundwater recharge. Groundwater is drawn from nine wells that supply the Desert Hot Springs System, with one additional well installed in 2006 (Well 34), three more planned for installation in the near future, and two wells each for the Palm Springs Crest System and the West Palm Springs Village System. Additional production from the Mission Creek Sub-basin comes from the Coachella Valley Water District (CVWD), which has four production wells located in an area overlying the south central portion of the sub-basin, and from approximately 200 private wells for domestic use. Several existing and proposed projects within the MSWD service area will utilize the groundwater (if approved) as its primary source of water supply until recycled water is made available in the future. MSWD currently has two inter-connections with the CVWD that can be used to provide emergency water to the Main System on a temporary and very limited basis.

The third source of water is obtained through an agreement between the Desert Water Agency (DWA) and the Metropolitan Water District (MWD) to exchange Colorado River water for SWP water. DWA obtains this water through a turnout from the Colorado River Aqueduct (CRA) and manages a recharge facility near the turnout that enables the water (when it is available) to replenish the aquifer used by MSWD and CVWD. ***Table 2-1*** provides a comparison of the existing water supply capacity with projected average daily demand (ADD) and maximum daily demand (MDD) in the MSWD service zone.

Due to the large reliance on groundwater drawn from the Mission Creek Sub-basin, implementation of a recycled water system is needed to assist in enhancing the reliability of groundwater within the MSWD service area. With the development of the recycled water system, a number of landscape and irrigation users that are currently dependent on potable water will receive recycled water supply, thus reducing the demand on groundwater pumping. Several existing and proposed projects throughout the MSWD service area include golf courses and landscaping, which make up a significant portion of the District's current water demand.

2.2 Near and Long-Term Water Supplies and Demands

Within the MSWD service area, a significant portion of the water demand comes from landscape and golf course irrigation. Due to the delicate balance of groundwater supply needed to manage the region's groundwater basins, recycled water will offset non-potable demands. Regional groundwater levels have been declining significantly in recent years, as described below in the groundwater basin descriptions for the region. Since development continues throughout the MSWD service area and throughout the desert region, recycled water is needed to provide a non-potable source of supply, which will allow groundwater to serve solely as a potable supply. The lack of recycled water supply within the service area results in the use of high quality groundwater to irrigate golf courses and landscape.

Table 2-1 shows a projected water balance for the Mission Creek Sub-basin, which is the primary source of water supply to MSWD with the exception of future recycled water. The projections in five-year increments for years 2010 through 2030 assume Normal Year conditions whereas the 2005 year is recognized as a wet-year condition as reflected by the 24,700 AF of imported water recharge in the first column. If the Net Balance values for years 2010 through 2030 are averaged and multiplied by the total 25 years of the UWMP projection period, the result would be a cumulative withdrawal of 46,000 AF from the Mission Creek Sub-basin. When the single-year surplus of 14,000 AF for 2005 (starting condition) is taken into account, the net cumulative withdrawal would be reduced to 32,000 AF. It should be noted that this conservative assumption assumes no wet-year condition such as 2005 will occur over the next 25-year period and that all years are normal water years.

The estimate of total available storage within the Mission Creek Sub-basin is approximately 1.4 MAF[1]. This cumulative withdrawal, based on the projections and assumptions described above and included in ***Table 2-1***, would therefore equate to a loss of available storage of 2.3 percent over the next 25 years. Although relatively small compared to the basin capacity, it is nevertheless MSWD's intent to continue to work with Desert Water Agency and Coachella Valley Water District to develop a strategic groundwater management program that will protect the Mission Creek Sub-basin for generations to come.

[1] 1.4 MAF as noted in Section 2.1 of the MSWD 2005 UWMP.

Table 2-1
Water Springs Water District
Water Balance
(AF – all numbers rounded to nearest 100 AF)

Year	Mission Creek Sub-basin Recharge[a]	CVWD Sub-basin Production[b]	Surplus GW Recharge[c]	Total MSWD Demand[d]	Recharge from 35% Return Flow[e]	Net Recharge Available[f]	Total MSWD GW Demand[g]	Net Balance[h]
2005	24,700	4,700	20,000	9,200	3,200	23,200	9,200	14,000
2010	11,200	4,000	7,200	15,400	5,000	12,200	14,400	(2,200)
2015	14,100	5,500	8,600	20,800	6,900	15,500	17,800	(2,300)
2020	16,100	7,100	9,000	23,500	7,900	16,900	17,200	(300)
2025	17,800	8,900	8,900	26,200	8,800	17,700	19,100	(1,400)
2030	19,100	10,700	8,400	28,900	9,800	18,200	21,200	(3,000)

[a] From Table 2-13 in CVWD 2005 UWMP for Mission Creek Spreading Facility; 2005 value from April 6, 2006 CVWD Engineer's Report on Water Supply and Replenishment Assessment, Mission Creek Sub-basin Area of Benefit 2006-2007 (Table 6).

[b] From Table 3-3 in CVWD 2005 UWMP for Mission Creek Sub-basin; 2005 value from April 6, 2006 CVWD Engineer's Report.

[c] Difference between Mission Creek Sub-basin Recharge and CVWD Production

[d] Total Projected MSWD demand including recycled water demand (refer to subsequent tables in this section)

[e] Naturally occurring recharge from return flow (35% of Total MSWD Demand)

[f] Net Recharge Available = Surplus GW Recharge + Recharge from Return Flow

[g] Total MSWD GW Demand (excludes recycled water demand)

[h] Net Balance = Net Recharge Available – Total MSWD GW Demand

Regional groundwater levels have been declining significantly in recent years. Since development continues throughout the MSWD service area and throughout the desert region, recycled water is needed to provide a non-potable source of supply for existing development, including Mission Lakes, and proposed future development, including Palmwood, Two Bunch Palms, Hot Springs Mobile Home Park, Highland Falls (formerly Rancho Royale), and Tuscan Hills. These developments include golf courses and landscape irrigation that make up significant portions of their projected overall water demand. As previously noted, the current lack of recycled water supply within the service area results in the use of high-quality groundwater for irrigation purposes.

2.3 Groundwater Supply

MSWD draws almost all of its water supply from groundwater. ***Table 2-2*** lists the active wells including age, depth and capacity.

Table 2-2
Active Wells

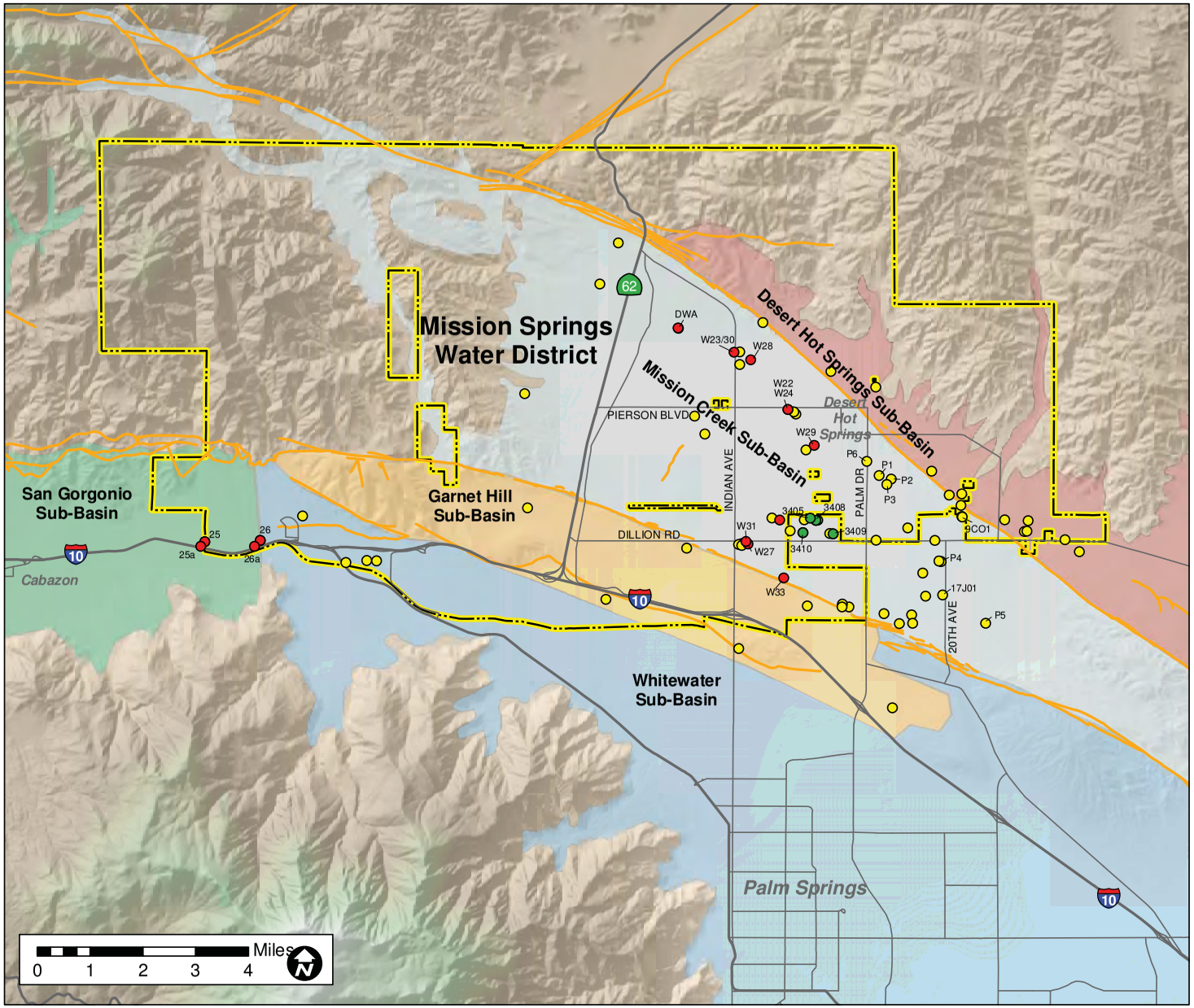
Well No.	Age (years)	Depth (feet)	Capacity (gpm)
Mission Creek Sub-basin			
MW-22	35	800	1,750
MW-24	32	800	1,200
MW-27	25	400	1,100
MW-28	16	900	1,900
MW-29	13	1,070	1,700
MW-30	13	1,100	825
MW-31	12	1,000	1,900
MW-32	1	1,000	2,000
Garnet Hill Sub-basin			
MW-33	0	1,000	800
San Gorgonio Pass Sub-basin, Cabazon Unit			
MW-25	48	465	400
MW-25A	3	600	175
MW-26	74	575	350
MW-26A	4	285	170

The following discussion includes descriptions of each of the Sub-basins from which MSWD pumps groundwater. See ***Figure 2-1*** for a detailed map of the location of Sub-basins and active wells throughout MSWD's service area.

2.3.1 Mission Creek Sub-basin

The Mission Creek Sub-basin is located in the Upper Coachella Valley in the north central portion of Riverside County, California. The Mission Creek Fault and the Banning Fault bound the northern and southern edges of the sub-basin, respectively, and are the major groundwater controls. Both act to limit groundwater movement as these faults have folded sedimentary deposits, displaced water-bearing deposits, and caused once permeable sediments to become impermeable (California Department of Water Resources [DWR], 1964).

Major surface water features in the area are the Whitewater River, Mission Creek, San Gorgonio River, Little and Big Morongo Washes, and Long Canyon. The MSWD service area and groundwater sub-basins were presented on ***Figure 1-2***.



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Water Recycling Feasibility Study
Desert Hot Springs

Legend

- MSWD Service Area Boundary
- Known Fault Lines
- Private Wells
- Public Wells - MSWD
- Public Wells - CVWD

UWMP Sub-Basins

- Desert Hot Springs Sub-Basin
- Mission Creek Sub-Basin
- Garnet Hill Sub-Basin
- Whitewater Sub-Basin
- San Gorgonio Sub-Basin

MSWD Well Locations

MSWD PSOMAS

Figure 2-1

2.4 Imported Water Supply

An emergency source of water for MSWD is the CVWD. MSWD currently has two inter-connections with the CVWD that can be used to provide emergency water to the Main System on a temporary and very limited basis.

DWA is the MSWD's wholesale supplier for the SWP. As a State Water Contractor, DWA is entitled to SWP water. A conveyance system to provide SWP water directly to the Coachella Valley currently does not exist. However, the CRA does go through the valley. DWA has entered into an agreement with MWD to exchange SWP water for CRA water.

In 1997, MWD tapped into the CRA for DWA and installed a 48-inch turnout just south of Indian Avenue and west of Worsley Road. DWA acquired approximately 190 acres of land in the vicinity of the turnout to construct spreading ponds to hold the Colorado River water as it percolates downward into the Mission Creek Sub-basin. A test well was also installed by DWA to monitor the flow of water underground. DWA completed construction of 60 acres of recharge basins as the Mission Creek Recharge Facilities in June 2002. Recharge commenced in November 2002 with 4,733 AF of water introduced into the basins in the remainder of 2002. A lack of available water resulted in no recharge in 2003. An additional 5,564 AF of water was recharged in October, November, and December of 2004. Because of the very wet conditions in 2005, recharge in calendar year 2005 totaled 24,700 AF (April 2006 CVWD Engineer's Report on the Mission Creek Sub-basin).

URS (2005) reported that the number of recharge basins in operation depends upon the availability of water. In 2005, only about two-thirds (40 acres) of the 60 acres of basins were being used at one time. Based on the current excellent rate of about 4 feet per day, and accounting for some downtime for maintenance, the 60 acres of basins could recharge as much as 60,000 acre-feet per year (AFY), which far exceeds the currently available supply. Even if recharge rates decreased over time to as little as 1 foot per day, the capacity would still be at least 15,000 AFY.

The possibility of continued recharge depends largely on the availability of future water from the MWD's Colorado River Aqueduct and on MWD's exchange agreements with DWA. This source of water does provide a significant amount of inflow to the northwesterly portion of the Mission Creek Sub-basin and reduces the amount of over drafting of the aquifer. In addition, assuming that sufficient water is available, this recharge facility provides for conjunctive use possibilities, such as water banking of Colorado River water. Because of the excess capacity and the lack of available water, DWA does not have any plans for expanding the facility any time soon. Even if water was available, most of the remaining 130 acres not currently used for recharge are located in Mission Creek, and any facilities constructed in the creek would be subject to damage from flood events. Any expansion of the recharge facilities would most likely require the purchase of additional land.

2.5 Recycled Water Supply

Recycled water is defined by the California Water Code as "water, which, as a result of treatment of waste, is suitable for a direct beneficial use or a controlled use that would not otherwise occur and is therefore considered a valuable resource." The availability of recycled water is limited to water generated as part of the wastewater treatment associated with sewage collected from sewered residential, commercial, and industrial properties.

As mentioned in Section 1, MSWD currently operates two wastewater treatment plants serving a total of approximately 6,000 developed parcels with a wastewater conveyance system of nearly 77 miles of sewer pipeline. See ***Figures 4-1*** through ***4-3*** for the locations of existing wastewater treatment plants throughout the MSWD service area. A future regional wastewater plant is currently planned near Indian Avenue and Interstate 10, as shown on these figures. There is also a potential to develop a satellite treatment plant near Indian Avenue and Pierson to capture and reclaim effluent from the area tributary to it and pump it to the proposed Palmwood and Highland Falls golf courses. The alternative of utilizing this satellite wastewater treatment plant will be evaluated later in the report, in Section 4.

The Alan L. Horton Wastewater Treatment Plant has a capacity of 2.3 mgd, and is currently operating with an average daily flow of 1.3 mgd. The Horton facility uses an extended aeration process for treatment and disposes of the undisinfected secondary wastewater in adjacent percolation/evaporation ponds. The sludge generated from the treatment process is dried in on-site beds and then trucked offsite to proper disposal areas.

The Desert Crest Wastewater Treatment Plant has a capacity of 0.18 mgd and serves a country club development and mobile home park. This treatment facility is operating with an average daily flow of 0.05 mgd. The facility operates similar to the Horton facility using an aeration basin for treatment and disposes of the undisinfected secondary wastewater by way of percolation/evaporation ponds. The sludge generated from the treatment process is dried in on-site beds and then trucked offsite to proper disposal areas. In conjunction with the second phase construction of the proposed Hot Springs Mobile Home Park, which is projected to be completed by 2009, this treatment plant is planned to be abandoned and a gravity main, a small sewer lift station and a force main constructed to deliver the effluent from this region to the Horton Plant.

Since the availability and distribution of recycled water is directly dependent on the projected requirements for wastewater disposal in the MSWD service area, an evaluation was conducted to determine the projected flows tributary to the various wastewater treatment plants.

2.6 Wastewater Treatment

The anticipated wastewater flows were projected from Year 2005 though Year 2035. Expected annual wastewater generation for that period was based on existing use, population growth projections, consistent with the Water System Master Plan for MSWD – Draft, October 17, 2005, and a daily wastewater generation factor of 80 gallons per capita. The wastewater projections also take into account existing residences currently on septic systems to be connected to the sewer system. Non-residential wastewater generation was estimated based on a percentage of projected water demand. Forty percent of commercial water use and 10 percent of all other non-residential water use was assumed for wastewater generation. ***Table 2-3*** shows the projected wastewater generation in 5-year increments through Year 2035.

Table 2-3
Wastewater Flow Projections

Year	Total Wastewater Generation	
	AFY	MGD
2005	1,456	1.3
2010	3,246	2.9
2015	5,083	4.5
2020	5,940	5.3
2025	6,747	6.0
2030	7,465	6.7
2035	8,173	7.3

Based on conversation with MSWD it is assumed that the Horton WWTP will be expanded to 5 MGD total capacity. The existing and projected future capacity for each existing and proposed WWTP is presented in ***Table 2-4***.

Table 2-4
Projected Wastewater Treatment Capacity (by plant)

NAME OF WWTP	EXISTING CAPACITY (MGD)	FUTURE CAPACITY (MGD)
Horton WWTP	2.3	5.0
Desert Crest WWTP	0.18	To be Abandoned
Regional WWTP	Future	Alternative Dependent
Indian/Pierson Satellite Plant	Future	Alternative Dependent

2.7 Water Demands

Table 2-5 presents the normal year supply and demand projections for MSWD through 2030. The supply and demand projections assume:

- No imported water is available to MSWD. Although some State Project Water can be exchanged for CRA water through the auspices of DWA and CVWD, that water is ultimately used for groundwater recharge and is thus pumped from the aquifer by MSWD. Because this water is not directly supplied to the MSWD distribution system, it is not accounted for as imported water.
- Recycled water use will begin in approximately 2015 and will begin to reduce the demand on pumped groundwater at that time.
- Given the large capacity of the Mission Creek Sub-Basin, it is not reasonable to assume the entire 1.4 MAF will be available to MSWD in any given year (primarily because of limitations on the District's well depths and pumping capacity). A reasonably conservative assumption of 40,000 AFY, which is less than 3 percent of the estimate of total storage within the sub-basin, has therefore been assumed as the supply capability.
- Groundwater recharge will continue to occur as noted above.
- All projections are based on an assumed high growth water demand pattern.

Table 2-5
Mission Springs Water District
Projected Water Supply and Demand – Normal Water Year

(AFY – All projections rounded to nearest 10 AF)

Water Sources	2010	2015	2020	2025	2030
Supply	**Normal Water Years**				
Imported[(a)]	0	0	0	0	0
Recycled[(b)]	0	2,000	5,350	6,070	6,720
Local (Groundwater)[(c)]	40,000	40,000	40,000	40,000	4,000
Total Supply	**40,000**	**42,000**	**45,350**	**46,070**	**46,720**
% of Normal Year	100	100	100	100	100
Demand					
Imported[(a)]	0	0	0	0	0
Recycled[(b)]	0	2,000	5,350	6,070	6,720
Local (Groundwater)[(d)]	14,400	17,800	17,150	19,130	21,180
Other Project Demands[(f)]	970	1,010	1,010	1,010	1,010
Total Demand	**15,370**	**20,810**	**23,510**	**26,210**	**28,910**
% of Year 2005 Demand (9,194 AF)[(e)]	167.2%	226.3%	255.7%	285.1%	314.4%
Supply/ Demand Difference	24,630	21,190	21,840	19,860	17,810
Difference as % of Supply	61.6%	50.5%	48.2%	43.1%	38.1%
Difference as % of Demand	160.2%	101.8%	92.9%	75.8%	61.6%

(a) MSWD does not have direct access to imported water. Although State Project Water can be exchanged for Colorado River water, which can then be used for recharging the groundwater aquifer (via water transfers arranged through DWA and CVWD), that import water is not supplied directly to the MSWD distribution system and is therefore not counted as "imported" supply or demand.

(b) There are currently no recycled water supplies available; however, plans call for implementation of a recycled water system beginning in approximately 2015 with a minimal production capacity of 2,000 AFY ramping up to 6,720 AF in 2030. Recycled water supply and demand are assumed to be equal. Recycled water supply numbers were calculated assuming that 90% of the wastewater generated can be converted to recycled water (with the 10% balance lost in the treatment process).

(c) The current available supply in the local groundwater aquifer is estimated at 1.4 MAF. This analysis conservatively assumes that less than 3% of this supply (or 40,000 AF) will be available in any given year as groundwater supply. The analysis also assumes the water extracted by pumping will be replaced by (1) DWA's proposed groundwater recharge of imported water at its Mission Creek Spreading Facility) and by (2) a 35% return flow for all water used in MSWD.

(d) Groundwater demands obtained from Projected High Growth Water Demand data included in draft 2005 MSWD Comprehensive Water System Master Plan prepared by URS.

(e) 9,194 AF was the actual water usage in MSWD during the FY 05.

(f) Demands for the Two Bunch Palms and Hot Springs Mobile Home Park developments, which were not included in the 2005 Urban Water Management Plan, were obtained from the Two Bunch Palms Water Supply Assessment, dated June 30, 2006, and the Hot Springs Mobile Home Park Water Supply Assessment, dated July 20, 2006, respectively.

2.8 Water Supplies Cost Analysis

If recycled water is not utilized to irrigate the golf courses and other proposed landscape uses proposed in this report, the alternative water source would be the continued and future use of groundwater. Current water supplied by CVWD and DWA for recharge into either the Whitewater or Mission Creek Sub-basins costs approximately $300 per AF, based on discussions with CVWD staff using the total cost of providing State Water Project (SWP) water through their exchange agreement with MWD. This cost includes the capital component plus operation and maintenance (O&M) costs plus energy costs for pumping.

CVWD and DWA have considered the feasibility of providing additional water supplies to the Coachella Valley through an extension of the SWP from the high desert in the Apple Valley area to the vicinity of the two recharge/spreading basins. This would require an approximate 99-mile pipeline delivering up to 300 cfs peak capacity, which is derived from using the total of CVWD's and DWA's SWP Table A amount of 171,100 AFY and an appropriate peaking factor. The project cost for this proposed SWP pipeline extension referred to as the Desert Aqueduct is projected by CVWD at approximately $1.3 billion.

Assuming an interest rate of 4.608%, which CVWD staff indicates is the interest rate that the SWP uses, and a financing period of 50 years, this $1.3 billion equates to an annual cost of $66.94 million. Based on DWR's State Water Project Delivery Reliability Report, 2002, which determines that the SWP can be assumed to reliably deliver 77% of an agency's Table A amount in an average year, the 171,100 AF of total Table A allotment would equate to an average reliable delivery of 131,750 AFY. Dividing the annual cost of $66.94 million by this average supply of 131,750 AFY results in a cost of $508 per acre-foot for water delivered through the proposed Desert Aqueduct, excluding O&M costs.

This cost would have to be added to the cost of water delivered to the Apple Valley area, which can be considered approximately equal to the $300 per acre-foot currently used by CVWD for SWP delivered to them via their exchange agreement with MWD. Operation and maintenance costs for the Desert Aqueduct would add approximately one million dollars per year, based on a cost of $10,000 per mile per year for this type of facility. This would add another $8 per acre-foot to the cost of water delivered through the Desert Aqueduct. Therefore, the total cost of new SWP water delivered to either of the two spreading basins in the vicinity of Mission Springs Water District that could be considered to be an alternative supply to developing recycled water would be $816 per AF ($300 + $8 + $508).

Since the cost of developing the recycled water system provides water directly to the proposed irrigation users, the cost of a delivery system must also be added to the supply cost developed above. This delivery system can be considered to be additional wells to serve the proposed irrigation customers along with some varying amount of distribution

depending on the location of the wells in proximity to the users. For the purpose of this study, a well for every 1,000 gpm of peak month supply or 667 gpm of average supply will be used. The 667 gpm per well equates to 0.96 mgd per well or 8 wells to reliably serve the 7.3 mgd of proposed recycled water system demands. A 10-inch distribution pipeline of 1,000 feet is also assumed for each well. The project capital costs to develop these delivery systems total $9 million, as summarized in ***Table 2-6*** below. Using the assumed interest rate of 4.608%, this amounts to $464,440 per year for 50 years. In addition, each well will require 160 horsepower (HP) to operate, or 120 kilowatts (kW). At a rate of $0.15/kW-hr, energy costs equal to $157,770 per year per well, or $1,261,000 per year for all 8 wells. Therefore, a total capital plus energy cost of $220 per AF is required to extract and distribute an average of 7,810 AFY of groundwater for irrigation demands. O & M costs are assumed to be negligible compared to capital and energy costs. This brings the total to $1,036 per AF to develop this alternative supply.

Table 2-6
Delivery Systems Capital Costs for Irrigation Water Supply

Item	Quantity	Unit	Cost/unit	Cost
Wells	8	Wells	$1,000,000	$8,000,000
10" Diameter Pipeline	8,000	LF	$110	$880,000
Total Capital Cost				$8,880,000

3 Water Reuse Opportunities

The availability of recycled water in MSWD's service area is limited to water generated as part of the wastewater treatment associated with sewage collected from sewered residential developments, commercial and industrial properties.

MSWD's recycled water system will be used primarily for golf course and landscape irrigation purposes. These uses will require the upgrade of existing and/or proposed wastewater treatment plants to tertiary treatment with a new recycled water distribution system.

3.1 Opportunities for Reuse

The existing developments of Mission Lakes, Hidden Springs, Desert Dunes, Desert Crest Country Club, Two Bunch Palms, and Sands Resort, along with the proposed future developments of Tuscan Hills, Palmwood, Highland Falls (formerly Rancho Royale), and the Hot Springs Mobile Home Park provide opportunities for reuse within the MSWD service area. The Desert Dunes development is within the CVWD service area; therefore, an agreement between the two agencies would be required for MSWD to supply recycled water to this development.

Table 3-1 shows the calculated recycled water demands for each development. Using the projected recycled water demands along with projected wastewater treatment requirements, ***Table 3-2*** below shows potential recycled water supply phasing.

Table 3-1
Projected Recycled Water Demands

Development	Irrigated Area (acres)	Irrigation Demand (AFY)	Avg Month		Max Month		Peak Day	
			(MGD)	(GPM)	(MGD)	(GPM)	(MGD)	(GPM)
Tuscan Hills [5]	120	750	0.7	465	1.1	781	1.3	884
Mission Lakes [3]	133	1,171	1.0	726	1.8	1,220	2.0	1,380
Highland Falls [1]	250	1,600	1.4	992	2.4	1,667	2.7	1,885
Palmwood [2]	312	1,792	1.6	1,111	2.7	1,867	3.0	2,111
Desert Crest Country Clubs [4]	20	108	0.1	67	0.2	113	0.2	127
Desert Dunes GC[6][7]	175	1,500	1.3	930	2.3	1,563	2.5	1,767
Hidden Springs [3]	56	255	0.2	158	0.4	266	0.4	300
Sands Resort [3]	37	410	0.4	254	0.6	427	0.7	483
Two Bunch Palms[8]	60	188	0.2	117	0.3	196	0.3	222
Other[9]		224	0.2	139	0.3	233	0.4	264
Total	**1,163**	**7,998**	**7.1**	**4,959**	**12.0**	**8,331**	**13.6**	**9,422**

(1) Acreage information from Dave Davis telecom. Assume 4 acres lake. Irrigation based on ETo.
(2) Information from Palmwood Project WSA.
(3) Irrigation demand based on 2004 groundwater extraction. Acreage from CityGIS
(4) Draft WSA plus existing Desert Crest (estimate).
(5) 100 acres turf based on 3/28/06 telecom with Tim Blond. Assume 2 acres lake.
(6) Approximate well extraction from data table (M. Donovan). Acres from CityGIS.
(7) Desert Dunes GC is in CVWD service area.
(8) Information from Two Bunch Palms WSA, July 2006
(9) Other irrigation demands include schools, City offices, and commercial establishments with irrigation meters.

Table 3-2
Recycled Water Phasing Projections

	2008	2010	2015	2020	2025	2030	2035
Irrigation Demand (mgd)							
Tuscan Hills	0.7	0.7	0.7	0.7	0.7	0.7	0.7
Mission Lakes	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Highland Falls		1.4	1.4	1.4	1.4	1.4	1.4
Palmwood			1.6	1.6	1.6	1.6	1.6
Desert Crest Country Club (1)					0.1	0.1	0.1
Desert Dunes GC (2)					1.3	1.3	1.3
Hidden Springs				0.2	0.2	0.2	0.2
Sands Resort				0.4	0.4	0.4	0.4
Two Bunch Palms	0.1	0.2	0.2	0.2	0.2	0.2	0.2
Other Irrigation	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Total	**2.0**	**3.5**	**5.1**	**5.7**	**7.1**	**7.1**	**7.1**
Wastewater Generation (mgd)	**2.3**	**2.9**	**4.5**	**5.3**	**6.0**	**6.7**	**7.3**

(1) Includes proposed adjacent mobile home park.

(2) Desert Dunes is within the CVWD service area.

*Assume Horton WWTP will expand to 5 mgd.

**Horton pipeline and pump station sized for a maximum of 5.5 mgd to projects north of plant.

In order to assess the requirements for various distribution systems for the recycled water, it was assumed that only two types of planned uses would be considered:

- Percolation ponds for groundwater recharge in areas where no current or historical septic systems were in use; and
- Irrigation of large, mostly turf areas associated with golf courses, parks, and/or schools.

It has been assumed that the Horton WWTP will be expanded to 5 MGD treatment capacity. Based on projected sewer generation estimates, shown in ***Table 3-2***, a new WWTP will be needed between the years 2015 and 2020. Once the new WWTP comes online, additional pipeline and a pump station may be added to the recycled water distribution system in order to supply additional users and meet peak demands.

It is anticipated that recycled water distribution to each of the existing and proposed developments would be "phased in" depending on availability and proposed need, as shown in ***Table 3-2***. Since Mission Lakes Golf Course is an existing facility, recycled water would be directed to this area first commencing in 2009.

As recycled water becomes available, additional golf courses at Highland Falls, Palmwood, and Tuscan Hills developments would be cycled into the proposed distribution system to receive recycled water.

Seasonal storage of recycled water is needed in order to maximize reuse. Wastewater generation is relatively constant throughout the year. However, recycled water demand peaks in the summer months. On-site percolation ponds located at the Horton WWTP could be utilized for seasonal groundwater storage. A maximum percolation rate of 300 acre-feet per month can be achieved based on current estimates and planned expansion of ponds located at the Horton WWTP. A seasonal storage water balance was calculated for the Horton WWTP based on 5 MGD capacity. ***Table 3-3*** shows the monthly water balance calculations based on regional evapotranspiration data to estimate monthly irrigation. The calculations estimate a maximum seasonal storage of 1,177 acre-feet. A peak month pumping rate of approximately 2,230 gpm would be needed to extract 300 acre-feet per month from groundwater storage during the peak summer months.

Table 3-3
Horton WWTP Seasonal Storage Calculations (AFY)

Month	ETo (in)	%	Irrigation	Wastewater	Change in Storage (1)	Cumulative Storage (2)
Jan	2.8	3%	168	467	298	914
Feb	4.7	5%	279	467	188	1,102
Mar	6.6	7%	392	467	75	1,177
Apr	9.4	10%	560	467	-93	1,083
May	11.3	12%	672	467	-205	878
Jun	13.2	14%	784	467	-318	560
Jul	13.2	14%	784	467	-318	243
Aug	10.3	11%	616	467	-149	93
Sep	9.4	10%	560	467	-93	0
Oct	6.6	7%	392	467	75	75
Nov	3.8	4%	224	467	242	317
Dec	2.8	3%	168	467	298	616
Total	93.9	100%	5,600	5,600	0	

(1) Maximum percolation of 300 af/month can be achieved based on current estimates and planned expansion of ponds. Peak month pumping rate of 300 af/month (3.2 mgd).

(2) Maximum cumulative storage equals 1,177 acre-feet (March).

3.2 Status of Recycled Water Technology

For the most part, the availability of recycled water in the Mission Creek Sub-basin is limited to water generated as part of the wastewater treatment associated with sewage. In order for this water to be used as recycled water, it must meet Title 22 Standards. According to California State Regulations, Title 22, Chapter 3 Water Recycling Criteria, the available recycled water can fall into one of four categories as follows:

Undisinfected Secondary Recycled Water – "oxidized" wastewater.

Disinfected Secondary-23 Recycled Water – wastewater that has been oxidized and disinfected so that the median concentration of total coliform bacteria in the disinfected effluent does not exceed a most probable number (MPN) of 23 per 100 milliliters utilizing the bacteriological results of the last seven days for which analyses have been completed, and the number of total coliform bacteria does not exceed a MPN of 240 per 100 milliliters in more than 1 sample in any 30-day period.

Disinfected Secondary-2.2 Recycled Water –wastewater that has been oxidized and disinfected so that the median concentration of total coliform bacteria in the disinfected effluent does not exceed a MPN of 2.2 per 100 milliliters utilizing the bacteriological results of the last seven days for which analyses have been completed, and the number of total coliform bacteria does not exceed an MPN of 23 per 100 milliliters in more than 1 sample in any 30-day period.

Disinfected Tertiary Recycled Water – filtered and subsequently disinfected wastewater that has been disinfected by one of the following methods: 1) a chlorine disinfection process following filtration that provides a CT value of not less than 450 milligram-minutes per liter at all times with a modal contact time of at least 90 minutes, based on peak weather design flow; or 2) a disinfection process that, when combined with the filtration process, has been demonstrated to inactivate and/or remove 99.999 percent of the plaque-forming units of F-specific bacteriophage MS-2, or polio virus in the wastewater.

MSWD's recycled water treatment system will require the upgrade of existing and/or proposed wastewater treatment plants to tertiary treatment along with a distribution system. The California Department of Health Services (DHS) sets treatment/water quality requirements for recycled water depending on its end use.

As established by DHS, the California Water Recycling Criteria (adopted December 2000), defines Disinfected Tertiary Recycled Water as a wastewater, which has been oxidized and meets the following:

A. Has been coagulated* and passed through natural undisturbed soils or a bed of filter media pursuant to the following:

1. At a rate that does not exceed 5 GPM/ft^2 in mono, dual or mixed media gravity or pressure filtration systems, or does not exceed 2 GPM/ft^2 in traveling bridge automatic backwash filters; and

2. The turbidity does not exceed any of the following; a daily average of 2 NTU, 5 NTU more than 5% of the time within a 24-hour period, and 10 NTU at any time.

*Note: *Coagulation may be waived if the filter effluent does not exceed 2 NTU, the filter influent is continuously measured, the filter influent turbidity does not exceed 5 NTU, and automatically activated chemical addition or diversion facilities are provided in the event filter effluent turbidity exceeds 5 NTU.*

OR

B. Has been passed through a micro., nano., or R.O. membrane following which the turbidity does not exceed any of the following: 0.2 NTU more than 5% of the time within a 24-hour period and 0.5 NTU at any time.

AND

C. Has been disinfected by either:

1. A chlorine disinfection process that provides a CT of 450 mg-min/l with a modal contact time of not less than 90 minutes based on peak dry weather flow, or

2. A disinfection process that, when combined with filtration, has been demonstrated to achieve 5-log inactivation of virus.

MSWD will apply the above conditions to provide Disinfected Tertiary Recycled Water. Tertiary recycled water may be used for surface irrigation, impoundments, cooling, and other uses, including toilets, urinals, priming drain traps, industrial processes that may contact workers, structural firefighting, decorative fountains, commercial laundries, consolidation of backfill material around potable water pipelines, non-structural fire fighting, among others. However, MSWD will primarily use recycled water for golf course and landscape irrigation purposes.

3.3 Potential Uses and Associated Costs for Recycled Water

The potential uses for recycled water are heavily dependent on the degree of treatment provided as well as a distribution system that directs the recycled water to its intended use point. For the most part, the types of uses can be divided into five major categories that include:

- Groundwater Recharge
- Surface Irrigation

- Impoundments
- Cooling
- Other Uses

The cost discussion is separated into three areas: 1) probable costs associated with the intended treatment; 2) probable costs associated with distribution; and 3) probable costs associated with seasonal storage. In providing opinions of probable cost, the user of this document understands that Psomas has no control over costs or the price of labor, equipment or materials or over the contractor's method of pricing, and the opinions of probable construction cost provided in this report are based on Psomas' qualifications and experience. Psomas makes no warranties, expressed or implied as to the accuracy of such opinions as compared to bid or actual costs.

3.3.1 Treatment Costs

Since the majority of the wastewater that is recycled in the early phases of the proposed plan will be used for recharging the groundwater basin and irrigation on unrestricted golf courses, the type of treatment is assumed to be equivalent to DHS requirements for Disinfected Tertiary Recycled Water.

Treatment costs for the Horton WWTP assume that the plant will be upgraded to treat wastewater to Disinfected Tertiary Recycled Water standards following DHS requirements. Costs for expanding the plant to 5 mgd were not included, since this expansion will be necessary to handle population growth regardless of recycled water use. Costs for tertiary treatment were estimated by Carollo Engineers and are based on past construction projects with similar components, which include construction of tertiary filters, tertiary chemical feed, a chlorine contact basin, and a reclaimed water storage reservoir. The total estimated cost for the Horton WWTP tertiary treatment upgrades is $3.00 per gallon.

This cost includes design and construction and does not include: effluent pump station costs, since they are included in the distribution costs; dewatering and biofilter costs, since these are part of the expansion to 5 mgd; and the escalation to mid-point of construction.

O&M costs for tertiary treatment were estimated from the Lancaster Water Reclamation Plant 2020 Facilities Plan as well as conversations with plant operators from the Inland Empire Utilities Agency – Chino, CA Plant. These costs include chemicals, basin repair and replacement, filter maintenance, and labor, and total $0.11 per gal/day per year.

Costs for the Indian/Pierson Satellite Plant consist of design and construction of a 2.5 mgd membrane bioreactor wastewater treatment system with no solids handling, and are estimated at $4.00 per gallon, based on manufacturer cost estimates. O&M costs for the Indian/Pierson Satellite Plant include chemicals, membrane repair and replacement, energy costs for aeration blowers and sludge pumps, and labor. The Satellite O&M costs

were obtained from conversations with the manufacturer (Zenon), and total approximately $0.26 per gal/day per year.

The size and need of the Regional WWTP largely depend on whether the Satellite plant is installed into the system and the rate of development in the area south of Pierson Blvd. Only costs for tertiary treatment are considered for this analysis, since the Regional WWTP will be required to treat the increase in wastewater generation due to new development and new connections to the sewer system, regardless of recycled water production. Costs for the Regional Plant are again estimated with a factor of $3.00 per gallon, based on past projects with similar components, as explained above. O&M costs are equal to the Horton plant's O&M cost estimates.

3.3.2 Distribution Costs

It is anticipated that the distribution lines would be sized to accommodate the "phasing in" of water distribution to major developments as well as anticipate recharging of the Sub-basin groundwater when future production of recycled water exceeds demand for the recycled water. Distribution costs consist of pipelines and pump stations sized to meet these recycled water needs.

Section 4 presents distribution costs for various distribution alternatives. Costs for pipelines and pump stations are based on the 2000 Irvine Ranch Water District Water Resources Master Plan, and have been converted to present worth using the ENR index.

O&M costs for pump stations were calculated by converting the required horsepower to kilowatts, and converting kilowatts to dollars per hour using a rate of $0.15/kW-hr. O&M costs for pipelines were calculated using a factor of $0.10 per LF per year per diameter inch of pipe.

3.3.3 Seasonal Storage Costs

Seasonal storage costs consist of wells required to extract recycled water from the Horton plant percolation ponds during peak summer months. Costs for expanding the percolation ponds are not included since these will need to be expanded regardless of recycled water production, due to increased wastewater generation from development in Desert Hot Springs.

It is assumed that the depth of wells required for extraction of groundwater from the Horton percolation ponds will be approximately 1,000 ft. An estimated cost of $1,000 per foot of well depth was used to calculate a cost of $1 million per well. Three wells will be required to pump approximately 2,230 gpm during peak summer months, bringing total storage costs to $3 million.

O&M costs for wells at the Horton percolation ponds were obtained by converting the required horsepower to kilowatts, and converting kilowatts to dollars per hour using a

rate of $0.15/kW-hr. Therefore, 160 HP was converted to 120 kW, which resulted in $157,700 per year per well and totaled $473,000 per year for all three wells.

4 Description of Alternatives

4.1 Alternatives Considered

Alternative methods were considered and analyzed for meeting irrigation and groundwater recharge demands in the Desert Hot Springs area, including a no-action alternative, as well as alternatives including production and supply of recycled water.

The no-action alternative involves continuing to supply irrigation demands with potable water from the groundwater basin. The Mission Creek groundwater basin is currently recharged with water purchased by the DWA, which in turn exchanges SWP water for CRA water based on an agreement with MWD. As discussed in the previous section, a lack of available CRA water has resulted in low recharge in previous years, except for the unusually wet year of 2005. Due to lowering levels of groundwater and inconsistent availability of CRA water, this no action alternative would inevitably result in the need for construction of a conveyance system to provide SWP water directly to the Coachella Valley (described in Section 2.3).

The remaining alternatives involve production and supply of recycled water, and can be separated into treatment and distribution alternatives as follows:

4.1.1 Treatment Alternatives

Two alternative wastewater treatment scenarios were analyzed. Both include tertiary treatment at Horton Wastewater Treatment Plant, which involves converting Horton WWTP to tertiary standards, as well as increasing the treatment capacity from 2.3 mgd to 5 mgd in 2015. In addition, for both alternatives, the Desert Crest WWTP is planned to be abandoned during the second phase of construction of the Hot Springs Mobile Home Park (approximately 2009), and sewer flows routed to the Horton Plant . As described in previous sections, the projected wastewater generation by the year 2035 is 7.3 mgd. To treat this wastewater to tertiary standards so that it can be used for irrigation purposes, Alternatives 1 and 2 were analyzed as follows:

Alternative 1: In this alternative, tertiary treated effluent from the Horton Plant would supply irrigation demands to Tuscan Hills, Mission Lakes, Highland Falls and Palmwood. Around the year 2020, a Regional WWTP expandable to 3 mgd would be constructed to assist in treating wastewater flows in the District. The Regional WWTP would supplement irrigation demands at Highland Falls, Palmwood, and Mission Lakes, and provide recycled water to any other developments that are constructed south of Pierson Blvd. Therefore, the rate and location of development in the District will largely determine the capacity of the Regional Plant. Irrigation demands of the Desert Crest Country Club and Desert Dunes developments would be supplied by effluent from the Horton Plant. It should be noted that the Desert Dunes development is in the CVWD service area, and an agreement between MSWD and CVWD would be required for this

development to be serviced by MSWD. ***Figure 4-1*** shows existing and proposed treatment plants associated with Alternative 1.

Alternative 2: In this alternative, shown in ***Figure 4-3***, the Horton Plant would again supply tertiary treated recycled water to Tuscan Hills, Mission Lakes, Highland Falls and Palmwood beginning in 2015. Around 2020, a 2.5 mgd satellite plant would be required near Indian Avenue and Pierson Avenue. This satellite plant would treat wastewater from Highland Falls, Palmwood, and surrounding developments, and also provide tertiary treated recycled water to the golf courses in Palmwood and Highland Falls. Excess untreated water would be routed through existing sewer lines to Horton Plant during the winter months. The Satellite Plant would not provide solids treatment as the solids would be separated and discharged back to the sewers for treatment at either the Horton or Regional Plants. During high demand summer months, stored recycled water at the Horton Plant percolation ponds would supplement treated wastewater from the satellite plant. By 2035, a Regional WWTP may be necessary to supplement irrigation demands throughout the District, especially if there are new development projects south of Pierson Blvd.

4.1.2 Distribution Alternatives:

Three alternative pipeline and pump station layouts were analyzed. All distribution alternatives include the initial wastewater distribution system supplied from Horton WWTP and ultimate condition recycled water pipelines to serve Desert Crest and Desert Dunes. Each alternative assumes two pressure zones to serve potential recycled water users. The 1450 Zone will serve customers from elevation 1,100 feet to 1,300 feet, including Tuscan Hills and Mission Lakes. The 1800 Zone will serve customers at higher elevations including Palmwood and Highland Falls.

Alternative 1: Figure 4-1 shows the preliminary routing and sizing of pipelines and pump stations for Alternative 1. Booster Station Pump 1, located at Horton WWTP, is sized at 4,000 gpm based on ultimate conditions that include supply from the proposed Regional WWTP (see Treatment Alternatives). Average recycled water demand for the Tuscan Hills, Mission Lakes, Palmwood, and Highland Falls Developments equals approximately 3,300 gpm, or 4.8 MGD. Peak flows, however, are estimated to be equal to approximately 6,250 gpm, or 9 MGD. Once the Regional WWTP is online and incorporated into the recycled water distribution system, these peak demands can be met.

The pipeline alignment shown in ***Figure 4-1*** would require two booster pump stations to supply recycled water to the 1800 Zone (Highland Falls and Palmwood developments). Both stations, shown as Booster Pumps 3A and 3B, have been sized to supply approximately 2,000 gpm to meet projected peak demands.

Alternative 2: Alternative 2, shown on ***Figure 4-2***, includes an alternative pipeline alignment which would allow the use of only one booster pump station to supply the 1800 Zone. The pump station, shown as Booster Pump 3 in ***Figure 3-2***, would supply 4,000 gpm to the upper pressure zone. This alternative pipeline alignment, however, does

not follow existing roadways up to the Palmwood development. All other aspects of Alternatives 1 and 2 are the same. A final routing would have to be developed in consultation with MSWD including engineering and environmental review.

Alternative 3: Alternative 3 corresponds to the treatment alternative which includes the Satellite Plant at Indian and Pierson, and is shown in ***Figure 4-3***. This alternative involves a total of 5 booster pump stations as follows: Booster Pump 1 at Horton WWTP will be sized at 4,000 gpm and supply recycled water to Tuscan Hills and Mission Lakes, and supplement recycled water for use in Highland Falls and Palmwood Developments. Booster Pump 2 at the Regional WWTP will supply additional flow as development continues within Desert Hot Springs. Booster Pump 4 will be located at the Indian/Pierson Satellite WWTP and will boost 5000 gpm to Booster Pumps 3A and 3B, which will supply Highland Falls, Palmwood, and Mission Lakes.

4.2 Alternative Analysis

The following section describes benefits and disadvantages of each alternative. This section also provides construction cost opinions for the analyzed alternatives.

Treatment Alternative 1 requires two wastewater treatment plants to supply recycled water to all major developments through year 2035. Treatment Alternative 2, which entails the implementation of a Satellite Plant, may result in a total of three wastewater treatment plants. An advantage of using a Satellite Plant near Indian and Pierson would be the closer proximity to the golf courses at Palmwood and Highland Falls, minimizing pumping requirements. However, disadvantages would include higher capital and operations and maintenance (O&M) costs due to running an additional plant, as well as additional land requirements.

Distribution Alternative 2 does not follow existing roadways up to the Palmwood development. Although the capital cost of this alternative would be lower than following existing roadways, the implications may include the need for an easement as well as additional environmental permitting.

Distribution Alternative 3 corresponds to Treatment Alternative 2 and is the most costly of the evaluated options due to the need to operate a total of five booster stations to supply recycled water to developments with golf courses. ***Tables 4-1*** and ***4-2*** below summarize costs for treatment and distribution alternatives, respectively. ***Table 4-3*** lists O&M costs for booster pump stations associated with each alternative.

Table 4-1
Alternative Treatment Costs

Wastewater Treatment Plant	Current Capacity (gallons/day)	Projected Capacity (gallons/day)	Recycled Water Generation Cost $/gallon (a)	Total Cost
Alternative 1				
Horton WWTP (b)	2,300,000	5,000,000	3.00	$15,000,000
Desert Crest WWTP	180,000	Abandon	None	$0
Regional WWTP (b)	Future	3,000,000	3.00	$9,000,000
TOTAL	2,480,000	8,000,000		$24,000,000
Alternative 2				
Horton WWTP (b)	2,300,000	5,000,000	3.00	$15,000,000
Desert Crest WWTP	180,000	Abandon	None	$0
Satellite WWTP	Future	2,500,000	4.00	$10,000,000
Regional WWTP (b)	Future	1,000,000	3.00	$3,000,000
TOTAL	2,480,000	8,500,000		$28,000,000
Notes:				
a) Includes design and construction. Does not include operation and maintenance.				
b) Cost includes tertiary treatment only, as secondary treatment will be necessary due to District growth.				

Table 4-2
Alternative Distribution Costs

SCENARIO	Pipelines				Pump Stations			Total Cost (a)
	Length (feet)	Diameter (inches)	Cost/LF	Cost (a)	Name	Size (HP) (b)	Cost (a)	
Alternative 1								
Horton WWTP to Interconnect	1,160	10	$113	$131,000	BP-1	959	$2,226,000	$7,017,000
	24,400	18	$191	$4,660,000				
Horton WWTP to Desert Crest and Desert Dunes	6,000	12	$125	$750,000	None	None	$0	$3,644,000
	13,800	10	$113	$1,559,000				
	7,900	16	$169	$1,335,000				
Interconnect to Palmwood	11,200	14	$148	$1,658,000	BP-3A	412	$1,965,000	$4,861,000
	6,480	18	$191	$1,238,000				
Interconnect to Highland Falls	10,700	14	$148	$1,584,000	BP-3B	370	$1,764,000	$4,399,000
	5,500	18	$191	$1,051,000				
Regional WWTP to Interconnect	20,900	18	$191	$3,992,000	BP-2	835	$2,401,000	$6,393,000
Total - Alternative 1	108,040			$17,958,000			$8,356,000	$26,310,000
Alternative 2								
Horton WWTP to Interconnect	1,160	10	$113	$131,000	BP-1	959	$2,226,000	$7,037,000
	24,500	18	$191	$4,680,000				
Interconnect to Mission Lakes	5,400	12	$125	$675,000	None	None	$0	$675,000
Interconnect to Booster Pump 3	5,400	18	$191	$1,031,000	BP-3	784	$2,254,000	$3,285,000
Booster Pump 3 to Palmwood	12,900	14	$148	$1,909,000	None	None	$0	$1,909,000
Booster Pump 3 to Highland Falls	10,700	14	$148	$1,584,000	None	None	$0	$1,584,000
Horton WWTP to Desert Crest and Desert Dunes	6,000	12	$125	$750,000	None	None	$0	$3,644,000
	13,800	10	$113	$1,559,000				
	7,900	16	$169	$1,335,000				
Regional WWTP to Interconnect	20,900	18	$191	$3,992,000	BP-2	835	$2,401,000	$6,393,000
Total - Alternative 2	108,660			$17,646,000			$6,881,000	$24,530,000

Table 4-2
Alternative Distribution Costs, *(Continued)*

SCENARIO	Pipelines				Pump Stations			Total Cost (a)
	Length (feet)	Diameter (inches)	Cost/LF	Cost (a)	Name	Size (HP) (b)	Cost (a)	
Alternative 3								
Horton WWTP to Interconnect	1,160	10	$113	$131,000	BP-1	784	$2,255,000	$7,046,000
	24,400	18	$191	$4,660,000				
Horton WWTP to Desert Crest and Desert Dunes	6,000	12	$125	$750,000	None	None	$0	$3,644,000
	13,800	10	$113	$1,559,000				
	7,900	16	$169	$1,335,000				
Satellite WWTP to Palmwood and Highland Falls	21,900	14	$148	$3,241,000	BP-3A	412	$1,965,000	$11,412,000
	11,980	18	$191	$2,288,000	BP-3B	370	$1,764,000	
					BP-4	539	$2,154,000	
Regional WWTP to Interconnect	20,900	10	$113	$2,362,000	BP-2	186	$1,560,000	$3,922,000
Total - Alternative 3	108,040			$2,362,000			$9,698,000	$26,020,000

Notes:

a) Capital costs ($/LF of pipe and $/HP of pump station) obtained from the IRWD Water Resources Master Plan, dated 1/5/2000, and converted to current Year 2006 costs using ENR index.

b) Value represents total for all pumps that may be required as part of the overall distribution system. Total HP calculated from required flow and head.

Table 4-3
O&M Costs for Booster Pump Stations and Wells

Name	Size (HP) (b)	kW	Cost/year
Alternative 1			
BP-1	959	715	$939,700
BP-2	835	623	$818,200
BP-3A	412	307	$403,700
BP-3B	370	276	$362,500
Wells	480	358	$470,300
Total			$2,994,400
Alternative 2			
BP-1	959	715	$939,700
BP-2	835	623	$818,200
BP-3	784	585	$768,200
Wells	480	358	$470,300
Total			$2,996,400

Table 4-3
O&M Costs for Booster Pump Stations and Wells, *(Continued)*

Name	Size (HP) (b)	kW	Cost/year
Alternative 3			
BP-1	784	585	$768,200
BP-2	186	139	$182,300
BP-3A	412	307	$403,700
BP-3B	370	276	$362,500
BP-4	539	402	$528,100
Wells	480	358	$470,300
Total			$2,715,100

Table 4-4
O&M Costs for Pipelines

Pipelines			
Length (feet)	**Diameter (inches)**	**Cost/LF-year***	**Cost/year**
Alternative 1			
14,960	10	$1	$14,960
6,000	12	$1	$7,200
21,900	14	$1	$30,660
7,900	16	$2	$12,640
57,280	18	$2	$103,104
Total			$169,000
Alternative 2			
14,960	10	$1	$14,960
11,400	12	$1	$13,680
23,600	14	$1	$33,040
7,900	16	$2	$12,640
50,700	18	$2	$91,260
Total			$166,000
Alternative 3			
35,860	10	$1	$35,860
6,000	12	$1	$7,200
21,800	14	$1	$30,520
7,900	16	$2	$12,640
36,300	18	$2	$65,340
Total			$152,000

* Cost per LF per year per diameter inch = $0.10

4.3 Analysis of Affect on Water Supply Management

Water reuse can potentially defer or eliminate the development of new or expanded water supplies and thus reduce the associated added costs of these supplies to the District. Proposed development described in this report, including Palmwood, Highland Falls, and Tuscan Hills, in addition to existing developments within the District, will bring the total irrigation demand to almost 8,000 AFY. Because of decreasing groundwater levels and inconsistent availability of CRA water through the agreement with MWD, there may be a need to provide additional water supplies through the Desert Aqueduct to meet these demands, as described in Section 2.3. Water from the Desert Aqueduct would cost approximately $1,036 per AF. The cost of developing a recycled water system is economically competitive. By implementing a recycled water project, the need for the Desert Aqueduct could potentially be deferred or eliminated.

5 Economic Analysis of Alternatives

Three scenarios for treatment and distribution alternatives were explored during the economic analysis of alternatives. The first scenario includes Treatment Alternative 1 and Distribution Alternative 1, as described in Section 4.1. The second scenario involves Treatment Alternative 1 and Distribution Alternative 2, as shown on ***Figure 4-2***. The third scenario entails Treatment Alternative 2 and Distribution Alternative 3. ***Table 5-1*** summarizes these scenarios and includes capital and O&M costs for each.

The most costly scenario for production and supply of recycled water for irrigation demands is Scenario 3, as shown in ***Table 5-1***, and will be used for comparison to the alternate supply source, which is groundwater recharge through the Desert Aqueduct as described in Section 2.3. This recycled water scenario involves upgrading the Horton Plant to tertiary standards, constructing a Satellite WWTP near Indian Avenue and Pierson Blvd, and constructing a Regional WWTP to treat wastewater to tertiary standards. The distribution alternative corresponding to this treatment alternative requires a total of five booster pump stations to supply irrigation demands at the various developments within Desert Hot Springs. This scenario also requires pumping from three wells at the Horton WWTP percolation ponds, which would be used for seasonal storage.

Dividing the annual cost of the worst-case scenario of $6.99 million by the average irrigation demand of 7,998 AFY results in a cost of $874 per acre-foot for recycled water produced and delivered using the scenario described above. As described in Section 2.3, the cost of providing additional water supplies to the Coachella Valley through the Desert Aqueduct totals $1,040 per acre-foot.

Table 5-1
Scenarios for Recycled Water Production and Supply

	Scenario 1	Scenario 2	Scenario 3
Treatment	$25,500,000	$25,500,000	$28,000,000
Distribution	$26,310,000	$24,530,000	$26,020,000
Storage	$3,000,000	$3,000,000	$3,000,000
Total Capital	$54,810,000	$53,030,000	$57,020,000
Annual Capital (1)	$2,830,000	$2,740,000	$2,940,000
Annual O&M - treatment (2)	$803,000	$803,000	$1,178,000
Annual O&M - distribution (3)	$3,159,000	$3,166,000	$2,872,000
Total Annual	$6,792,000	$6,709,000	$6,990,000

Notes:
(1) Interest rate is 4.608%, over 50 years.
(2) Tertiary treatment O&M costs estimated at $0.11 per gpd per year. Satellite plant O&M costs estimated at $0.26 per gpd per year
(3) From Tables 4-3 and 4-4.

6 Environmental Analysis of Alternatives

Environmental analysis associated with this study is included in the *MSWD Recycled Water Project Initial Study with Mitigated Negative Declaration/Environmental Assessment with Finding of No Significant Impact* (Psomas, July 2006).

7 Legal and Institutional Requirements

7.1 Consultation Activities

Other than consultation with the Bureau of Reclamation, no other consultation has occurred between MSWD and Federal, State, regional, and local authorities during this feasibility study. Prior to implementation of any of the projects listed in this study, consultation with the appropriate agency or agencies will be made, if deemed necessary. Most, if not all, of the pipelines envisioned in this study are proposed to be constructed within public roads or right-of-ways. Addition of tertiary treatment facilities and a recycled water pump station at the Horton Wastewater Treatment Plant are proposed to be constructed within the current treatment plant area. Additional pump stations and reservoirs would be proposed to be sited so as not to disturb any habitat or other area that could adversely impact any endangered species, wetland, waters of the U.S., etc. as described in Federal, State, regional or local authorities' requirements. The tertiary treatment facilities proposed at the Regional Wastewater Treatment Plant would be constructed along with the construction of primary and secondary treatment facilities at this location and covered in any environmental analysis for that plant. If implementation of the alternative that includes a Satellite Wastewater Treatment Plant is ultimately selected, the impacts associated with locating, constructing and operating a separate wastewater reclamation plant would also have to be covered in a separate environmental analysis.

7.2 Public Health and Environmental Health Issues

Each recycled water alternative would have basically the same public health and environmental regulatory requirements with the exception of the alternative that includes a separate Satellite Treatment Plant. As tertiary treatment facilities are added to each plant, waste discharge requirements will be issued by the State Regional Water Quality Control Board and the California Department of Health Services governing the treatment and disposal or reuse of the treated wastewater. For the Horton and Regional Wastewater Treatment Plants, the reuse requirements issued when tertiary facilities are added will be issued in conjunction with the existing and proposed treatment facilities. For the separate Satellite Treatment Plant, separate waste discharge requirements would be issued.

Typical requirements relate to such things as maintaining proper treatment and disinfection levels that will be assured by requiring proper reliability of facilities and monitoring and reporting on water quality, avoiding human contact during irrigation periods, utilizing proper construction techniques with adequate separation between potable and recycled water pipelines, monitoring recycled water irrigation facilities to assure that excessive runoff is not occurring, and requiring proper markings on recycled water facilities for identification purposes.

7.3 Federal, State, and Local Environmental Regulatory Requirements

All recycled water alternatives should be able to meet the applicable Federal, State, and local environmental regulatory requirements equally, with the exception of the one that includes implementation of the Satellite Treatment Plant near Indian Avenue and Pierson due to the fact that it would be a significant, separate construction site that would not be included in any of the other alternatives. During preparation of any required future environmental documentation the following applicable Federal, State, Regional and local laws would be addressed including but not limited to:

7.3.1 Federal Clean Water Act

Section 404 of the Federal Clean Water Act regulates the discharge of dredged or fill material into areas delineated as "Waters of the United States" (33 CFR 328.3). The U.S. Army Corps of Engineers (Corps) has jurisdiction over waters of the United States and permitting authority under Section 404. Section 401 of the Federal Clean Water Act, which regulates (in general) the water quality component of wetland and non-wetland Waters of the U.S., is administered by the State and Regional Water Quality Control Boards. In California, the responsibility for certifying compliance with the federal Clean Water Act has been delegated to the State Water Resources Control Board.

7.3.2 Federal Endangered Species Act

The Endangered Species Act of 1973, as amended (ESA), protects species listed as endangered or threatened from "taking", which is defined as any action that would "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect" any threatened or endangered species. The ESA also regulates actions that would modify or degrade habitat to an extent that significantly impairs essential activities of listed species (breeding, feeding, or sheltering). The U.S. Fish and Wildlife Service (USFWS) administers the federal ESA.

Federal agencies that undertake projects or issue permits or licenses for projects are required to ensure that such projects or issuance of permits or licenses will not jeopardize the continued existence of any federally listed species.

7.3.3 Federal Migratory Bird Treaty Act

The federal Migratory Bird Treaty Act (MBTA) protects most native bird species from destruction or harm. This protection extends to individuals as well as any part, nest, or eggs of any bird listed as "migratory". Nearly all native North American bird species are on the MBTA list.

In practice, permits issued by resource agencies typically have conditions that require pre-disturbance surveys for nesting birds and, in the event that nesting is observed, a buffer area with a specified radius would be established, within which no disturbance or

intrusion would be allowed until the young had fledged and left the nest. If not otherwise specified in the permit, the size of the buffer area would vary with species and local circumstances (e.g. presence of busy roads), and would be based on the professional judgment of a monitoring biologist.

7.3.4 California Fish and Game Code

Analogous to the MBTA, Sections 335 through 337 of the California Fish and Game Code regulate the taking of migratory birds and their nests.

Sections 1600, et seq., of the California Fish and Game Code regulate actions affecting streambeds. Section 1600 regulates private projects that have potential to affect streambeds. The California Department of Fish and Game (CDFG) administers this code.

7.3.5 California Endangered Species Act

Sections 2050, et seq., of the California Fish and Game Code comprise the California Endangered Species Act (CESA). In general, the provisions of CESA parallel the main provisions of the federal ESA, but unlike the ESA, CESA protection extends to species proposed for listing (i.e. candidate species) in some circumstances.

7.3.6 Native Plant Protection

Sections 1900, et seq., of the California Fish and Game Code protect California native plants. Criteria for whether or not a plant species qualifies for protection are determined by CDFG, based on presence/absence of immediate threat to the species and/or population size. CDFG considers the rarity status of plants in their environmental analysis of a project, regardless of whether or not the species in question is officially listed as threatened or endangered. The Natural Heritage Program of CDFG administers a state database, the California Natural Diversity Database (CNDDB), which lists all plant and wildlife species of various ranks, including many that are not candidates and are not listed as threatened or endangered.

7.4 Current Versus Proposed Use of Reclaimed Water

The current use of reclaimed water is disposal to evaporation/percolation ponds adjacent to the Horton Wastewater Treatment Plant. The impacts of continuing with this method of disposal would be increased loss of the volume of water that is currently evaporated to the atmosphere that is significant, especially in the summer months.

Additionally, continued discharge of secondarily treated wastewater that will increase nitrate levels in the groundwater basin. As wastewater flows increase in the District, more land will need to be made available to these ponds and the above impacts will increase proportionately.

With the proposed recycled water projects, higher levels of treatment will be employed and the water will be beneficially used to eliminate the need for pumping groundwater from the basin to irrigate golf courses, parks, schools and open spaces. Even though these higher levels of treatment are not proposed to remove nitrates, the level of nitrates discharged to the groundwater basin should be significantly lowered due to their uptake by turf and landscaping in the evapotranspiration process. While all recycled water alternatives propose to continue the use of the existing percolation ponds at the Horton Plant no additional ponds will be needed and they will only be utilized to store water in the groundwater basin in the immediate area of the Plant during winter months and then this water will be removed in summer months so that no net discharge occurs on an annual basis.

Water rights should not be impacted since any treated wastewater currently discharge is the property of the Mission Springs Water District and they have the right to beneficially reuse any and all of this effluent.

7.5 Other Legal and Institutional Requirements

All of the recycled water alternatives included in this study would provide benefits to the achievement of Regional Water Quality Control Board basin plan objectives in that higher levels of treatment would be employed at the District's existing and proposed wastewater treatment plants. Although not currently in violation of these objectives, the higher level of treatment and beneficial reuse as compared to the current practice of evaporation/percolation of secondarily treated effluent would be a regional benefit and a positive step towards meeting existing and future water quality standards.

7.6 Unresolved Issues

Unresolved issues associated with the project would be timing of the proposed golf course projects and economic/financing of the project.

The timing of the three proposed large golf course communities, Palmwood, Tuscan Hills and Highland Falls is currently relatively uncertain. When and which one of these communities starts construction first will go a long way in determining when and how the recycled water system develops for Mission Springs Water District. The District could however, start a smaller recycled water system to serve only the existing Mission Lake golf course and start talks with Coachella Valley Water District relative to providing recycled water to the Desert Dunes golf course within their water service area but relative close by and down gradient from the existing Horton Wastewater Treatment Plant.

Additionally, economic affordability would seem to be a major factor for the District since, as discussed in Section 8.0, following. Sewer connection fees and sewer user fees would have to be increased significantly and a new, substantial recycled water connection fee would have to be implemented along with some form of debt financing and/or grant assistance to assure the implementation of a recycled water program.

Mission Springs Water District
Water Recycling Feasibility Study – Phase I

Research and application for any applicable grants or financial assistance such as low-interest loans should be pursued by the District while the timing of the proposed golf course communities within the District becomes more concrete.

8 Financial Capability of the Sponsor

This section explores funding options and proposed scheduling for the implementation of a recycled water project including construction, operation, and maintenance of the recycled water system. Rate-setting strategies are analyzed to attenuate the financial burden of implementing the recycled water system in the MSWD area. This section is complemented by ***Appendix A, Financial Proforma***, which provides a preliminary timeline and potential funding scenario for this project.

Table 8-1 summarizes the total costs to produce and supply recycled water in MSWD, using the lowest cost Scenario 2 as discussed in Section 5. Costs are separated into capital and O&M. Capital costs consist of construction costs associated with tertiary treatment of wastewater, as well as construction costs associated with recycled water distribution. O&M costs include costs associated with the operation and maintenance of tertiary treatment systems and operation and maintenance costs associated with the distribution system (i.e. energy, chemicals, labor, etc.).

Table 8-1
Recycled Water Production and Supply Costs

Item	Cost
Treatment	$25,500,000
Distribution	$24,530,000
Storage	$3,000,000
Total Capital Cost	$53,030,000
Annual O&M - treatment	$803,000
Annual O&M - distribution	$3,166,000

The schedule for implementing the recycled water project discussed in this report depends to a great extent on the timing and location of new development throughout the District. Irrigation demands were calculated from existing and proposed development projects within MSWD. Recycled water availability for irrigation depends on wastewater generation, which in this report was based on population projections. ***Table 3-2*** in Section 3.1 provides an estimate of recycled water phasing projections. Although this table provides an approximate timeline of wastewater treatment and irrigation demands, a project schedule cannot be finalized until it becomes clear when the proposed development projects will be constructed. Therefore, a flexible recycled water system is important.

For purposes of this study, a cost timeline was developed for phasing of the proposed developments, capital projects, and funding including bond repayments (the first thirty-two years). This timeline, which begins in 2008 and ends in 2040, is based on the recycled water production and supply costs presented above, as well as the irrigation demand and wastewater generation projections included in Section 3. It must be noted that all costs and schedules are purely estimates, due to the uncertain nature of the

schedule for this project, and shall only be interpreted as an example plan for the financing of the project. ***Appendix A*** presents a Financial Proforma table which lays out the timeline, as well as assumptions and notes on how costs and revenue were generated and financing scheduled. The following sections discuss funding sources, rate setting strategies, and other funding opportunities.

8.1 Funding for Capital Costs

Tertiary treatment costs are usually recovered from wastewater users, spreading the costs over the wastewater utility's entire customer base. For capital cost recovery, the current sewer connection fee can be increased for all new sewer system users to cover tertiary treatment capital costs.

The capital costs for tertiary treatment include the upgrade of the Horton Wastewater Treatment Plant to tertiary treatment standards, and construction of the tertiary treatment system of the Regional Plant. Currently, the total wastewater flow treated at the existing Horton and Desert Crest wastewater treatment plants is 1.35 mgd. These existing users will not contribute to the tertiary treatment capital costs, as they have already paid a sewer connection fee. The total wastewater generation estimated at year 2035 is 7.3 mgd. Therefore, new user wastewater flow amounts to 5.95 mgd. Using a wastewater generation factor of 250 gal/day/EDU (gallons per day per equivalent dwelling unit), the flow from new users is converted to 23,800 EDU's. Dividing the tertiary treatment capital costs of $25,500,000 by the total number of new EDU's, $1,071 is calculated as an additional sewer connection fee over and above the fee currently being charged by the District. To cover the large up-front capital costs incurred in the first years of the program, this additional connection fee was raised to $1,176 in the Financial Proforma table in ***Appendix A***.

The capital costs for the recycled water distribution system, which includes design and construction of reclaimed water pipelines, pump stations, and wells, totals approximately $27,530,000. This cost can be covered by a reclamation connection fee charged to new recycled water customers. To account for demand from existing users such as the Mission Lakes golf course, the domestic water connection fee can be increased as well. The rationale for this increase is that the Mission Lakes conversion to recycled water will free up groundwater supply for potable use.

Current developments account for a total irrigation water use of about 3,500 AFY. These users have already paid a cost for connecting to the potable water system; therefore, the reclamation connection fee should be waived for these customers. Future users are estimated to generate an irrigation demand of approximately 4,500 AFY. A reclamation connection fee for new users of $3,000/AFY was estimated based on the alternative cost of drilling wells and constructing distribution systems to irrigate with groundwater. This cost per AFY is approximately half of the current domestic connection fee rate per AFY being charged by the District.

Additional domestic water connection fees were estimated by considering the existing Mission Lakes golf course demand of 1,171 AFY. The cost of converting Mission Lakes to reclaimed water is $3,510,000 (1,171 AFY x $3,000/AFY). Dividing this cost by the total number of new domestic water users (23,800 EDUs), an additional domestic connection fee of $147 per EDU is obtained. This fee increase will help attenuate the large capital cost of the recycled water distribution system.

8.2 Funding for Operation and Maintenance Costs

Annual Operation and Maintenance (O&M) costs for tertiary treatment equal approximately $803,000, and recycled water distribution annual O&M costs total almost $3,166,000. O&M costs can be funded by sewer user rates and recycled water sales. It is appropriate that sewer users cover costs of tertiary treatment O&M, and recycled water users cover costs for distribution O&M.

The total wastewater generation estimated in 2035 is 7.3 mgd. Using a factor of 250 gal/day/EDU, this equates to 29,200 EDU's which will be charged a monthly sewer user rate. The monthly rate to meet O&M expenditures for tertiary treatment is approximately $67,000, or $2.30 per month per EDU. This rate is in addition to the $15.06 per month per EDU currently charged to sewer users. The additional sewer user charge can be justified in order to eliminate the need for continued evaporation or percolation of secondary treated effluent.

The total recycled water demand estimated in 2035 is 7,998 AFY. Dividing the yearly O&M costs of $3,166,000 by this total recycled water demand, the rate per ccf comes out to $0.91, which is the recommended rate for new recycled water users. In comparison, the MSWD currently charges $0.92 per ccf for potable water.

8.3 Alternate Potential Funding Opportunities

Because revenue from connection fees and user rates will not be available in the early years of the recycled water project, the District will need to finance initial capital and O&M costs through other sources. ***Appendix A*** provides one example of how these programs can support the District throughout the project. The following programs can assist municipalities in the funding of a recycled water program. For purposes of this review, it is assumed that the program would consist of treated wastewater that would be utilized for groundwater recharge and/or municipal uses including irrigation.

1. **Integrated Regional Water Management (IRWM) Grant Program – State Water Resources Control Board (Proposition 50).** The 2nd funding cycle is anticipated to begin in Fall 2006.
   - ***Planning Grant Program*:** Provides $10 million for planning grants that foster development or completion of IRWM Plans, to enhance regional planning efforts, and to assist more applicants to become eligible for Implementation Grant Funding.

- ***Implementation Grant Program*:** Provides $150 million for projects that protect communities from drought, protect or improve water quality, improve local water security by reducing dependence on imported water and include at least one of the specified projects detailed in the application guidelines. Projects must be an implementation measure of an adopted IRWM Plan, and proposals must be submitted by a regional agency or regional group, as long as at least one of the members is a public agency or non-profit entity.

This is to encourage integrated regional strategies for management of water resources and promote a new model for water management.

2. State Revolving Fund (SRF) Loan Program – State Water Resources Control Board (Clean Water Act)

- ***SRF Loan Program*** – Implements the Clean Water Act, among various State laws, and provides low-interest loan funding for construction of publicly-owned wastewater treatment facilities, local sewers, sewer interceptors, water reclamation facilities, as well as expanded use projects such as implementation of nonpoint source (NPS) projects or programs, development and implementation. There is no limit on the loan amount. Applications are currently being accepted (as of August 2004) to be placed on a priority list.

3. I-Bank - Infrastructure State Revolving Fund (ISRF) Loan Program – CA Technology, Trade and Commerce Agency

- ***I-Bank Loan Program* –** Provides loans from $250,000 to $10 million with terms up to 30 years for any of the following types of projects: City streets, County highways, State highways, Drainage, Water supply and flood control, Educational facilities, Environmental mitigation measures, Parks and recreational facilities, Port facilities, Public transit, Sewage collection and treatment, Solid waste collection and disposal, Water treatment and distribution, Defense conversion, Public safety facilities, and Power and communications facilities. Applications are currently being accepted (as of August 2004) to be placed on a priority list.

4. U.S. Department of the Interior Bureau of Reclamation – Title XVI of Public Law 102-575

- ***Title XVI* –** Provides a program for Federal participation of specific water reuse projects. Water reuse projects are defined as projects which reclaim and reuse municipal, industrial, domestic, or agricultural wastewater, or naturally impaired groundwater and/or surface waters. Reclamation is authorized to participate in water recycling projects at funding levels up to 25 percent of the total project cost. However, section 1631 limits the Federal contribution to a maximum of $20 million (1996 dollars) per project. The Act requires the sponsor to provide at least 75 percent of the total planning, design, and construction costs. In addition, the sponsor must pay all operation and maintenance costs for the project.

9 Research Needs

Since all technologies being considered to develop a recycled water system for MSWD have been utilized successfully many times in the past, there are no new research needs to be considered in this study. Treatment, pumping, and pipeline distribution system infrastructure are common facilities and difficult to improve upon.

Appendix 3-4: Supporting Documents for
San Antonio del Desierto DAC Sewer Extension Project

RIVERSIDE COUNTY
PLANNING DEPARTMENT

Carolyn Syms Luna
Director

DATE: August 4, 2011

TO: Clerk of the Board of Supervisors

FROM: Planning Department - Riverside Office

SUBJECT: CZ07738 / CUP03645 -- Intent to Adopt Mitigated Negative Declaration
(Charge your time to these case numbers)

The attached item(s) require the following action(s) by the Board of Supervisors:

- ☐ Place on Administrative Action (Receive & File; EOT)
- ☒ Labels provided If Set For Hearing
  - ☐ 10 Day ☒ 20 Day ☐ 30 day
- ☐ Place on Consent Calendar
- ☐ Place on Policy Calendar (Resolutions; Ordinances; PNC)
- ☐ Place on Section Initiation Proceeding (GPIP)
- ☒ Set for Hearing (Legislative Action Required; CZ, GPA, SP, SPA)
- ☒ Publish in Newspaper:
  (4th Dist) Desert Sun and Press Enterprise
- ☒ Mitigated Negative Declaration
  - ☐ 10 Day ☒ 20 Day ☐ 30 day
- ☒ Notify Property Owners (app/agencies/property owner labels provided)

Controversial: ☐ YES ☒ NO

Designate Newspaper used by Planning Department for Notice of Hearing:
(4th Dist) Desert Sun and Press Enterprise

Need Director's signature by ASAP
Please schedule on the September 13, 2011 BOS Agenda

Documents to be sent to County Clerk's Office for Posting within five days:
Notice of Determination and Mit Neg Dec Forms
Fish & Game Receipt (CFG05688)

Do not send these documents to the County Clerk for posting until the Board has taken final action on the subject cases.

Riverside Office · 4080 Lemon Street, 12th Floor
P.O. Box 1409, Riverside, California 92502-1409
(951) 955-3200 · Fax (951) 955-1811

Desert Office · 38686 El Cerrito Road
Palm Desert, California 92211
(760) 863-8277 · Fax (760) 863-7555

"Planning Our Future... Preserving Our Past"

SUBMITTAL TO THE BOARD OF SUPERVISORS
COUNTY OF RIVERSIDE, STATE OF CALIFORNIA

REVIEWED BY EXECUTIVE OF
DATE Tina Grande
Departmental Concurrence

FROM: TLMA - Planning Department

SUBMITTAL DATE:
August 4, 2011

SUBJECT: CHANGE OF ZONE NO. 7738 / CONDITIONAL USE PERMIT NO. 3645 - Intent to Adopt Mitigated Negative Declaration – Applicant: Pueblo Unido, CDC – Engineer/Representative: Bob Mainiero – Fourth Supervisorial District – Mecca Zoning District – Eastern Coachella Valley Area Plan: Community Development: Very High Density Residential (CD:VHDR) (14-20 D.U./Ac.), Community Development: Medium Density Residential (CD: MDR) (2-5 D.U./Ac.), Community Development: Very Low Density Residential (CD:VLDR) (1 Acre Minimum) - Location: Northerly of Avenue 68, southerly of Avenue 66, easterly of Lincoln Street, and westerly of State Highway 111 – 223 Gross Acres - Zoning: Controlled Development (W-2) Areas & Rural Residential (R-R) - **REQUEST:** The change of zone proposes to modify the existing Rural Residential (R-R) zone on approximately 78 acres to the Controlled Development Areas (W-2) zone. The conditional use permit proposes to replace an existing 100 unit mobile home park to be built in two phases with Phase I consisting of existing park stabilization which includes installation of Reverse Osmosis water filtration system and electrical repairs, along with 92 new spaces, and Phase II consisting of 44 new spaces with 6,200 square foot community center with a building height of 20 feet including child care center, community park, and recreation facilities. Primary and secondary road access is from dedicated public road easements from Avenue 68 and State Highway 111.

RECOMMENDED MOTION:

The Planning Department recommended Approval; and,
THE PLANNING COMMISSION BY A 4-0 VOTE WITH MODIFICATIONS RECOMMENDS (COMMISSIONER PORRAS ABSENT):

Carolyn Syms Luna
Carolyn Syms Luna
Planning Director

Initials:
CSL:jo

Continued on Next Page

☐ Policy ☐ Consent ☐ Dept'l Agm.:
☐ Policy ☐ Consent ☐ Per Exec. Ofc.:

Prev. Agn. Ref. | **District:** 4th | **Agenda Number:**

ADOPTION of a **MITIGATED NEGATIVE DECLARATION** for **ENVIRONMENTAL ASSESSMENT NO. 42325**, based on the findings incorporated in the initial study and the conclusion that the project will not have a significant effect on the environment; and,

TENTATIVE APPROVAL of **CHANGE OF ZONE NO. 7738**, proposing to change the site's zoning from Controlled Development Areas (W-2) and Rural Residential (R-R) to Controlled Development Areas (W-2) in accordance with Exhibit 4; and,

APPROVAL of **CONDITIONAL USE PERMIT NO. 3645**, subject to the attached Conditions of Approval, and based upon the findings and conclusions incorporated in the staff report.

BACKGROUND:

The project was heard at the May 25, 2011 Planning Commission. Conditions were added including Condition of Approval (COA) 20.Planning.6 for the applicant to submit an annual report to the Planning Director, Director of Environmental Health, and 4th District Supervisor's Office on the status of well removal, as well as new sewer/water connections in compliance with the Coachella Valley Water District and Environmental Health Department. COA 20.Trans.1 was also added requiring a form of security bonding by July 1, 2012 for future water and sewer improvements. Additionally, COA 20.Planning.1 was modified to increase life of permit from three years to 30 years at the request of the applicant.

PLANNING COMMISSION
MINUTE ORDER MAY 25, 2011
CITY OF LA QUINTA BOARD CHAMBERS

I. **AGENDA ITEM 3.1: CHANGE OF ZONE NO. 7738 / CONDITIONAL USE PERMIT NO. 3645** – Intent to Adopt Mitigated Negative Declaration – Applicant: Pueblo Unido CDC – Representative: Sergio Carranza - Fourth Supervisorial District – Mecca Zoning District – Eastern Coachella Valley Community Area Plan: Community Development: Very High Density Residential (CD: VHDR) (14-20 D.U./Ac.), Community Development: Medium Density Residential (CD: MDR) (2-5 D.U./Ac.), Community Development: Very Low Density Residential (CD: VLDR) (1 Acre Minimum) – Location: Northerly of Avenue 68, southerly of State Highway 111, easterly of Lincoln Street in Mecca, CA – 223 Gross Acres – Zoning: Rural Residential – ½ Acre Minimum (R-R), Controlled Development Areas – ½ Acre Minimum (W-2).

PROJECT DESCRIPTION

The Change of Zone proposes to modify existing zoning from Rural Residential (R-R) and Controlled Development Areas (W-2) to Controlled Development Areas (W-2). The conditional use permit proposes to replace an existing 100 unit mobile home park with a new 136 unit mobile home park to be built in two phases with Phase I consisting of 92 spaces and Phase II consisting of 44 spaces along with a 6,200 square foot community building up to 20 feet in height including child care center, community park, recreational facilities, and retention basins. Primary road access is proposed from Avenue 68 and secondary road access is proposed from State Highway 111. APN's: 727-271-002, 727-271-003, 727-271-007, and 727-271-008.

VI. **MEETING SUMMARY**

The following staff presented the subject proposal:
Project Planner: Jay Olivas at 951-955-1195 or e-mail jolivas@rctlma.org.

The following spoke in favor of the subject proposal:
Sergio Carranza the Applicant (no address provided)
Bob Mainiero Applicant's Rep P.O. Box 2410 Palm Springs, CA 92263 760-413-7127
Nona Del Bene interested party 78-970 Cabrillo Way La Quinta CA 92253 760-771-1936
Sister Gabi Williams interested party (no address provided)
Aha Sanchez neighbour 67-075 Hwy 111 Mecca CA 92254
Roberto Mendez neighbour 67075 Hwy 111 Mecca CA 92254 760-578-9071
Maira A. Alcaza neighbour Mecca CA 92254
Laura Massie interested party California Rural Legla Asst. 1460 6th St Coachella CA 92236 760-398-7261
Amelia Deaztlau interested party 79170 Fred Waring Dr. Bermuda Dunes CA 92203 760-772-3466
Tizoc DeAztlan interested party (no address provided)
Larry Strasbao neighbour 70-100 Ave. 70 Mecca CA 92254 760-342-6820

There were no speakers in opposition of the subject proposal.

There were no speakers in neutral position of the subject proposal.

VII. **CONTROVERSIAL ISSUES**

NONE

VIII. **PLANNING COMMISSION ACTION**

The Planning Commission, by a vote of 4-0; Commissioner Porras absent:

PLANNING COMMISSION
MINUTE ORDER MAY 25, 2011
CITY OF LA QUINTA BOARD CHAMBERS

ADOPTED MITIGATED NEGATIVE DECLARATION for **ENVIRONMENTAL ASSESSMENT NO. 42325**, based on the findings incorporated in the initial study and the conclusion that the project will not have a significant effect on the environment; and,

APPROVED CHANGE OF ZONE NO. 7738, proposing to change the site's zoning classification from Rural Residential – ½ Acre Minimum (R-R) to Controlled Development Areas (W-2) in accordance with Recommended Zoning Exhibit 4, based upon final adoption by the Board of Supervisors; and,

APPROVED CONDITIONAL USE PERMIT NO. 3645, subject to the attached conditions of approval, and based upon upon the findings and conclusions incorporated in the staff report.

IX. CD

The entire discussion of this agenda item can be found on CD. For a copy of the CD, please contact Desiree Bowie, Interim Planning Commission Secretary, at (951) 955-0222 or E-mail at dbowie@rctlma.org

Agenda Item No.: 3.1
Area Plan: Eastern Coachella Valley
Zoning District: Mecca
Supervisorial District: Fourth
Project Planner: Jay Olivas
Planning Commission: May 25, 2011

CHANGE OF ZONE NO. 7738
CONDITIONAL USE PERMIT NO. 3645
E.A. Number: 42325
Applicant: Pueblo Unido, CDC
Engineer/Rep: Bob Mainiero, P.E.

COUNTY OF RIVERSIDE PLANNING DEPARTMENT
STAFF REPORT

PROJECT DESCRIPTION AND LOCATION:

The change of zone proposes to modify the existing Rural Residential (R-R) zone on approximately 78 acres to the Controlled Development Areas (W-2) zone. The conditional use permit proposes to replace an existing 100 unit mobile home park with a new 136 unit migrant agricultural worker mobile home park to be built in two phases with Phase I consisting of 92 spaces and Phase II consisting of 44 spaces along with a 6,200 square foot community building up to 20 feet in height including child care center, community park, recreational facilities, and retention basins. Primary road access is proposed from Avenue 68 and secondary road access is proposed from State Highway 111.

The project is located in the Eastern Coachella Valley Area Plan; more specifically, northerly of Avenue 68, southerly of Avenue 66, easterly of Lincoln Street, and westerly of State Highway 111 in Mecca.

ISSUES OF POTENTIAL CONCERN:

Issues of potential concern for the existing and proposed mobile home park consist of lack of sewer service, water quality concerns, access improvements and community design guidelines. Sanitation improvements such as sewer line extension and lift station are proposed within a two year timeframe from the date of approval of the permit. New well permits are proposed to address water quality. Improved 50 foot wide access easements are proposed from Avenue 68 and State Highway 111. Staff reviewed Countywide design guidelines as well as the Mecca Design Guidelines to ensure project compliance. The design guidelines are being addressed with perimeter walls/fencing and landscaping.

SUMMARY OF FINDINGS:

1.	Existing General Plan Land Use (Ex. #5):	Medium Density Residential (MDR) (2-5 D.U./Ac); Very High Density Residential (VHDR) 14-20 D.U./Ac.; Very Low Density Residential (VLDR) (1 Acre Minimum)
2.	Existing Zoning (Ex. #4):	Controlled Development Areas (W-2); Rural Residential (RR)
3.	Surrounding Zoning (Ex. #4):	Controlled Development Areas (W-2)
4.	Existing Land Use (Ex. #1):	Existing 100 unit Mobile Home Park, Sanitation Ponds, Fish Farm
5.	Surrounding Land Use (Ex. #1):	Crops, Scattered Dwellings, Fish Farm, Vacant Land
6.	Project Data:	Total Acreage: 223 Gross Acres Mobile Home Park portion: 32 acres Bldg. Sq. Ft.: 6,200 sq. ft Community Center Bldg. Height: Up to 20 feet for Community Center Mobilehome Park: 136 spaces (50' x 78' each)

7. Environmental Concerns: See attached environmental assessment

RECOMMENDATIONS:

ADOPTION of a **MITIGATED NEGATIVE DECLARATION** for **ENVIRONMENTAL ASSESSMENT NO. 42325**, based on the findings incorporated in the initial study and the conclusion that the project will not have a significant effect on the environment; and,

TENTATIVE APPROVAL of **CHANGE OF ZONE NO. 7738**, proposing to change the site's zoning classification from Rural Residential – ½ Acre Minimum (R-R) to Controlled Development Areas (W-2) in accordance with Recommended Zoning Exhibit 4, based upon final adoption by the Board of Supervisors; and,

APPROVAL of **CONDITIONAL USE PERMIT NO. 3645,** subject to the attached conditions of approval, and based upon upon the findings and conclusions incorporated in the staff report.

CONCLUSIONS:

1. The proposed project is in conformance with the existing Community Development: Medium Density Residential (CD: MDR) (2-5 D.U./Ac.), Community Development: Very High Density Residential (VHDR) (14-20 D.U./Ac.), Community Development: Very Low Density Residential (VLDR) (1 Acre Minimum) Land Use Designations, and with all other elements of the Riverside County General Plan.

2. The proposed project is consistent with the proposed Controlled Development Areas (W-2) zoning classification of Ordinance No. 348 on a portion of the site, and with all other applicable provisions of Ordinance No. 348.

3. The public's health, safety and general welfare are protected through project design.

4. The proposed project is conditionally compatible with the present and future logical development of the area.

5. The project will not have a significant effect on the environment and there is no evidence that the project will have adverse effects on wildlife resources.

FINDINGS: The following findings are in addition to those incorporated in the summary of findings, and the attached environmental assessment, which is incorporated herein by reference.

1. The existing land use designation of Medium Density Residential (MDR) (2-5 D.U./Ac) is consistent with the proposed project for a mobile home park due to a proposed gross density of approximately 4.25 D.U./Ac. within the allowed MDR density range.

2. The project site is currently zoned Rural Residential (R-R) and Controlled Development Areas with surrounding zoning consisting of Controlled Development Areas (W-2). The proposed project would be compatible with surrounding zones due to zone change from R-R to W-2 on four parcels since the W-2 zone is predominant in the immediate vicinity.

3. The project is consistent with the existing and proposed Controlled Development Areas (W-2) zoning since mobile home parks are conditionally consistent with a conditional use permit.

4. The 32 acre portion of the 223 gross acre site consists of an existing mobile home park with 100 spaces to be replaced in phases with improvements for a total of 136 new mobile home units. Surrounding land uses consist of crops, scattered dwellings, fish farm, and vacant land. The project is consistent with existing surrounding land uses in that the proposed project is conditioned to provide perimeter walls and fencing, desert landscaping and building/parking lot improvements.

5. Domestic water and sanitation is proposed to be provided by the Coachella Valley Water District including future sewer line extension along Lincoln Street subject to the improvements being installed in a two year timeframe. Domestic water and sanitation shall be provided in conformance with the water and sewer land use standards of the General Plan.

6. The primary and secondary access to the proposed site is proposed from 50 foot wide access easements from Avenue 68 and from State Highway 111. The project will provide appropriate street and off-site traffic mitigation, such as, Transportation Uniform Mitigation Fees (TUMF), in compliance with the requirements of the circulation element of the General Plan.

7. The project is approximately one mile from a fire station. The project will provide appropriate fire protection improvements, such as fire hydrants and a water system, in conformance with the fire services policies of the General Plan.

8. The project is not located within the sphere of influence of any city. However, it is located within the boundaries of the Mecca Community Council which recommend project approval.

9. The initial study performed pursuant to Environmental Assessment No. 42325 identified the following potentially significant impacts:

   a. Biological Resources
   b. Hydrology/Water Quality
   c. Utilities/Service Systems

   These listed impacts will be fully mitigated by the measures indicated in the initial study, conditions of approval, and attached government agency letters. No other significant impacts were identified.

10. The project is within the Coachella Valley Multiple Species Habitat Conservation Plan and is not located within a Conservation Area of that plan. This project fulfills the requirements of that plan through conformance with Ordinance No. 875.

11. The housing element had identified special needs housing for farm workers and low to very low income households. Policy 1.2 of the Riverside County Housing Element ensures the availability of suitable sites for the development of affordable housing to meet the needs of all household income levels, including farm workers and other special needs populations.

12. The farm labor camp/migrant housing facility is consistent with the land use element policy LU 16.3 which allows farm worker housing as an interim land use under certain circumstances. The project complies with these circumstances in that the subject area is primarily agriculture, the proposal has a recommended condition of a 30 year life, the project will have adequate infrastructure with required improvements, the project will not create significant land use incompatibilities due to the agriculture nature of the area with existing crops, and the proposal will not jeopardize public health, safety and welfare due to compliance with uniform building codes.

INFORMATIONAL ITEMS:

1. As of this writing (5/10/11), no letters in favor or opposition have been received from the general public.

2. The subject site consists of Assessor's Parcel Numbers 727-271-002, 727-271-003, 727-271-007, and 727-271-008.

3. The project was filed with the Planning Department on May 27, 2010.

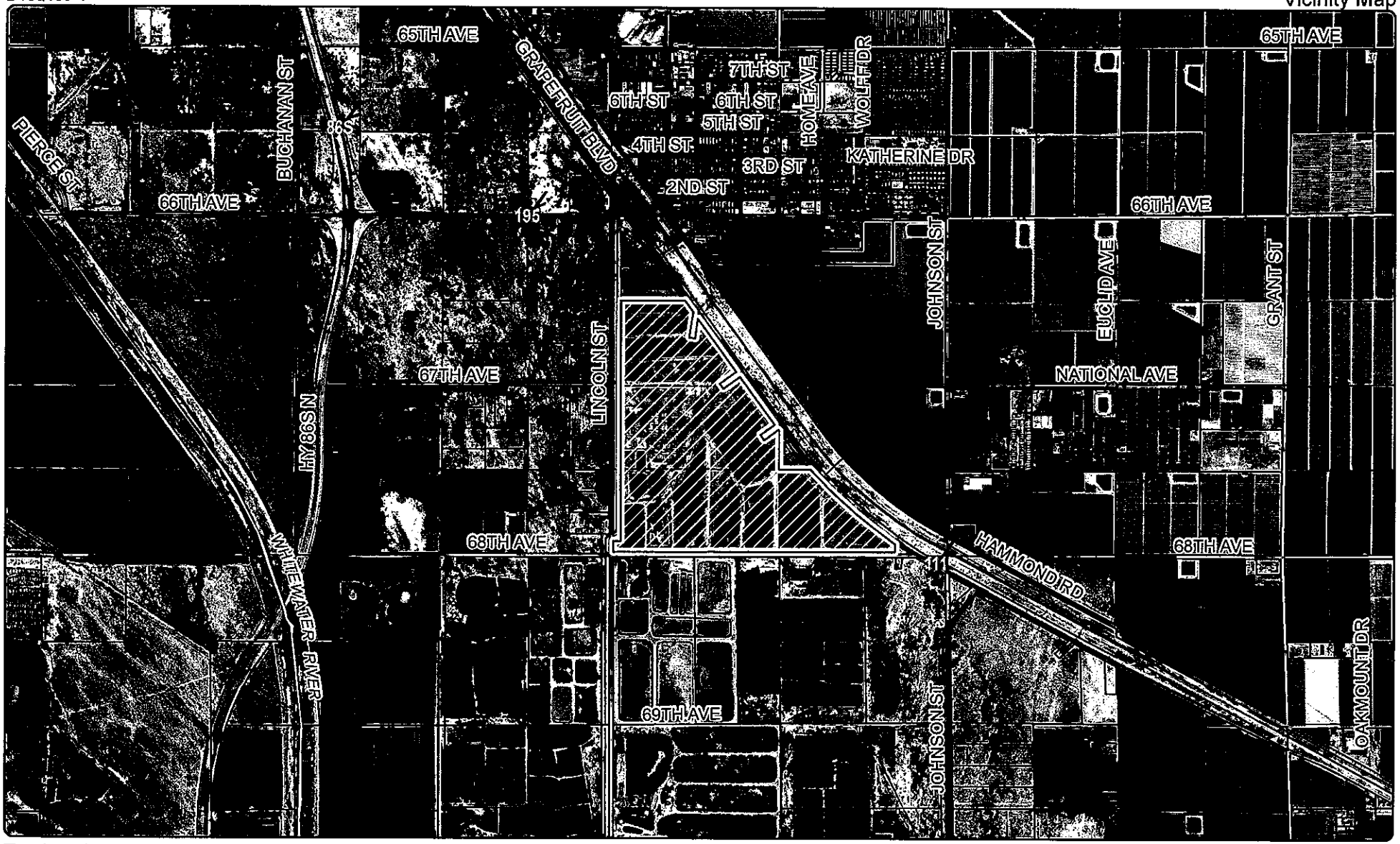
RIVERSIDE COUNTY PLANNING DEPARTMENT

CZ07738 CUP03645

VICINITY/POLICY AREAS

Supervisor Benoit
District 4

Date Drawn: 5/03/11
Vicinity Map



Zoning Area: Mecca
Township/Range: T7SR9E
Section: 17

DISCLAIMER: On October 7, 2003, the County of Riverside adopted a new General Plan providing new land use designations for unincorporated Riverside County parcels. The new General Plan may contain different types of land use than is provided for under existing zoning. For further information, please contact the Riverside County Planning Department offices in Riverside at (951) 955-3200 (Western County), or in Indio at (760) 863-8277 (Eastern County) or website at http://www.tlma.co.riverside.ca.us/index.html

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Edition 2009

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Feet

RIVERSIDE COUNTY PLANNING DEPARTMENT

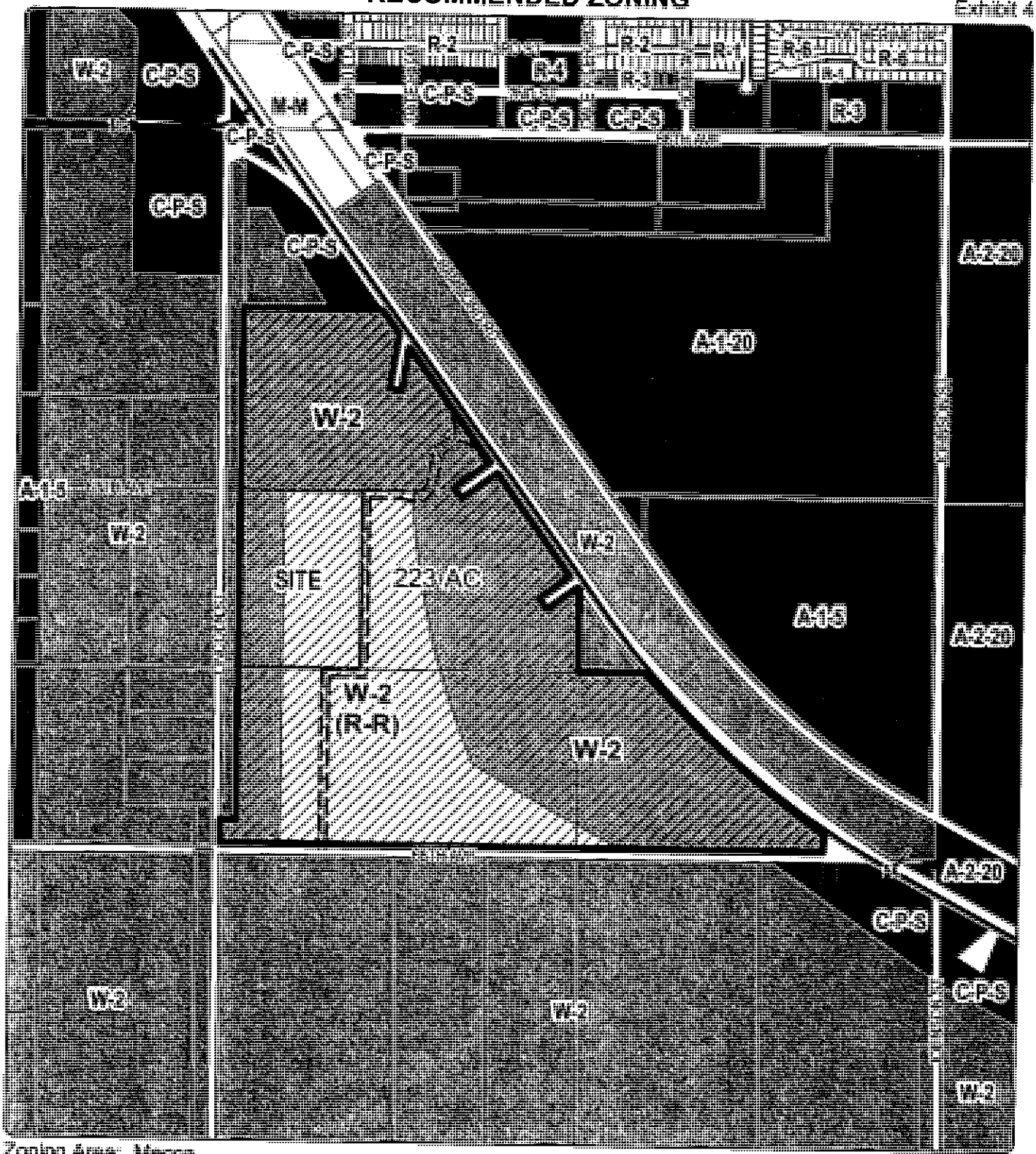
CZ07738 CUP03645

RECOMMENDED ZONING

Supervisor Benoit
District 4

Date Drawn: 5/03/11

Exhibit 4



Zoning Area: Mecca
Township/Range: T7SR9E
Section: 17

N

Assessors Bk. Pg. 727-27
Thomas Bros. Pg. 5652 F1
Edition 2009

DISCLAIMER: On October 7, 2003, the County of Riverside adopted a new General Plan providing new land use designations for unincorporated Riverside County parcels. The new General Plan may contain different types of land use than is provided for under existing zoning. For further information, please contact the Riverside County Planning Department offices in Riverside at (951) 955-3200 (Western County), or in Indio at (760) 863-8277 (Eastern County) or website at http://www.tlma.co.riverside.ca.us/index.html

0 400 800 1,600 2,400
Feet

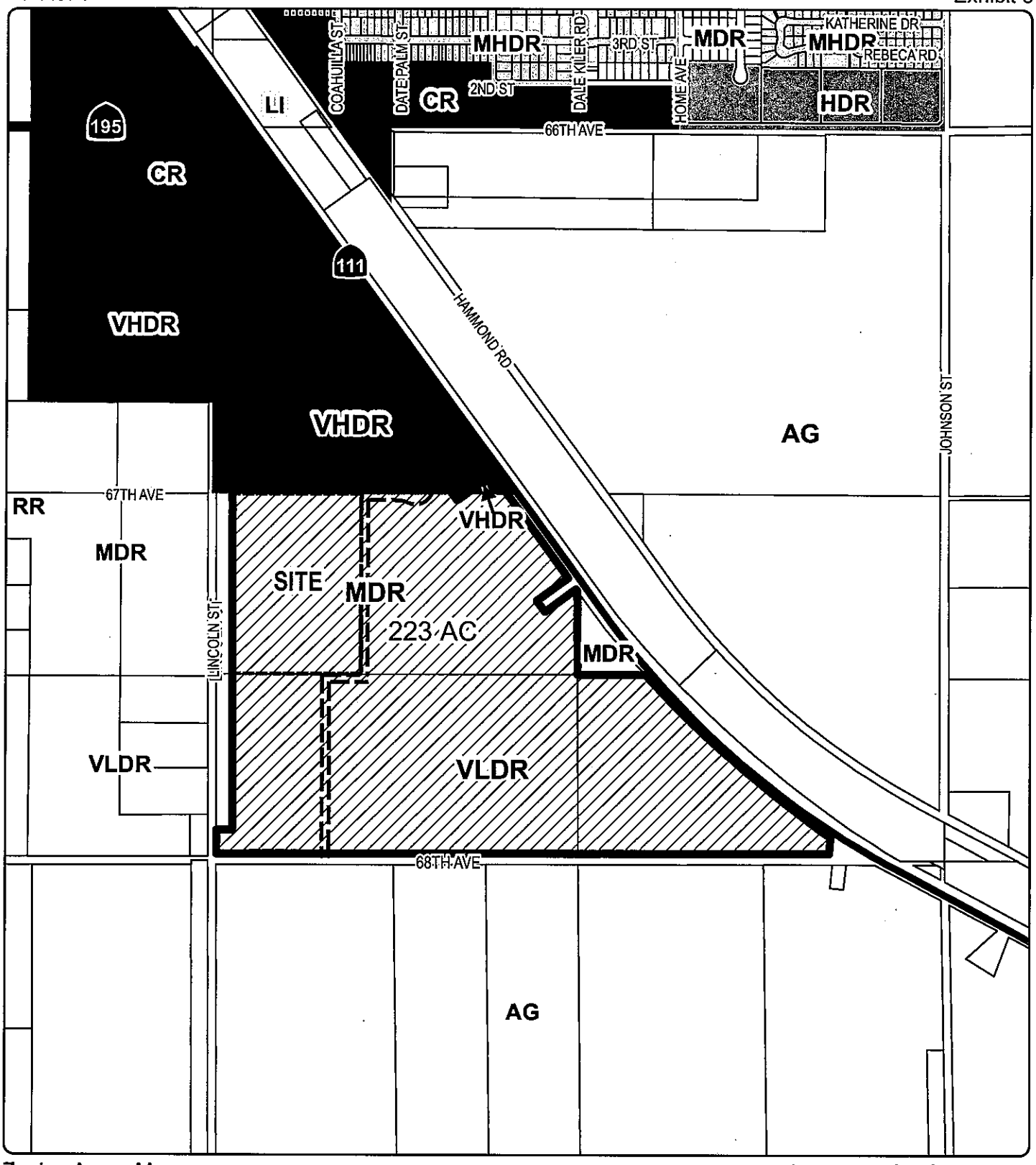
RIVERSIDE COUNTY PLANNING DEPARTMENT

CZ07738 CUP03645

EXISTING GENERAL PLAN

Supervisor Benoit
District 4

Date Drawn: 5/03/11
Exhibit 5



Zoning Area: Mecca
Township/Range: T7SR9E
Section: 17

N

Assessors Bk. Pg. 727-27
Thomas Bros. Pg. 5652 F1
Edition 2009

DISCLAIMER: On October 7, 2003, the County of Riverside adopted a new General Plan providing new land use designations for unincorporated Riverside County parcels. The new General Plan may contain different types of land use than is provided for under existing zoning. For further information, please contact the Riverside County Planning Department offices in Riverside at (951) 955-3200 (Western County), or in Indio at (760) 863-8277 (Eastern County) or website at http://www.tlma.co.riverside.ca.us/index.html

0 400 800 1,600 2,400
Feet

CONDITIONAL USE PERMIT
CHANGE OF ZONE

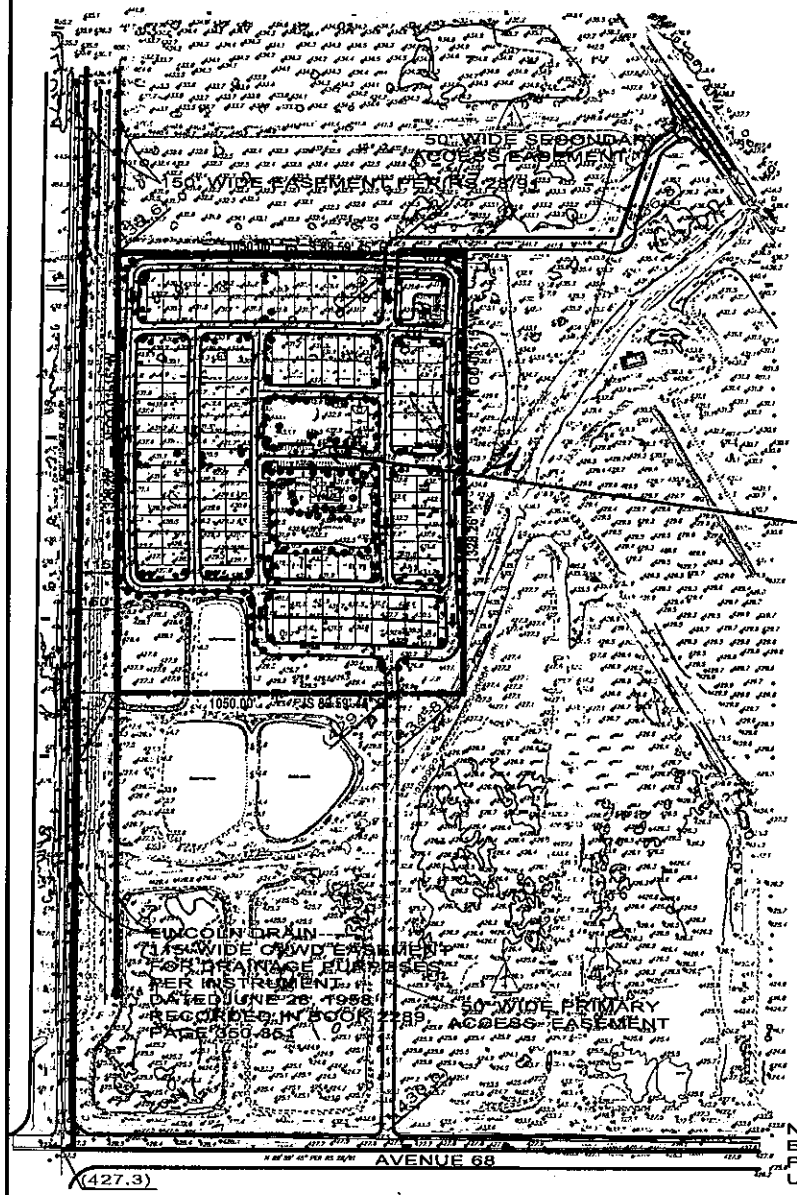
IN THE COUNTY OF RIVERSIDE

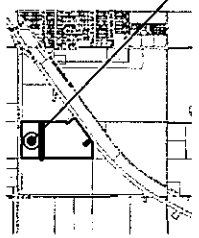
MARCH 2011

NOTE: ALL ON-SITE STORMWATER TO BE RETAINED ON-SITE

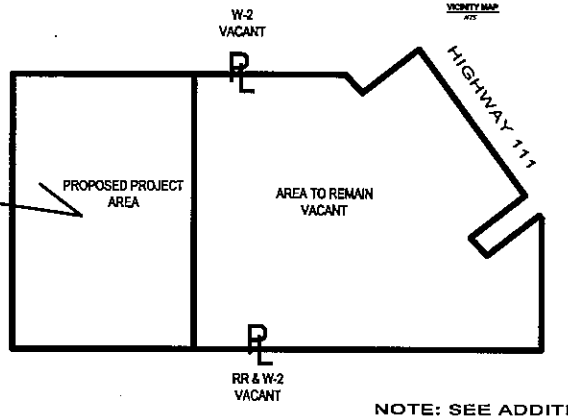
DATE	BY	MARK	APPR	DATE
9/13/10	SC	2	DRAINAGE ARROWS	
9/13/10	SC	1	REVISED ACCESS	

ENGINEER — COUNTY

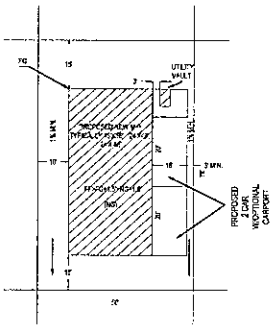




VICINITY MAP



NOTE: SEE ADDITIONAL SHEETS FOR PRELIMINARY GRADING PLANS--- SHEETS 2-5 OF 5 SHEETS



NOTE: AN ADDITIONAL EASEMENT MAY BE ADDED FOR SEWER AND WATER UTILITIES

PROJECT DESCRIPTION:

MT. ANTONIO DEL DESIERTO/DESIERTO AS LAKE MT. ANTHONY TRAILER PARK) IS A 100 UNIT MOBILE HOME PARK FOR FARMWORKER AND LOW INCOME FAMILIES LOCATED AT 87-575 HIGHWAY 111, MECCA, 727-271-003. THE PARK IS OPERATING UNDER SUBSTANDARD CONDITIONS AND CODE VIOLATIONS TO INCLUDE LACK OF DRINKABLE WATER DUE HIGH LEVELS OF ARSENIC, UNDERCAPACITY POWER SUPPLY AND FIRE SUPPRESSION, AND INADEQUATE SEWER SYSTEM. ADDITIONALLY THE PARK DOES NOT COMPLY WITH TITLE 25.

PUEBLO UNIDO CDC A NON-PROFIT 501 (C) (3) TAX EXEMPT ORGANIZATION HAS REACHED AN AGREEMENT WITH MULTI-NATIONAL INVESTMENTS LLC TO INITIATE A COMPREHENSIVE REHABILITATION PLAN TO ADDRESS IMMEDIATE UNHEALTHY AND UNSAFE CONDITIONS, AND TO BRING THE PROJECT UP TO CODE COMPLIANCE.

THE REHABILITATION WILL CONSIST OF TWO MAIN STAGES:

1. ADDRESSING OF INMEDIATE UNHEALTHY CONDITIONS (DRINKABLE WATER, AND ELECTRICAL SYSTEM), AND OWNERS INDICATED BY THE LOCAL RIVERSIDE COUNTY TLMA. THIS STAGE WILL INCLUDE IMPLEMENTING AN INTERIM WATER TREATMENT FACILITY TO MITIGATE LACK OF MUNICIPAL SERVICE BY CVWD DUE TO LIMITED WATER CAPACITY IN THE AREA, AND;

2. INITIATE ENTITLEMENT PROCESS FOR A NEW PARK RECONFIGURATION TO MEET TITLE 25, AND LOCAL ORDINANCE 348. THE NEW RECESIGN WILL INCLUDE 92 SITE SPACES, STREET LIGHTS, PAVED ROADS, COMMUNITY PARK, PLAYGROUND AREA, POCKET PARK, COMMUNITY CENTER/MANAGEMENT OFFICE, CHILD CARE CENTER, BASKETBALL COURT AND BOCCER FIELD.

THE NEW PARK WILL BE DONE IN PHASES AND FAMILIES WILL BE RELOCATED TO THE NEW SPACES. THE EXISTING PARK WILL BE REMOVED.

OWNER

MULTI NATIONAL INVESTMENTS LLC
16133 VENTURA BLVD, SUITE 777
TARZANA, CA 91356

PROJECT ADDRESS:

87575 HIGHWAY 111
MECCA, CA 92254

APPLICANT AND EXHIBIT PREPARER

SERGIO CARRANZA, EXECUTIVE DIRECTOR
PUEBLO UNIDO CDC
PO BOX 1130
THERMAL, CA 92274
TELEPHONE (760) 427-0985 FAX (760) 771-0271

APN 727-271-003-3

GENERAL NOTES:

EXISTING LAND USE . . . . MOR (2 - 5 DUAC)
EXISTING ZONING . . . . . R-R, W-2
PROPOSED SEWAGE DISPOSAL SYSTEM . . . ON SITE
NOT SUBJECT TO FLOODING PER FEMA FLOODPLAIN AND FLOODWAY DESIGNATION ZONE D
COMMUNITY PANEL NUMBER 060245 0005
PROPOSED ZONING, W-2

COMMUNITY SERVICE AREA . . .
MECCA # 97 - STREET LIGHTING . . . CSA 152

GROSS ACREAGE . . . 32.62 ACRES
NET ACREAGE . . . 32.62 ACRES
TOTAL PROJECT AREA . . . 32.62 ACRES

TOPOGRAPHIC MAPPING . . . BY JAMES FIERO, L.S. M 2008
THOMAS BROS. MAP . . . PAGE 3652 GRID: F1, D1 TOMAS GUIDE 2008
ALQUIST PRIOLO SPECIAL STUDIES ZONE PROJECT NOT LOCATED IN A ALQUIST PRIOLO SPECIAL STUDIES ZONE
NOT IN A SPECIFIC PLAN
LIQUIFACTION POTENTIAL . . . HIGH

SITE DATA

CHILD CARE CENTER: 2700 SQ. FT.
COMMUNITY CENTER: 3500 SQ. FT.
PARKING SPACE
LANDSCAPE AREA

TILE DRAINS

NONE

ON-SITE STORM WATER (100 YEAR)

AMOUNT GENERATED 16.0 ACRE FEET
CAPACITY OF RETENTION 16.3 ACRE FEET

EXISTING SEWAGE DISPOSAL SYSTEM

EXISTING GRAVITY SEWAGE COLLECTION SYSTEM, LIFT STATION, AND TREATMENT SYSTEM CONSISTING OF A SEWAGE LAGOON AND EVAPORATION POND

EXISTING DOMESTIC WATER SYSTEM

EXISTING WELL AND REVERSE OSMOSIS TREATMENT SYSTEM

UTILITIES

WATER	ON-SITE (PRIVATE WELL)
SEWER	SEWAGE LAGOON SYSTEM
ELECTRIC	IMPERIAL IRRIGATION DISTRICT
TELEPHONE	VERIZON TELEPHONE COMPANY
GAS	SOUTHERN CALIFORNIA GAS COMPANY
SCHOOL DISTRICT	COACHELLA VALLEY UNIFIED SCHOOL DISTRICT

LEGAL DESCRIPTION

IN THE UNINCORPORATED TERRITORY OF THE COUNTY OF RIVERSIDE, STATE OF CALIFORNIA, THAT PORTION OF THE SOUTHWEST QUARTER OF SECTION 17, TOWNSHIP 7 SOUTH, RANGE 6 EAST, S.B.M., MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCING AT THE SOUTHWEST CORNER OF SAID SECTION 17;
THENCE NORTH 00 01' 15" WEST, ALONG THE CENTERLINE OF LINCOLN STREET, A DISTANCE OF 1326.26 FEET;

THENCE SOUTH 89 58' 45" EAST, A DISTANCE OF 150.00 FEET TO THE TRUE POINT OF BEGINNING OF THIS DESCRIPTION;

THENCE NORTH 00 01' 15" WEST, A DISTANCE OF 1326.26 FEET;

THENCE SOUTH 89 59' 45" EAST, A DISTANCE OF 1050 FEET;

THENCE SOUTH 00 01' 15" EAST, A DISTANCE OF 1326.26 FEET;

THENCE NORTH 89 58' 45" WEST, A DISTANCE OF 1050 FEET TO THE TRUE POINT OF BEGINNING.

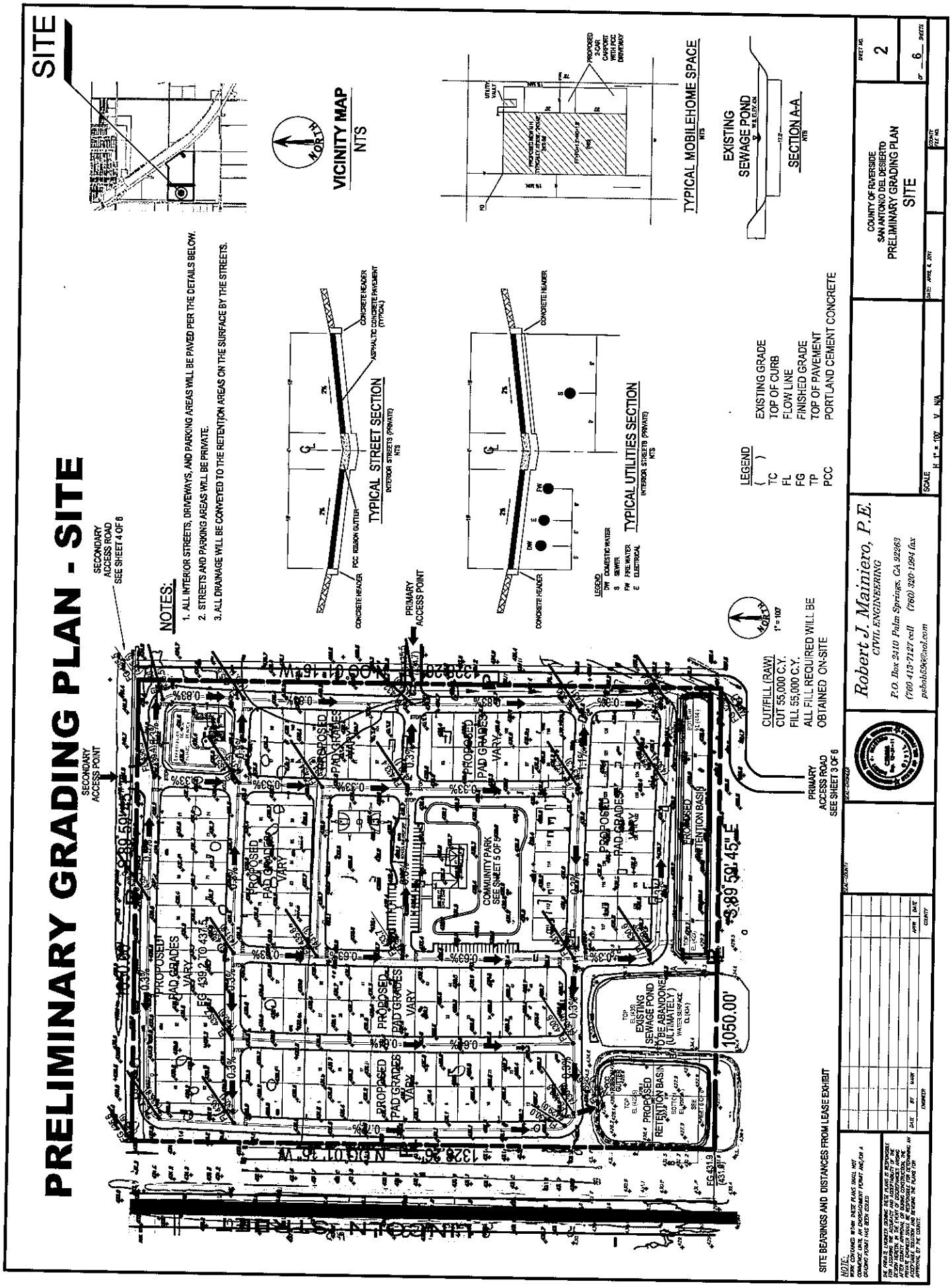
PUEBLO UNIDO CDC AGRICULTURAL WORKER HOUSING REHABILITATION PROGRAM 53-040 AVENIDA MENDOZA LA QUINTA, CA 92253 PHONE (760) 427-0985 FAX (760) 771-0271 www.pucdc.org	SEAL-COUNTY	SEAL-ENGINEER	APN: 727-271-003 SHEET TILE: EXHIBIT - A	NOTE: THIS EXHIBIT IS CONSISTENT WITH THE LATEST CUP EXHIBIT SCALE: 1" - 200'

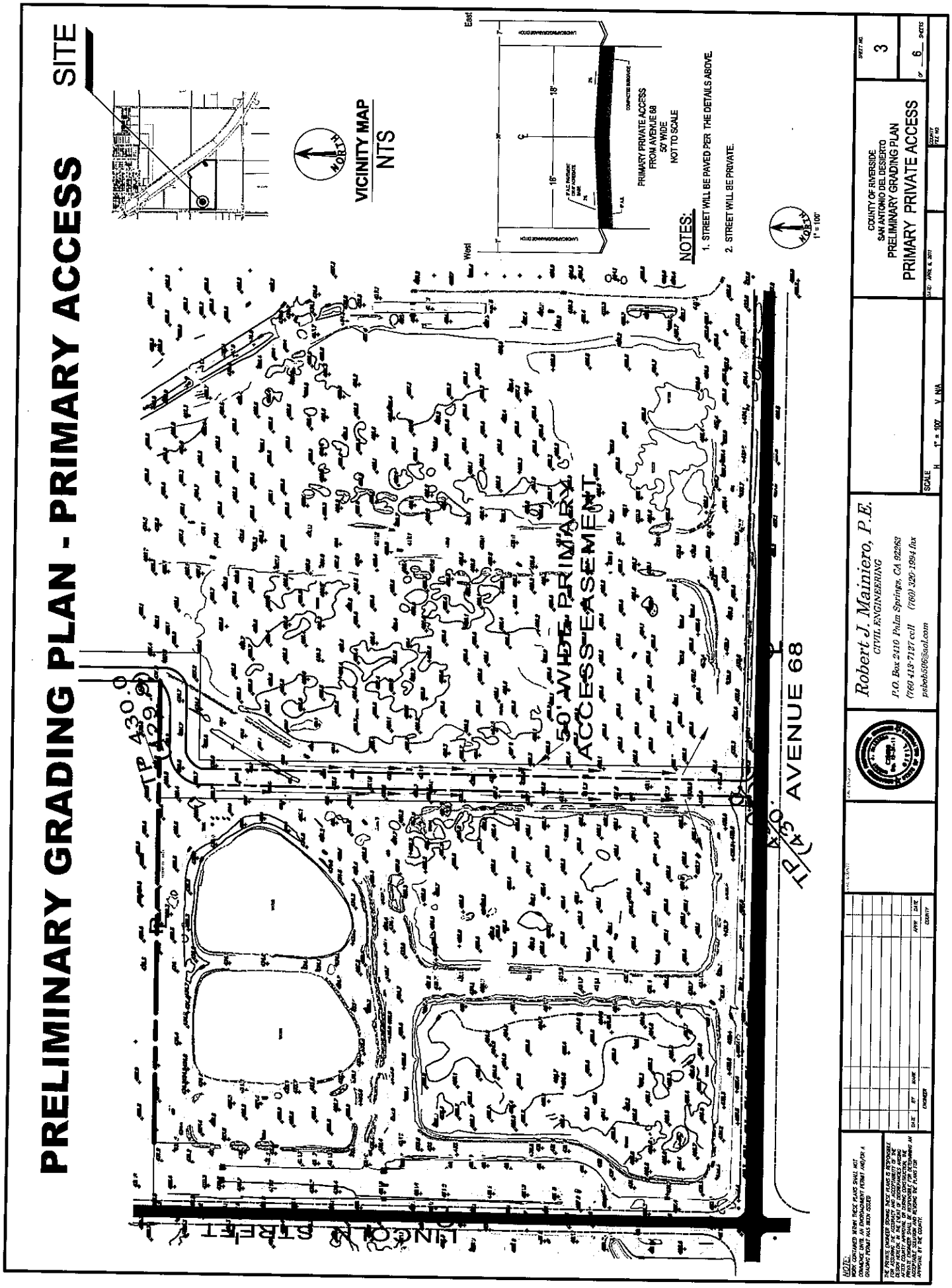
RIVERSIDE COUNTY
SAN ANTONIO DEL DESIERTO
FARMWORKER HOUSING AND COMMUNITY CENTER PROJECT
CONDITIONAL USE PERMIT / CHANGE OF ZONE

SHEET NO. 1 OF 6 SHEETS

DATE: APRIL 6, 2011

COUNTY FILE NO.

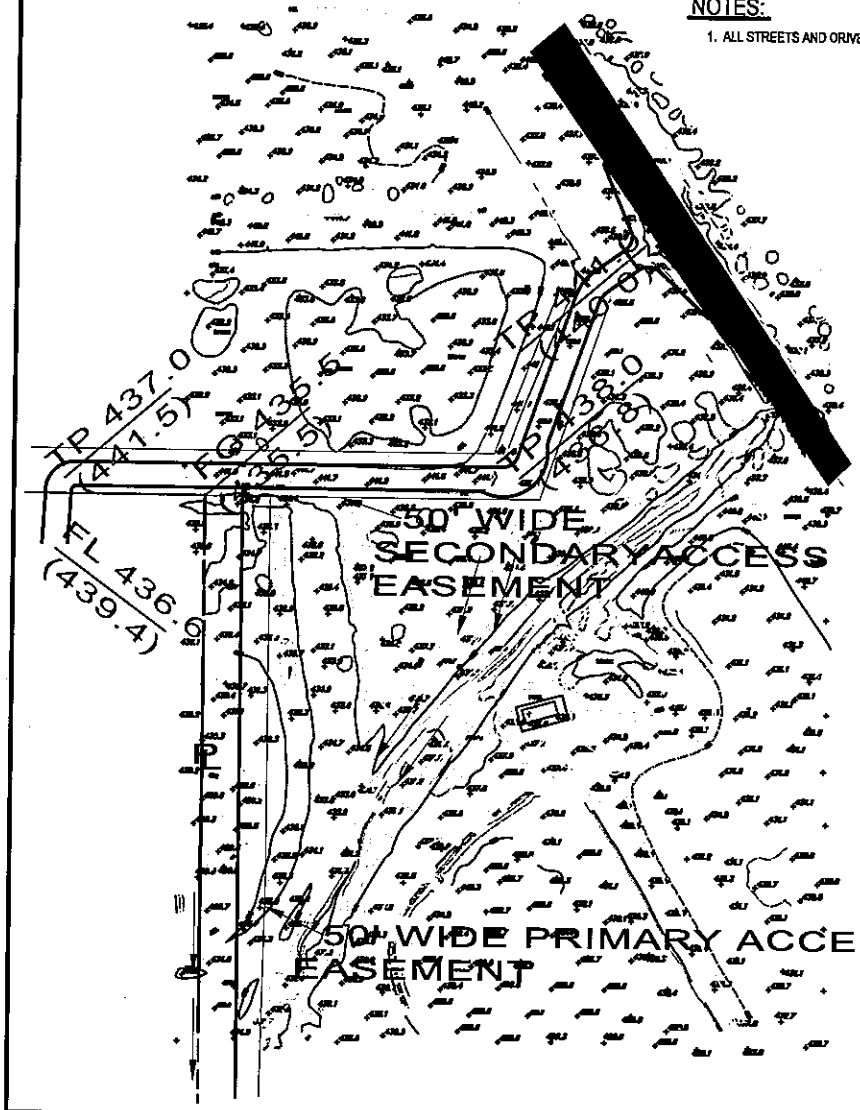

PRELIMINARY GRADING PLAN - SITE
SITE
VICINITY MAP
NTS
NOTES:
1. ALL INTERIOR STREETS, DRIVEWAYS, AND PARKING AREAS WILL BE PAVED PER THE DETAILS BELOW.
2. STREETS AND PARKING AREAS WILL BE PRIVATE.
3. ALL DRAINAGE WILL BE CONVEYED TO THE RETENTION AREAS ON THE SURFACE BY THE STREETS.
TYPICAL STREET SECTION
INTERIOR STREETS (PRIVATE)
NTS
TYPICAL UTILITIES SECTION
INTERIOR STREETS (PRIVATE)
NTS
TYPICAL MOBILEHOME SPACE
NTS
EXISTING SEWAGE POND
SECTION A-A
NTS
SECONDARY ACCESS POINT
SECONDARY ACCESS ROAD
SEE SHEET 4 OF 6
PRIMARY ACCESS POINT
PRIMARY ACCESS ROAD
SEE SHEET 3 OF 6
COMMUNITY PARK
SEE SHEET 5 OF 6
PROPOSED RETENTION BASIN
EXISTING SEWAGE POND TO BE ABANDONED (ULTIMATELY)
PROPOSED PAD GRADES VARY
LEGEND
EXISTING GRADE
TOP OF CURB
FLOW LINE
FINISHED GRADE
TOP OF PAVEMENT
PORTLAND CEMENT CONCRETE
CUT/FILL (RAW)
CUT 55,000 C.Y.
FILL 55,000 C.Y.
ALL FILL REQUIRED WILL BE OBTAINED ON-SITE
SITE BEARINGS AND DISTANCES FROM LEASE EXHIBIT
1050.00'
1326.26'
N 89° 50' 45" E
N 89° 50' 45" W
N 00° 01' 16" W
S 00° 01' 16" E
Robert J. Mainiero, P.E.
CIVIL ENGINEERING
P.O. Box 2410 Palm Springs, CA 92263
(760) 413-7127 cell (760) 320-1994 fax
pshob596@aol.com
COUNTY OF RIVERSIDE
SAN ANTONIO DEL DESIERTO
PRELIMINARY GRADING PLAN
SITE
SHEET NO. 2
OF 6 SHEETS
SCALE H 1" = 100' V N/A
DATE APRIL 4, 2011

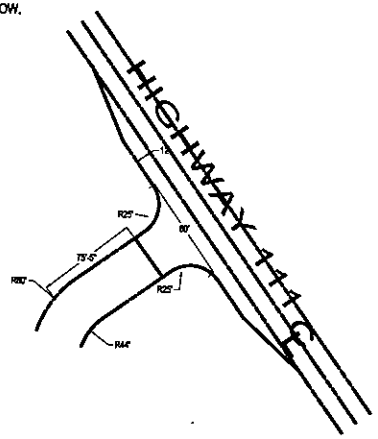

PRELIMINARY GRADING PLAN - PRIMARY ACCESS
SITE
VICINITY MAP
NTS
NORTH
East
West
PRIMARY PRIVATE ACCESS
FROM AVENUE 68
50' WIDE
NOT TO SCALE
NOTES:
1. STREET WILL BE PAVED PER THE DETAILS ABOVE.
2. STREET WILL BE PRIVATE.
1" = 100'
50' WIDE PRIMARY ACCESS EASEMENT
AVENUE 68
LINCOLN STREET
TP 430-090
TP 429-090
TP 430-080
COUNTY OF RIVERSIDE
SAN ANTONIO DEL DESIERTO
PRELIMINARY GRADING PLAN
PRIMARY PRIVATE ACCESS
Robert J. Mainiero, P.E.
CIVIL ENGINEERING
P.O. Box 2410 Palm Springs, CA 92263
(760 413-7127 cell (760) 320-1994 fax
psbob506@aol.com
SCALE H 1" = 100' V N/A
DATE APRIL 6, 2011
SHEET NO 3
OF 6 SHEETS
NOTE:
WORK CONTAINED WITHIN THESE PLANS SHALL NOT COMMENCE UNTIL AN ENCROACHMENT PERMIT AND/OR A GRADING PERMIT HAS BEEN ISSUED
THE PERSON SIGNING THESE PLANS IS RESPONSIBLE FOR ASSURING THE ACCURACY AND ADEQUACY OF THE DESIGN. IN THE EVENT THAT THE SIGNATORY IS NOT A REGISTERED CIVIL ENGINEER, THE REGISTERED ENGINEER WHO PREPARED THE PLANS SHALL BE RESPONSIBLE FOR RETAINING AN ENGINEER OF WORK WHO SHALL BE RESPONSIBLE FOR RETAINING AN APPROVAL BY THE COUNTY.
DATE BY MARK APP DATE
DESIGNED
DRAWN
CHECKED
COUNTY

PRELIMINARY GRADING PLAN - SECONDARY ACCESS

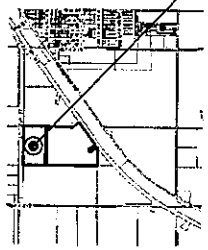
NOTES:

1. ALL STREETS AND DRIVEWAYS WILL BE PAVED PER THE DETAILS BELOW.



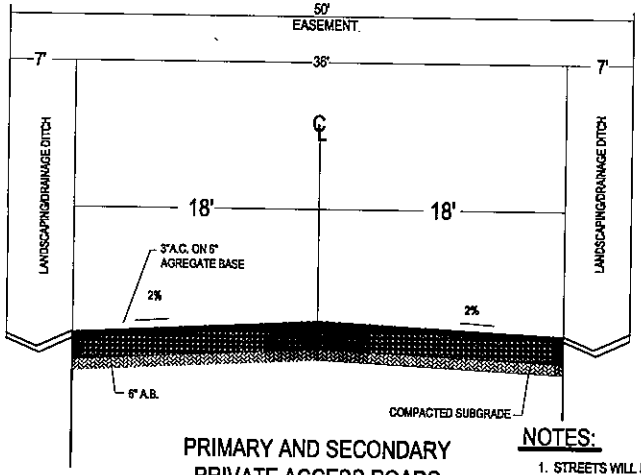


SITE





VICINITY MAP
NTS



PRIMARY AND SECONDARY
PRIVATE ACCESS ROADS
NOT TO SCALE

NOTES:

1. STREETS WILL BE PAVED PER THE DETAILS ABOVE.
2. STREETS WILL BE PRIVATE.

NOTE:
WORK CONTAINED WITHIN THESE PLANS SHALL NOT COMMENCE UNTIL AN ENCROACHMENT PERMIT AND/OR A GRADING PERMIT HAS BEEN ISSUED

THE PRIVATE ENGINEER SIGNING THESE PLANS IS RESPONSIBLE FOR ASSURING THE ACCURACY AND ACCEPTABILITY OF THE DESIGN HEREON. IN THE EVENT OF DISCREPANCIES ARISING AFTER COUNTY APPROVAL OF SUBMIT CONSTRUCTION, THE PRIVATE ENGINEER SHALL BE RESPONSIBLE FOR DETERMINING AN ACCEPTABLE SOLUTION AND REVISING THE PLANS FOR APPROVAL BY THE COUNTY.

DATE	BY	MARK

ENGINEER

APP. DATE

COUNTY

Robert J. Mainiero, P.E.
CIVIL ENGINEERING
P.O. Box 2410 Palm Springs, CA 92263
(760 413-7127 cell (760) 320-1994 fax
pshob696@aol.com

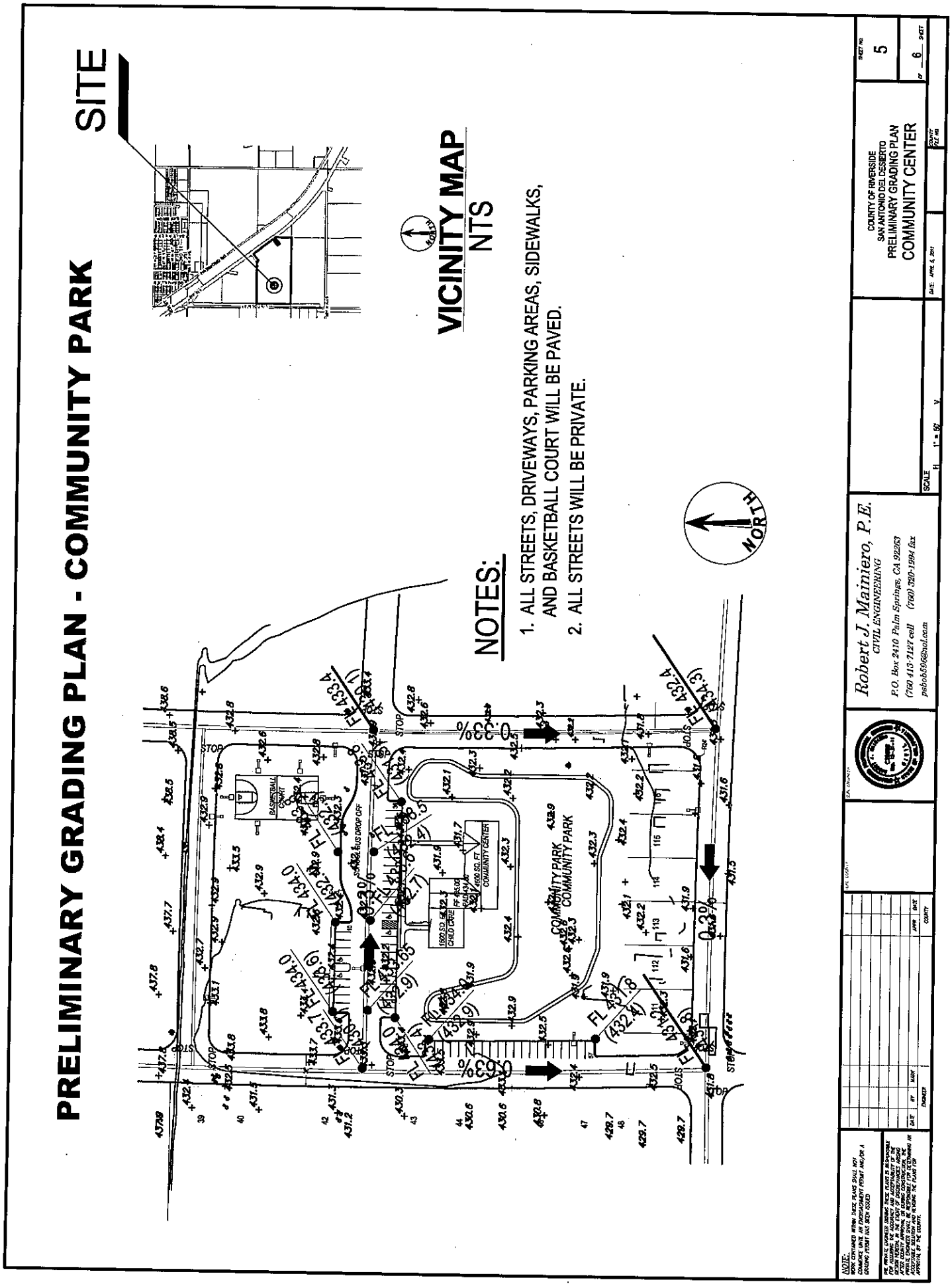
SCALE
H 1" = 100' V N/A

DATE: APR. 6, 2011

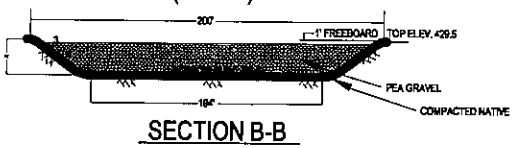
COUNTY
FILE NO.

COUNTY OF RIVERSIDE
SAN ANTONIO DEL DESIERTO
PRELIMINARY GRADING PLAN
SECONDARY PRIVATE ACCESS

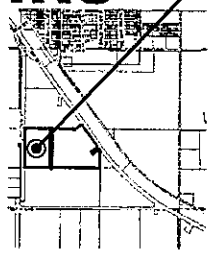
SHEET NO. 4
OF 6 SHEETS


PRELIMINARY GRADING PLAN - COMMUNITY PARK
SITE
VICINITY MAP
NTS
NOTES:
1. ALL STREETS, DRIVEWAYS, PARKING AREAS, SIDEWALKS, AND BASKETBALL COURT WILL BE PAVED.
2. ALL STREETS WILL BE PRIVATE.
NORTH
COMMUNITY PARK
COMMUNITY CENTER
BASKETBALL COURT
1600 SQ. FT. CHILD CARE
4800 SQ. FT. COMMUNITY CENTER
Robert J. Maimiero, P.E.
CIVIL ENGINEERING
P.O. Box 2410 Palm Springs, CA 92263
(760) 413-7127 cell (760) 780-1594 fax
psbob6596@aol.com
COUNTY OF RIVERSIDE
SAN ANTONIO DEL DESIERTO
PRELIMINARY GRADING PLAN
COMMUNITY CENTER
SCALE H 1"= 50' V
DATE APRIL 6, 2011
SHEET NO 5
OF 6 SHEET

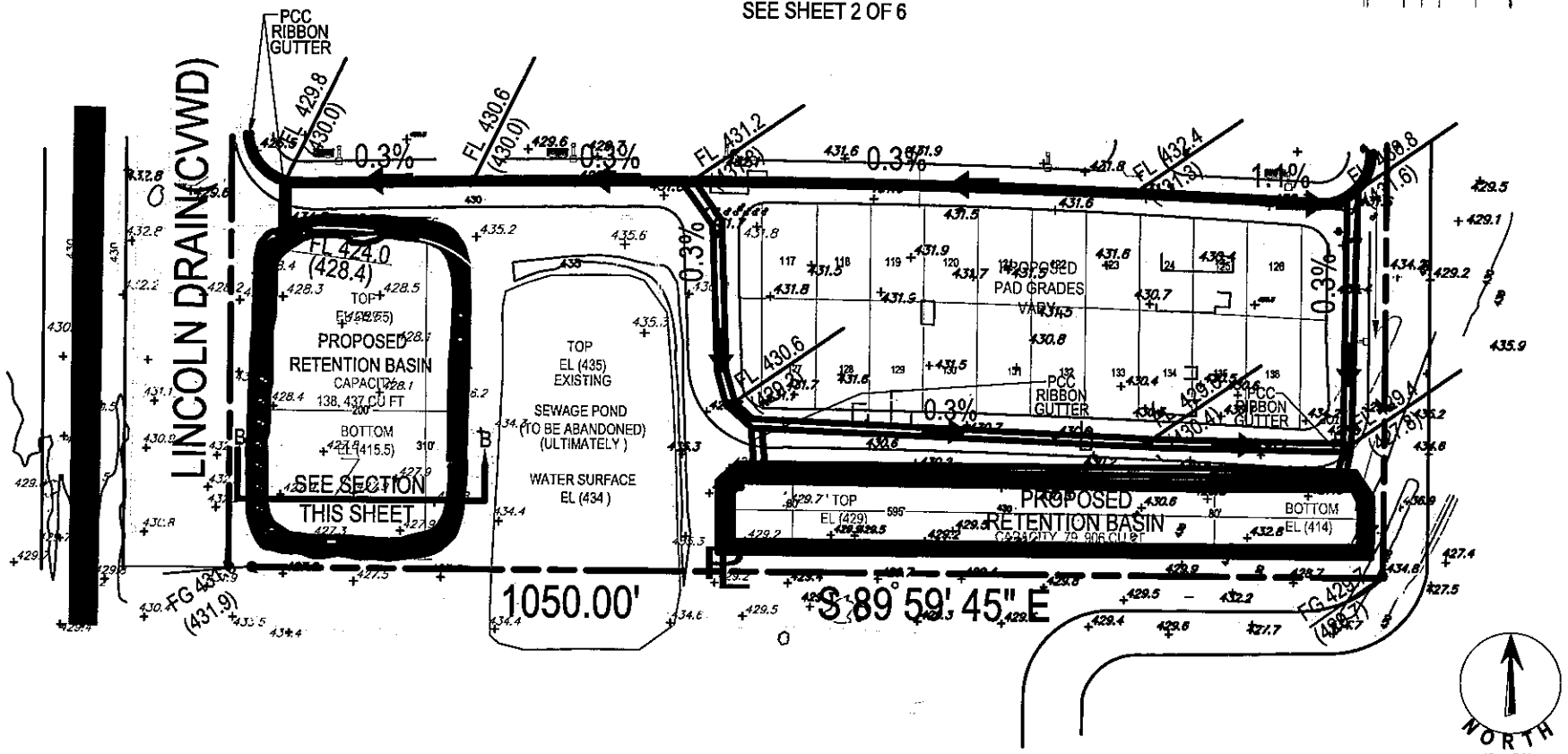
PRELIMINARY GRADING PLAN - RETENTION BASINS



SECTION B-B



SITE
SEE SHEET 2 OF 6



NORTH
1" = 50'

SITE BEARINGS AND DISTANCES FROM LEASE EXHIBIT

PRIMARY
ACCESS ROAD
SEE SHEET 3 OF 6

NOTE:
WORK CONTAINED WITHIN THESE PLANS SHALL NOT COMMENCE UNTIL AN ENCROACHMENT PERMIT AND/OR A GRADING PERMIT HAS BEEN ISSUED

THE PRIVATE ENGINEER SIGNING THESE PLANS IS RESPONSIBLE FOR ASSURING THE ACCURACY AND ACCEPTABILITY OF THE DESIGN HEREON. IN THE EVENT OF DISCREPANCIES ARISING AFTER COUNTY APPROVAL OR DURING CONSTRUCTION, THE PRIVATE ENGINEER SHALL BE RESPONSIBLE FOR DETERMINING AN ACCEPTABLE SOLUTION AND REVISING THE PLANS FOR APPROVAL BY THE COUNTY.

DATE	BY	MARK
	ENGINEER	

APPR. DATE
COUNTY

SEAL-COUNTY

SEAL-ENGINEER

Robert J. Mainiero, P.E.
CIVIL ENGINEERING
P.O. Box 2410 Palm Springs, CA 92263
(760 413-7127 cell (760) 320-1994 fax
psbob559@nol.com

SCALE
H 1" = 50' V N/A

DATE: APRIL 8, 2011

COUNTY FILE NO.

COUNTY OF RIVERSIDE
SAN ANTONIO DEL DESIERTO
PRELIMINARY GRADING PLAN
RETENTION BASINS

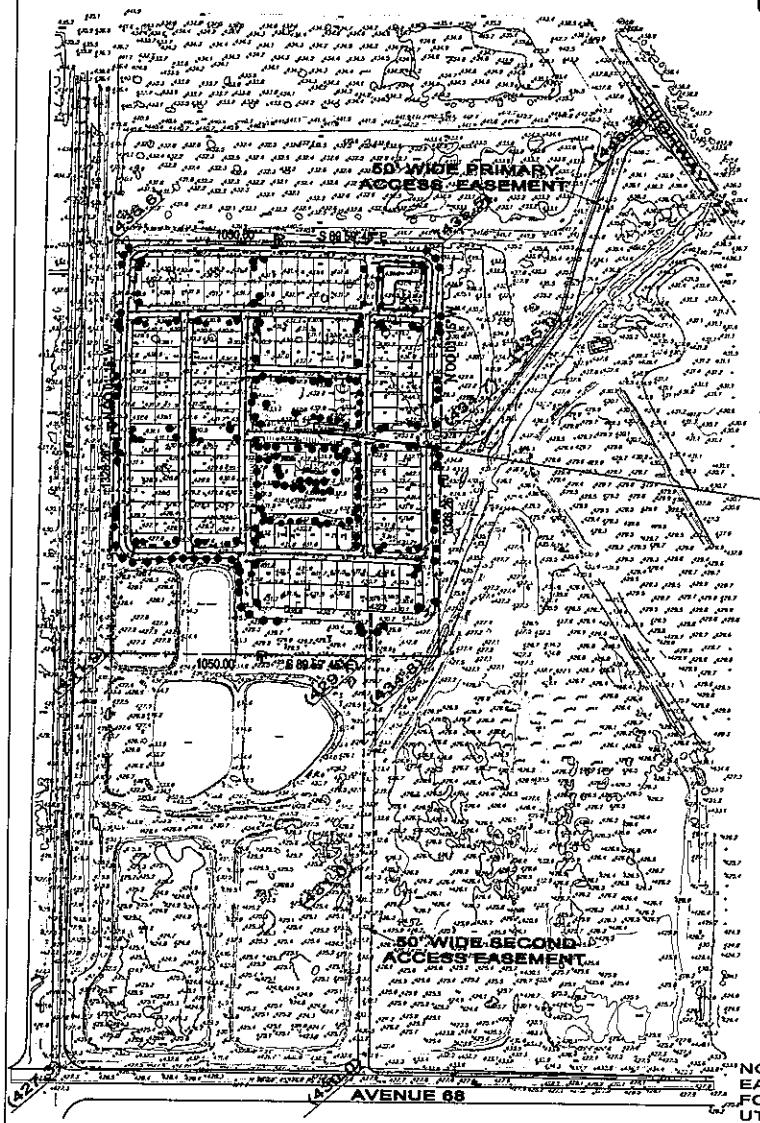
SHEET NO. 6
OF 6 SHEETS

Appendix 3-4: San Antonio del Desierto DAC Sewer Extension Project Supporting Documents

CONDITIONAL USE PERMIT
CHANGE OF ZONE

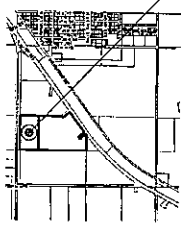
IN THE COUNTY OF RIVERSIDE

MAY 2010

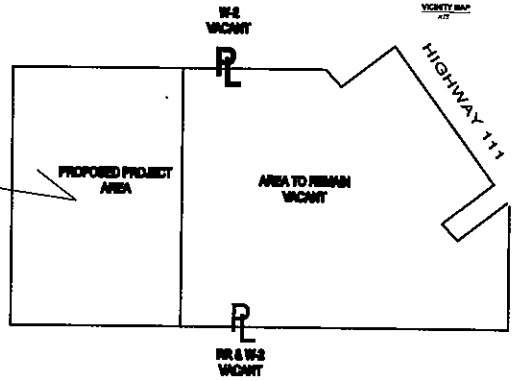


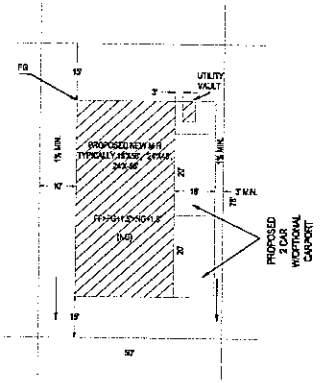
NOTE: AN ADDITIONAL EASEMENT MAY BE ADDED FOR SEWER AND WATER UTILITIES

SITE



VICINITY MAP





PROJECT DESCRIPTION:

ST. ANTONIO DEL DESIERTO (KNOWN AS LAKE ST. ANTHONY TRAILER PARK) IS A 106 UNIT MOBILE HOME PARK FOR FARMWORKER AND LOW INCOME FAMILIES LOCATED AT 69-245 HIGHWAY 111, INDIO, 727-271-003. THE PARK IS OPERATING UNDER SUBSTANDARD CONDITIONS AND CODE VIOLATIONS TO INCLUDE LACK OF DRINKABLE WATER DUE HIGH LEVELS OF ARSENIC, UNDERCAPACITY POWER SUPPLY AND FIRE SUPPRESSION, AND INADEQUATE SEWAGE SYSTEM. ADDITIONALLY THE PARK DOES NOT COMPLY WITH TITLE 25.

PUEBLO UNIDO CDC A NON-PROFIT 501 (C) (3) TAX EXEMPT ORGANIZATION HAS REACHED AN AGREEMENT WITH MULTI-NATIONAL INVESTMENTS LLC TO INITIATE A COMPREHENSIVE REHABILITATION PLAN TO ADDRESS IMMEDIATE UNHEALTHY AND UNSAFE CONDITIONS, AND TO BRING THE PROJECT UP TO CODE COMPLIANCE.

THE REHABILITATION WILL CONSIST OF TWO MAIN STAGES:

1. ADDRESSING OF IMMEDIATE UNHEALTHY CONDITIONS (DRINKABLE WATER, AND ELECTRICAL SYSTEM), AND OTHERS INDICATED BY THE LOCAL RIVERSIDE COUNTY TLMA. THIS STAGE WILL INCLUDE IMPLEMENTING AN INTERIM WATER TREATMENT FACILITY TO MITIGATE LACK OF ARSENIC FREE WATER BY CVWD DUE TO LIMITED WATER CAPACITY IN THE AREA, AND,

2. INITIATE ENTITLEMENT PROCESS FOR A NEW PARK RECONFIGURATION TO MEET TITLE 25, AND LOCAL ORDINANCE 348. THE NEW RECREATION WILL INCLUDE 87/97 SPACES, STREET LIGHTS, PAVED ROADS, COMMUNITY PARK, PLAYGROUND AREA, POCKET PARK, COMMUNITY CENTER/MAIN OFFICE, CHILD CARE CENTER, BASKETBALL COURT AND SOCCER FIELD.

THE NEW PARK WILL BE DONE IN PHASES AND FAMILIES WILL BE RELOCATED TO THE NEW SPACES. THE EXISTING PARK WILL BE REMOVED.

OWNER

MULTI NATIONAL INVESTMENTS LLC
18375 MONTURA BLVD, SUITE 117
TARZANA, CA 91356

PROJECT ADDRESS

69245 HIGHWAY 111
INDIO, CA 92234

APPLICANT AND EXHIBIT PREPARER

SERGIO CARRANZA, EXECUTIVE DIRECTOR
PUEBLO UNIDO CDC
PO BOX 7129
THERMAL, CA 92274
TELEPHONE (760) 427-0865 FAX (760) 771-0271

APN 727-271-003-3

GENERAL NOTES:

EXISTING LAND USE .... MDR (2 - 5 DU/AC)
EXISTING ZONING ..... R-R, W-2
PROPOSED ZONING W-2
PROPOSED SEWAGE DISPOSAL SYSTEM ..... ON-SITE
NOT SUBJECT TO FLOODING FROM FLOODPLAIN AND FLOODWAY DESIGNATION ZONE D
COMMUNITY PANEL NUMBER 060245 2660
PROPOSED ZONING W-2

COMMUNITY SERVICE AREA ....
MEDIAN # 87 - STREET LIGHTING.....CSA 152

GROSS ACREAGE ..... 32.00 ACRES
NET ACREAGE ..... 30.35 ACRES
TOTAL PROJECT AREA ..... 32.00 ACRES

TOPOGRAPHIC MAPPING ..... BY JAMES PIERO, L.S. # 8006
THOMAS BROS. MAP ..... PAGE 3662 GRID 7 "L.01 TOMAS GUIDE 2008
ALQUIST PRIOLO SPECIAL STUDIES ZONE PROJECT NOT LOCATED IN A ALQUIST PRIOLO SPECIAL STUDIES ZONE
NOT IN A SPECIFIC PLAN
LIQUEFACTION POTENTIAL ..... HIGH

LEGAL DESCRIPTION

IN THE UNINCORPORATED TERRITORY OF THE COUNTY OF RIVERSIDE, STATE OF CALIFORNIA, THAT PORTION OF THE SOUTHWEST QUARTER OF SECTION 17, TOWNSHIP 7 SOUTH, RANGE 8 EAST, S.B.M., MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCING AT THE SOUTHWEST CORNER OF SAID SECTION 17;
THENCE NORTH 00° 01' 16" WEST, ALONG THE CENTERLINE OF LINCOLN STREET, A DISTANCE OF 1338.36 FEET;

THENCE SOUTH 89° 58' 49" EAST, A DISTANCE OF 1050.00 FEET TO THE TRUE POINT OF BEGINNING OF THE DESCRIPTION;

THENCE NORTH 00° 01' 16" WEST, A DISTANCE OF 1338.36 FEET;

THENCE SOUTH 89° 58' 49" EAST, A DISTANCE OF 1050 FEET;

THENCE SOUTH 00° 01' 16" EAST, A DISTANCE OF 1338.36 FEET;

THENCE NORTH 89° 58' 49" WEST, A DISTANCE OF 1050 FEET TO THE TRUE POINT OF BEGINNING.

SITE DATA

CHILD CARE CENTER ..... 2700 SQ. FT.
COMMUNITY CENTER ..... 3600 SQ. FT.
PARKING SPACE .....
LANDSCAPE AREA .....

TILE DRAIN

NONE

ON-SITE STORM WATER (100 YEAR)

AMOUNT GENERATED ..... 15.0 ACRE FEET
CAPACITY OF RETENTION ..... 16.0 ACRE FEET

EXISTING SEWAGE DISPOSAL SYSTEM

EXISTING GRAVITY SEWAGE COLLECTION SYSTEM, LIFT STATION, AND TREATMENT SYSTEM CONSISTING OF A SEWAGE LAGOON AND EVAPORATION POND

EXISTING DOMESTIC WATER SYSTEM

EXISTING WELL AND REVERSE OSMOSIS TREATMENT SYSTEM

UTILITIES

WATER	ON-SITE (PRIVATE WELL)
SEWER	SEWAGE LAGOON SYSTEM
ELECTRIC	IMPERIAL IRRIGATION DISTRICT
TELEPHONE	VERIZON TELEPHONE COMPANY
GAS	SOUTHERN CALIFORNIA GAS COMPANY
SCHOOL DISTRICT	COACHELLA VALLEY UNIFIED SCHOOL DISTRICT

PUEBLO UNIDO CDC
AGRICULTURAL WORKER HOUSING REHABILITATION PROGRAM
53-040 AVENIDA MENDOZA
LA QUINTA, CA 92253
PHONE (760) 427-0865 FAX (760) 771-0271
www.pucdc.org

DATE	BY	MARK
	ENGINEER	

SEAL - COUNTY

SEAL - ENGINEER

APN: 727-271-003

SHEET TITLE: EXHIBIT - A

SCALE: 1" - 200'

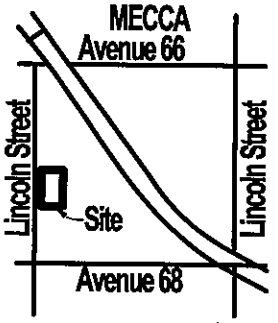
RIVERSIDE COUNTY
SAN ANTONIO DEL DESIERTO
FARMWORKER HOUSING AND COMMUNITY CENTER PROJECT
CONDITIONAL USE PERMIT / CHANGE OF ZONE

SHEET 1

DATE: MAY 7, 2010

COUNTY FILE NO.

PUEBLO UNIDO CDC
AGRICULTURAL WORKER HOUSING REHABILITATION
ACCESS EXHIBIT



VICINITY MAP
N.T.S.

50' Secondary Access Easement

Highway 111

NORTH

Lincoln Street ℄

30' Dedication for Future Avenue 67
727-271-002

W 1/4 COR

S 89° 59' 45" E
1050.00'

NORTH LINE OF APN 727-271-003

℄ Avenue 67

2656.51' PER RS 28/91

N 00° 01' 15" W PER RS 28/91
1328.26'

SITE

S 00° 01' 15" E
1328.26'

PARCEL 2
PER DEED RECORDED 2/9/95
INSTRUMENT #41838
727-271-003

N 89° 59' 45" W
1050.00'

SOUTH LINE OF APN 727-271-003

PARCEL 1
PER DEED RECORDED 2/9/95
INSTRUMENT #41838
727-271-007

N 00° 01' 15" W
1328.26'

℄

150'

50' Primary Access Easement

18 17

P.O.C.

19 20

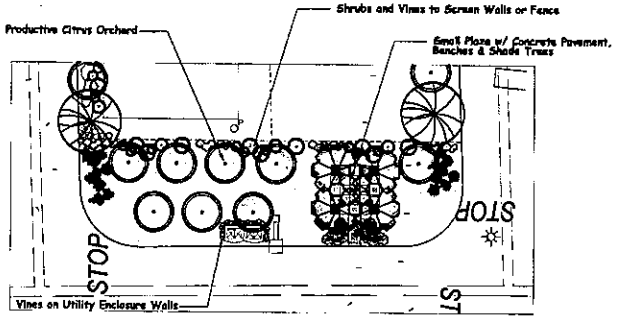
N 89° 59' 45" W PER RS 28/91

Avenue 68 ℄

T7S R9E

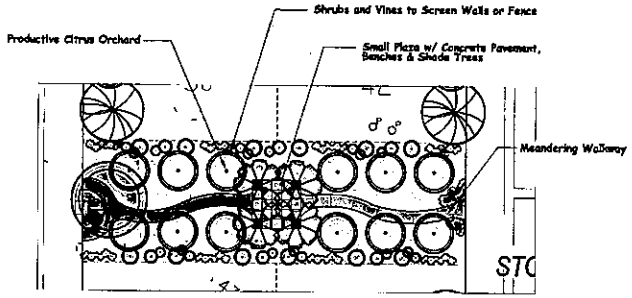
ROBERT J. MAINIERO
Civil Engineering and Related Assistance
P.O. BOX 2410
PALM SPRINGS, CALIFORNIA 92262
TELEPHONE (760) 413-7127 (cell)
(760) 320-1994 (fax)

BASIS OF BEARINGS
THE CENTERLINE OF LINCOLN STREET
TAKEN AS N 00 01' 15" W PER RS 28/91



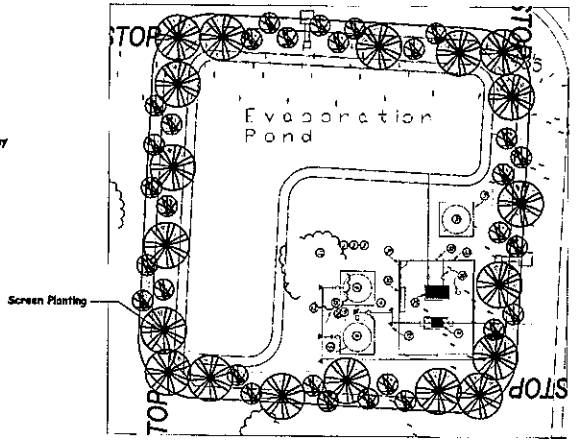
Mini Park "A"

scale:1"-20'

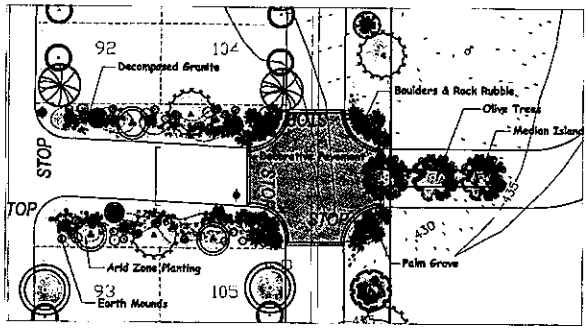


Mini Park "B"

scale:1"-30'

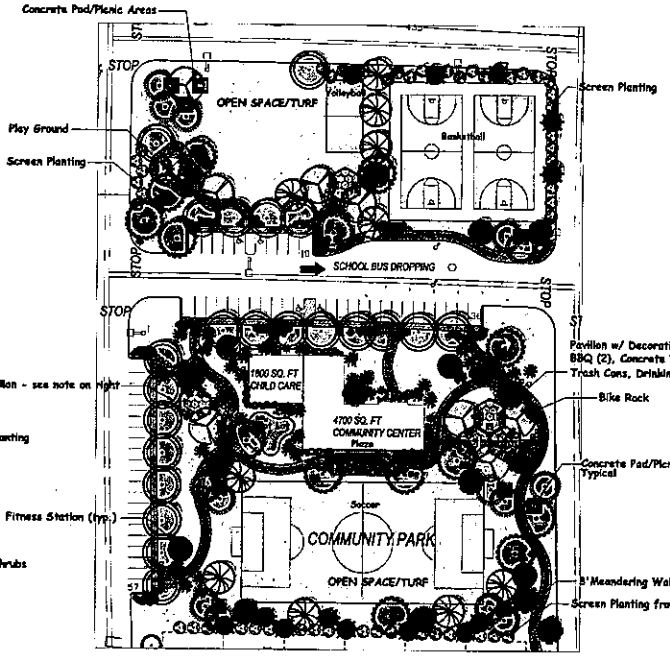


Evaporation Pond Screening



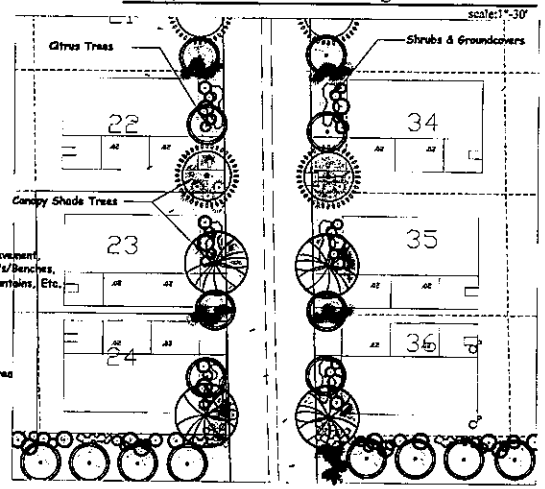
Main Entry

scale:1"-30'



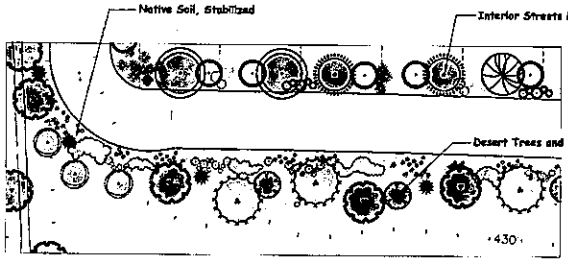
Central Park w/Active Recreational Areas

scale:1"-40'



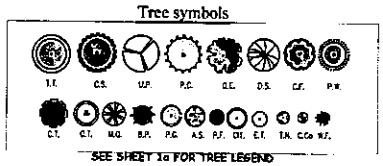
Typical Street Planting

scale:1"-30'



Typical Perimeter Planting

scale:1"-30'



Conceptual Landscape Plan

SAN ANTONIO DEL DESIERTO

APN 727-271-003

67075 Highway 111

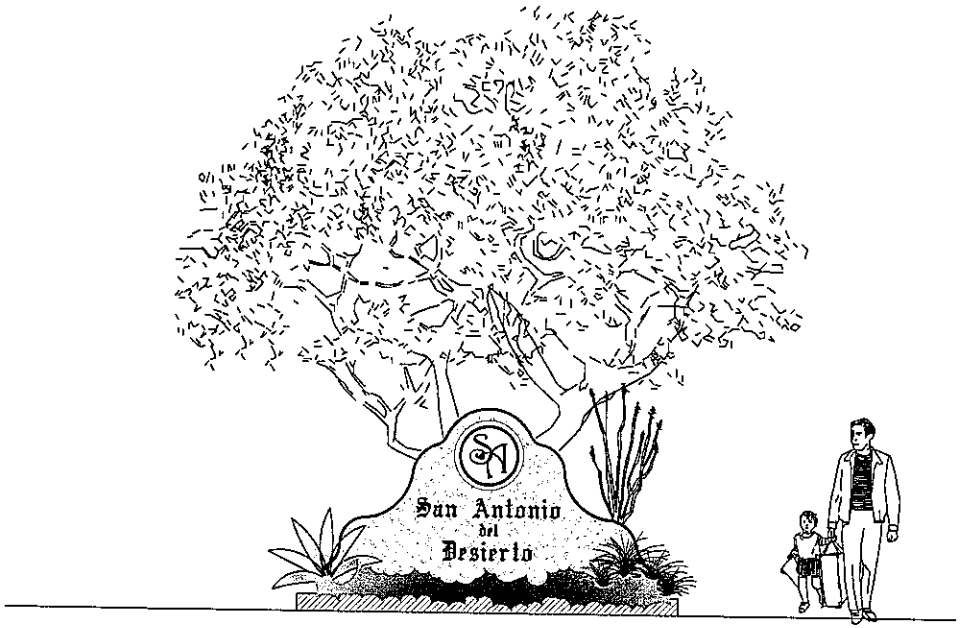
Mecca, Ca 92254

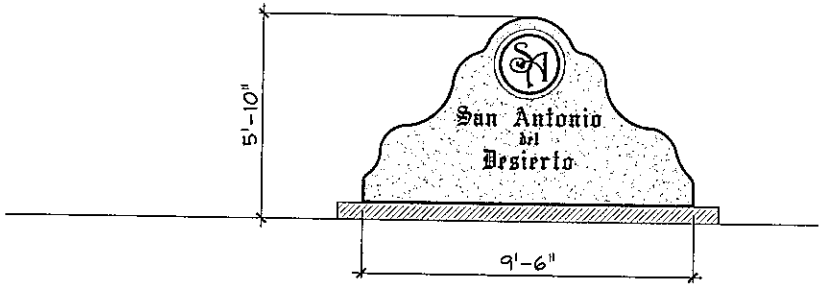
AviBet Associates, ASLA
Landscape Architecture
45-175 Panorama Drive, Suite C
Palm Desert CA 92260

2nd Submittal, August 2, 2010

Date: 05-15-2010
Drawn by: AB/LS

Sheet 1b





Sign Study 1

scale 3/8"=1'-0"

Sign Study 1

"Old Hacienda"

This monument sign is inspired by traditional architectural style of country estates (Haciendas) in old ranchos. It is built of concrete blocks plastered with eggshell or light yellow stucco finish with aged look.

At the middle is a medallion of contrasting colors with the San Antonio (Saint Anthony) logo. The Logo shown in the drawing is for illustration purpose and may contains letters or graphics or both. The medallion may be made of cast concrete, cast metal, carved stone or tile.

The letters in San Antonio del Desierto may be recessed into the stucco and painted or made of bronze or copper with antique finish and mounted on the sign.

Ground level well lights will illuminated the sign at night. The landscaping around the sign and in the median island where it will be installed (or any other location) will be minimal desert planting as not to distract from the sign itself.

Monument Sign Study

San Antonio del Desierto

67075 Highway 111

Mecca, California

AviBet Associates, ASLA
Landscape Architecture
CA Reg #3950 AZ Reg #50711
45-175 Panorama Drive, Suite C
Palm Desert CA 92260
T (760) 776 6677 F (760) 776 6678
avibet@nofland.com www.avibet.com

Date: 01-24-2011
Drawn by: AB/LS

Material Sample Board

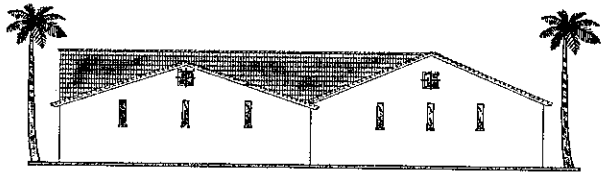
EXTERIOR COLOR

SMOOTH STUCCO
IVORY DUST
7003-24

ROOF TILE

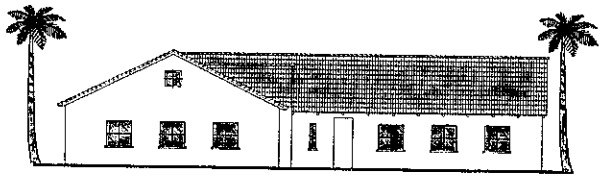


TILE EAGLE ROOFING
CAPISTRANO STYLE
"HILO SUNSET" #3124



EAST ELEVATION

scale:1/8"=1'-0"



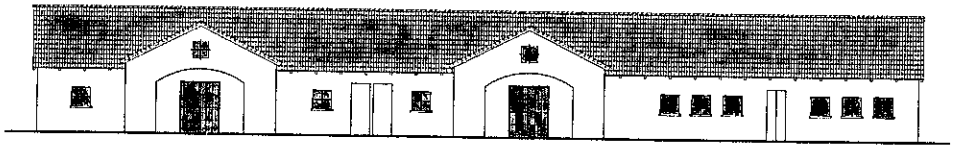
WEST ELEVATION

scale:1/8"=1'-0"



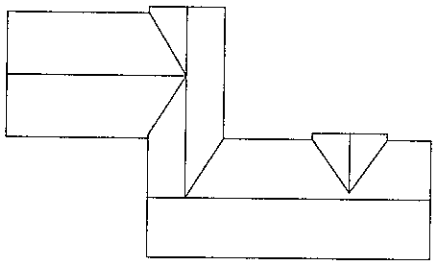
NORTH ELEVATION

scale:1/8"=1'-0"



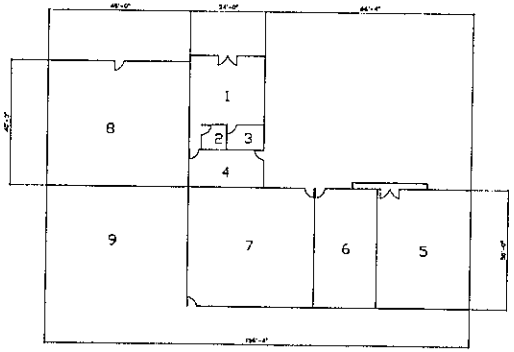
SOUTH ELEVATION

scale:1/8"=1'-0"



ROOF PLAN

scale:1/16"=1'-0"



FLOOR PLAN

scale:1/8"=1'-0"

COMMUNITY AND CHILD CARE CENTER
TOTAL AREA: 6,200 SQ. FT.

FLOOR PLAN
1 MANAGEMENT OFFICE
2 BATHROOM
3 STORAGE ROOM
4 CONFERENCE ROOM
5 SENIOR ACTIVITY ROOM
6 COMPUTERS ROOM
7 MULTIPURPOSE ROOM
8 CHILD CARE
9 PLAYGROUND AREA

MATERIALS
ROOF: MISSION TILE
EXTERIOR WALLS: SIP PANELS, SMOOTH STUCCO
INTERIOR WALLS: DRYWALL

NOTE:
WORK CONTAINED WITHIN THESE PLANS SHALL NOT COMMENCE UNTIL AN ENCROACHMENT PERMIT AND/OR A GRADING PERMIT HAS BEEN ISSUED

THE PRIVATE ENGINEER SIGNING THESE PLANS IS RESPONSIBLE FOR ASSURING THE ACCURACY AND ACCEPTABILITY OF THE DESIGN HEREON. IN THE EVENT OF DISCREPANCIES ARISING AFTER COUNTY APPROVAL OR DURING CONSTRUCTION, THE PRIVATE ENGINEER SHALL BE RESPONSIBLE FOR DETERMINING AN ACCEPTABLE SOLUTION AND REVISING THE PLANS FOR APPROVAL BY THE COUNTY.

DATE	BY	MARK	APVR	DATE

ENGINEER | COUNTY

SEAL COUNTY | SEAL ARCHITECT

SCALE
AS NOTED

COUNTY OF RIVERSIDE
SAN ANTONIO DEL DESIERTO
FLOOR PLAN AND ELEVATIONS

DATE: MAY 25, 2010 | W.O. | COUNTY TRACT NO.

SHEET NO. 1 OF 1 SHEET

SAN ANTONIO
PRELIMINARY PLANTING PALETTE

TREES/PALMS/SPECIMEN PLANTS

KEY	BOTANICAL NAME	COMMON NAME	SIZE	CALIPER	QUANTITY
AF					
AT					
CE					
CS					
CT					
EC					
EP					
FR					
GS					
LS					
MD					
PT					
QB					
QE					
RC					
TC					
TP					
UP					

SHRUBS

KEY	BOTANICAL NAME	COMMON NAME	SIZE	QUANTITY
AA				
AS				
BS				
CA				
CC				
CE				
CG				
CH				
DL				
EF				
HC				
LC				
LT				
MC				
MS				
PA				
PS				
RF				
RO				
SC				
SF				
SM				
TC				
VR				

VINES/ESPALIERS

GROUNDCOVERS

LANDSCAPE GUIDELINES AND NOTES

1. DETAILED PLANTING AND IRRIGATION PLANS SHALL BE PREPARED AND SUBMITTED AT A LATER STAGE AS PART OF THE FINAL LANDSCAPE CONSTRUCTION DRAWINGS FOR THE PROJECT. THE PLANS WILL MEET THE COUNTY OF RIVERSIDE GUIDELINES AND THE CVWD REQUIREMENTS.

2. SIZE OF ALL TREES TO BE 24" BOX UP TO 48" BOX, WITH FEW EXCEPTIONS WHERE TREE SIZE WILL BE 15 GAL. SIZE OF PALM TREES TO BE MIN 6' BROWN TRUNK. SIZE OF LARGE SHRUBS: 5 GAL.; MEDIUM SHRUBS: 5 GAL.; SMALL SHRUBS: 1 OR 5 GAL.; GROUNDCOVERS: 1 GAL., OR FLATS; SPECIMEN PLANTS: TO BE SELECTED.

3. HEIGHT OF EARTH MOUNDS TO BE MAX. 3'-6" ABOVE CURB OR NEAREST PAVEMENT IN THE LANDSCAPE SET BACK AREAS. EXACT LAYOUT AND HEIGHT OF MOUNDS SHALL BE BASED ON LOCATION OF RETENTION BASINS PER CIVIL ENGINEER PLAN.

4. INERT MATERIALS – DECOMPOSED GRANITE (D.G.), PEBBLES, COBBLE STONES, ETC. WILL BE PLACED OVER LAYER OF FILTER FABRIC. D.G. WILL BE COMPACTED AND STABILIZED.

5. MOWING BANDS SHALL BE COLORED CONCRETE TO BE APPROVED BY THE COUNTY OF RIVERSIDE, 6" WIDE. NO WOOD HEADERBOARD WILL BE USED.

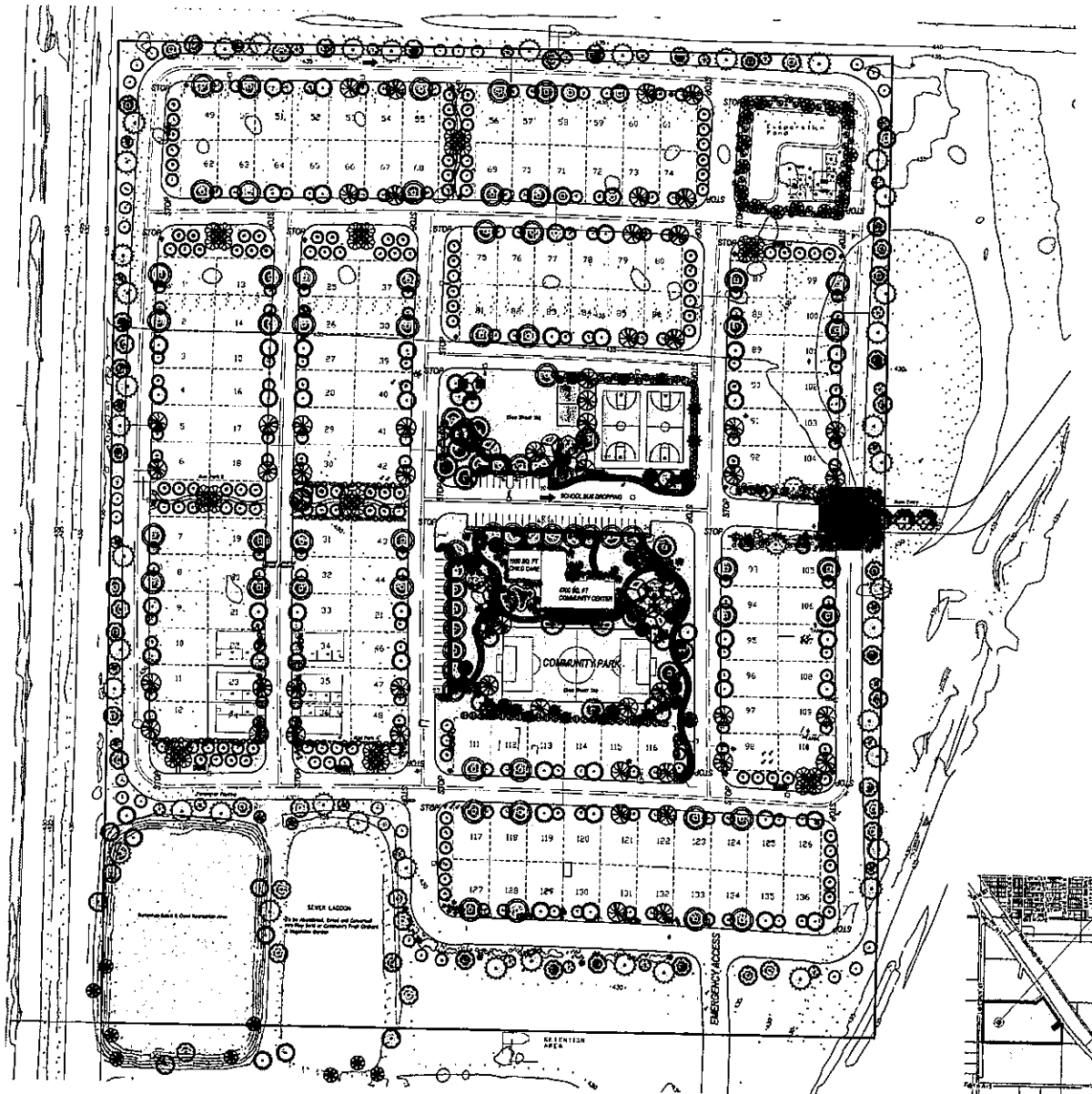
6. BOULDERS WILL BE OF SIMILAR COLOR AND TEXTURE TO NATIVE ROCKS IN THE SURROUNDING DESERT.

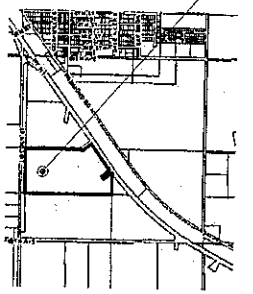
7. BOULDERS WILL BE SIZE OF 2'X3' TO 6'X4'. THEY SHALL BE SET 1/3 OF HEIGHT INTO GROUND.

8. BOULDERS WILL BE TREATED WITH 'PERMOX' STAIN TO ACCELERATE 'DESERT VARNISH' LOOK AND TO REPAIR CHAFFED AND BROKEN SURFACES.

9. IRRIGATION SYSTEM TO BE FULLY AUTOMATED. IT WILL BE MOSTLY DRIP EXCEPT FOR LAWN AREAS AND SMALL FLOWER BEDS. THERE SHALL BE COMPLETE SEPARATION BETWEEN DIFFERENT PLANT GROUPS = TREES, SHRUBS, GROUNDCOVERS, TURF, COLOR DRIFTS, AND POTS.

10. NO OVERHEAD SPRAY HEADS SHALL BE INSTALLED AT STREET OR PARKING LOT CURBS AND MEDIAN ISLANDS. IF INSTALLED ALONG SIDEWALKS AND PATIOS THERE SHALL BE 2' WIDE GRAVEL BED SEPARATION BETWEEN LAWN OR FLOWER BED AND PAVEMENT.





Conceptual Landscape Plan
SAN ANTONIO DEL DESIERTO

APN 727-271-003
67075 Highway 111
Mecca, Ca 92254

GRAPHIC SCALE

VICINITY MAP

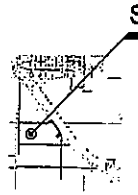
AviBet Associates, ASLA
Landscape Architecture
CA Reg #3950 AZ Reg #3071
45-175 Panorama Drive, Suite C
Palm Desert CA 92260
T (760) 779-0477 F (760) 779-0479

2nd Submittal, August 2, 2010

Date: 05-15-2010
Drawn by: AB/LS

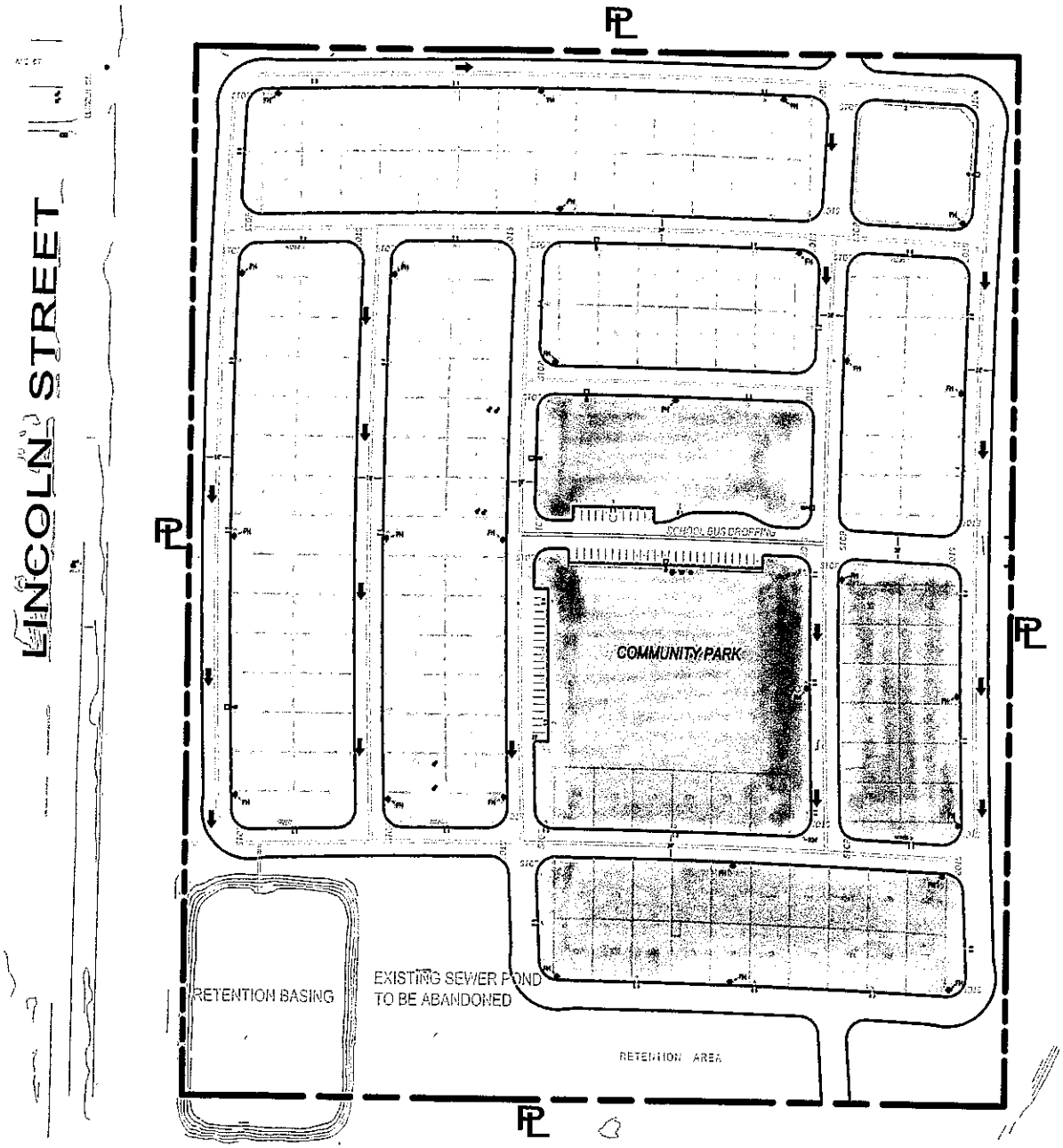
Sheet 1a OF 2 SHEETS

PHASING PLAN



FIRST PHASE: 92 SPACES

SECOND PHASE: 44 SPACES, COMMUNITY PARK, COMMUNITY CENTER AND CHILD CARE FACILITY



NOTE:
WORK CONTRARY WITH THESE PLANS SHALL NOT COMMENCE UNTIL AN ENCROACHMENT PERMIT AND/OR A GRADING PERMIT HAS BEEN ISSUED

THE PRIVATE ENGINEER SIGNING THESE PLANS IS RESPONSIBLE FOR ASSURING THE ACCURACY AND ACCEPTABILITY OF THE DESIGN HEREON TO THE EXTENT OF DISCREPANCIES ARISING AFTER COUNTY APPROVAL OR DURING CONSTRUCTION. THE PRIVATE ENGINEER SHALL BE RESPONSIBLE FOR DETERMINING AN ACCEPTABLE SOLUTION AND REVISING THE PLANS FOR APPROVAL BY THE COUNTY.

DATE	BY	MARK
	ENGINEER	

AFW DATE
COUNTY

SEAL COUNTY

SEAL ENGINEER

Robert J. Mainiero, P.E.
CIVIL ENGINEERING
P.O. Box 2410 Palm Springs, CA 92263
(760 413-7127 cell (760) 320-1994 fax
psbob596@aol.com

COUNTY OF RIVERSIDE
SAN ANTONIO DEL DESIERTO
PHASING PLAN

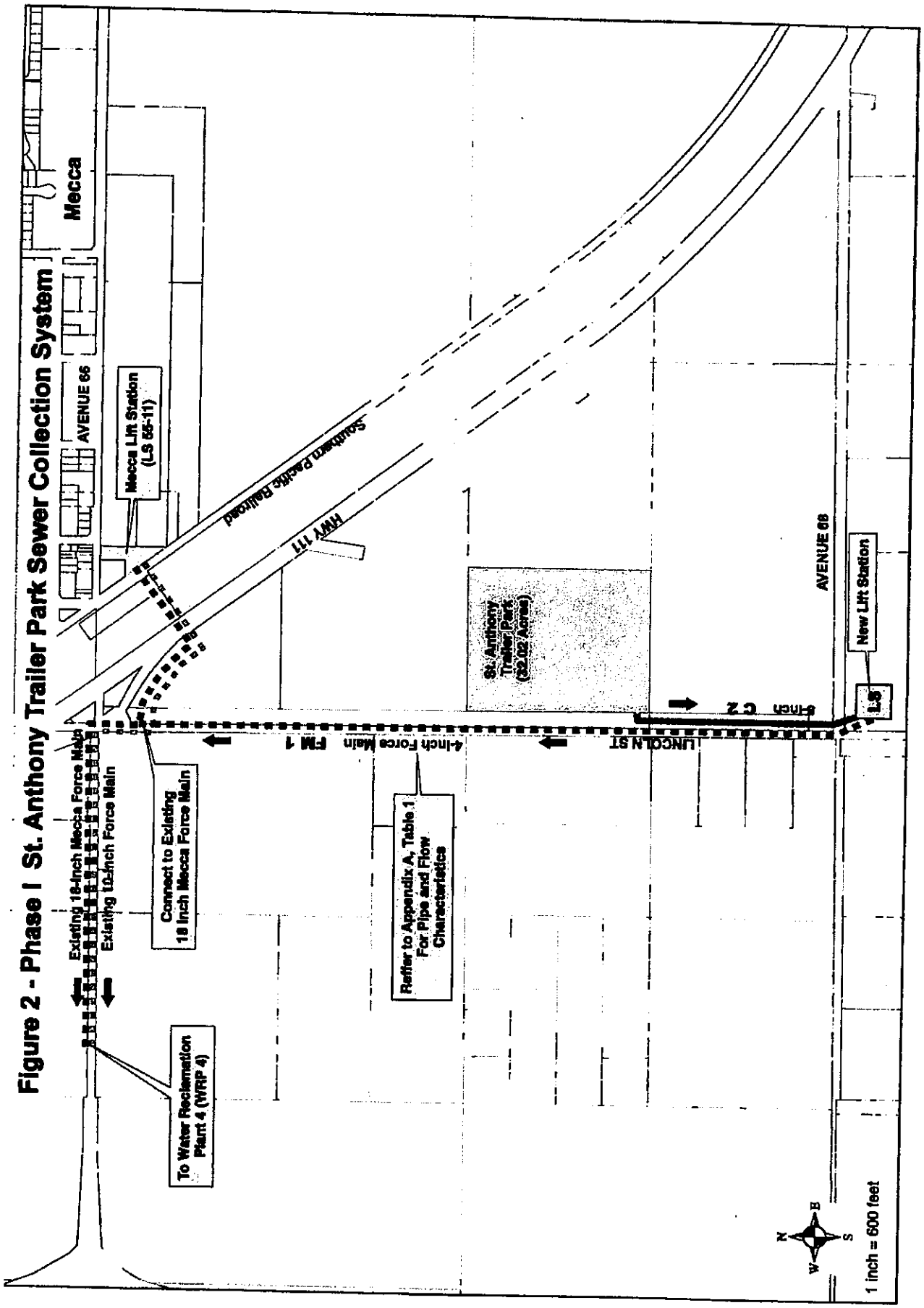
SHEET NO 1 OF 1 SHEET

SCALE H 1" = 60' V

DATE: JANUARY 27, 2010

NO

COUNTY FILE NO


Figure 2 - Phase I St. Anthony Trailer Park Sewer Collection System
Mecca
AVENUE 66
Mecca Lift Station (LS 66-11)
Southern Pacific Railroad
HWY 111
St. Anthony Trailer Park (32.02 Acres)
AVENUE 68
New Lift Station
LS
8-inch G.2
LINCOLN ST
FM 1
4-inch Force Main
Existing 16-inch Mecca Force Main
Existing 10-inch Force Main
Connect to Existing 18 Inch Mecca Force Main
Refer to Appendix A, Table 1 For Pipe and Flow Characteristics
To Water Reclamation Plant 4 (WRP 4)
N
S
W
E
1 inch = 600 feet

COUNTY OF RIVERSIDE
ENVIRONMENTAL ASSESSMENT FORM: INITIAL STUDY

Environmental Assessment (E.A.) Number: 42345
Project Case Type (s) and Number(s): Change of Zone No. 7738 / Conditional Use Permit No. 3645
Lead Agency Name: County of Riverside Planning Department
Address: P.O. Box 1409, Riverside, CA 92502-1409
Contact Person: Jay Olivas
Telephone Number: (951) 955-1195
Applicant's Name: Pueblo Unido CDC
Applicant's Address: P.O. Box 1130 Thermal, CA 92274
Engineer's Name: Robert Mainiero, P.E.
Engineer's Address: P.O. Box 2410 Palm Springs, CA 92263

I. PROJECT INFORMATION

A. **Project Description:** The Change of Zone proposes to modify existing zoning from Rural Residential (R-R) and Controlled Development Areas (W-2) to Controlled Development Areas (W-2). The conditional use permit proposes to replace an existing 100 unit mobile home park with a new 136 unit migrant agricultural worker mobile home park to be built in two phases with Phase I consisting of 92 spaces and Phase II consisting of 44 spaces along with a 6,200 square foot community building up to 20 feet in height including child care center, community park, recreational facilities, and retention basins. Primary road access is proposed from Avenue 68 and secondary road access is proposed from State Highway 111. Project grading consists of approximately 81,000 cubic yards of cut/fill.

B. **Type of Project:** Site Specific ☒; Countywide ☐; Community ☐; Policy ☐.

C. **Total Project Area:** 223 Gross Acres

Residential Acres: 223	**Lots:** 4	**Units:** Up to 136	**Projected No. of Residents:** 272
Commercial Acres:	**Lots:**	**Sq. Ft. of Bldg. Area:**	**Est. No. of Employees:**
Industrial Acres:	**Lots:**	**Sq. Ft. of Bldg. Area:**	**Est. No. of Employees:**
Other:			

D. **Assessor's Parcel No(s):** 727-271-002, 727-271-003, 727-271-007, and 727-271-008

E. **Street References:** Northerly of 68th Avenue, southerly of Highway 111 and Avenue 66, easterly of Lincoln Street in Mecca, CA.

F. **Section, Township & Range Description or reference/attach a Legal Description:** Township 7 South, Range 9 East, Section 17

G. **Brief description of the existing environmental setting of the project site and its surroundings:** This project site is located on an existing 223 gross acres site containing an existing 100 unit mobile home park on a 32 acre portion, with sanitation ponds, and vacant land. Surrounding land consists of field crops, scattered dwellings, and a fish farm.

II. APPLICABLE GENERAL PLAN AND ZONING REGULATIONS

A. General Plan Elements/Policies:

1. **Land Use:** The project implements Policy LU 4.1, requiring new developments to be located and designed to visually enhance, not degrade, the character of the surrounding area. The proposed project would be located within the Medium Density Residential (2-5 DU/AC) land use designation, and other applicable land use policies within the General Plan.

2. **Circulation:** The project has adequate circulation to the site and is therefore consistent with the Circulation Element of the General Plan. The proposed project meets all other applicable circulation policies of the General Plan.

3. **Multipurpose Open Space:** No natural open space land was required to be preserved within the boundaries of this project. The proposed project meets with all other applicable Multipurpose Open Space element policies.

4. **Safety:** The proposed project is not located within any special hazard zone (including FEMA flood zone, fault zone, high fire hazard area, dam inundation zone, area with high liquefaction potential, etc.). The proposed project has allowed for sufficient provision of emergency response services to the future residents of this project through the project design and payment of development impact fees. The proposed project meets with all other applicable Safety element policies.

5. **Noise:** Sufficient mitigation against any foreseeable noise sources in the area have been provided for in the design of the project. The project will not generate noise levels in excess of standards established in the General Plan or noise ordinance. The project meets all other applicable Noise Element Policies.

6. **Housing:** The proposed project meets all applicable Housing Element Policies.

7. **Air Quality:** The proposed project has been conditioned to control any fugitive dust during grading and construction activities. The proposed project meets all other applicable Air Quality element policies.

B. General Plan Area Plan(s): Eastern Coachella Valley

C. Foundation Component(s): Community Development

D. Land Use Designation(s): Very High Density Residential (VHDR) (14-20 D.U./Ac.), Medium Density Residential (MDR) (2-5 DU/AC), and Very Low Density Residential (VLDR) (1 Acre Minimum).

E. Overlay(s), if any: Not Applicable

F. Policy Area(s), if any: Not Applicable

G. Adjacent and Surrounding Area Plan(s), Foundation Component(s), Land Use Designation(s), and Overlay(s) and Policy Area(s), if any: The project site is surrounded by properties which are designated Community Development: Medium Density Residential (CD:MDR) (2-5 Dwelling Units per Acre), Very Low Density Residential (1 Acre minimum), Very High Density Residential (14-20 D.U./Ac.) and Agriculture (10 Acre minimum)

H. Adopted Specific Plan Information

1. **Name and Number of Specific Plan, if any:** Not Applicable

2. **Specific Plan Planning Area, and Policies, if any:** Not Applicable

I. Existing Zoning: Controlled Development Areas (W-2) and Rural Residential (R-R)

J. Proposed Zoning, if any: Controlled Development Areas (W-2)

K. Adjacent and Surrounding Zoning: The project site is surrounded by properties which are zoned Rural Residential (R-R) and Controlled Development Areas (W-2).

III. ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

The environmental factors checked below (x) would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact" or "Less than Significant with Mitigation Incorporated" as indicated by the checklist on the following pages.

☐ Aesthetics	☐ Hazards & Hazardous Materials	☐ Recreation
☐ Agriculture & Forest Resources	☒ Hydrology / Water Quality	☐ Transportation / Traffic
☐ Air Quality	☐ Land Use / Planning	☒ Utilities / Service Systems
☒ Biological Resources	☐ Mineral Resources	☐ Other:
☐ Cultural Resources	☐ Noise	☐ Other:
☐ Geology / Soils	☐ Population / Housing	☐ Mandatory Findings of Significance
☐ Greenhouse Gas Emissions	☐ Public Services	

IV. DETERMINATION

On the basis of this initial evaluation:

A PREVIOUS ENVIRONMENTAL IMPACT REPORT/NEGATIVE DECLARATION WAS NOT PREPARED

☐ I find that the proposed project **COULD NOT** have a significant effect on the environment, and a **NEGATIVE DECLARATION** will be prepared.

☒ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project, described in this document, have been made or agreed to by the project proponent. **A MITIGATED NEGATIVE DECLARATION** will be prepared.

☐ I find that the proposed project MAY have a significant effect on the environment, and an **ENVIRONMENTAL IMPACT REPORT** is required.

A PREVIOUS ENVIRONMENTAL IMPACT REPORT/NEGATIVE DECLARATION WAS PREPARED

☐ I find that although the proposed project could have a significant effect on the environment, **NO NEW ENVIRONMENTAL DOCUMENTATION IS REQUIRED** because (a) all potentially significant effects of the proposed project have been adequately analyzed in an earlier EIR or Negative Declaration pursuant to applicable legal standards, (b) all potentially significant effects of the proposed project have been avoided or mitigated pursuant to that earlier EIR or Negative Declaration, (c) the proposed project will not result in any new significant environmental effects not identified in the earlier EIR or Negative Declaration, (d) the proposed project will not substantially increase the severity of the environmental effects identified in the earlier EIR or Negative Declaration, (e) no considerably different mitigation measures have been identified and (f) no mitigation measures found infeasible have become feasible.

☐ I find that although all potentially significant effects have been adequately analyzed in an earlier EIR or Negative Declaration pursuant to applicable legal standards, some changes or additions are necessary but none of the conditions described in California Code of Regulations, Section 15162 exist. An **ADDENDUM** to a previously-certified EIR or Negative Declaration has been prepared and will be considered by the approving body or bodies.

☐ I find that at least one of the conditions described in California Code of Regulations, Section 15162 exist, but I further find that only minor additions or changes are necessary to make the previous EIR adequately apply to the project in the changed situation; therefore a **SUPPLEMENT TO THE ENVIRONMENTAL IMPACT REPORT** is required that need only contain the information necessary to make the previous EIR adequate for the project as revised.

☐ I find that at least one of the following conditions described in California Code of Regulations, Section 15162, exist and **a SUBSEQUENT ENVIRONMENTAL IMPACT REPORT** is required: (1) Substantial changes are proposed in the project which will require major revisions of the previous EIR or negative declaration due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects; (2) Substantial changes have occurred with respect to the circumstances under which the project is undertaken which will require major revisions of the previous EIR or negative declaration due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects; or (3) New information of substantial importance, which was not known and could not have been known with the exercise of reasonable diligence at the time the previous EIR was certified as complete or the negative declaration was adopted, shows any the following:(A) The project will have one or more significant effects not discussed in the previous EIR or negative declaration;(B) Significant effects previously examined will be substantially more severe than shown in the previous EIR or negative declaration;(C) Mitigation measures or alternatives previously found not to be feasible would in fact be feasible, and would substantially reduce one or more significant effects of the project, but the project proponents decline to adopt the mitigation measures or alternatives; or,(D) Mitigation measures or alternatives which are considerably different from those analyzed in the previous EIR or negative declaration would substantially reduce one or more significant effects of the project on the environment, but the project proponents decline to adopt the mitigation measures or alternatives.

Signature — May 3, 2011 (Date)

Jay Olivas (Printed Name) — For Carolyn Syms Luna, Planning Director

V. ENVIRONMENTAL ISSUES ASSESSMENT

In accordance with the California Environmental Quality Act (CEQA) (Public Resources Code Section 21000-21178.1), this Initial Study has been prepared to analyze the proposed project to determine any potential significant impacts upon the environment that would result from construction and implementation of the project. In accordance with California Code of Regulations, Section 15063, this Initial Study is a preliminary analysis prepared by the Lead Agency, the County of Riverside, in consultation with other jurisdictional agencies, to determine whether a Negative Declaration, Mitigated Negative Declaration, or an Environmental Impact Report is required for the proposed project. The purpose of this Initial Study is to inform the decision-makers, affected agencies, and the public of potential environmental impacts associated with the implementation of the proposed project.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
AESTHETICS Would the project				
1. Scenic Resources				
a) Have a substantial effect upon a scenic highway corridor within which it is located?	☐	☐	☒	☐
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings and unique or landmark features; obstruct any prominent scenic vista or view open to the public; or result in the creation of an aesthetically offensive site open to public view?	☐	☐	☒	☐

Source: Riverside County General Plan Figure C-9 "Scenic Highways"

Findings of Fact: The project site is located along State Highway 111 which is designated as a Scenic Highway. Many corridors in Riverside County traverse its scenic resources. Enhancing aesthetic experiences for residents and visitors to the county has a significant role in promoting tourism, which is important to the County's overall economic future. Due to the visual significance of some of these areas, several roadways have been officially recognized as either State or County designated or eligible scenic highways. The design of the proposed mobilehome park will be compatible with the existing setting in the surrounding area and will, therefore, have a less than significant impact as a result of its implementation.

The proposed project will not substantially damage scenic resources, including, but not limited to, trees, rock outcroppings and unique or landmark features, or obstruct a prominent scenic vista or view open to the public, as these features do not exist on the project site. Additionally, the project will not result in the creation of an aesthetically offensive site open to public view as the project was conditioned to incorporate landscaping as shown on approved conceptual planting plan, Exhibit L.

Mitigation: Compliance with the conditions of approval on file in the County Land Management System (LMS), including 10 .PLANNING. 1 – Comply With Ord./Codes and 80 .PLANNING. 30 – Landscape Common Area.

Monitoring: Monitoring to be provided by the Building and Safety and Planning Departments and through Ordinance Nos. 348 and 457.

Monitoring: Mitigation monitoring will occur through the Building and Safety Plan Check process.

2. Mt. Palomar Observatory a) Interfere with the nighttime use of the Mt. Palomar Observatory, as protected through Riverside County Ordinance No. 655?	☐	☐	☐	☒

Source: GIS database, Ord. No. 655 (Regulating Light Pollution)

Findings of Fact:

a) According to GIS database, the project site is located 47.51 miles away from Mt. Palomar Observatory and is not subject to Ordinance 655.

Mitigation: No mitigation measures are required.

Monitoring: No mitigation measures are required.

3. Other Lighting Issues a) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☒	☐
b) Expose residential property to unacceptable light levels?	☐	☐	☒	☐

Source: On-site Inspection, Project Application Description

Findings of Fact: The creation of residential use will bring increased light and glare due to reflective light from parked vehicles, illuminated signs, street lamps, security lighting and nighttime vehicle traffic. All lighting equipment/devices will be hooded and directed so as to prevent glare and light from shining directly upon adjoining properties and road right-of-ways. Monitoring shall be provided by the Planning Department (landscape review) and the Department of Building and Safety and through Ordinance No. 348.

Mitigation: None required

Monitoring: None required

AGRICULTURE & FOREST RESOURCES Would the project				
4. Agriculture a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland) as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☒
b) Conflict with existing agricultural zoning, agricultural use or with land subject to a Williamson Act contract or land within a Riverside County Agricultural Preserve?	☐	☐	☐	☒
c) Cause development of non-agricultural uses within 300 feet of agriculturally zoned property (Ordinance No. 625 "Right-to-Farm")?	☐	☐	☐	☒
d) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use?	☐	☐	☐	☒

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

Source: Riverside County General Plan Figure OS-2 "Agricultural Resources," GIS database, and Project Application Materials

Findings of Fact: The project is affected by agriculture programs and land use standards of the Riverside County General Plan. The project site is designated as farmland of "local importance", "other lands", and "urban-built land". The project is adjacent to, or within 300 feet of agricultural zones (A-1, A-2, C/V, A-D and A-P). The property across Highway 111 to the northeast of the project site is designated as an agricultural preserve established pursuant to the Williamson Act. No notice of non-renewal has been filed for this property to date. Due to existing mobile home park and perimeter treatment such as walls/fencing, the project will provide a buffer from adjacent agricultural operations. In addition, all surrounding land is designated in a Community Development Foundation and adoption of the change of zone the property will be consistent with the Riverside County General Plan.

Mitigation: Compliance with conditions of approval on file in LMS, including 10 .PLANNING. 17– Agricultural Codes and 90 .PLANNING. 18 – Wall/Berm Required.

Monitoring: Monitoring to be provided by the Planning Department and the Building and Safety Department through Ordinance Nos. 348.

5. Forest	☐	☐	☐	☒
a) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Govt. Code section 51104(g))?				
b) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
c) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of forest land to non-forest use?	☐	☐	☐	☒

Source: Riverside County General Plan Figure OS-3 "Parks, Forests and Recreation Areas," and Project Application Materials.

Findings of Fact:

a) The project is not located within the boundaries of a forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Govt. Code section 51104(g)). Therefore, the proposed project will not impact land designated as forest land, timberland, or timberland zoned Timberland Production.

b) According to General Plan, the project is not located within forest land and will not result in the loss of forest land or conversion of forest land to non-forest use; therefore, no impact will occur as a result of the proposed project.

c) The project will not involve other changes in the existing environment which, due to their location or nature, could result in conversion of forest land to non-forest use.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

Mitigation: No mitigation measures are required.

Monitoring: No monitoring measures are required.

AIR QUALITY Would the project				
6. Air Quality Impacts				
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☒	☐
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☐	☐	☒	☐
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	☐	☐	☒	☐
d) Expose sensitive receptors which are located within 1 mile of the project site to project substantial point source emissions?	☐	☐	☐	☒
e) Involve the construction of a sensitive receptor located within one mile of an existing substantial point source emitter?	☐	☐	☐	☒
f) Create objectionable odors affecting a substantial number of people?	☐	☐	☐	☒

Source: SCAQMD CEQA Air Quality Handbook Table 6-2

Findings of Fact: Appendix G of the current State CEQA Guidelines indicates that a project will significantly impact air quality if the project violates any ambient air quality standard, contributes substantially to an existing air quality violation, or exposes sensitive receptors to substantial pollutant concentrations.

a) The project site is located in the South Coast Air Basin (SCAB). The South Coast Air Quality Management District (SCAQMD) Governing Board adopted its most recent Air Quality Management Plan (AQMP) for the SCAB on August 1, 2003. The AQMP is a plan for the regional improvement of air quality. As part of adoption of the County's General Plan in 2003, the General Plan EIR (SCH No. 2002051143) analyzed the General Plan growth projections for consistency with the AQMP and concluded that the General Plan is consistent with the SCAQMD's AQMP. The project is consistent with the County General Plan and would therefore be consistent with the SCAQMD's AQMP.

b-c) The South Coast Air Basin (SCAB) is in a non-attainment status for federal ozone standards, federal carbon monoxide standards, and state and federal particulate matter standards. Any development in the SCAB, including the proposed Project, would cumulatively contribute to these pollutant violations.

The project is consistent with the General Plan and the Western Coachella Valley Area Plan land use designations. The General Plan (2003) is a policy document that reflects the County's vision for the future of Riverside County. The General Plan is organized into eight separate elements, including an

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

Air Quality Element. The purpose of the Air Quality Element is to protect County residents from the harmful effects of poor air quality. The Air Quality Element identifies goals, policies, and programs that are meant to balance actions regarding land use, circulation, and other issues with their potential effects on air quality. The Air Quality Element, in conjunction with local and regional air quality planning efforts, addresses ambient air quality standards set forth by the Federal Environmental Protection Agency (EPA) and the California Air Resources Board (CARB). Potential air quality impacts resulting from the proposed Project would not exceed emissions projected by the Air Quality Element. The County is charged with implementing the policies in the General Plan Air Quality Element, which are focused on reducing concentrations of criteria pollutants, reducing negative impacts to sensitive receptors, reducing mobile and stationary pollutant sources, increasing energy conservation and efficiency, improving the jobs to housing balance, and facilitating multi-jurisdictional coordination for the improvement of air quality.

Implementation of the project would not impact air quality beyond the levels documented in EIR No. 441 prepared for the General Plan. The project would impact air quality in the short-term during construction and in the long-term through operation. In accordance with standard county requirements, dust control measures and maintenance of construction equipment shall be utilized on the property to limit the amount of particulate matter generated. These are standard requirements and are not considered mitigation pursuant to CEQA.

The proposed project would primarily impact air quality through increased automotive emissions. Single projects typically do not generate enough traffic and associated air pollutants to violate clean air standards or contribute enough air pollutants to be considered a cumulatively considerable significant impact. Operational impacts associated with the project would be expected to result in emissions of VOC, NOX, CO, PM10, PM2.5 and SOX. Operational emissions would result from vehicle emissions, fugitive dust associated with vehicle travel, combustion emissions associated with natural gas use, emission related to electricity generation, and landscape equipment maintenance emissions. In the long term, emissions of VOC, NOX, CO, PM10 and PM2.5 and could exceed SCAQMD significance thresholds (in pounds per day). However, with compliance with standard requirements for use of low VOC paints and compliance with California Energy Commission Title 24 requirements for building energy efficiency, direct and cumulative air quality impacts would be reduced to a level below significance. These are standard requirements and are not considered mitigation pursuant to CEQA. Therefore, the impact is considered less than significant.

d) A sensitive receptor is a person in the population who is particularly susceptible to health effects due to exposure to an air contaminant than is the population at large. Sensitive receptors (and the facilities that house them) in proximity to localized CO sources, toxic air contaminants or odors are of particular concern. High levels of CO are associated with major traffic sources, such as freeways and major intersections, and toxic air contaminants are normally associated with manufacturing and commercial operations. Land uses considered to be sensitive receptors include long-term health care facilities, rehabilitation centers, convalescent centers, retirement homes, residences, schools, playgrounds, child care centers, and athletic facilities. Surrounding land uses include residential, which is considered a sensitive receptor, however, an unmanned telecommunications facility is not considered a substantial point source emitter or a sensitive receptor.

e) Surrounding land uses do not include significant localized CO sources, toxic air contaminants, or odors. An unmanned telecommunications facility is not considered a substantial point source emitter or a sensitive receptor.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
f) The project will not create objectionable odors affecting a substantial number of people.				

Mitigation: No mitigation measures are required.

Monitoring: No monitoring measures are required.

BIOLOGICAL RESOURCES Would the project				
7. Wildlife & Vegetation a) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Conservation Community Plan, or other approved local, regional, or state conservation plan?	☐	☐	☒	☐
b) Have a substantial adverse effect, either directly or through habitat modifications, on any endangered, or threatened species, as listed in Title 14 of the California Code of Regulations (Sections 670.2 or 670.5) or in Title 50, Code of Federal Regulations (Sections 17.11 or 17.12)?	☐	☐	☒	☐
c) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U. S. Wildlife Service?	☐	☐	☒	☐
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☒	☐	☐
e) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U. S. Fish and Wildlife Service?	☐	☐	☐	☒
f) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☐	☒
g) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☐	☒

Source: GIS database, WRC-MSHCP and/or CV-MSHCP, Environmental Programs Department (EPD) review

Findings of Fact: The project may be influenced by wildlife and vegetation issues as identified in the General Plan. The project site is partially developed and there is potential for biological impacts which can be addressed with burrowing owl survey and nesting bird survey prior to grading permit issuance.

The project is located in the fee area of the Coachella Valley Multi-Species Habitat Conservation Plan (CVMSHCP). The CVMSHCP becomes effective on October 1, 2008; payment of mitigation fees will

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

be pursuant to Ordinance No. 875. The project site does not conflict with the provisions of any of the above adopted Habitat Conservation Plans, Natural Conservation Community Plan, or other approved local, regional, or state conservation plan. Impacts associated with the project are less than significant.

The project site does not conflict with the provisions of an adopted Habitat Conservation Plan, Natural Conservation Community Plan, or other approved local, regional, or state conservation plan.

The project site is partially developed and there is potential for biological impacts which can be addressed with burrowing owl survey and nesting bird survey prior to grading permit issuance.

Mitigation: Compliance with the measures set forth by the above referenced Habitat Conservation Plan, as required, and so contained in the conditions of approval on file in the LMS, including 10.PLANNING. 26 – Ordinance 875 CVMSHCP Fee, and required burrowing owl survey and nesting bird survey prior to grading permit issuance as indicted in the LMS by 60 EPD 1 and 60 EPD 2.

Monitoring: Monitoring to be provided by the Planning Department and Building Department through Ordinance Nos. 460, 457 and 875.

CULTURAL RESOURCES Would the project				
8. Historic Resources				
a) Alter or destroy an historic site?	☐	☐	☐	☒
b) Cause a substantial adverse change in the significance of a historical resource as defined in California Code of Regulations, Section 15064.5?	☐	☐	☐	☒

Source: On-site Inspection, Project Application Materials

Findings of Fact:

a-b) The site is partially disturbed. And project does not propose the disturbance of a historic site or the demolishing of historic structures. The project will not cause a substantial adverse change in the significance of a historical resource as defined in California Code of Regulations, Section 15064.5. The project will have no impact.

Mitigation: No mitigation measures are required.

Monitoring: No monitoring measures are required.

9. Archaeological Resources				
a) Alter or destroy an archaeological site.	☐	☐	☐	☒
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to California Code of Regulations, Section 15064.5?	☐	☐	☒	☐
c) Disturb any human remains, including those interred outside of formal cemeteries?	☐	☐	☒	☐
d) Restrict existing religious or sacred uses within the potential impact area?	☐	☐	☐	☒

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

Source: Project Application Materials

Findings of Fact:

a) Site disturbance has already occurred with the use of the existing mobilehome park. The project site does not contain an archaeological site. Therefore, the project will not alter or destroy an archaeological site.

b) The proposed project is not expected to impact archaeological resources. If, however, during ground disturbing activities, unique cultural resources are discovered, all ground disturbances shall halt until a meeting is held between the developer, archaeologist, and Native American representative to discuss the significance of the find. (COA 10.PLANNING.32) Therefore, the project will not alter or destroy an archaeological site or cause a substantive adverse change in the significance of an archaeological resource.

c) There may be a possibility that ground disturbing activities will expose human remains. The project is subject to State Health and Safety Code Section 7050.5 if human remains are discovered during ground disturbing activities. (COA 10.PLANNING.31) This is a standard condition and not considered mitigation for CEQA purposes. Therefore, the impact is considered less than significant.

d) The project will not restrict existing religious or sacred uses within the potential impact area. Therefore, there is no impact.

Mitigation: No mitigation measures are required.

Monitoring: No monitoring measures are required.

10. Paleontological Resources a) Directly or indirectly destroy a unique paleontological resource, or site, or unique geologic feature?	☐	☐	☒	☐

Source: GIS database, County Geologist review

Findings of Fact:

a) According to GIS database, this site has been mapped as having a high potential for paleontological resources.

Mitigation: Compliance with the conditions of approval in the LMS, including submittal of a paleontological report by a qualified paleontologist to be reviewed by the County Geologist as indicated in the LMS by 60 Planning 14-Paleo Primp and Monitor.

Monitoring: Monitoring shall be provided by the County Geologist.

GEOLOGY AND SOILS Would the project				
11. Alquist-Priolo Earthquake Fault Zone or County Fault Hazard Zones a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death?	☐	☐	☒	☐

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Be subject to rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault?	☐	☐	☒	☐

Source: Riverside County General Plan Figure S-2 "Earthquake Fault Study Zones," GIS database, County Geologist review (GEO02219)

Findings of Fact:

a-b) According to Figure S-2, no active faults are known to traverse the subject site. The project site does not lie within a State of California Earthquake Fault Hazard Zone (formerly called an Alquist-Priolo Special Studies Zone). The principal seismic hazard that could affect the site is ground shaking resulting from an earthquake occurring along several major active or potentially active faults in southern California. California Building Code (CBC) requirements pertaining to development will mitigate the potential impact to less than significant. As CBC requirements are applicable to all development, they are not considered mitigation for CEQA implementation purposes.

Mitigation: No mitigation measures are required.

Monitoring: No monitoring measures are required.

12. Liquefaction Potential Zone a) Be subject to seismic-related ground failure, including liquefaction?	☐	☐	☒	☐

Source: Riverside County General Plan Figure S-3 "Generalized Liquefaction", GIS Database, County Geologist review (GEO02219)

Findings of Fact:

a) According to the County Geologist, the potential for liquefaction is high at this site. The project will have less than significant impact based on review of County Geological Report No. 2219.

Mitigation: No mitigation measures required.

Monitoring: No monitoring measures are required.

13. Ground-shaking Zone Be subject to strong seismic ground shaking?	☐	☐	☒	☐

Source: Riverside County General Plan Figure S-4 "Earthquake-Induced Slope Instability Map," and Figures S-13 through S-21 (showing General Ground Shaking Risk), County Geologist review (GEO02219)

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

Findings of Fact:

There are no known active or potentially active faults that traverse the site and the site is not located within an Alquist-Priolo Earthquake Fault Zone. The principal seismic hazard that could affect the site is ground shaking resulting from an earthquake occurring along several major active or potentially active faults in southern California. California Building Code (CBC) requirements pertaining to development will mitigate the potential impact to less than significant. As CBC requirements are applicable to all development, they are not considered mitigation for CEQA implementation purposes.

Mitigation: No mitigation measures are required.

Monitoring: No mitigation measures are required.

14. Landslide Risk a) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, collapse, or rockfall hazards?	☐	☐	☐	☒

Source: Riverside County General Plan Figure S-5 "Regions Underlain by Steep Slope", Geologist review (GEO02219)

Findings of Fact:

a) According to the County Geologist, landslides are not a potential hazard to the site. The project will have no impact.

Mitigation: No mitigation measures are required.

Monitoring: No monitoring measures are required.

15. Ground Subsidence a) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in ground subsidence?	☐	☐	☒	☐

Source: GIS database, County Geologist review (GEO02219)

Findings of Fact:

a) According to GIS database, the site is located in an area susceptible to subsidence. However, GEO02219 concluded that subsidence in the area will not cause any differential settlement or cracking of the foundation and will therefore have a minimal impact on the proposed development.

Mitigation: No mitigation measures are required.

Monitoring: No monitoring measures are required.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
16. Other Geologic Hazards a) Be subject to geologic hazards, such as seiche, mudflow, or volcanic hazard?	☐	☐	☐	☒

Source: Project Application Materials, County Geologist review (GEO02219)

a) According to the County Geologist, tsunamis and seiching are not potential hazards to the site. The project will have no impact.

Mitigation: No mitigation measures are required.

Monitoring: No monitoring measures are required.

17. Slopes a) Change topography or ground surface relief features?	☐	☐	☐	☒
b) Create cut or fill slopes greater than 2:1 or higher than 10 feet?	☐	☐	☐	☒
c) Result in grading that affects or negates subsurface sewage disposal systems?	☐	☐	☐	☒

Source: Project Application Materials, Building and Safety – Grading Review

Findings of Fact:

a-c) Standard conditions of approval have been added stating that a grading permit is required prior to construction grading if more than 50 cubic yards. These conditions are not considered unique mitigation and are not required for CEQA implementation purposes. The project will have no impact.

Mitigation: No mitigation measures are required.

Monitoring: No monitoring measures are required.

18. Soils a) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐
b) Be located on expansive soil, as defined in Section 1802.3.2 of the California Building Code (2007), creating substantial risks to life or property?	☐	☐	☒	☐
c) Have soils incapable of adequately supporting use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	☐	☐	☐	☒

Source: General Plan figure S-6 "Engineering Geologic Materials Map", Project Application Materials, Building and Safety Grading review

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

a) The development of the site could result in the loss of topsoil from grading activities, but not in a manner that would result in significant amounts of soil erosion. Implementation of Best Management Practices (BMPs) would reduce the impact to below a level of significance. Impacts would be less than significant.

b) The project may be located on expansive soil; however, California Building Code (CBC) requirements pertaining to commercial development will mitigate the potential impact to less than significant. As CBC requirements are applicable to all development, they are not considered mitigation for CEQA implementation purposes.

Mitigation: No mitigation measures are required.

Monitoring: No monitoring measures are required.

19. Erosion				
a) Change deposition, siltation, or erosion that may modify the channel of a river or stream or the bed of a lake?	☐	☐	☒	☐
b) Result in any increase in water erosion either on or off site?	☐	☐	☒	☐

Source: Flood Control District review, Project Application Materials

Findings of Fact:

a) Implementation of the proposed project will involve grading and various construction activities. Standard construction procedures, and federal, state and local regulations implemented in conjunction with the site's storm water pollution prevention plan (SWPPP) and its Best Management Practices (BMPs) required under the National Pollution Discharge System (NPDES) general construction permit, will minimize potential for erosion during construction. These practices will keep substantial amounts of soil material from eroding from the project site and prevent deposition within receiving waters located downstream.

b) The potential for on-site erosion will increase due to grading and excavating activities during the construction phase. However, BMPs will be implemented for maintaining water quality and reducing erosion.

Mitigation: No mitigation measures are required.

Monitoring: No monitoring measures are required.

20. Wind Erosion and Blowsand from project either on or off site.				
a) Be impacted by or result in an increase in wind erosion and blowsand, either on or off site?	☐	☐	☒	☐

Source: Riverside County General Plan Figure S-8 "Wind Erosion Susceptibility Map," Ord. 460, Sec. 14.2 & Ord. 484

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

Findings of Fact:

a) The project site lies within a high to moderate wind erosion susceptibility area. The project could be influenced by wind erosion and blowsand issues during project construction. Blowsand can create drifting sand dunes and can act as an abrasive on metal, glass and wood surfaces such as cars, windows, and siding of existing homes. The project has been conditioned to prevent dust and blowsand. COA. 10 PLANNING 19. With the incorporation of this condition, the project will have a less than significant impact.

Mitigation: No mitigation measures are required.

Monitoring: No monitoring measures are required.

GREENHOUSE GAS EMISSIONS Would the project				
21. Greenhouse Gas Emissions				
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒	☐
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☒	☐

Source: Project application materials

Findings of Fact:

a) The project is for the replacement of an existing 100 unit mobilehome park into a new 136 unit mobilehome park. The construction activities shall meet California building codes and meet energy efficiency standards. Therefore, greenhouse gas emissions generated during construction will be minimal.

b) The project will not conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases. The project will have less than significant impact.

Mitigation: No mitigation measures are required.

Monitoring: No monitoring measures are required.

HAZARDS AND HAZARDOUS MATERIALS Would the project				
22. Hazards and Hazardous Materials				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☐	☒
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☐	☒
c) Impair implementation of or physically interfere with an adopted emergency response plan or an emergency evacuation plan?	☐	☐	☐	☒

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
d) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	☒
e) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☒

Source: Project Application Materials

Findings of Fact:

a-e) The project does not create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment. It will also not impair the implementation or physically interfere with an adopted emergency response plan or an emergency evacuation plan. The project will have no impact on emitting, or handling hazardous waste within one-quarter mile of an existing or proposed school. The project is not located on a list of hazardous materials sites.

Mitigation: No mitigation measures are required.

Monitoring: No monitoring measures are required.

23. Airports a) Result in an inconsistency with an Airport Master Plan?	☐	☐	☐	☒
b) Require review by the Airport Land Use Commission?	☐	☐	☐	☒
c) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
d) For a project within the vicinity of a private airstrip, or heliport, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒

Source: Riverside County General Plan Figure S-19 "Airport Locations," GIS database

a) The project site is not located within an Airport Influence Area, the project will not result in an inconsistency with the Airport Master Plan.

b) The project site is not located within the vicinity of a private airport and will not require review by the Airport Land Use Commission.

c) The project is not located within an airport land use plan and would not result in a safety hazard for people residing or working in the project area.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

d) The project is not within the vicinity of a private airstrip, or heliport and would not result in a safety hazard for people residing or working in the project area.

Mitigation: No mitigation measures are required.

Monitoring: No monitoring measures are required.

24. Hazardous Fire Area a) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	☐	☐	☐	☒

Source: Riverside County General Plan Figure S-11 "Wildfire Susceptibility," GIS database

Findings of Fact:

a) The project site is not located in a high fire area. The project will have no impact.

Mitigation: No mitigation measures are required.

Monitoring: No monitoring measures are required.

HYDROLOGY AND WATER QUALITY Would the project				
25. Water Quality Impacts a) Substantially alter the existing drainage pattern of the site or area, including the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation on- or off-site?	☐	☐	☒	☐
b) Violate any water quality standards or waste discharge requirements?	☐	☒	☐	☐
c) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	☐	☐	☒	☐
d) Create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	☐	☐	☒	☐
e) Place housing within a 100-year flood hazard area, as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	☐	☐	☐	☒
f) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	☐	☐	☐	☒

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
g) Otherwise substantially degrade water quality?	☐	☐	☒	☐
h) Include new or retrofitted stormwater Treatment Control Best Management Practices (BMPs) (e.g. water quality treatment basins, constructed treatment wetlands), the operation of which could result in significant environmental effects (e.g. increased vectors or odors)?	☐	☐	☐	☒

Source: Riverside County Flood Control District Flood Hazard Report/Condition.

Findings of Fact:

a) The site shall not substantially alter the existing drainage pattern of the site or area, including the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation on- or off-site. Therefore, the impact is considered less than significant.

b) The project affects water quality standards and waste discharge requirements based on existing and proposed domestic water and sanitation systems. The proposed project will require the construction of new water treatment facilities including new well to address water quality. Water system treatment to reduce arsenic levels to meet the State maximum contamination level of 10 parts per billion is required and must be approved by County Department of Public Health. The proposed project will include continued use of existing sanitation ponds in the interim, however, the project requires the construction of new sewer treatment facilities. A future sewer line extension is proposed approximately 6000 lineal feet from existing force main at Avenue 66 and Lincoln Street south along Lincoln Street to Avenue 68 and Lincoln Street. A future Lift Station is proposed to be provided by the Coachella Valley Water District as part of the sewer line extension. These sewer improvements are conditioned to occur within a two year timeframe from the date of approval of the Conditional Use Permit.

c) The project will not substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted. Therefore, the impact is no impact.

d) Due to the amount of impervious surfaces within the project site, this proposal will slightly increase flow rates on downstream property owners. Therefore, some new flood control facilities and water quality mitigation will be required. Therefore, the impact is considered less than significant.

e) The project site is not located within a 100 year flood zone. Therefore, the project shall not place housing within a 100-year flood hazard area, as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map.

f) The project site is not located within a 100 year flood zone. Therefore, the project shall not place within a 100-year flood hazard area structures which would impede or redirect flood flows.

g) The project is not anticipated to otherwise substantially degrade water quality. The project has been conditioned to provide to the Building and Safety Department evidence of compliance with the N.P.D.E.S. (National Pollutant Discharge Elimination System) requirement and to obtain a construction permit from the State Water Resource Control Board (SWRCB) prior to issuance of any

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

grading or construction permit (COA 60. BS GRADE.1). This is a standard condition of approval and is not considered mitigation pursuant to CEQA.

h) The project does not include new or retrofitted stormwater Treatment Control Best Management Practices (BMPs) (e.g. water quality treatment basins, constructed treatment wetlands), the operation of which could result in significant environmental effects (e.g. increased vectors or odors). Therefore, there is no impact.

Mitigation: Compliance with the conditions of approval on file in the LMS, including COA 10 E HEALTH 2 - Well Permits Required and 10 E HEALTH 3 - Water System Requirements.

Compliance with the conditions of approval on file in the LMS, including COA 20 E HEALTH 1 – CVWD Sewer Connect Within two (2) Years.

Monitoring: Monitoring measures are required by the Environmental Health Department.

26. Floodplains

Degree of Suitability in 100-Year Floodplains. As indicated below, the appropriate Degree of Suitability has been checked.

NA - Not Applicable ☒ U - Generally Unsuitable ☐ R - Restricted ☐

a) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site?	☐	☐	☒	☐
b) Changes in absorption rates or the rate and amount of surface runoff?	☐	☐	☒	☐
c) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam (Dam Inundation Area)?	☐	☐	☒	☐
d) Changes in the amount of surface water in any water body?	☐	☐	☐	☒

Source: Riverside County General Plan Figure S-9 "100- and 500-Year Flood Hazard Zones," Figure S-10 "Dam Failure Inundation Zone," Riverside County Flood Control District Flood Hazard Report/ Condition, GIS database

Findings of Fact:

a) The project is considered free from ordinary storm flood hazard. The project will partially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site. The project will have less than significant impact.

b) The project is considered free from ordinary storm flood hazard. The project will result in changes in absorption rates and amount of surface runoff. The project will have less than significant impact.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

c) The project is considered free from ordinary storm flood hazard. The project will not expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam (Dam Inundation Area). Therefore, the project will have less than significant impact.

d) The project will not cause changes in the amount of surface water in any water body. Therefore, the project will have less than significant impact.

Mitigation: No mitigation measures are required.

Monitoring: No monitoring measures are required.

LAND USE/PLANNING Would the project				
27. Land Use				
a) Result in a substantial alteration of the present or planned land use of an area?	☐	☐	☒	☐
b) Affect land use within a city sphere of influence and/or within adjacent city or county boundaries?	☐	☐	☐	☒

Source: GIS database, Project Application Materials

Findings of Fact:

a) The proposed use is in compliance with the current land use of Medium Density Residential (MDR) (2- 5 D.U./Ac.) and the policies of the Eastern Coachella Valley Area Plan. The General Plan requires that all residential development at the Community Development densities have available public facilities and services. The proposed CUP for a migrant agricultural worker mobile home park is conditioned to provide water, sanitation, and fire and road improvements. The project will have a less than significant impact as it likely will not result in the substantial alteration of the present or planned land use of an area.

b) The project is not located within a city sphere of influence (SOI).

c) The project has received support from the Mecca Community Council at their meeting of September 8, 2010

Mitigation: No mitigation measures are required.

Monitoring: No monitoring measures are required.

28. Planning				
a) Be consistent with the site's existing or proposed zoning?	☐	☐	☒	☐
b) Be compatible with existing surrounding zoning?	☐	☐	☒	☐
c) Be compatible with existing and planned surrounding land uses?	☐	☐	☒	☐

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
d) Be consistent with the land use designations and policies of the Comprehensive General Plan (including those of any applicable Specific Plan)?	☐	☐	☒	☐
e) Disrupt or divide the physical arrangement of an established community (including a low-income or minority community)?	☐	☐	☐	☒

Source: Riverside County General Plan Land Use Element, Staff review, GIS database

Findings of Fact:

a-b) The project will be consistent with the site's existing and proposed zoning to Controlled Development Areas (W-2). The project is surrounded by properties which are zoned Controlled Development Areas (W-2).

c) The proposed conversion of an existing 100 unit Mobile Home Park to a 136 unit migrant agricultural worker Mobile Home Park will be designed with typical space sizes of 50'x78' and improvements. As a result, the project will be compatible with existing surrounding zoning and with existing and planned surrounding land uses. Impacts are less than significant.

d-e) The project is consistent with the land use designations and policies of the General Plan. In addition, the project will not disrupt or divide the physical arrangement of an established community. .

Mitigation: No mitigation measures are required.

Monitoring: No monitoring measures are required

MINERAL RESOURCES Would the project				
29. Mineral Resources				
a) Result in the loss of availability of a known mineral resource that would be of value to the region or the residents of the State?	☐	☐	☒	☐
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	☐	☐	☒	☐
c) Be an incompatible land use located adjacent to a State classified or designated area or existing surface mine?	☐	☐	☐	☒
d) Expose people or property to hazards from proposed, existing or abandoned quarries or mines?	☐	☐	☐	☒

Source: Riverside County General Plan Figure OS-5 "Mineral Resources Area"

a-b) According to General Plan Figure OS-5, the proposed project is located in an area that is designated MRZ-3. MRZ-3 is an area where mineral deposits are likely to exist however the significance of the deposits is undetermined. In addition, the project site is a developed mobile home park and potential impacts were covered under the grading permit for the mobile home park. Therefore, the project will have a less than significant impact.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

c-d) The proposed project is not located within the vicinity of a surface mine, therefore it is not subject to creating an incompatible land use. The proposed project will have no impact with regard to incompatible land uses located adjacent to an existing surface mine. The proposed project is not located within the vicinity of any quarries or mines which may pose a risk for people or property. The proposed project will have no impact with regard to exposure to quarries or mines. Therefore, there is no impact.

Mitigation: No mitigation measures are required.

Monitoring: No monitoring measures are required.

NOISE Would the project result in

Definitions for Noise Acceptability Ratings

Where indicated below, the appropriate Noise Acceptability Rating(s) has been checked.

NA - Not Applicable A - Generally Acceptable B - Conditionally Acceptable

C - Generally Unacceptable D - Land Use Discouraged

30. Airport Noise a) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport would the project expose people residing or working in the project area to excessive noise levels? NA ☒ A ☐ B ☐ C ☐ D ☐	☐	☐	☐	☒
b) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels? NA ☒ A ☐ B ☐ C ☐ D ☐	☐	☐	☐	☒

Source: Riverside County General Plan Figure S-19 "Airport Locations," County of Riverside Airport Facilities Map

Findings of Fact:

a) The project site is not located within two miles of a public airport or public use airport that would expose people residing on the project site to excessive noise levels.

b) The project is not located within the vicinity of a private airport and would not expose people residing on the project site or area to excessive noise levels.

Mitigation: No mitigation measures are required.

Monitoring: No monitoring measures are required.

31. Railroad Noise NA ☐ A ☒ B ☐ C ☐ D ☐	☐	☐	☒	☐

Source: Riverside County General Plan Figure C-1 "Circulation Plan", GIS database, On-site Inspection

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

Findings of Fact: There are railroad tracks in the vicinity of this project site, but impacts would be less than significant due to the project setbacks.

Mitigation: No mitigation measures are required.

Monitoring: No monitoring measures are required.

32. Highway Noise NA ☐ A ☒ B ☐ C ☐ D ☐	☐	☐	☒	☐

Source: On-site Inspection, Project Application Materials

Findings of Fact: The subject property is adjacent to Highway 111 and Lincoln Street, however, due to setbacks of the mobile home park and perimeter fencing/walls, highway noise impacts will be less than significant.

Mitigation: No mitigation measures are required.

Monitoring: No monitoring measures are required.

33. Other Noise NA ☒ A ☐ B ☐ C ☐ D ☐	☐	☐	☐	☒

Source: Project Application Materials, GIS database

Findings of Fact: No additional noise sources have been identified near the project site that would contribute a significant amount of noise to the project. There will be no impact.

Mitigation: No mitigation measures are required.

Monitoring: No monitoring measures are required.

34. Noise Effects on or by the Project				
a) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☒	☐
b) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☒	☐
c) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	☒	☐
d) Exposure of persons to or generation of excessive ground-borne vibration or ground-borne noise levels?	☐	☐	☒	☐

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

Source: Riverside County General Plan, Table N-1 ("Land Use Compatibility for Community Noise Exposure"); Project Application Materials

Findings of Fact:

a) Although the project will increase the ambient noise level in the immediate vicinity during construction, and the general ambient noise level will increase slightly after project completion, the impacts are not considered significant.

b) All noise generated during project construction and the operation of the site must comply with the County's noise standards, which restricts construction (short-term) and operational (long-term) noise levels. The project will have a less than significant impact.

c-d) The project would not expose persons to or generation of noise levels in excess of standards established in the local General Plan or noise ordinance, or applicable standards of other agencies or expose persons to or generation of excessive ground-borne vibration or ground-borne noise levels. The project will have a less than significant impact.

Mitigation: No mitigation measures are required.

Monitoring: No mitigation measures are required.

POPULATION AND HOUSING Would the project				
35. Housing a) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒
b) Create a demand for additional housing, particularly housing affordable to households earning 80% or less of the County's median income?	☐	☐	☐	☒
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒
d) Affect a County Redevelopment Project Area?	☐	☐	☐	☒
e) Cumulatively exceed official regional or local population projections?	☐	☐	☒	☐
f) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☒	☐

Source: Project Application Materials, GIS database, Riverside County General Plan Housing Element

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

Findings of Fact:

a) The project consists of replacement and expansion of any existing mobile home park from 100 units to 136 units. The scope of the development is not substantial enough to displace a number of housing since the number of units is increasing with an approximate population of a minimum of 276 persons.

b) The project is not located within a Redevelopment Area. Therefore, the project will not affect a County Redevelopment Project Area. The project will have no impact.

c) The project will not cumulatively exceed official regional or local population projections. The project will have no impact.

d) The project could potentially encourage additional residential development in the area since there will be partially improved.

Mitigation: No mitigation measures are required.

Monitoring: No monitoring measures are required.

PUBLIC SERVICES Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered government facilities or the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:

36. Fire Services	☐	☐	☒	☐

Source: Riverside County General Plan Safety Element

The project area is serviced by the Riverside County Fire Department. Any potential significant effects will be mitigated by the payment of standard fees to the County of Riverside. The project will not directly physically alter existing facilities or result in the construction of new facilities. Any construction of new facilities required by the cumulative effects of surrounding projects would have to meet all applicable environmental standards. The project shall comply with County Ordinance No. 659 to mitigate the potential effects to fire services. (COA 90.PLANNING.32) This is a standard Condition of Approval and pursuant to CEQA is not considered mitigation.

Mitigation: No mitigation measures are required.

Monitoring: No monitoring measures are required.

37. Sheriff Services	☐	☐	☒	☐

Source: Riverside County General Plan

The proposed area is serviced by the Riverside County Sheriff's Department. The proposed project would not have an incremental effect on the level of sheriff services provided in the vicinity of the

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

project area. Any construction of new facilities required by the cumulative effects of this project and surrounding projects would have to meet all applicable environmental standards. The project shall comply with County Ordinance No. 659 to mitigate the potential effects to sheriff services. (COA 90.PLANNING.32) This is a standard Condition of Approval and pursuant to CEQA, is not considered mitigation.

Mitigation: No mitigation measures are required.

Monitoring: No monitoring measures are required.

38. Schools ☐ ☐ ☒ ☐

Source: Palm Springs Unified School District correspondence, GIS database

Findings of Fact: The project will not physically alter existing facilities or result in the construction of new or physically altered facilities. The proposed project is located within the Coachella Valley Unified School District. Any construction of new facilities required by the cumulative effects of this project and surrounding projects would have to meet all applicable environmental standards. This project has been conditioned to comply with School Mitigation Impact fees in order to mitigate the potential effects to school services. (COA 80.PLANNING.24) This is a standard Condition of Approval and pursuant to CEQA, is not considered mitigation.

Mitigation: No mitigation measures are required.

Monitoring: No monitoring measures are required.

39. Libraries ☐ ☐ ☒ ☐

Source: Riverside County General Plan

The proposed project will not create a significant incremental demand for library services. The project will not require the provision of new or altered government facilities at this time. Any construction of new facilities required by the cumulative effects of surrounding projects would have to meet all applicable environmental standards. This project shall comply with County Ordinance No. 659 to mitigate the potential effects to library services. (COA 90.PLANNING.32) This is a standard Condition of Approval and pursuant to CEQA is not considered mitigation.

Mitigation: No mitigation measures are required.

Monitoring: No monitoring measures are required.

40. Health Services ☐ ☐ ☒ ☐

Source: Riverside County General Plan

The use of the proposed project area would not cause a significant impact on health services. The site is located within the service parameters of County health centers. The project will not physically alter

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

existing facilities or result in the construction of new or physically altered facilities. The project will have no impact. Any construction of new facilities required by the cumulative effects of this project and surrounding projects would have to meet all applicable environmental standards.

Mitigation: No mitigation measures are required.

Monitoring: No monitoring measures are required.

RECREATION				
41. Parks and Recreation				
a) Would the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☐	☐	☒	☐
b) Would the project include the use of existing neighborhood or regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☒	☐
c) Is the project located within a Community Service Area (CSA) or recreation and park district with a Community Parks and Recreation Plan (Quimby fees)?	☐	☐	☒	☐

Source: GIS database, Ord. No. 460, Section 10.35 (Regulating the Division of Land – Park and Recreation Fees and Dedications), Ord. No. 659 (Establishing Development Impact Fees), Parks & Open Space Department Review

a) The project would include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment.

b) The project would include the use of existing neighborhood or regional parks or other recreation facilities such that substantial physical deterioration of the facility would occur or be accelerated.

c) The project is located within a county service area. The project will have a less than significant impact.

Mitigation: No mitigation measures are required.

Monitoring: No monitoring measures are required.

42. Recreational Trails	☐	☐	☒	☐

Source: Riverside County General Plan

Findings of Fact: The General Plan does not identify a Class I Bikeway/Regional Trail in this area. The project will have a less than significant impact.

Mitigation: No mitigation measures are required.

Monitoring: No mitigation measures are required.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
TRANSPORTATION/TRAFFIC Would the project				
43. Circulation a) Conflict with an applicable plan, ordinance or policy establishing a measure of effectiveness for the performance of the circulation system, taking into account all modes of transportation, including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?	☐	☐	☒	☐
b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?	☐	☐	☐	☒
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	☐	☐	☐	☒
d) Alter waterborne, rail or air traffic?	☐	☐	☐	☒
e) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g. farm equipment)?	☐	☐	☐	☒
f) Cause an effect upon, or a need for new or altered maintenance of roads?	☐	☐	☒	☐
g) Cause an effect upon circulation during the project's construction?	☐	☐	☒	☐
h) Result in inadequate emergency access or access to nearby uses?	☐	☐	☐	☒
i) Conflict with adopted policies, plans or programs regarding public transit, bikeways or pedestrian facilities, or otherwise substantially decrease the performance or safety of such facilities?	☐	☐	☐	☒

Source: Riverside County General Plan

Findings of Fact:

a) The project will generate additional traffic to the area and regional transportation system including providing 50 foot wide access easements from Avenue 68 and State Highway 111. The project will not conflict with an applicable plan, ordinance or policy establishing a measure of effectiveness for the performance of the circulation system. The impact is less than significant.

b) The project will not conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

c-d) The project does not propose any design issues that would cause a change in air traffic patterns, alter waterborne, or rail and air traffic. The project will have no impact.

e-f) The project will not substantially increase hazards due to a design feature or cause an effect upon a need for new or altered maintenance of roads.

g) The project site will cause an effect upon circulation during the project's construction; however, impacts are considered less than significant.

h) The project will not cause inadequate emergency access or access to nearby uses.

i) The project site will not conflict with adopted policies, plans or programs regarding public transit, bikeways or pedestrian facilities, or otherwise substantially decrease the performance or safety of such facilities.

Mitigation: No mitigation measures are required.

Monitoring: No monitoring measures are required.

44. Bike Trails	☐	☐	☒	☐

Source: Riverside County General Plan

Findings of Fact: The General Plan does not identify a Class I Bikeway/Regional Trail. The project will have a less than significant impact.

Mitigation: No mitigation measures are required.

Monitoring: No monitoring measures are required.

UTILITY AND SERVICE SYSTEMS Would the project				
45. Water				
a) Require or result in the construction of new water treatment facilities or expansion of existing facilities, the construction of which would cause significant environmental effects?	☐	☒	☐	☐
b) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	☐	☐	☒	☐

Source: Department of Environmental Health Review

Findings of Fact:

a-b) The proposed project will require the construction of new water treatment facilities including new well to address water quality. Water system treatment to reduce arsenic levels to meet the State maximum contamination level of 10 parts per billion is required and must be approved by County Department of Public Health.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

Mitigation: Compliance with the conditions of approval on file in the LMS, including 10 E HEALTH 2 - Well Permits Required and 10 E HEALTH 3 - Water System Requirements.

Monitoring: Monitoring measures are required by the Environmental Health Department.

46. Sewer				
a) Require or result in the construction of new wastewater treatment facilities, including septic systems, or expansion of existing facilities, the construction of which would cause significant environmental effects?	☐	☒	☐	☐
b) Result in a determination by the wastewater treatment provider that serves or may service the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☒	☐	☐

Source: Department of Environmental Health Review

Findings of Fact:

a-b) The proposed project will include continued use of existing sanitation ponds in the interim, however, the project requires the construction of new sewer treatment facilities. A future sewer line extension is proposed approximately 6000 lineal feet from existing force main at Avenue 66 and Lincoln Street south along Lincoln Street to Avenue 68 and Lincoln Street. A future Lift Station is proposed to be provided by the Coachella Valley Water District as part of the sewer line extension. These sewer improvements are conditioned to occur within a two year timeframe from the date of approval.

Mitigation: Compliance with the conditions of approval on file in the LMS, including 20 E HEALTH 1 – CVWD Sewer Connect Within 2 Years.

Monitoring: Monitoring measures are required by the Environmental Health Department.

47. Solid Waste				
a) Is the project served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☐	☐	☒
b) Does the project comply with federal, state, and local statutes and regulations related to solid wastes including the CIWMP (County Integrated Waste Management Plan)?	☐	☐	☐	☒

Source: Riverside County General Plan, Riverside County Waste Management District correspondence

Findings of Fact:

a-b) The project will be served by Riverside County Waste Management Department. The proposed project will not require or result in the construction of new landfill facilities, including the expansion of existing facilities. The project will have no impact.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

Mitigation: No mitigation measures are required.

Monitoring: No monitoring measures are required.

48. Utilities

Would the project impact the following facilities requiring or resulting in the construction of new facilities or the expansion of existing facilities; the construction of which could cause significant environmental effects?

a) Electricity?	☐	☐	☒	☐
b) Natural gas?	☐	☐	☒	☐
c) Communications systems?	☐	☐	☒	☐
d) Storm water drainage?	☐	☐	☒	☐
e) Street lighting?	☐	☐	☒	☐
f) Maintenance of public facilities, including roads?	☐	☐	☒	☐
g) Other governmental services?	☐	☐	☒	☐

Source: Riverside County General Plan

Findings of Fact:

a-g) No letters have been received eliciting responses that the proposed project would require substantial new facilities or expand facilities. The project will have no impact.

Mitigation: No mitigation measures are required.

Monitoring: No monitoring measures are required.

49. Energy Conservation a) Would the project conflict with any adopted energy conservation plans?	☐	☐	☐	☒

Source: Riverside County General Plan

Findings of Fact:

a-b) The proposed project will not project conflict with any adopted energy conservation plans. The project will have no impact.

Mitigation: No mitigation measures are required.

Monitoring: No monitoring measures are required.

MANDATORY FINDINGS OF SIGNIFICANCE

50. Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or	☐	☐	☐	☒

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
animal community, reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory?				

Source: Staff review, Project Application Materials

Findings of Fact: Implementation of the proposed project would not substantially degrade the quality of the environment, substantially reduce the habitat of fish or wildlife species, cause a fish or wildlife populations to drop below self-sustaining levels, threaten to eliminate a plant or animal community, or reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory.

51.	Does the project have impacts which are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, other current projects and probable future projects)?	☐	☐	☐	☒

Source: Staff review, Project Application Materials

Findings of Fact: The project does not have impacts which are individually limited, but cumulatively considerable.

52.	Does the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	☐	☒

Source: Staff review, project application

Findings of Fact: The proposed project would not result in environmental effects which would cause substantial adverse effects on human beings, either directly or indirectly.

VI. EARLIER ANALYSES

Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration as per California Code of Regulations, Section 15063 (c) (3) (D). In this case, a brief discussion should identify the following:

Earlier Analyses Used, if any:

- SCAQMD CEQA Air Quality Handbook
- RCIP: Riverside County Integrated Project.
- RCLIS: Riverside County Land Information System
- Geology: Geology Report No. 2190

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

Location Where Earlier Analyses, if used, are available for review:

Location: County of Riverside Planning Department
4080 Lemon Street, 12th Floor
Riverside, CA 92505

VII. AUTHORITIES CITED

Authorities cited: Public Resources Code Sections 21083 and 21083.05; References: California Government Code Section 65088.4; Public Resources Code Sections 21080(c), 21080.1, 21080.3, 21082.1, 21083, 21083.05, 21083.3, 21093, 21094, 21095 and 21151; *Sundstrom v. County of Mendocino* (1988) 202 Cal.App.3d 296; *Leonoff v. Monterey Board of Supervisors* (1990) 222 Cal.App.3d 1337; *Eureka Citizens for Responsible Govt. v. City of Eureka (2007)* 147 Cal.App.4th 357; *Protect the Historic Amador Waterways v. Amador Water Agency* (2004) 116 Cal.App.4th at 1109; *San Franciscans Upholding the Downtown Plan v. City and County of San Francisco* (2002) 102 Cal.App.4th 656.

File: EA.CUP03645

CONDITIONAL USE PERMIT Case #: CUP03645 Parcel: 727-271-008

10. GENERAL CONDITIONS

EVERY DEPARTMENT

10. EVERY. 1 USE - PROJECT DESCRIPTION RECOMMND

The use hereby permitted is for a 136 unit migrant agricultural worker mobile home park to be built in two phases with Phase I consisting of existing park stabilization which includes installation of Reverse Osmosis water filtration system and electrical repairs along with 92 spaces, and Phase II consisting of 44 spaces with 6,200 square foot community center building up to 20 feet in height including child care center, community park, recreational facilities such as basketball court and soccer field, and retention basins. Primary and secondary access is from public road easements from Avenue 68 and State Highway 111. The 136 unit mobile home park replaces an existing 100 unit mobile home park. The site is located within Assessors Parcel Numbers 727-271-002, 727-271-003, 727-271-007, and 727-271-008.

10. EVERY. 2 USE - HOLD HARMLESS RECOMMND

The applicant/permittee or any successor-in-interest shall defend, indemnify, and hold harmless the County of Riverside or its agents, officers, and employees (COUNTY) from the following:

(a) any claim, action, or proceeding against the COUNTY to attack, set aside, void, or annul an approval of the COUNTY, its advisory agencies, appeal boards, or legislative body concerning the CONDITIONAL USE PERMIT; and,

(b) any claim, action or proceeding against the COUNTY to attack, set aside, void or annul any other decision made by the COUNTY concerning the CONDITIONAL USE PERMIT, including, but not limited to, decisions made in response to California Public Records Act requests.

The COUNTY shall promptly notify the applicant/permittee of any such claim, action, or proceeding and shall cooperate fully in the defense. If the COUNTY fails to promptly notify the applicant/permittee of any such claim, action, or proceeding or fails to cooperate fully in the defense, the applicant/permittee shall not, thereafter, be responsible to defend, indemnify or hold harmless the COUNTY.

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10. GENERAL CONDITIONS

10. EVERY. 2 USE - HOLD HARMLESS (cont.) RECOMMND

The obligations imposed by this condition include, but are not limited to, the following: the applicant/permittee shall pay all legal services expenses the COUNTY incurs in connection with any such claim, action or proceeding, whether it incurs such expenses directly, whether it is ordered by a court to pay such expenses, or whether it incurs such expenses by providing legal services through its Office of County Counsel.

10. EVERY. 3 USE - DEFINITIONS RECOMMND

The words identified in the following list that appear in all capitals in the attached conditions of Conditional Use Permit No. 3645 shall be henceforth defined as follows:

APPROVED EXHIBIT A = Exhibit A, Amended No. 1, Sheets 1 thru 6, dated March 2011 (site and grading plans), Exhibit A-1 (Access Exhibit), Exhibits B & C (floor plans and elevations), Exhibits D-1 thru D-5 (preliminary grading plans), Exhibits L-1 thru L-2 (conceptual landscape plans), Exhibit M (color elevation), Exhibit P (Phasing Plan), and Exhibit S (monument sign).

BS GRADE DEPARTMENT

10.BS GRADE. 1 USE - GENERAL INTRODUCTION RECOMMND

Improvements such as grading, filling, over excavation and recompaction, and base or paving which require a grading permit are subject to the included Building and Safety Department Grading Division conditions of approval.

10.BS GRADE. 3 USE - OBEY ALL GDG REGS RECOMMND

All grading shall conform to the California Building Code, Ordinance 457, and all other relevant laws, rules, and regulations governing grading in Riverside County and prior to commencing any grading which includes 50 or more cubic yards, the applicant shall obtain a grading permit from the Building and Safety Department.

10.BS GRADE. 4 USE - DISTURBS NEED G/PMT RECOMMND

Ordinance 457 requires a grading permit prior to clearing, grubbing, or any top soil disturbances related to construction grading.

CONDITIONAL USE PERMIT Case #: CUP03645 Parcel: 727-271-008

10. GENERAL CONDITIONS

10.BS GRADE. 5 USE - PRE-CONSTRUCTION MTG RECOMMND

Prior to conducting any clearing, stockpiling, grading or excavation, the applicant is required to schedule a pre-construction meeting with the Building and Safety Department Environmental Compliance Division.

10.BS GRADE. 6 USE - NPDES INSPECTIONS RECOMMND

Construction activities including clearing, stockpiling, grading or excavation of land which disturbs less than 1 acre and requires a grading permit or construction Building permit shall provide for effective control of erosion, sediment and all other pollutants year-round. The permit holder shall be responsible for the installation and monitoring of effective erosion and sediment controls. Such controls will be evaluated by the Department of Building and Safety periodically and prior to permit Final to verify compliance with industry recognized erosion control measures.

Construction activities including but not limited to clearing, stockpiling, grading or excavation of land, which disturbs 1 acre or more or on-sites which are part of a larger common plan of development which disturbs less than 1 acre are required to obtain coverage under the construction general permit with the State Water Resources Control Board. You are required to provide proof of WDID# and keep a current copy of the storm water pollution prevention plan (SWPPP) on the construction site and shall be made available to the Department of Building and Safety upon request.

Year-round, Best Management Practices (BMP's) shall be maintained and be in place for all areas that have been graded or disturbed and for all material, equipment and/or operations that need protection. Stabilized Construction Entrances and project perimeter linear barriers are required year round. Removal BMP's (those BMP's which must be temporarily removed during construction activities) shall be in place at the end of each working day.

Monitoring for erosion and sediment control is required and shall be performed by the QSD or QSP as required by the Construction General Permit. Stormwater samples are required for all discharge locations and projects may not exceed limits set forth by the Construction General Permit Numeric Action Levels and/or Numeric Effluent Levels. A

CONDITIONAL USE PERMIT Case #: CUP03645 Parcel: 727-271-008

10. GENERAL CONDITIONS

10.BS GRADE. 6 USE - NPDES INSPECTIONS (cont.) RECOMMND

Rain Event Action Plan is required when there is a 50% or greater forecast of rain within the 48 hours, by the National Weather Service or whenever rain is imminent. The QSD or QSP must print and save records of the precipitation forecast for the project location area from (http://www.srh.noaa.gov/forecast) and must accompany monitoring reports and sampling test data. A Rain gauge is required on site. The Department of Building and Safety will conduct periodic NPDES inspections of the site throughout the recognized storm season to verify compliance with the Construction General Permit and Stormwater ordinances and regulations.

10.BS GRADE. 7 USE - EROSION CNTRL PROTECT RECOMMND

Graded but undeveloped land shall provide, in addition to erosion control planting, any drainage facility deemed necessary to control or prevent erosion. Additional erosion protection may be required during the rainy season from October 1, to May 31.

10.BS GRADE. 8 USE - DUST CONTROL RECOMMND

All necessary measures to control dust shall be implemented by the developer during grading. A PM10 plan may be required at the time a grading permit is issued.

10.BS GRADE. 9 USE - 2:1 MAX SLOPE RATIO RECOMMND

Graded slopes shall be limited to a maximum steepness ratio of 2:1 (horizontal to vertical) unless otherwise approved.

10.BS GRADE. 11 USE - MINIMUM DRNAGE GRADE RECOMMND

Minimum drainage grade shall be 1% except on portland cement concrete where .35% shall be the minimum.

10.BS GRADE. 12 USE - DRAINAGE & TERRACING RECOMMND

Provide drainage facilities and terracing in conformance with the California Building Code's chapter on "EXCAVATION & GRADING".

CONDITIONAL USE PERMIT Case #: CUP03645 Parcel: 727-271-008

10. GENERAL CONDITIONS

10.BS GRADE. 13 USE - SLOPE SETBACKS RECOMMND

Observe slope setbacks from buildings & property lines per the California Building Code as amended by Ordinance 457.

10.BS GRADE. 14 USE - SLOPES IN FLOODWAY RECOMMND

Graded slopes which infringe into the 100 year storm flood way boundaries, shall be protected from erosion, or other flood hazards, by a method acceptable to the Building & Safety Department's Engineer - which may include Riverside County Flood Control & Water Conservation District's review and approval. However, no graded slope will be allowed which in the professional judgment of the Building & Safety Department Engineer blocks, concentrates or diverts drainage flows.

10.BS GRADE. 16 USE - LOT TO LOT DRN ESMT RECOMMND

A recorded easement is required for lot to lot drainage.

10.BS GRADE. 17 USE - PVT RD GRADG PMT RECOMMND

Constructing a private road requires a grading permit. All private roads which are conditioned to be paved shall conform to Ordinance 457 base and paving and inspection requirements.

10.BS GRADE. 18 USE - OFFST. PAVED PKG RECOMMND

All offstreet parking areas which are conditioned to be paved shall conform to Ordinance 457 base and paving design and inspection requirements.

10.BS GRADE. 19 USE - FAULT LOCATIONS RECOMMND

Prior to issuance of any building permit on any lot located within the "Fault Hazard Zone" and its included setback area, the applicant shall have a licensed professional, qualified to do so, clearly delineate in the field the portions of that lot which are located within the "Fault Hazard Zone." No structures or portions thereof shall be located in those areas.

10.BS GRADE. 20 USE - RETAINING WALLS RECOMMND

Lots which propose retaining walls will require separate permits. They shall be obtained prior to the issuance of

CONDITIONAL USE PERMIT Case #: CUP03645 Parcel: 727-271-008

10. GENERAL CONDITIONS

10.BS GRADE. 20 USE - RETAINING WALLS (cont.) RECOMMND

any other building permits - unless otherwise approved by the Building and Safety Director. The walls shall be designed by a Registered Civil Engineer - unless they conform to the County Standard Retaining Wall designs shown on the Building and Safety Department form 284-197.

10.BS GRADE. 23 USE - MANUFACTURED SLOPES RECOMMND

Plant and irrigate all manufactured slopes equal to or greater than 3 feet in vertical height with drought tolerant grass or ground cover; slopes 15 feet or greater in vertical height shall also be planted with drought tolerant shrubs or trees in accordance with the requirements of Ordinance 457.

10.BS GRADE. 24 USE - FINISH GRADE RECOMMND

Finish grade shall be sloped to provide proper drainage away from all exterior foundation walls in accordance with the California Building Code and Ordinance 457.

E HEALTH DEPARTMENT

10.E HEALTH. 1 CVWD SANITARY SEWER SERVICE RECOMMND

Conditional Use Permit#3645 is proposing Coachella Valley Water District (CVWD) sanitary sewer service only. It is the responsibility of the developer to ensure that all requirements to obtain sewer service are met with CVWD as well as all other applicable agencies.
All existing onsite wastewater treatment systems, sewage lagoons, or other onsite wastewater disposal system must be properly removed/abandoned under permit with the Department of Environmental Health (DEH).

10.E HEALTH. 2 ENVH - WELL PERMITS REQUIRED RECOMMND

All wells drilled to serve this project (CUP#3645) must be permitted by the Department of Environmental Health (DEH). Please contact DEH Water Resources at (760) 393-3390 for further information.

10.E HEALTH. 3 WATER SYSTEM REQUIREMENTS RECOMMND

The onsite water system which will serve this project (CUP#3645) must be permitted by the Department of

CONDITIONAL USE PERMIT Case #: CUP03645 Parcel: 727-271-008

10. GENERAL CONDITIONS

10.E HEALTH. 3 WATER SYSTEM REQUIREMENTS (cont.) RECOMMND

Environmental Health (DEH) and be capable of providing water to consumers that is pure, wholesome, potable and in compliance with statutory and regulatory drinking water requirements at all times. Water system treatment to reduce arsenic levels to meet the State maximum contamination level of 10 parts per billion is required and must be approved by DEH.

FIRE DEPARTMENT

10.FIRE. 1 USE-#50-BLUE DOT REFLECTOR RECOMMND

Blue retroreflective pavement markers shall be mounted on private street, public streets and driveways to indicate location of fire hydrants. Prior to installation, placement of markers must be approved by the Riverside County Fire Department.

10.FIRE. 2 USE*-#23-MIN REQ FIRE FLOW RECOMMND

MINIMUM required fire flow shall be 1500 GPM for a 2 hour duration at 20 PSI residual operating pressure, which must be available before any combustible material is placed on the job site. Fire flow is based on type VB construction per the 2007 CFC and Building(s) having a fire sprinkler system.

10.FIRE. 3 USE-#20-SUPER FIRE HYDRANT RECOMMND

Super fire hydrants) (6"x4"x 2-2 1/2") shall be located ot less than 25 feet or more than 165 feet from any portion of the building as measured along approved vehicular travel ways.

10.FIRE. 4 USE-#89-RAPID HAZMAT BOX RECOMMND

Rapid entry Hazardous Material data and key storage cabinet shall be installed on the outside of the building. Plans shall be submitted to the Riverside County Fire Department for approval prior to installation.

10.FIRE. 5 USE-#25-GATE ENTRANCES RECOMMND

ny gate providing access from a road to a driveway shall be located at least 35 feet from the roadway and shall open to

CONDITIONAL USE PERMIT Case #: CUP03645 Parcel: 727-271-008

10. GENERAL CONDITIONS

10.FIRE. 5 USE-#25-GATE ENTRANCES (cont.) RECOMMND

allow a vehicle to stop without obstructing traffic on the road. Where a one-way road with a single traffic lane provides access to a gate entrance, a 38 foot turning radius shall be used.

FLOOD RI DEPARTMENT

10.FLOOD RI. 1 USE FLOOD HAZARD RPT 04/25/11 RECOMMND

Conditional Use Permit No. 3645 is a proposal to develop 136 unit mobile home park including recreational facility, park and child care center. The 75 gross acre site is located in the Mecca area, north of 68th Avenue, south of Highway 111, east of Lincoln Street, west of Johnson Street, located at 91250 Avenue 68.

It should be noted that the District's review is limited to the water quality aspects contained in the WQMP only and that drainage aspects/impacts will be reviewed by other departments/agencies.

The site is subject to minimal sheet flow runoff since the existing pond embankments north of the site provides the protection from offsite runoff.

The proposed development of this site would adversely impact water quality. To mitigate for these impacts, two (2) basins are proposed. Minimal infiltration can be expected for the site, as indicated in the submitted geotechnical report. Therefore, to address both the site's Hydrologic Conditions of Concern (HCOC) and water quality impacts, the proposed basins are designed to retain the 100 year, 24 hour storm event within the pea gravel layer. The entire volume will be contained subsurface, within the gravel layer, so there will be surface dead storage. The proposed basins design and volume calculations included in the preliminary WQMP have some errors/inconsistencies which will need to be addressed in the plan check stage.

10.FLOOD RI. 2 USE SUBMIT FINAL WQMP =PRELIM RECOMMND

In compliance with Colorado River Regional Water Quality Control Board Orders, and beginning June 15, 2009, projects submitted within the Whitewater River watershed of the unincorporated area of Riverside County for discretionary approval will be required to comply with the Water Quality

CONDITIONAL USE PERMIT Case #: CUP03645 Parcel: 727-271-008

10. GENERAL CONDITIONS

10.FLOOD RI. 2 USE SUBMIT FINAL WQMP =PRELIM (cont.) RECOMMND

Management Plan (WQMP) for Urban Runoff. The WQMP addresses post-development water quality impacts from new development and redevelopment projects. The WQMP provides detailed guidelines and templates to assist the developer in completing the necessary studies. These documents are available on-line at: www. rcflood.org/npdes. To comply with the WQMP, a developer must submit a "Project Specific" WQMP. This report is intended to: a) identify potential post-project pollutants and hydrologic impacts associated with the development; b) propose Best Management Practices (BMPs) as mitigation measures for the identified impacts including site design, source control and treatment control post-development BMPs; and c) identify sustainable funding and maintenance mechanisms for the aforementioned BMPs. A template for this report is included as 'Exhibit 1' in the WQMP. The developer has submitted a report that meets the criteria for a Preliminary Project Specific WQMP (see Flood Hazard Report). However, the report will need to be revised to meet the requirements of a Final Project Specific WQMP. Also, it should be noted that if 401 certification is necessary for the project, the Regional Water Quality Control Board may require additional water quality measures.

10.FLOOD RI. 3 USE WQMP ESTABL MAINT ENTITY RECOMMND

This project proposes BMP facilities that will require maintenance by public agency or commercial property owner association. To ensure that the public is not unduly burdened with future costs, prior to final approval or recordation of this case, the District will require an acceptable financial mechanism be implemented to provide for maintenance of treatment control BMPs in perpetuity. This may consist of a mechanism to assess individual benefiting property owners, or other means approved by the District. The site's treatment control BMPs must be shown on the project's improvement plans - either the street plans, grading plans, or landscaping plans. The type of improvement plans that will show the BMPs will depend on the selected maintenance entity.

CONDITIONAL USE PERMIT Case #: CUP03645 Parcel: 727-271-008

10. GENERAL CONDITIONS

PLANNING DEPARTMENT

10.PLANNING. 1 USE - COMPLY WITH ORD./CODES RECOMMND

The development of these premises shall comply with the standards of Ordinance No. 348 and all other applicable Riverside County ordinances and State and Federal codes.

The development of the premises shall conform substantially with that as shown on APPROVED EXHIBIT A, unless otherwise amended by these conditions of approval.

10.PLANNING. 2 USE - FEES FOR REVIEW RECOMMND

Any subsequent submittals required by these conditions of approval, including but not limited to grading plan, building plan or mitigation monitoring review, shall be reviewed on an hourly basis (research fee), or other such review fee as may be in effect at the time of submittal, as required by Ordinance No. 671. Each submittal shall be accompanied with a letter clearly indicating which condition or conditions the submittal is intended to comply with.

10.PLANNING. 3 USE - LIGHTING HOODED/DIRECTED RECOMMND

Any outside lighting shall be hooded and directed so as not to shine directly upon adjoining property or public rights-of-way.

10.PLANNING. 5 USE - LAND DIVISION REQUIRED RECOMMND

Prior to the sale of any individual structure as shown on APPROVED EXHIBIT A, a land division shall be recorded in accordance with verside County Ordinance No. 460, and any other pertinent ordinance.

10.PLANNING. 6 USE - HOURS OF OPERATION RECOMMND

Use of the child care center approved under this conditional use permit shall be limited to the hours of 6:00 a.m. to 7:00 p.m., Monday through Sunday.

10.PLANNING. 9 USE - NO OUTDOOR ADVERTISING RECOMMND

No outdoor advertising display, sign or billboard (not including on-site advertising or directional signs) shall be constructed or maintained within the property subject

CONDITIONAL USE PERMIT Case #: CUP03645 Parcel: 727-271-008

10. GENERAL CONDITIONS

10.PLANNING. 9 USE - NO OUTDOOR ADVERTISING (cont.) RECOMMND

to this approval.

10.PLANNING. 10 USE - PHASES ALLOWED RECOMMND

Construction of this project may be done in phases. Any additional phases, or modifications to the approved phasing, may be permitted provided a plan for each phase of development is submitted to and approved by the Planning Department. Phasing approval shall not apply to the requirements of any agency other than the Planning Department unless otherwise indicated by the affected agency.

10.PLANNING. 12 USE - NO SECOND FLOOR RECOMMND

No tenant improvement permit, or any other building permit, shall be granted for any second story, second floor, mezzanine, or interior balcony unless a plot plan, conditional use permit, public use permit, substantial conformance or a revised permit is approved by the Planning Department pursuant to Section 18.12 of Ordinance No. 348 in order to assure adequate parking remains within the property. Only a one story building was approved as part of this permit and reviewed for parking standards.

10.PLANNING. 13 USE - MAINTAIN LICENSING RECOMMND

At all times during the conduct of the permitted uses the permittee shall maintain and keep in effect valid licensing approval from the California Department of Housing and Community Development and California Department of Community Care or equivalent agencies as provided by law. Should such licensing be denied, expire or lapse at any time in the future, this permit shall become null and void.

10.PLANNING. 14 USE - NO OFF-ROAD USES ALLOWED RECOMMND

Trail bikes, dune buggies, off-road vehicles and other similar powered apparatus shall not be operated for purposes such as, but not limited to, hill climbing, trail riding, scrambling, racing and riding exhibitions.

10.PLANNING. 15 USE - EXTERIOR NOISE LEVELS RECOMMND

Exterior noise levels produced by any use allowed under this permit, including, but not limited to, any outdoor

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10. GENERAL CONDITIONS

10.PLANNING. 15 USE - EXTERIOR NOISE LEVELS (cont.) RECOMMND

public address system, shall not exceed 45 db(A), 10-minute LEQ, between the hours of 10:00 p.m. to 7:00 a.m., and 65 db(A), 10-minute LEQ, at all other times as measured at any residential, hospital, school, library, nursing home or other similar noise sensitive land use. In the event noise exceeds this standard, the permittee or the permittee's successor-in-interest shall take the necessary steps to remedy the situation, which may include discontinued operation of the facilities. he permit holder shall comply with the applicable standards of Ordinance No. 847.

10.PLANNING. 16 USE - NOISE MONITORING REPORTS RECOMMND

The permit holder may be required to submit periodic noise monitoring reports as determined by the Department of Building and Safety as part of a code enforcement action. Upon written notice from the Department of Building and Safety requiring such a report, the permittee or the permittee's successor-in-interest shall prepare and submit an approved report within thirty (30) calendar days to the Department of Building and Safety, unless more time is allowed through written agreement by the Department of Building and Safety. The noise monitoring report shall be approved by the Office of Industrial Hygiene of the Health Service Agency (the permittee or the permittee's successor-in-interest shall be required to place on deposit sufficient funds to cover the costs of this approval prior to commencing the required report).

10.PLANNING. 17 USE - AGRICULTURE CODES RECOMMND

This property is located within the Coachella Valley and all landscape planting shall comply with the requirements of the State Agriculture Code and the directives of the Riverside County Agricultural Commissioner. All landscaping plans submitted to the Planning Department shall included the following notation: "Warning: Plant material listed may or may not have been approved by the Agricultural Commissioner's office. Landscape contractor, please contact the developer for status of Agricultural Commissioner's approval or denial. Plan material not conforming with quarantine laws may be destroyed and civil action taken. All plant material is subject to inspection at the discretion of the Agricultural Commissioner's office. All plant material must be free from Red Scale

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10. GENERAL CONDITIONS

10.PLANNING. 17 USE - AGRICULTURE CODES (cont.) RECOMMND

(Aonidiella aurantii.)"

10.PLANNING. 19 USE - PREVENT DUST & BLOWSAND RECOMMND

Graded but undeveloped land shall be maintained in a condition so as to prevent a dust and/or blowsand nuisance and shall be either planted with interim landscaping or provided with other wind and water erosion control measures as approved by the Building and Safety Department and the State air quality management authorities.

10.PLANNING. 20 USE - VOID RELATED PROJECT RECOMMND

Any approval for use of or development on this property that was made pursuant to CUP01229 shall become null and void upon final approval of CUP03645 by the County of Riverside.

10.PLANNING. 21 USE - CAUSES FOR REVOCATION RECOMMND

In the event the use hereby permitted under this permit,
a) is found to be in violation of the terms and conditions of this permit,
b) is found to have been obtained by fraud or perjured testimony, or
c) is found to be detrimental to the public health, safety or general welfare, or is a public nuisance, this permit shall be subject to the revocation procedures.

10.PLANNING. 22 USE - CEASED OPERATIONS RECOMMND

In the event the use hereby permitted ceases operation for a period of one (1) year or more, this approval shall become null and void.

10.PLANNING. 30 USE - BUSINESS LICENSING RECOMMND

Every person conducting a business within the unincorporated area of Riverside County, as defined in Riverside County Ordinance No. 857, shall obtain a business license. For more information regarding business registration, contact the Business Registration and License Program Office of the Building and Safety Department at www.rctlma.org.buslic.

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10. GENERAL CONDITIONS

10.PLANNING. 31 GEN - IF HUMAN REMAINS FOUND RECOMMND

The developer/permit holder or any successor in interest shall comply with the following codes for the life of this project:

If human remains are encountered, State Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the County Coroner has made the necessary findings as to origin. Further, pursuant to Public Resources Code Section 5097.98 (b), remains shall be left in place and free from disturbance until a final decision as to the treatment and their disposition has been made. If the Riverside County Coroner determines the remains to be Native American, the Native American Heritage Commission shall be contacted within the period specified by law. Subsequently, the Native American Heritage Commission shall identify the "Most Likely Descendant." The Most Likely Descendant shall then make recommendations and engage in consultation with the County and the property owner concerning the treatment of the remains as provided in Public Resources Code Section 5097.98. Human remains from other ethnic/cultural groups with recognized historical associations to the project area shall also be subject to consultation between appropriate representatives from that group and the County Planning /Director.

10.PLANNING. 32 GEN - INADVERTANT ARCHAEO FIND RECOMMND

The developer/permit holder or any successor in interest shall comply with the following for the life of this project:

If during ground disturbance activities, cultural resources are discovered that were not assessed by the archaeological reports and/or environmental assessment conducted prior to project approval, the following procedures shall be followed. A cultural resources site is defined, for this condition, as being three or more artifacts in close association with each other, but may include fewer artifacts if the area of the find is determined to be of significance due to it sacred or cultural importance.

1.All ground disturbance activities within 100 feet of the discovered cultural resource shall be halted until a meeting is convened between the developer, the project archaeologist, the Native American tribal representative (or other appropriate ethic/cultural group representative),

10. GENERAL CONDITIONS

10.PLANNING. 32 GEN - INADVERTANT ARCHAEO FIND (cont.) RECOMMND

and the Planning Director to discuss the significance of the find.

2.At the meeting, the significance of the discoveries shall be discussed and after consultation with the Native American tribal (or other appropriate ethnic/cultural group representative) and the archaeologist, a decision is made, with the concurrence of the Planning Director, as to the appropriate mitigation (documentation, recovery, avoidance, etc) for the cultural resource.

3.Further ground disturbance shall not resume within the area of the discovery until an agreement has been reached by all parties as to the appropriate preservation or mitigation measures.

10.PLANNING. 33 USE - GEO02219 RECOMMND

County Geologic Report (GEO) No. 2219 submitted for this project (CUP03645) was prepared by Earth Systems Southwest and is entitled "Geotechnical Engineering Report, 67-075 Highway 111, St. Anthony's of the Desert, Mecca, California", dated August 19, 2010. In addition, Earth Systems Southwest submitted "Addendum to Geotechnical Engineering Report, St. Anthony's of the Desert, 67-075 Highway 111, Mecca, California", dated October 15, 2010. This document is herein incorporated as a part of BGEO02219.

GEO02219 concluded:

1.The primary seismic hazard to the site is strong ground shaking from earthquakes along the San Andreas fault.

2.No active faults are mapped in the immediate vicinity of the site.

3.Active fault rupture is unlikely to occur at the project site.

4.The subsoils starting at about 10 foot depth are likely to liquefy during the desing basis earthquake.

5.Total ground subsidence from liquefaction is estimated to be 0.5 to 1.5 inches. Differential settlement may be estimated at 1.0 inch.

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10. GENERAL CONDITIONS

10.PLANNING. 33 USE - GEO02219 (cont.) RECOMMND

6.The potential for slope instability, landslides, or debris flows are considered negligible.

7.The hazard from tsunamis is non-existent.

8.The future potential for seismic seiches to induce flooding remains negligible.

GEO02219 recommended:

1. Ground improvement to prevent or mitigate liquefaction.

2.Foundations that use grade beam footings to tie floor slabs and isolated columns to continuous footings, designed to accommodate the estimated differential settlement of 1-inch in a 20-foot span.

3.The water tank should be engineer designed for impulsive and convective seismic hydrodynamic pressures and the evaporation pond has a freeboard berm that is the lesser of 3 feet or the depth of impoundment.

GEO02219 satisfies the requirement for a Geologic Study for Planning / CEQA purposes. GEO02219 is hereby accepted for Planning purposes. This approval is not intended, and should not be misconstrued as approval for grading permit. Engineering and other building code parameters will be reviewed and additional comments and/or conditions may be imposed by the Building and Safety Department upon application for grading and/or building permits.

10.PLANNING. 34 USE - LC LANDSCAPE REQUIREMENT RECOMMND

The developer/ permit holder shall:

1)Ensure all landscape and irrigation plans are in conformance with the APPROVED EXHIBITS;

2)Ensure all landscaping is provided with California Friendly landscaping and a weather based irrigation controller(s) as defined by County Ordinance No. 859;

3)Ensure that irrigation plans which may use reclaimed water conform with the requirements of the local water purveyor; and,

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10. GENERAL CONDITIONS

10.PLANNING. 34 USE - LC LANDSCAPE REQUIREMENT (cont.) RECOMMND

4)Be responsible for maintenance, viability and upkeep of all slopes, landscaped areas, and irrigation systems until the successful completion of the twelve (12) month inspection or those operations become the responsibility of the individual property owner(s), a property owner's association, or any other successor-in-interest, whichever occurs later.

To ensure ongoing maintenance, the developer/ permit holder or any successor in interest shall:

1)Connect to a reclaimed water supply for landscape irrigation purposes when reclaimed water is made available.

2)Ensure that landscaping, irrigation and maintenance systems comply with the Riverside County Guide to California Friendly Landscaping, and Ordinance No. 859.

3)Ensure that all landscaping is healthy, free of weeds, disease and pests.

10.PLANNING. 35 USE - MAX MOBILE HOME SPACES RECOMMND

A maximum of 136 mobile home or manufactured dwelling unit spaces are approved by this permit.

10.PLANNING. 36 USE - NO RV PARK/TENT CAMPING RECOMMND

No recreational vehicle, recreational trailer, special occupancy or RV park is approved except as allowed by state law. No area within the property is designated or designed for tent camping under this permit.

10.PLANNING. 37 USE - NO COMMERCIAL MH SALES RECOMMND

No commercial mobilehome sales facility is approved. Model sales units, if installed, shall only be allowed in connection with a rental office, shall only be located on designated mobilehome spaces and shall be subject to appropriate mobilehome set up permits from the Department of Building and Safety.

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10. GENERAL CONDITIONS

10.PLANNING. 38 USE - ACCESSORY STRUCTURES RECOMMND

Carport, enclosed garages, cabanas, ramadas, awnings and similiar structures may be provided at each space provided such structures are permitted pursuant to state and county requirements, including building codes, and conform to all mandatory setbacks.

10.PLANNING. 39 USE - NUMBER OF MH PER SPACE RECOMMND

Only (1) one mobilehome per space or desingated site as shown on the APPROVED EXHIBIT A connected to utilities shall be allowed. No other mobilehome, vehicle, tent or structure within spaces or designated sites shall be used for human habitation. A maximum of 136 mobilehome spaces are approved.

10.PLANNING. 40 USE - SITE IMPROVEMENTS RECOMMND

The area between the ground level and the floor level and each mobilehome shall be screened by an opaque skirt entirely around and encircling the unit.

Mobilehomes or other manufactured dwellings, may be permitted to remain on-site during periods of non-occupancy, as would nomrally be expected by migrant agricultural workers.

10.PLANNING. 41 USE - CHILD CARE FACILITY RECOMMND

A maximum of 15 children are permitted in the child care facility within the community center building.

10.PLANNING. 43 USE - LIMIT OUTDOOR STORAGE RECOMMND

No approval is granted for more than 200 square feet of outdoor storage or display of materials or merchandise; any and all outdoor storage or display of materials or merchandise shall be limited in area to 200 square feet or less within the entire premises.

10.PLANNING. 44 USE - LIMIT ON SIGNAGE RECOMMND

Signage for this project shall be limited to the 50 square foot monument sign up to 6 feet in height as shown on APPROVED EXHIBIT A. Any additional signage shall be approved by the Planning Department pursuant to the requirements of Section 18.30 (Planning Department review

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10. GENERAL CONDITIONS

10.PLANNING. 44 USE - LIMIT ON SIGNAGE (cont.) RECOMMND

only) of Ordinance No. 348.

10.PLANNING. 45 USE - FARM LABOR OCCUPANCY RECOMMND

The property under this conditional use permit shall be in compliance with Section 21.51c of Ordinannce No. 348, including as follows:

a) Not less than 80 percent of the trailer sites are restricted to rental by migrant agricultural workers for a period of time not to exceed nine months in any 12 month period.

b) The remainder of the sites are restricted to rental by permanent agricultural workers, and occupancy by the owner or operator of the trailer park.

TRANS DEPARTMENT

10.TRANS. 6 USE - COUNTY WEB SITE RECOMMND

Additional information, standards, ordinances, policies, and design guidelines can be obtained from the Transportation Department Web site: http://rctlma.org/trans/. If you have questions, please call the Plan Check Section at (951) 955-6527.

10.TRANS. 9 USE - STD INTRO 3(ORD 460/461) RECOMMND

With respect to the conditions of approval for the referenced tentative exhibit, the landowner shall provide all street improvements, street improvement plans and/or road dedications set forth herein in accordance with Ordinance 460 and Riverside County Road Improvement Standards (Ordinance 461). It is understood that the exhibit correctly shows acceptable centerline elevations, all existing easements, traveled ways, and drainage courses with appropriate Q's, and that their omission or unacceptability may require the exhibit to be resubmitted for further consideration. These ordinances and all conditions of approval are essential parts and a requirement occurring in ONE is as binding as though occurring in all. All questions regarding the true meaning of the conditions shall be referred to the Transportation Department.

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10. GENERAL CONDITIONS

10.TRANS. 10 USE - ENCROACHMENT PERMIT RECOMMND

An encroachment permit must be obtained from the Transportation Department prior to the commencement of any work within the County road right-of-way.

10.TRANS. 11 USE - TS/EXEMPT RECOMMND

The Transportation Department has not required a traffic study for the subject project. The Transportation Department has determined that the project is exempt from traffic study requirements.

10.TRANS. 12 USE - FLOOD HAZARD REPORT 1 RECOMMND

This is a proposal to construct trailer park housing on 33 acres (APN 727-271-003). This project lies within the limits of the Mecca area on the east side of Lincoln and north of 68th Ave. The Mecca area has a requirement for new developments to retain 100 percent of the runoff for a 100-year event. The owner shall provide mitigation measures to be incorporated into the development to prevent flooding of the site or downstream properties. The 100 percent retention of the post-development runoff from the 100 year storm shall be required as part of the drainage improvements for this project.

10.TRANS. 13 USE - FLOOD HAZARD REPORT 2 RECOMMND

This project is located in an area designated Zone X on Federal Flood Insurance Rate Maps which are in effect at this time by the Federal Emergency Management Agency.

10.TRANS. 14 USE - RETENTION BASIN RECOMMND

For retention basin sizing and calculations refer to letter dated December 20, 2010, from Alan French to Majeed Farshad.

10.TRANS. 15 USE - DRAINAGE PROTECTION RECOMMND

The proponent shall protect downstream properties from damages caused by alteration of drainage patterns, i.e., concentration or diversion of flow. Protection shall be provided by constructing adequate drainage facilities including enlarging existing facilities and/or by securing a drainage easement. All drainage easements shall be recorded by separate instrument and noted as follows,

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10. GENERAL CONDITIONS

10.TRANS. 15 USE - DRAINAGE PROTECTION (cont.) RECOMMND

"Drainage Easement - no building, obstructions, or encroachments are allowed.

10.TRANS. 16 USE - WATER/SEWER IMPROVEMENTS RECOMMND

No later than July 1, 2012, the applicant shall provide a form of security bond for the sewer connections and water well improvements. The form and type of security bond shall be determined by the Transportation Department Director.

THE ABOVE MENTIONED CONDITION WAS ADDED AT PLANNING COMMISSION HEARING ON MAY 25, 2011.

20. PRIOR TO A CERTAIN DATE

E HEALTH DEPARTMENT

20.E HEALTH. 1 CVWD SEWER-CONNECT W/IN 2 YRS RECOMMND

Conditional Use Permit#3645 is proposing to connect to Coachella Valley Water District's (CVWD) sanitary sewer service. Within two (2) years immediately following Board of Supervisors' approval of this planning case, this project must connect to CVWD sanitary sewer service. In addition, all existing septic systems and/or other onsite wastewater treatment systems must be properly removed/abandoned under permit with the Department of Environmental Health (DEH) upon connecting the project to CVWD sewer.

PLANNING DEPARTMENT

20.PLANNING. 2 USE - LIFE OF THE PERMIT RECOMMND

The life of Conditional Use Permit No. 3645 shall terminate on July 1, 2041. This permit shall thereafter be null and void and of no effect whatsoever.

AMENDED BY PLANNING COMMISSION 5/25/11

20.PLANNING. 5 USE - EXPIRATION CODE ENFORCE RECOMMND

This permit shall be considered used as of the day of the effective date. WITHIN SIXTY (60) DAYS OF THE EFFECTIVE DATE OF THIS PERMIT, the permit holder shall apply to the Building and Safety Department for all necessary permits,

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20. PRIOR TO A CERTAIN DATE

20.PLANNING. 5 USE - EXPIRATION CODE ENFORCE (cont.) RECOMMND

including the submission of all required document fees for any plan check review as determined by the Director of Building and Safety, to ensure all buildings, structures and uses are in compliance with the applicable requirements of Ordinance Nos. 457 (Building Code) and 348 (Land Use) and the conditions of approval of this permit. A lock shall be placed on the permit to take effect on the sixtieth day, which shall not be released unless compliance with the above provision has occurred. THE PERMIT HOLDER SHALL PURSUE DILIGENTLY TO COMPLETION ALL NECESSARY PERMITS AND OBTAIN FINAL INSPECTION APPROVAL THEREOF WITHIN ONE (1) YEAR OF THE EFFECTIVE DATE OF THIS PERMIT (additional time may be requested pursuant to Section 18.43 of Ordinance No. 348). A lock shall be placed on any building permit to take effect on the expiration date, and shall not be removed unless compliance with the above provision has occurred. Notwithstanding the above, any circumstance within the property threatening the public health and safety shall be immediately corrected.

20.PLANNING. 6 USE - ANNUAL REPORT RECOMMND

The applicant shall submit an annual report to the Planning Director, Environmental Health Director, and the Fourth District County Supervisor on the status of well removal and the status of sewer/water connections per the Coachella Valley Water District letter dated November 18, 2010 and per conditions 10 E Health 1, 10 E Health 2, 10 E Health 3, and 20 E Health 1.

ADDED BY PLANNING COMMISSION 5/25/11

TRANS DEPARTMENT

20.TRANS. 1 USE - WATER/SEWER IMPROVEMENTS RECOMMND

No later than July 1, 2012, the applicant shall provide a forn of security bond for the sewer connections and water well improvements. The form and type of security bond shall be determined by the Transportation Department Director.

THE ABOVE MENTIONED CONDITION WAS ADDED AT PLANNING COMMISSION HEARING ON MAY 25, 2011.

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60. PRIOR TO GRADING PRMT ISSUANCE

BS GRADE DEPARTMENT

60.BS GRADE. 1 USE - NPDES/SWPPP RECOMMND

Prior to issuance of any grading or construction permits - whichever comes first - the applicant shall provide the Building and Safety Department evidence of compliance with the following: "Effective March 10, 2003 owner operators of grading or construction projects are required to comply with the N.P.D.E.S. (National Pollutant Discharge Elimination System) requirement to obtain a construction permit from the State Water Resource Control Board (SWRCB). The permit requirement applies to grading and construction sites of "ONE" acre or larger. The owner operator can comply by submitting a "Notice of Intent" (NOI), develop and implement a STORM WATER POLLUTION PREVENTION PLAN (SWPPP) and a monitoring program and reporting plan for the construction site. For additional information and to obtain a copy of the NPDES State Construction Permit contact the SWRCB at (916) 657-1146.

Additionally, at the time the county adopts, as part of any ordinance, regulations specific to the N.P.D.E.S., this project (or subdivision) shall comply with them.

60.BS GRADE. 2 USE - GRADING SECURITY RECOMMND

Grading in excess of 199 cubic yards will require a performance security to be posted with the Building and Safety Department.

60.BS GRADE. 3 USE - IMPORT / EXPORT RECOMMND

In instances where a grading plan involves import or export, prior to obtaining a grading permit, the applicant shall have obtained approval for the import/export location from the Building and Safety Department.

A separate stockpile permit is required for the import site. It shall be authorized in conjunction with an approved construction project and shall comply with the requirements of Ordinance 457.
If an Environmental Assessment, prior to issuing a grading permit, did not previously approve either location, a Grading Environmental Assessment shall be submitted to the Planning Director and Environmental Programs Director for review and comment and to the Building and Safety Department Director for approval.

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60. PRIOR TO GRADING PRMT ISSUANCE

60.BS GRADE. 3 USE - IMPORT / EXPORT (cont.) RECOMMND

Additionally, if the movement of import / export occurs using county roads, review and approval of the haul routes by the Transportation Department may be required.

60.BS GRADE. 4 USE - GEOTECH/SOILS RPTS RECOMMND

Geotechnical soils reports, required in order to obtain a grading permit, shall be submitted to the Building and Safety Department for review and approval prior to issuance of a grading permit. All grading shall be in conformance with the recommendations of the geotechnical/soils reports as approved by Riverside County.* *The geotechnical/soils, compaction and inspection reports will be reviewed in accordance with the RIVERSIDE COUNTY GEOTECHNICAL GUIDELINES FOR REVIEW OF GEOTECHNICAL AND GEOLOGIC REPORTS.

60.BS GRADE. 6 USE - DRAINAGE DESIGN Q100 RECOMMND

All drainage facilities shall be designed in accordance with the Riverside County Flood Control & Water District's letter regarding this application, or if not specifically addressed in their letter, to accommodate 100 year storm flows.

60.BS GRADE. 7 USE - OFFSITE GRDG ONUS RECOMMND

Prior to the issuance of a grading permit, it shall be the sole responsibility of the owner/applicant to obtain any and all proposed or required easements and/or permissions necessary to perform the grading herein proposed.

60.BS GRADE. 8 USE - NOTARIZED OFFSITE LTR RECOMMND

A notarized letter of permission, from the affected property owners or easement holders, is required for any proposed off site grading.

60.BS GRADE. 9 USE - RECORDED ESMT REQ'D RECOMMND

A recorded easement is required for off site drainage facilities.

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60. PRIOR TO GRADING PRMT ISSUANCE

60.BS GRADE. 11 USE - APPROVED WQMP RECOMMND

Prior to the issuance of a grading permit, the owner / applicant shall submit to the Building & Safety Department Engineering Division evidence that the project - specific Water Quality Management Plan (WQMP) has been approved by the Riverside County Flood Control District and that all approved water quality treatment control BMPs have been included on the grading plan.

60.BS GRADE. 12 USE - PRE-CONSTRUCTION MTG RECOMMND

Upon receiving grading plan approval and prior to the issuance of a grading permit, the applicant is required to schedule a pre-construction meeting with the Building and Safety Department Environmental Compliance Division.

60.BS GRADE. 13 USE - PM10 PLAN REQUIRED RECOMMND

A PM10 Fugitive Dust Mitigation Plan, prepared in accordance with AQMD Rule 403.1, shall be submitted to the Building and Safety Department for review and approval prior to the issuance of a grading permit.

1.NOTE: The PM 10 plan shall require the posting of signs in accordance with Building and Safety form "Signage Recommendations".
2.NOTE: All PM 10 measures must be in place prior to commencing any grading activity on site.

60.BS GRADE. 14 USE-TRANS& CVWD REVIEW REQ'D RECOMMND

The applicant or developer shall submit copies of the grading planand hydrologic calculations to the Riverside County Transportation Department (RCTD) and the Coachella Valley Water District (CVWD) for their review and approval. Additional flood plain management fees may be required by CVWD. Prior to the issuance of a grading permit, the applicant or developer shall provide, to the Department of Building and Safety Grading Division, a letter from RCTD and CVWD indicating their approval of the plans or a waiver of the review.

60.BS GRADE. 15 USE- PM 10 CLASS REQUIRED RECOMMND

Prior to the issuance of a grading permit, as a requirement of the CIP, the owner, developer, contractor, and their assignees must attend the PM10 class conducted by SCAQMD.

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60. PRIOR TO GRADING PRMT ISSUANCE

60.BS GRADE. 15 USE- PM 10 CLASS REQUIRED (cont.) RECOMMND

Currently, classes are scheduled monthly by SCAQMD.

60.BS GRADE. 16 USE - PVT RD GDG PERMIT RECOMMND

Constructing a private road requires a grading permit. All private roads which are conditioned to be paved shall conform to Ordinance 457 base and paving and inspection requirements.

EPD DEPARTMENT

60.EPD. 1 EPD - 30 DAY BURROWING OWL SUR RECOMMND

Within 30 days prior to the issuance of a grading permit, a pre-construction presence/absence survey for the burrowing owl shall be conducted by a qualified biologist and the results of this presence/absence survey shall be provided in writing to the Environmental Programs DIVISION. If it is determined that the project site is occupied by the Burrowing Owl, take of "active" nests shall be avoided pursuant to the CDFG GUIDELINES and the Migratory Bird Treaty Act. However, when the Burrowing Owl is present, relocation outside of the nesting season (March 1 through August 31) by a qualified biologist shall be required. The County Biologist shall be consulted to determine appropriate type of relocation (active or passive) and translocation sites. Occupation of this species on the project site may result in the need to revise grading plans so that take of "active" nests is avoided or alternatively, a grading permit may be issued once the species has been actively relocated.

If the grading permit is not obtained within 30 days of the survey a new survey shall be required.

60.EPD. 2 EPD - NESTING BIRD SURVEY RECOMMND

PRIOR TO ISSUANCE OF A GRADING PERMIT A NESTING BIRD CLEARANCE SURVEY MUST BE COMPLETED. THE SURVEY SHALL BE COMPLETED BY A QUALIFIED BIOLOGIST CURRENTLY HOLDING AN MOU WITH THE COUNTY AND THE RESULTS SUBMITTED TO THE ENVIRONMENTAL PROGRAMS DIVISION FOR REIVIEW AND APPROVAL. THIS SURVEY IS REQUIRED IF A GRADING PERMIT IS SOUGHT BETWEEN FEB 1ST AND AUGUST 31ST. IF YOU HAVE ANY QUESTIONS PLEASE CONTACT EPD BIOLOGIST JARED BOND AT 951-955-0314

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60. PRIOR TO GRADING PRMT ISSUANCE

FLOOD RI DEPARTMENT

60.FLOOD RI. 1 USE BMP MAINTENANCE & INSPECT RECOMMND

The CC&R's for the development's Home/Property Owners Association (HOA/POA) shall contain provisions for all privately owned structural best management practices (BMPs) to be inspected, and if required, cleaned no later than October 15 each year. The CC&R's shall identify the entity that will inspect and maintain all structural BMPs within the project boundaries. A copy of the CC&R's shall be submitted to the District for review and approval prior to the recordation of the map.

60.FLOOD RI. 2 USE SUBMIT PLANS MINOR REVIEW RECOMMND

The scope of the District review will be limited to verification that this proposal has met its obligation under the County's municipal stormwater permit. A copy of the BMP improvement plans along with any necessary documentation shall be submitted to the Districts Plan Check Section for review. A copy of the improvement and grading plans shall be included for reference. The plans must receive the District's approval prior to issuance of permits. All submittals shall be date stamped by the engineer and include a completed Flood Control Deposit Based Fee Worksheet and the appropriate plan check fee deposit.

60.FLOOD RI. 3 USE SUBMIT FINAL WQMP RECOMMND

A copy of the project specific WQMP shall be submitted to the District for review and approval.

60.FLOOD RI. 4 USE EROS CNTRL AFTER RGH GRAD RECOMMND

Temporary erosion control measures shall be implemented immediately following rough grading to prevent deposition of debris onto downstream properties or drainage facilities. Plans showing these measures shall be submitted to the District for review.

PLANNING DEPARTMENT

60.PLANNING. 1 USE - PLNTLOGST RETAINED (1) RECOMMND

Prior to issuance of grading permits, a qualified paleontologist shall be retained by the developer for

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60. PRIOR TO GRADING PRMT ISSUANCE

60.PLANNING. 1 USE - PLNTLOGST RETAINED (1) (cont.) RECOMMND

consultation and comment on the proposed grading with respect to potential paleontological impacts. Should the paleontologist find the potential is high for impact to significant resources, a pre-grade meeting between the paleontologist and the excavation and grading contractor shall be arranged. When necessary, the paleontologist or representative shall have the authority to temporarily divert, redirect, or halt grading activity to allow recovery of fossils. The developer shall submit the name, telephone number and address of the retained paleontologist to the Planning Department.

The paleontologist shall submit in writing to the Planning Department the results of the initial consultation and the details of the fossil recovery plan if recovery was deemed necessary. The written results shall be submitted prior to issuance of grading permit.

60.PLANNING. 9 USE - CVWD CLEARANCE RECOMMND

A clearance letter from the Coachella Valley Water District shall be provided to the Riverside County Planning Department verifying compliance with the conditions stated in their letter dated November 18, 2010 summarized as follows: Plans for grading, landscaping, and irrigation systems shall be submitted to the District for review.

60.PLANNING. 13 USE - REQD APPLICATIONS (1) RECOMMND

No grading permits shall be issued until Change of Zone No. 7738 has been approved and adopted by the Board of Supervisors and have been made effective. This permit shall conform with the developement standards of the designations and/or zones ultimately applied to the property.

60.PLANNING. 14 USE - PALEO PRIMP & MONITOR RECOMMND

This site is mapped in the County's General Plan as having a High potential for paleontological resources (fossils). Proposed project site grading/earthmoving activities could potentially impact this resource. HENCE:

PRIOR TO ISSUANCE OF GRADING PERMITS:

1.The applicant shall retain a qualified paleontologist

60. PRIOR TO GRADING PRMT ISSUANCE

60.PLANNING. 14 USE - PALEO PRIMP & MONITOR (cont.) RECOMMND

approved by the County of Riverside to create and implement a project-specific plan for monitoring site grading/earthmoving activities (project paleontologist).

2.The project paleontologist retained shall review the approved development plan and grading plan and shall conduct any pre-construction work necessary to render appropriate monitoring and mitigation requirements as appropriate. These requirements shall be documented by the project paleontologist in a Paleontological Resource Impact Mitigation Program (PRIMP). This PRIMP shall be submitted to the County Geologist for review and approval prior to issuance of a Grading Permit.

Information to be contained in the PRIMP, at a minimum and in addition to other industry standard and Society of Vertebrate Paleontology standards, are as follows:

1.Description of the proposed site and planned grading operations.

2.Description of the level of monitoring required for all earth-moving activities in the project area.

3.Identification and qualifications of the qualified paleontological monitor to be employed for grading operations monitoring.

4.Identification of personnel with authority and responsibility to temporarily halt or divert grading equipment to allow for recovery of large specimens.

5.Direction for any fossil discoveries to be immediately reported to the property owner who in turn will immediately notify the County Geologist of the discovery.

6.Means and methods to be employed by the paleontological monitor to quickly salvage fossils as they are unearthed to avoid construction delays.

7.Sampling of sediments that are likely to contain the remains of small fossil invertebrates and vertebrates.

8.Procedures and protocol for collecting and processing of samples and specimens.

60. PRIOR TO GRADING PRMT ISSUANCE

60.PLANNING. 14 USE - PALEO PRIMP & MONITOR (cont.) (cont.) RECOMMND

9.Fossil identification and curation procedures to be employed.

10.Identification of the permanent repository to receive any recovered fossil material. * The County of Riverside must be consulted on the repository/museum to receive the fossil material and a written agreement between the property owner/developer and the repository must be in place prior to site grading.

11.All pertinent exhibits, maps and references.

12.Procedures for reporting of findings.

13.Identification and acknowledgement of the developer for the content of the PRIMP as well as acceptance of financial responsibility for monitoring, reporting and curation fees.

All reports shall be signed by the project paleontologist and all other professionals responsible for the report's content (eg. Professional Geologist), as appropriate. Two wet-signed original copies of the report(s) shall be submitted to the office of the County Geologist along with a copy of this condition and the grading plan for appropriate case processing and tracking. These documents should not be submitted to the project Planner, the Plan Check staff, the Land Use Counter or any other County office. In addition, the applicant shall submit proof of hiring (i.e. copy of executed contract, retainer agreement, etc.) a project paleontologist for the in-grading implementation of the PRIMP.

60.PLANNING. 15 USE - PM10 MITIGATION PLAN RECOMMND

Notwithstanding any provision of Riverside County Ordinance No. 742 (Control of Fugitive Dust & PM10) to the contrary, this project shall comply with the requirements of Ordinance No. 742, including, but not necessarily limited to, the submission of a PM10 Mitigation Plan containing all reasonably available fugitive dust control measures, and, thereafter, the permit holder shall comply with all provisions of the approved PM10 Mitigation Plan during grading, earth movement operations and construction of the project as determined by the Director of the Department of Building and Safety.

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60. PRIOR TO GRADING PRMT ISSUANCE

60.PLANNING. 15 USE - PM10 MITIGATION PLAN (cont.) RECOMMND

The permit holder shall submit a copy of the approved PM10 Mitigation Plan to the Planning Department and the submitted copy shall include a cover letter containing a written certification from a state licensed professional that the control measures of the plan are included in the grading and building plans submitted to the Department of Building and Safety pursuant to obtaining a grading permit.

60.PLANNING. 16 USE - FEE STATUS RECOMMND

Prior to the issuance of grading permits for Conditional Use Permit No. 3645, the Planning Department shall determine the status of the deposit based fees. If the fees are in a negative status, the permit holder shall pay the outstanding balance.

TRANS DEPARTMENT

60.TRANS. 1 USE - TRANSPORTATION CLEARANCE RECOMMND

A clearance from the Transportation Department is required prior to the issuance of a grading permit.

60.TRANS. 3 USE-SBMT/APPVD GRADG PLAN/TRAN RECOMMND

When you submit a grading plan to the Department of Building and Safety, a copy of the grading plan shall be submitted and approved by the Transportation Department prior to a grading permit issuance.

Submit required grading plan to the Transportation Department, Plan Check Section, 8th Floor, 4080 Lemon Street, Riverside, CA.

60.TRANS. 4 USE - WATER QUALITY MGMT PLANS RECOMMND

The developer shall submit Water Quality Management Plans (WQMP) to Riverside County Flood Control & Water Conservation District and Transportation Department for review and approval.

60.TRANS. 5 USE - RETENTION BASIN RECOMMND

For retention basin sizing and calculations refer to letter dated December 20, 2010, from Alan French to Majeed Farshad.

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60. PRIOR TO GRADING PRMT ISSUANCE

60.TRANS. 6 USE - SUBMIT PLANS 1 RECOMMND

The project proponent shall comply with Riverside County Ordinance 458.12 as amended in the preparation of on-site flood protection. The project proponent shall submit plans for grading, landscaping, and irrigation systems, any other necessary documentation along with supporting hydrologic and hydraulic calculations to Riverside County Transportation Department for review and approval. The project proponent shall pay all fees as required by Riverside County Transportation Department.

60.TRANS. 7 USE - SUBMIT PLAN 2 RECOMMND

Per letter dated November 18, 2010, the project proponent shall submit plans for grading, landscaping, and irrigation systems to Coachella Valley Water District for review and approval. This review is for ensuring efficient water management.

60.TRANS. 8 USE - EASEMENT FOR DRAINAGE RECOMMND

The developer will prepare and record easements for drainage purposed by separate instrument to the benefit of public, for areas where drainage facilities and other drainage appurtenances are required and/or where drainage flow patterns must be maintained to convey flood plain water. All drainage easements shall be recorded by separate instrument and noted as follows, "Drainage Easement - no building, obstructions, or encroachments are allowed."

60.TRANS. 9 USE - TYPICAL SITE GRADING RECOMMND

All on-site grading shall be graded to drain to on site drainage facilities. Offsite drainage shall be conveyed through the project site in a manner that will not adversely impact either on-site improvements or worsen the existing drainage conditions to adjacent offsite properties.

70. PRIOR TO GRADING FINAL INSPECT

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70. PRIOR TO GRADING FINAL INSPECT

PLANNING DEPARTMENT

70.PLANNING. 1 USE - PLNTLGST CERTFIED (2) RECOMMND

A qualified paleontologist shall be retained by the developer for consultation and comment on the proposed grading with respect to potential paleontological impacts. Should the paleontologist find the potential is high for impacts to significant resources, a post-grade report by the paleontologist shall be submitted to the Planning Department. When necessary, in the professional opinion of the retained paleontologist (and/or as determined by the Planning Director), the paleontologist or representative shall have the authority to monitor actively all project related grading and construction and shall have the authority to temporarily divert, redirect, or halt grading activity to allow recovery of fossils. The developer shall submit the name, telephone number and address of the retained paleontologist to the Planning Department and the Department of Building and Safety. The paleontologist shall submit in writing to the Planning Department the results of the initial consultation and the final results of the fossil recovery plan if recovery was deemed necessary. The written results shall be submitted prior to final inspection approval of the project grading.

TRANS DEPARTMENT

70.TRANS. 1 USE - EROSION CONTROL RECOMMND

Temporary erosion control measures shall be implemented immediately following site grading to prevent depositions of debris onto downstream properties, public right-of-way, or drainage facilities. Plans showing these measures shall be submitted to Riverside County Transportation Department for review prior to the start of any site grading.

80. PRIOR TO BLDG PRMT ISSUANCE

BS GRADE DEPARTMENT

80.BS GRADE. 1 USE - NO B/PMT W/O G/PMT RECOMMND

Prior to the issuance of any building permit, the property owner shall obtain a grading permit and/or approval to construct from the Building and Safety Department.

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80. PRIOR TO BLDG PRMT ISSUANCE

80.BS GRADE. 2 USE - ROUGH GRADE APPROVAL RECOMMND

Prior to the issuance of any building permit, the applicant shall obtain rough grade approval and/or approval to construct from the Building and Safety Department. The Building and Safety Department must approve the completed grading of your project before a building permit can be issued. Rough Grade approval can be accomplished by complying with the following:

1.Submitting a "Wet Signed" copy of the Soils Compaction Report containing substantiating data from the Soils Engineer (registered geologist or certified geologist, civil engineer or geotechnical engineer as appropriate) for his/her certification of the project.

2.Submitting a "Wet Signed" copy of the Rough Grade certification from a Registered Civil Engineer certifying that the grading was completed in conformance with the approved grading plan.

3.Submitting a Contractors Statement of Conformance form (284-259).

4.Requesting a Rough Grade Inspection and obtaining rough grade approval from a Riverside County inspector.

Prior to release for building permit, the applicant shall have met all rough grade requirements to obtain Building and Safety Department clearance.

E HEALTH DEPARTMENT

80.E HEALTH. 1 USE - E.HEALTH CLEARANCE REQ. RECOMMND

ENVIRONMENTAL HEALTH CLEARANCE IS REQUIRED PRIOR TO THE ISSUANCE OF THIS BUILDING PERMIT.

80.E HEALTH. 2 TMF PAPERWORK - WATER SYSTEM RECOMMND

The Technical, Managerial, and Financial (TMF) paperwork for the water system must be approved by the Department of Environmental Health (DEH) "Prior to the Issuance of a Building Permit".

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80. PRIOR TO BLDG PRMT ISSUANCE

80.E HEALTH. 3 ENVH - WATER PLANS RECOMMND

Community Water System plans stamped by a civil engineer who is familiar with water system design requirements must be approved by the Department of Environmental Health (DEH). A pilot study for the proposed arsenic treatment must be completed "Prior to the Issuance of a Building Permit".

80.E HEALTH. 4 ENVH - WATER WELLS RECOMMND

All water wells (primary and backup) which will serve this Community Water System must be drilled under permit by the Department of Environmental Health (DEH) and tested for all Title 22 constituents "Prior to the Issuance of a Building Permit".

FIRE DEPARTMENT

80.FIRE. 1 USE-#17A-BLDG PLAN CHECK $ RECOMMND

Building Plan check deposit base fee of $1,056.00, shall be paid in a check or money order to the Riverside County Fire Department after plans have been approved by our office.

80.FIRE. 2 USE-#4-WATER PLANS RECOMMND

The applicant or developer shall separately submit two copies of the water system plans to the Fire Department for review and approval. Calculated velocities shall not exceed 10 feet per second. Plans shall conform to the fire hydrant types, location and spacing, and the system shall meet the fire flow requirements.
Plans shall be signed and approved by a registered civil engineer and the local water company with the following certification: "I certify that the design of the water system is in accordance with the requirements prescribed by the Riverside County Fire Department."

FLOOD RI DEPARTMENT

80.FLOOD RI. 1 USE SUBMIT PLANS MINOR REVIEW RECOMMND

The scope of the District review will be limited to verification that this proposal has met its obligation under the County's municipal stormwater permit. A copy of

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80. PRIOR TO BLDG PRMT ISSUANCE

80.FLOOD RI. 1 USE SUBMIT PLANS MINOR REVIEW (cont.) RECOMMND

the BMP improvement plans along with any necessary documentation shall be submitted to the Districts Plan Check Section for review. A copy of the improvement and grading plans shall be included for reference. The plans must receive the District's approval prior to issuance of permits. All submittals shall be date stamped by the engineer and include a completed Flood Control Deposit Based Fee Worksheet and the appropriate plan check fee deposit.

80.FLOOD RI. 2 USE SUBMIT FINAL WQMP RECOMMND

A copy of the project specific WQMP shall be submitted to the District for review and approval.

PLANNING DEPARTMENT

80.PLANNING. 5 USE - LIGHTING PLANS RECOMMND

All street lights and other outdoor lighting shall be shown on electrical plans submitted to the Department of Building and Safety for plan check approvaland shall comply with the requirements of Riverside County Ordinance No. 655 and the Riverside County Comprehensive General Plan.

80.PLANNING. 6 USE - CONFORM TO ELEVATIONS RECOMMND

Elevations of all buildings and structures submitted for building plan check approval shall be in substantial conformance with the elevations shown on APPROVED EXHIBIT A.

80.PLANNING. 7 USE - CONFORM TO FLOOR PLANS RECOMMND

Floor plans shall be in substantial conformance with that shown on APPROVED EXHIBIT A.

80.PLANNING. 8 USE - ROOF EQUIPMENT SHIELDING RECOMMND

Roof mounted equipment shall be shielded from ground view. Screening material shall be subject to Planning Department approval.

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80. PRIOR TO BLDG PRMT ISSUANCE

80.PLANNING. 9 USE - MINIMUM FLOOR AREA RECOMMND

All dwelling units shall have a minimum floor living area of not less than 750 square feet excluding porches, garages, patios or similar features whether attached or detached. The permittee shall demonstrate to the satisfaction of the Planning Director and the Director of the Department of Building and Safety that construction plans comply with all dwelling unit minimum floor living area regulations.

80.PLANNING. 10 USE - MAXIMUM DWELLING UNITS RECOMMND

A maximum of 136 dwelling units are allowed under this permit.

80.PLANNING. 12 USE - FENCING PLAN REQUIRED RECOMMND

A fencing plan shall be submitted showing all and fence locations and typical views of all types of fences or walls proposed. This plan shall require anti-graffiti coatings on fences and walls, where applicable.

80.PLANNING. 15 USE - MITIGATION MONITORING RECOMMND

The permittee shall prepare and submit a written report to the Riverside County Planning Director demonstrating compliance with those conditions of approval and mitigation measures of this permit and E.A. No. 42325 which must be satisfied prior to the issuance of a building permit. The Planning Director may require inspection or other monitoring to ensure such compliance.

80.PLANNING. 17 USE - HEIGHT LIMITATIONS RECOMMND

All buildings and structures within this permit shall not exceed 20 feet in overall height, except as provided by Section No. 18.20 of Ordinance No. 348. The permittee shall demonstrate to the satisfaction of the Planning Director and the Director of the Department of Building and Safety that construction plans comply with all height regulations; verification of compliance with the height regulations of this permit may include submission of a written certification by a state licensed professional that plans submitted to the Department of Building and Safety are in compliance and/or inspection of such plans by county staff.

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80. PRIOR TO BLDG PRMT ISSUANCE

80.PLANNING. 19 USE - REQD APPLICATIONS (2) RECOMMND

No building permits shall be issued until Change of Zone No. 7738 have been approved and adopted by the Board of Supervisors and have been made effective. This permit shall conform with the development standards of the designation(s) and/or zone(s) ultimately applied to the property.

80.PLANNING. 21 USE - COLOR/FINISH SAMPLES RECOMMND

The permittee shall submit three 4" x 4" color and finish samples of community building for Planning Department approval. Coloration shall be compatible with the colors contained in Exhibit M.

80.PLANNING. 23 USE - WASTE MGMT. CLEARANCE RECOMMND

A clearance letter from Riverside County Waste Management District shall be provided to the Riverside County Planning Department verifying compliance with the conditions contained in their letter dated July 15, 2010, summarized as follows: The developer shall provide adequate areas for collecting and loading recyclable materials such as paper products, glass and green waste in commercial, industrial, public facilities and residential development projects.

80.PLANNING. 24 USE - SCHOOL MITIGATION RECOMMND

Impacts to the Coachella Valley Unified School District shall be mitigated in accordance with California State law.

80.PLANNING. 25 USE - FEE STATUS RECOMMND

Prior to issuance of building permits for Conditional Use Permit No. 3645, the Planning Department shall determine the status of the deposit based fees for project. If the case fees are in a negative state, the permit holder shall pay the outstanding balance.

80.PLANNING. 27 USE- LC LANDSCAPE SPECIF RECOMMND

1.Show estimated water use requirement (MAWA), using Ordinance No. 859.2 calculations. Use CVWD water savings rate of .5. MAWA to be shown on Minor Plot Plan
2.Shading calculations is based on tree canopy over the parking spaces. Tree canopy after 15 years growth shading the parking spaces only. Shading requirements are in

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80. PRIOR TO BLDG PRMT ISSUANCE

80.PLANNING. 27 USE- LC LANDSCAPE SPECIF (cont.) RECOMMND

Ordinance No. 348 Section 18.12. Sizes of trees could be found in the Riverside County Guide to Friendly Landscape. This was not on the drawing and will be required on the Minor Plot Plan.
3.Ground cover spacing and size to be on the minor plot plan.

80.PLANNING. 28 USE - LC LANDSCAPE PLOT PLAN RECOMMND

Prior to issuance of building permits, the developer/permit holder shall file a Landscaping Minor Plot Plan Application to the Riverside County Planning Department for review and approval along with the current fee. The landscaping plans shall be in conformance with the APPROVED EXHIBITS; in compliance with Ordinance No. 348, Section 18.12; Ordinance No. 859; and, be prepared consistent with the County of Riverside Guide to California Friendly Landscaping.

At minimum, plans shall include the following components:
1)Landscape and irrigation working drawings "stamped" by a California certified landscape architect;

2)Weather based controllers and necessary components to eliminate water waste;

3)A copy of the "stamped" approved grading plans; and,

4)Emphasis on native and drought tolerant species.

When applicable, plans shall include the following components:
1)Identification of all common/open space areas;

2)Natural open space areas and those regulated/conserved by the prevailing MSHCP;

3)Shading plans for projects that include parking lots/areas;

4)The use of canopy trees (24" box or greater) within the parking areas;

5)Landscaping plans for slopes exceeding 3 feet in height;

6)Landscaping and irrigation plans associated with entry monuments. All monument locations and dimensions shall be

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80. PRIOR TO BLDG PRMT ISSUANCE

80.PLANNING. 28 USE - LC LANDSCAPE PLOT PLAN (cont.) RECOMMND

provided on the plan; and/or,

7)If this is a phased development, then a copy of the approved phasing plan shall be submitted for reference.

NOTE:
1)Landscaping plans for areas within the road right-of-way shall be submitted for review and approval by the Transportation Department only. The Planning Department shall not approve landscape plans within the Road Right-of-Way.

)When the Landscaping Plot Plan is located within a special district such as Valley-Wide Recreation and Park District, Jurupa Community Services District, Coachella Valley Water District, a County Service Area (CSA) or other maintenance district, the developer/permit holder shall submit plans for review to the appropriate special district for simultaneous review. The permit holder shall show evidence to the Planning Department that the subject District has approved said plans.

As part of the plan check review process and request for condition clearance, the developer/permit holder shall show proof of the approved landscaping plot plan by providing the Plot Plan number. The planning department shall verify the landscape route is approved and the Plot Plan is in TENTAPPR status. Upon verification of compliance with this condition and the APPROVED EXHIBITS, the Planning Department shall clear this condition.

80.PLANNING. 29 USE - LC LANDSCAPE SECURITIES RECOMMND

Prior to the issuance of building permits, the developer/permit holder shall submit an estimate to replace plantings, irrigation systems, ornamental landscape elements, walls and/or fences, in amounts to be approved by the Riverside County Planning Department, Landscape Division. Once the Planning Department has approved the estimate, the developer/permit holder shall submit the estimate to the Riverside County Department of Building and Safety who will then provide the developer/permit holder with the requisite forms. The required forms shall be completed and submitted to Building and Safety for processing and review in conjunction with County Counsel. Upon determination of compliance, the Department of

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80. PRIOR TO BLDG PRMT ISSUANCE

80.PLANNING. 29 USE - LC LANDSCAPE SECURITIES (cont.) RECOMMND

Building and Safety shall clear this condition.

NOTE:
A cash security shall be required when the estimated cost is $2,500.00 or less. It is highly encouraged to allow adequate time to ensure that securities are in place. The performance security shall be released following a successful completion of the One Year Post-Establishment Inspection, and the inspection report confirms that the planting and irrigation components are thriving and in good working order consistent with the approved landscaping plans.

80.PLANNING. 30 USE - LC LNDSCP COMMON AREA MA RECOMMND

Prior to building permit issuance, the developer/permit holder shall submit Covenants, Conditions, and Restrictions (CC&R) to the Riverside County Counsel for review along with the required fees set forth by the Riverside County Fee Schedule.

For purposes of landscaping and maintenance, the following minimum elements shall be incorporated into the CC&R's:
1) Permanent public, quasi-public or private maintenance organization shall be established for proper management of the water efficient landscape and irrigation systems. Any agreements with the maintenance organization shall stipulate that maintenance of landscaped areas will occur in accordance with Ordinance No. 859 (as adopted and any amendments thereto) and the County of Riverside Guide to California Friendly Landscaping.

2) The CC&R's shall prohibit the use of water-intensive landscaping and require the use of low water use landscaping pursuant to the provisions of Ordinance No. 859 (as adopted and any amendments thereto).

3) The common maintenance areas shall include all those identified on the approved landscape maintenance exhibit.

The Planning Department shall clear this condition once a copy of the County Counsel approved CC&R's has been submitted to the Planning Department.

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80. PRIOR TO BLDG PRMT ISSUANCE

TRANS DEPARTMENT

80.TRANS. 2 USE - CALTRANS ENCRCHMNT PRMT RECOMMND

Prior to issuance of a building permit or any use allowed by this permit, and prior to doing any work within the State highway right-of-way, clearance and/or an encroachment permit must be obtained by the applicant from the District 08 Office of the State Department of Transportation in San Bernardino.

80.TRANS. 3 USE - TUMF RECOMMND

Prior to the issuance of a building permit, the project proponent shall pay the Transportation Uniform Mitigation Fee (TUMF) in accordance with the fee schedule in effect at the time of issuance, pursuant to Ordinance No. 673.

80.TRANS. 4 USE - R-O-W DEDICATION RECOMMND

Sufficient public street right-of-way shall be provided along 67th Avenue (northerly boundary of the property from Lincoln Street to State Highway 111) to establish a 30-foot half-width right-of-way including standard corner cutback.

Above mentioned dedication shall incude 50-foot wide irrevocable right-of-way dedication along easterly boundary of the project up to Highway 111 for road and utility purposes. (Per Exhibit A-1 Access Exhibit)

Additional public street right-of-way along State Highway 111 (secondary access) and 68th Avenue (primary access) shall be obtained and conveyed for public use to accomodate acceleration and deceleration lanes and to provide for turn pockets.

Above mentioned dedication shall include 50-foot wide irrevocable right-of-way dedication along easterly boundary of the project southerly to Avenue 68 for road and utility purposes. (Per Exhibit A-1 Access Exhibit)

Standard knuckles shall be constructed to County Standards.

ABOVE MENTIONED CONDITIONED WAS CHANGED TO MEET ACCESS EXHIBIT A-1 ON MAY 24, 2011.

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80. PRIOR TO BLDG PRMT ISSUANCE

80.TRANS. 6 USE - MAP CORNER CUT-BACK I RECOMMND

All corner cutbacks shall be applied per Standard 805, Ordinance 461, except for corners at Entry streets intersecting with General Plan roads, they shall be applied per Exhibit ' C' of the Countywide Design Guidelines.

80.TRANS. 7 USE - GEOMETRICS RECOMMND

The intersection of SR-111 (N/S) and Project Access (E/W) shall provide the following geometrics:

Northbound: one left turn lane, one through lane
Southbound: one through lane, one deceleration lane
Eastbound: one left turn lane, one right turn lane
Westbound: N/A
Note: The acceleration/deceleration lane at the driveway shall be designed and constructed per County Std. 803. Any additional widening to provide the left turn pocket and transitions shall be the responsibility of the landowner/developer.

The intersection of Project Access (N/S) and 68th Avenue (E/W)shall provide the following geometrics:

Northbound: N/A
Southbound: one left turn lane, one right turn lane
Eastbound: one left turn lane, one through lane
Westbound: one through lane

or as approved by the Transportation Department.

All improvements on or affecting Caltrans facilities shall conform to Caltrans design guidelines and shall be subject to Caltrans approval.

All improvements listed are requirements for interim conditions only. Full right-of-way and roadway half sections adjacent to the property for the ultimate roadway cross-section per the County's Road Improvement Standards and Specifications must be provided.

Any off-site widening required to provide these geometrics shall be the responsibility of the landowner/developer.

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80. PRIOR TO BLDG PRMT ISSUANCE

80.TRANS. 8 USE - DRAINAGE EASEMENT RECOMMND

The developer will prepare and record easements for drainage purposed by separate instrument to the benefit of public, for areas where drainage facilities and other drainage appurtenances are required and/or where drainage flow patterns must be maintained to convey flood plain water. All drainage easements shall be recorded by separate instrument and noted as follows, "Drainage Easement - no building, obstructions, or encroachments are allowed."

90. PRIOR TO BLDG FINAL INSPECTION

BS GRADE DEPARTMENT

90.BS GRADE. 1 USE - WQMP BMP INSPECTION RECOMMND

Prior to final building inspection, the applicant shall obtain inspection of all treatment control BMPs and/or clearance from the Building and Safety Department. All structural BMPs described in the project - specific WQMP and indicated on the approved grading plan shall be constructed and installed in conformance with the approved plans and specifications. The Building and Safety Department must inspect and approve the completed WQMP treatment control BMPs for your project before a building final can be obtained.

90.BS GRADE. 2 USE - WQMP BMP CERT REQ'D RECOMMND

Prior to final building inspection, the applicant/owner shall submit a "Wet Signed" copy of the Water Quality Management Plan (WQMP) Certification from a Registered Civil Engineer certifying that the project - specific WQMP treatment control BMPs have been installed in accordance with the approved WQMP.

90.BS GRADE. 3 USE - BMP GPS COORDINATES RECOMMND

Prior to final building inspection, the applicant/owner shall provide the Department of Building Safety with GPS coordinates for the location of the project - specific WQMP treatment control BMPs.

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90. PRIOR TO BLDG FINAL INSPECTION

90.BS GRADE. 4 USE - BMP REGISTRATION RECOMMND

Prior to final building inspection, the applicant/owner shall register the project - specific WQMP treatment control BMPs with the Department of Building Safety Business Registration Division. Any person or entity that owns or operates a commercial and/or industrial facility shall register such facility for annual inspections.

90.BS GRADE. 5 USE - REQ'D GRADING INSP'S RECOMMND

The developer / applicant shall be responsible for obtaining the following inspections required by Ordinance 457.

1.Sub-grade inspection prior to base placement.

2.Base inspection prior to paving.

3.Precise grade inspection of entire permit area.

a.Inspection of Final Paving
b.Precise Grade Inspection
c.Inspection of onsite storm drain facilities
d.Inspection of the WQMP treatment control BMPs

90.BS GRADE. 6 USE - PRECISE GRDG APPROVAL RECOMMND

Prior to final building inspection, the applicant shall obtain precise grade approval and/or clearance from the Building and Safety Department. The Building and Safety Department must approve the precise grading of your project before a building final can be obtained. Precise Grade approval can be accomplished by complying with the following:

1.Requesting and obtaining approval of all required grading inspections.

2.Submitting a "Wet Signed" copy of the Soils Compaction Report from the Soils Engineer (registered geologist or certified geologist, civil engineer or geotechnical engineer as appropriate) for the sub-grade and base of all paved areas.

3.Submitting a "Wet Signed" copy of the Sub-grade (rough) Certification from a Registered Civil Engineer certifying that the sub-grade was completed in conformance with the

CONDITIONAL USE PERMIT Case #: CUP03645 Parcel: 727-271-008

90. PRIOR TO BLDG FINAL INSPECTION

90.BS GRADE. 6 USE - PRECISE GRDG APPROVAL (cont.) RECOMMND

approved grading plan.

4.Submitting a "Wet Signed" copy of the Precise (Final) Grade Certification for the entire site from a Registered Civil Engineer certifying that the precise grading was completed in conformance with the approved grading plan.

5.Submitting a "Wet Signed" copy of the Certification certifying the installation of any onsite storm drain systems not inspected by Riverside County Flood Control District or the Riverside County Transportation Department.

6.Submitting a "Wet Signed" copy of the Water Quality Management Plan (WQMP) Certification from a Registered Civil Engineer certifying that the Water Quality Management Plan treatment control BMPs have been installed in accordance with the approved WQMP.

Prior to release for building final, the applicant shall have met all precise grade requirements to obtain Building and Safety Department clearance.

E HEALTH DEPARTMENT

90.E HEALTH. 1 WATER SYSTEM FINAL RECOMMND

The Department of Environmental Health (DEH) must approve the construction of the water distribution and treatment systems, water storage facilities, and all physical features of the water system "Prior to Building Final". A Water System Permit will be issued once all water system requirements have been met.

90.E HEALTH. 2 TITLE 25 COMPLIANCE RECOMMND

Conditional Use Permit#3645 is subject to the regulatory oversight of the Department of Environmental Health, District Environmental Services (DES) to ensure compliance with Title 25 Regulations. Please contact DES at (760) 863-8287 for further information.

CONDITIONAL USE PERMIT Case #: CUP03645 Parcel: 727-271-008

90. PRIOR TO BLDG FINAL INSPECTION

FIRE DEPARTMENT

90.FIRE. 1 USE-#45-FIRE LANES RECOMMND

The applicant shall prepare and submit to the Fire Department for approval, a site plan designating required fire lanes with appropriate lane painting and/or signs.

90.FIRE. 2 USE-#66-DISPLAY BOARDS RECOMMND

Display Boards will be as follows: Each complex shall have an illuminated diagrammatic representation of the actual layout which shows name of complex, all streets, building designators, unit members, and fire hydrant locations within dimension and located next to roadway access. The minimum size shall be no less than 4 feet x 4 feet.

90.FIRE. 3 USE-#12A-SPRINKLER SYSTEM RECOMMND

Install a complete fire sprinkler system per NFPA 13 1999 edition in all buildings requiring a fire flow of 1500 GPM or greater. Sprinkler system(s) with pipe sizes in excess of 4" in diamter will require the project structural engineer to certify (wet signature) the stability of the building system for seismic and gravity loads to support the sprinkler system. All fire sprinkler risers shall be protected from any physical damage. The post indicator valve and fire department connection shall be located to the front, within 50 feet of a hydrant, and a minimum of 25 feet from the building(s). A statement that the building(s) will be automatically fire sprinkled must be included on the title page of the building plans.

Applicant or developer shall be responsible to install a U.L. Central Station Monitored Fire Alarm System. Monitoring system shall monitor the fire sprinkler system(s) water flow, P.I.V.'s and all control valves. Plans must be submitted to the Fire Department for approval prior to installation. Contact fire department for guideline handout

90.FIRE. 4 USE-#27-EXTINGUISHERS RECOMMND

Install portable fire extinguishers with a minimum rating of 2A-10BC and signage. Fire Extinguishers located in public areas shall be in recessed cabinets mounted 48" (inches) to center above floor level with maximum 4"

CONDITIONAL USE PERMIT Case #: CUP03645 Parcel: 727-271-008

90. PRIOR TO BLDG FINAL INSPECTION

90.FIRE. 4 USE-#27-EXTINGUISHERS (cont.) RECOMMND

projection from the wall. Contact Fire Department for proper placement of equipment prior to installation.

90.FIRE. 5 FINAL INSPECTION RECOMMND

Prior to occupancy a Fire Department inspection is required to verify all conditions stated at plan check are met.

Riverside office (951)955-4777
Murrieta office (951)600-6160
Indio Office (760)863-8886

FLOOD RI DEPARTMENT

90.FLOOD RI. 1 USE BMP - EDUCATION RECOMMND

The developer shall distribute environmental awareness education materials on general good housekeeping practices that contribute to protection of stormwater quality to all initial users. The developer may obtain NPDES Public Educational Program materials from the District's NPDES Section by either the District's website www.floodcontrol.co.riverside.ca.us, e-mail fcnpdes@co.riverside.ca.us, or the toll free number 1-800-506-2555. Please provide Project number, number of units and location of development. Note that there is a five-day minimum processing period requested for all orders.

The developer must provide to the District's PLAN CHECK Department a notarized affidavit stating that the distribution of educational materials to the tenants is assured prior to the issuance of occupancy permits.

90.FLOOD RI. 2 USE IMPLEMENT WQMP RECOMMND

All structural BMPs described in the project-specific WQMP shall be constructed and installed in conformance with approved plans and specifications. It shall be demonstrated that the applicant is prepared to implement all non-structural BMPs described in the approved project specific WQMP and that copies of the approved project-specific WQMP are available for the future owners/occupants. The District will not release occupancy permits for any portion of the project exceeding 80% of the project area prior to the completion of these tasks.

CONDITIONAL USE PERMIT Case #: CUP03645 Parcel: 727-271-008

90. PRIOR TO BLDG FINAL INSPECTION

90.FLOOD RI. 3 USE BMP MAINTENANCE & INSPECT RECOMMND

The BMP maintenance plan shall contain provisions for all treatment controlled BMPs to be inspected, and if required, cleaned no later than October 15 each year. Required documentation shall identify the entity that will inspect and maintain all structural BMPs within the project boundaries. A copy of all necessary documentation shall be submitted to the District for review and approval prior to the issuance of occupancy permits.

PLANNING DEPARTMENT

90.PLANNING. 3 USE - MINIMUM FLOOR AREA RECOMMND

Al dwelling units shall have a minimum floor living area of not less than 750 square feet. All buildings and structures shall comply with approved construction plans that are designed in accordance with this condition.

90.PLANNING. 4 USE - COLOR/FINISH COMPLIANCE RECOMMND

The permittee shall properly install approved color and finish products in accordance with these conditions of approval.

90.PLANNING. 6 USE - PARKING PAVING MATERIAL RECOMMND

A minimum of 57 parking spaces shall be provided around the perimeter of the community center building as shown on the APPROVED EXHIBIT A, unless otherwise approved by the Planning Department. The parking area shall be surfaced with asphaltic concrete or concrete to current standards as approved by the Department of Building and Safety.

90.PLANNING. 7 USE - ACCESSIBLE PARKING RECOMMND

A minimum of three (3) accessible parking spaces for persons with disabilities shall be provided as shown on APPROVED EXHIBIT A. Each parking space reserved for persons with disabilities shall be identified by a permanently affixed reflectorized sign constructed of porcelain on steel, beaded text or equal, displaying the International Symbol of Accessibility. The sign shall not be smaller than 70 square inches in area and shall be centered at the interior end of the parking space at a minimum height of 80 inches from the bottom of the sign to the parking space finished grade, or centered at a minimum

CONDITIONAL USE PERMIT Case #: CUP03645 Parcel: 727-271-008

90. PRIOR TO BLDG FINAL INSPECTION

90.PLANNING. 7 USE - ACCESSIBLE PARKING (cont.) RECOMMND

height of 36 inches from the parking space finished grade, ground, or sidewalk. A sign shall also be posted in a conspicuous place, at each entrance to the off-street parking facility, not less than 17 inches by 22 inches, clearly and conspicuously stating the following:

"Unauthorized vehicles not displaying distinguishing placards or license plates issued for physically handicapped persons may be towed away at owner's expense. Towed vehicles may be reclaimed at ___ or by telephoning ___."

In addition to the above requirements, the surface of each parking space shall have a surface identification sign duplicating the symbol of accessibility in blue paint of at least 3 square feet in size.

90.PLANNING. 11 USE - LIGHTING PLAN COMPLY RECOMMND

All street lights and other outdoor lighting shall be shown on electrical plans submitted to the Department of Building and Safety for plan check approval nd shall comply with the requirements of Riverside County Ordinance No. 655 and the Riverside County Comprehensive General Plan.

90.PLANNING. 14 USE - INSTALL BIKE RACK RECOMMND

A bicycle rack (Class I or Class II) shall be provided at the community center building in a convenient location to facilitate bicycle access to the project area. The bicycle racks shall be shown on project landscaping and improvement plans submitted for Planning Department approval, and shall be installed in accordance with those plans.

90.PLANNING. 15 USE - UTILITIES UNDERGROUND RECOMMND

All utilities, except electrical lines rated 33 kV or greater, shall be installed underground. If the permittee provides to the Department of Building and Safety and the Planning Department a definitive statement from the utility provider refusing to allow underground installation of the utilities they provide, this condition shall be null and void with respect to that utility.

CONDITIONAL USE PERMIT Case #: CUP03645 Parcel: 727-271-008

90. PRIOR TO BLDG FINAL INSPECTION

90.PLANNING. 18 USE - WALL/BERM REQUIRED RECOMMND

A minimum six foot high decorative block wall or combination landscaped earthen berm and decorative block wall shall be constructed along Lincoln Street to the match the length of the Mobile Home Park prior to final building inspection of the first new Mobile Home Unit in Phase I (approximately 1329 feet). The exterior side of all masonry walls shall be surfaced with a protective coating that will facilitate the removal of graffiti. The required wall and/or berm shall be subject to the approval of the Director of the Department of Building and Safety and the Planning Director and the appropriate flood control agency, and shall be shown on all grading and landscaping plans.

90.PLANNING. 20 USE - TRASH ENCLOSURES RECOMMND

A trash enclosure which is adequate to enclose a minimum of two (2) bins shall be located at the community center building, and shall be constructed prior to the issuance of occupancy permits. The enclosure(s) shall be a minimum of six (6) feet in height and shall be made with [masonry block] [chain link fencing] [landscaping screening] and a solid gate which screens the bins from external view. Additional enclosed area for collection of recyclable materials shall be located within, near or adjacent to each trash and rubbish disposal area. The recycling collection area shall be a minimum of fifty percent (50%) of the area provided for the trash/rubbish enclosure(s) or as approved by the Riverside County Waste Management Department. All recycling bins shall be labeled with the universal recycling symbol and with signage indicating to the users the type of material to be deposited in each bin.

90.PLANNING. 21 USE - EXISTING STRUCTURES RECOMMND

All existing buildings, structures and uses on the entire property shall conform to all the applicable requirements of Ordinance No. 348 and Ordinance No. 457, and the conditions of this permit.

90.PLANNING. 32 USE - ORD NO. 659 (DIF) RECOMMND

Prior to the issuance of either a certificate of occupancy or prior to building permit final inspection, the applicant shall comply with the provisions of Riverside County Ordinance No. 659, which requires the payment of the

CONDITIONAL USE PERMIT Case #: CUP03645 Parcel: 727-271-008

90. PRIOR TO BLDG FINAL INSPECTION

90.PLANNING. 32 USE - ORD NO. 659 (DIF) (cont.) RECOMMND

appropriate fee set forth in the Ordinance. Riverside County Ordinance No. 659 has been established to set forth policies, regulations and fees related to the funding and installation of facilities and the acquisition of open space and habitat necessary to address the direct and cummulative environmental effects generated by new development project described and defined in this Ordinance, and it establishes the authorized uses of the fees collected.

The amount of the fee for commercial or industrial development shall be calculated on the basis of the "Project Area," as defined in the Ordinance, which shall mean the net area, measured in acres, from the adjacent road right-of-way to the limits of the project development.

The amount of the fee for the mobile home park is based on the number of multiple family dwelling units currently at $2,783 per unit.

In the event Riverside County Ordinance No. 659 is rescinded, this condition will no longer be applicable. However, should Riverside County Ordinance No. 659 be rescinded and superseded by a subsequent mitigation fee ordinance, payment of the appropriate fee set forth in that ordinance shall be required.

90.PLANNING. 33 USE - PALEO MONITORING REPORT RECOMMND

PRIOR TO BUILDING FINAL INSPECTION:

The applicant shall submit to the County Geologist one wet-signed copy of the Paleontological Monitoring Report prepared for site grading operations at this site. The report shall be certified by the professionally-qualified Paleontologist responsible for the content of the report. This Paleontologist must be on the County's Paleontology Consultant List. The report shall contain a report of findings made during all site grading activities and an appended itemized list of fossil specimens recovered during grading (if any) and proof of accession of fossil materials into the pre-approved museum repository. In addition, all appropriate fossil location information shall be submitted to the Western Center, the San Bernardino County Museum and Los Angeles County Museum of Natural History, at a minimum,

CONDITIONAL USE PERMIT Case #: CUP03645 Parcel: 727-271-008

90. PRIOR TO BLDG FINAL INSPECTION

90.PLANNING. 33 USE - PALEO MONITORING REPORT (cont.) RECOMMND

for incorporation into their Regional Locality Inventories.

90.PLANNING. 34 USE - LC LNDSCP INSPECT DEPOST RECOMMND

Prior to building permit final inspection, the developer/permit holder shall file an Inspection Request Form and deposit sufficient funds to cover the costs of Installation, Six Month Establishment, and One Year Post-Establishment inspections. In the event that an open landscape case is not available, then the applicant shall open a FEE ONLY case to conduct inspections. The deposit required for landscape inspections shall be determined by the Riverside County Landscape Division. The Planning Department shall clear this condition upon determination of compliance.

90.PLANNING. 35 USE - LC LNDSCP INSPCT RQMNTS RECOMMND

The permit holder's landscape architect responsible for preparing the Landscaping and Irrigation Plans (or on-site representative) shall arrange for a PRE-INSTALLATION INSPECTION with the Planning Department at least five (5) working days prior to the installation of any landscape or irrigation components.

Upon successful completion of the PRE-INSTALLATION INSPECTION, the applicant will proceed with the installation of the approved landscape and irrigation system and arrange for an INSTALLATION INSPECTION at least five 5 working days prior to the building final inspection or issuance of occupancy permit, whichever occurs first and comply with the Planning Department's Milestone 80 conditions entitled "USE-LANDSCAPING SECURITY" and the Milestone 90 condition entitled "LANDSCAPE INSPECTION DEPOSIT." Upon successful completion of the INSTALLATION INSPECTION, the County Planning Department's Landscape Inspector and the permit holder's landscape architect (or on-site representative) shall execute a Landscape Certificate of Completion that shall be submitted to the Planning Department and the Department of Building and Safety. The Planning Department shall clear this condition upon determination of compliance.

CONDITIONAL USE PERMIT Case #: CUP03645 Parcel: 727-271-008

90. PRIOR TO BLDG FINAL INSPECTION

90.PLANNING. 36 USE - LC COMPLY W/ LNDSCP/ IRR RECOMMND

The developer/permit holder shall coordinate with their designated landscape representative and the Riverside County Planning Department's landscape inspector to ensure all landscape planting and irrigation systems have been installed in accordance with APPROVED EXHIBITS, landscaping, irrigation, and shading plans. The Planning Department will ensure that all landscaping is healthy, free of weeds, disease and pests; and, irrigation systems are properly constructed and determined to be in good working order. The developer/permit holder's designated landscape representative and the Riverside County Planning Department's landscape inspector shall determine compliance with this condition and execute a Landscape Certificate of Completion. Upon determination of compliance, the Planning Department shall clear this condition.

90.PLANNING. 37 USE - WROUGHT-IRON FENCE REQ. RECOMMND

A six (6) foot high wrought-iron fence shall be constructed along the northerly, southerly, and easterly boundary of the Mobile Home Park prior to final building inspection of the first new Mobile Home Unit in Phase I. The required fence shall be subject to the approval of the Building and Safety Department.

TRANS DEPARTMENT

90.TRANS. 3 USE - CALTRANS 1 RECOMMND

The project proponent shall comply with the Caltrans recommendations as outlined in their letter dated December 23, 2010.

90.TRANS. 12 USE - IMPROVEMENTS RECOMMND

State Highway 111 (projects secondary access) along project boundary is Caltrans maintained and shall be improved with acceleration and deceleration lanes including turn pockets as approved by the Transportation Department.

68th Avenue (projects primary access) is a paved County maintained road and shall be improved with acceleration and deceleration lanes including turn pockets as approved by the Transportation Department.

CONDITIONAL USE PERMIT Case #: CUP03645 Parcel: 727-271-008

90. PRIOR TO BLDG FINAL INSPECTION

90.TRANS. 15 USE - UTILITY PLAN RECOMMND

Electrical power, telephone, communication, street lighting, and cable television lines shall be designed to be placed underground in accordance with Ordinance 460 and 461, or as approved by the Transportation Department. The applicant is responsible for coordinating the work with the serving utility company. This also applies to existing overhead lines which are 33.6 kilovolts or below along the project frontage and between the nearest poles offsite in each direction of the project site. A disposition note describing the above shall be reflected on design improvement plans whenever those plans are required. A written proof for initiating the design and/or application of the relocation issued by the utility company shall be submitted to the Transportation Department for verification purposes.

90.TRANS. 16 USE - UTILITY INSTALL RECOMMND

Electrical power, telephone, communication, street lighting, and cable television lines shall be placed underground in accordance with Ordinance 460 and 461, or as approved by the Transportation Department. This also pplies to existing overhead lines which are 33.6 kilovolts or below along the project frontage and between the nearest poles offsite in each direction of the project site.

A certificate should be obtained from the pertinent utility company and submitted to the Department of Transportation as proof of completion.

90.TRANS. 22 USE - IMP PLANS RECOMMND

Improvement plans for the required improvements must be prepared and shall be based upon a design profile extending a minimum of 300 feet beyond the limit of construction at a grade and alignment as approved by the Riverside County Transportation Department. Completion of road improvements does not imply acceptance for maintenance by County.

NOTE: Before you prepare the street improvement plan(s), please review the Street Improvement Plan Policies and Guidelines from the Transportation Department Web site: www.rctlma.org/trans/land_dev_plan_check_guidelines.html.

CONDITIONAL USE PERMIT Case #: CUP03645 Parcel: 727-271-008

90. PRIOR TO BLDG FINAL INSPECTION

90.TRANS. 23 USE - DRAINAGE IMPROV COMPLETE RECOMMND

All drainage improvements including the construction of drainage swales, storm drains, inlet structures, and retention systems are required to be completed prior to occupancy.

90.TRANS. 24 USE - OWNER MAINTENANCE NOTICE RECOMMND

The owner of the project site shall be responsible for the maintenance of the drainage facility, including but not limited to the catch basin, surface retention basin. A viable maintenance mechanism acceptable to the County should be provided for retention systems. The owner/project proponent shall obtain approval from Riverside County Transportation Department regarding the maintenance of the retention systems. These maintenance wording shall be shown on the title sheet of improvement plans.

90.TRANS. 25 USE - EASEMMENT FOR DRAINAGE 2 RECOMMND

The developer will prepare and record easements for drainage purposes by separate instrument to the benefit of public, for areas where drainage facilities and other drainage appurtenances are required and/or where drainage flow patterns must be maintained to convey flood plain water. All drainage easements shall be recorded by separate instrument and noted as follows, "Drainage Easement - no building, obstructions, or encroachments are allowed".

Riverside County
Waste Management Department
Hans W. Kernkamp, General Manager-Chief Engineer

July 13, 2010

RECEIVED
JUL 15 2010
Riverside County
Planning Department
Desert Office

Jay Olivas, Project Planner
Riverside County Planning Department
38-686 El Cerrito Road
Palm Desert, CA 92211

RE: Conditional Use Permit (CUP) No. 3645
Proposal: The CUP proposes 136 unit mobile home park including a recreational facility, park, and child care center.
APN: 650-290-020

Dear Mr. Olivas:

The Riverside County Waste Management Department (Department) has reviewed the proposed project located north of 68th Avenue, south of Highway 111, east of Lincoln Street, and west of Johnson Street, in the Eastern Coachella Valley Area Plan. In order to mitigate the project's potential solid waste impacts and to help the County's efforts to comply with State law in diverting solid waste from landfill disposal, the Department is recommending that the following conditions be made a part of any Conditions of Approval for the project:

1. **Prior to issuance of a building permit for EACH building,** the applicant shall submit three (3) copies of a Recyclables Collection and Loading Area plot plan to the Riverside County Waste Management Department for review and approval. The plot plan shall conform to ***Design Guidelines for Recyclables Collection and Loading Areas,*** provided by the Waste Management Department, and shall show the location of and access to the collection area for recyclable materials, along with its dimensions and construction detail, including elevation/façade, construction materials and signage. The plot plan shall clearly indicate how the trash and recycling enclosures shall be accessed by the hauler.

2. **Prior to final building inspection for EACH building,** the applicant shall construct the recyclables collection and loading area in compliance with the Recyclables Collection and Loading Area plot plan, as approved and stamped by the Riverside County Waste Management Department.

3 **Prior to issuance of a building permit,** A Waste Recycling Plan (WRP) shall be submitted to the Riverside County Waste Management Department for approval. At a minimum, the WRP must identify the materials (i.e., concrete, asphalt, wood, etc.) that will be generated by construction and development, the projected amounts, the measures/methods that will be taken to recycle, reuse, and/or reduce the amount of materials, the facilities and/or haulers that will be utilized, and the targeted recycling or reduction rate. Arrangements can be made through the franchise hauler.

4. **Prior to issuance of an occupancy permit,** evidence (i.e., receipts or other type verification) to demonstrate project compliance with the approved WRP shall be presented by the project proponent to the Planning Division of the Riverside County Waste Management Department in order to clear the project for occupancy permits.

5. Hazardous materials are not accepted at Riverside County landfills. In compliance with federal, state, and local regulations and ordinances, any hazardous waste generated in association with the project shall be disposed of at a permitted Hazardous Waste disposal facility. Hazardous waste materials include, but are not limited to, paint, batteries, oil, asbestos, and solvents. For further information regarding the determination, transport, and disposal of hazardous waste, please contact the Riverside County Department of Environmental Health, Environmental Protection and Oversight Division, at 1.888.722.4234.

6. Use mulch and/or compost in the development and maintenance of landscaped areas within the project boundaries. Recycle green waste through either onsite composting of grass, i.e., leaving the grass clippings on the lawn, or sending separated green waste to a composting facility.

7. Consider xeriscaping and using drought tolerant/low maintenance vegetation in all landscaped areas of the project.

Thank you for the opportunity to review this proposal. If you have any questions, please call me at (951) 486-3200.

Sincerely,

Ryan Ross
Planner IV

PD88468v7

Established in 1918 as a public agency

Coachella Valley Water District

Directors:
Patricia A. Larson, President
Peter Nelson, Vice President
Tellis Codekas
Franz W. De Klotz
Russell Kitahara

Officers:
Steven B. Robbins, General Manager-Chief Engineer
Julia Fernandez, Board Secretary

Redwine and Sherrill, Attorneys

November 18, 2010

File: 0163.1
0421.1
0721.1

Jay Olivas
Riverside County Planning Department
38-686 El Cerrito Road
Palm Desert, CA 92211

Dear Mr. Olivas:

Subject: Change of Zone No. 7738/Conditional Use Permit No. 3645
Amendment No. 1; Related Case LLA 5374

This area is designated Zone X on the Federal Flood Insurance Rate Maps which are in effect at this time by the Federal Emergency Management Agency (FEMA).

The county shall require mitigation measures to be incorporated into the development to prevent flooding of the site or downstream properties. These measures shall require on-site retention of the incremental increase of runoff from the 100-year storm.

Design for retention basins for this area must consider high groundwater levels and clay soils.

The proposed project area is adjacent to the right-of-way of the Lincoln Street Stormwater Channel. We request that the developer be required to install suitable facilities to prohibit access to this right-of-way.

The developer shall obtain an encroachment permit from the District prior to any activity within the right-of-way of the Lincoln Street Stormwater Channel.

This project lies within the Study Area Boundary of the Coachella Valley Water Management Plan (September 2002).

The District will provide domestic water and sanitation service to this area and such service will be subject to the satisfaction of terms and conditions established by the District and exercised from time to time, including but not limited to fees and charges, water conservation measures, etc.

The District may need additional facilities to provide for the orderly expansion of its domestic water and sanitation systems. These facilities may include pipelines, wells, reservoirs, booster pumping stations, lift stations, treatment plants and other facilities. The developer may be required to install these facilities and provide land and/or easements on which some of these facilities will be located. These sites shall be shown on the tract map as lots and/or easements to be deeded to the District for such purpose.

This notice of domestic water and sanitation service availability can only be used and relied upon for the specific property for which it was issued and shall expire three (3) years from date of issuance.

Domestic water and sanitation service remains at all times subject to changes in regulations adopted by the District's Board of Directors including reductions in or suspensions of service.

The Riverside County Health Department requires sanitary sewer service to be provided when there are existing sewers within 200-feet of the development. For your development, there are existing sanitary sewer service available in the area, but over the 200-foot requirement. The District strongly suggests that development connect to the District's sanitary sewer system and the District may survey existing property owners in this area to determine the potential for multi-user participation in a sewer line extension.

There are existing U.S. Bureau of Reclamation (USBR) facilities not shown on the area to remain vacant (adjacent to the proposed project area). There may be conflicts with these facilities. We request the appropriate public agency to withhold the approval of development plans for this area until arrangements have been made with the District regarding these facilities. The USBR conflicts include but are not limited to Lateral 94.2.

Surface and subsurface drainage facilities in the vicinity of this project were designed and constructed for agricultural drainage. The District will consider use of these drainage facilities for urban drainage if (1) the surface and subsurface drainage facilities can physically handle the new urban drainage, (2) the area is incorporated into the National Pollutant Discharge Elimination System permit and Waste Discharge Requirements for the discharge of stormwater in the Whitewater River Watershed, which is known as the MS4 Permit and (3) the project is annexed into a future district(s) for recovery of capital and operation/maintenance costs associated with the new urban drainage system.

The District may need replacement or additional drainage facilities to provide for the orderly expansion of the drainage system. These facilities may include pipelines, channels, pump stations and other facilities. The developer may be required to install these facilities and provide land and/or easements on which some of these facilities will be located. These sites shall be shown on the tract map as lots and/or easements to be deeded to the District for such purpose.

Plans for grading, landscaping and irrigation systems shall be submitted to the District for review. This review is for ensuring efficient water management.

The project lies within the Lower Whitewater River Subbasin Area of Benefit. Groundwater production within the area of benefit is subject to a replenishment assessment in accordance with the State Water Code.

Jay Olivas
Riverside County
Planning Department 3 November 18, 2010

All water wells owned or operated by an entity producing more than 25 acre-feet of water during any year must be equipped with a water-measuring device. A District Water Production Metering Agreement is required to ensure District staff regularly read and maintain this water-measuring device.

If you have any questions, please call Tesfaye Demissie, Stormwater Engineer, extension 2605.

Yours very truly,

Mark L. Johnson
Director of Engineering

cc: Sergio Carranza
Pueblo Unido CDC
Post Office Box 1130
Thermal, CA 92274

Alan French
Riverside County Transportation Department
4080 Lemon Street, 8th Floor
Riverside, CA 92501

Majeed Farshad
Riverside County Department of Transportation
38-686 El Cerrito Road
Palm Desert, CA 92211

Michael Mistica
Riverside County Department of Environmental Health
Environmental Resources Management
Post Office Box 1206
Riverside, CA 92502

TD:ch/eng/sw/10/NOV/Change of Zone 7738

070917-3

Established in 1918 as a public agency

Coachella Valley Water District

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Russell Kitahara

Officers:
Steven B. Robbins, General Manager-Chief Engineer
Julia Fernandez, Board Secretary

Redwine and Sherrill, Attorneys

July 8, 2010

File: 0163.1
0421.1
0721.1

RECEIVED
JUL 19 2010
Riverside County
Planning Department
Desert Office

Jay Olivas
Riverside County Planning Department
38-686 El Cerrito Road
Palm Desert, CA 92211

Dear Mr. Olivas:

Subject: Change of Zone No. 7738/Conditional Use Permit No. 3645

This area is partially designated Zone D and the remainder Zone X on the Federal Flood Insurance Rate Maps which are in effect at this time. Zone D is defined as an area of undetermined but possible risk of flood hazard, however, this area is protected from regional stormwater flows by a system of channels and dikes, and may be considered safe from regional stormwater flows except in rare instances.

The county shall require mitigation measures to be incorporated into the development to prevent flooding of the site or downstream properties. These measures shall require on-site retention of the incremental increase of runoff from the 100-year storm.

Design for retention basins for this area must consider high groundwater levels and clay soils.

A portion of this area is adjacent to the right-of-way of the Lincoln Street Irrigation Channel. We request that the developer be required to install suitable facilities to prohibit access to this right-of-way.

This project lies within the Study Area Boundary of the Coachella Valley Water Management Plan (September 2002).

The District will provide domestic water and sanitation service to this area and such service will be subject to the satisfaction of terms and conditions established by the District and exercised from time to time, including but not limited to fees and charges, water conservation measures, etc.

The District may need additional facilities to provide for the orderly expansion of its domestic water and sanitation systems. These facilities may include pipelines, wells, reservoirs, booster pumping stations, lift stations, treatment plants and other facilities. The developer may be required to install these facilities and provide land and/or easements on which some of these facilities will be located. These sites shall be shown on the tract map as lots and/or easements to be deeded to the District for such purpose.

This notice of domestic water and sanitation service availability can only be used and relied upon for the specific property for which it was issued and shall expire three (3) years from date of issuance.

Domestic water and sanitation service remains at all times subject to changes in regulations adopted by the District's Board of Directors including reductions in or suspensions of service.

The Riverside County Health Department requires sanitary sewer service to be provided when there are existing sewers within 200-feet of the development. For your development, there are existing sanitary sewer service available in the area, but over the 200-foot requirement. The District strongly suggests that development connect to the District's sanitary sewer system and the District may survey existing property owners in this area to determine the potential for multi-user participation in a sewer line extension.

There are existing U.S. Bureau of Reclamation (USBR) facilities not shown on the development plans. There may be conflicts with these facilities. We request the appropriate public agency withhold approval of Conditional Use Permit 3645 until utility clearances have been completed with the District. The USBR conflicts include but are not limited to Lateral 94.2.

Surface and subsurface drainage facilities in the vicinity of this project were designed and constructed for agricultural drainage. The District will consider use of these drainage facilities for urban drainage if (1) the surface and subsurface drainage facilities can physically handle the new urban drainage, (2) the area is incorporated into the National Pollutant Discharge Elimination System permit and Waste Discharge Requirements for the discharge of stormwater in the Whitewater River Watershed, which is known as theMS4 Permit and (3) the project is annexed into a future district(s) for recovery of capital and operation/maintenance costs associated with the new urban drainage system.

The District may need replacement or additional drainage facilities to provide for the orderly expansion of the drainage system. These facilities may include pipelines, channels, pump stations and other facilities. The developer may be required to install these facilities and provide land and/or easements on which some of these facilities will be located. These sites shall be shown on the tract map as lots and/or easements to be deeded to the District for such purpose.

Plans for grading, landscaping and irrigation systems shall be submitted to the District for review. This review is for ensuring efficient water management.

The project lies within the Lower Whitewater River Subbasin Area of Benefit. Groundwater production within the area of benefit is subject to a replenishment assessment in accordance with the State Water Code.

Jay Olivas
Riverside County
Planning Department 3 July 8, 2010

All water wells owned or operated by an entity producing more than 25 acre-feet of water during any year must be equipped with a water-measuring device. A District Water Production Metering Agreement is required to ensure District staff regularly read and maintain this water-measuring device.

If you have any questions, please call Tesfaye Demissie, Stormwater Engineer, extension 2605.

Yours very truly,

Mark L. Johnson
Director of Engineering

cc: Sergio Carranza
Pueblo Unido CDC
Post Office Box 1130
Thermal, CA 92274

Alan French
Riverside County Transportation Department
4080 Lemon Street, 8th Floor
Riverside, CA 92501

Majeed Farshad
Riverside County Department of Transportation
38-686 El Cerrito Road
Palm Desert, CA 92211

Michael Mistica
Department of Environmental Health
Post Office Box 1280
Riverside, CA 92502

TD:ch/eng/sw/10/july/Change of Zone 7738

070917-3

STATE OF CALIFORNIA—BUSINESS, TRANSPORTATION AND HOUSING AGENCY ARNOLD SCHWARZENEGGER, Governor

DEPARTMENT OF TRANSPORTATION
DISTRICT 8
PLANNING
464 WEST 4th STREET, 6th Floor MS 725
SAN BERNARDINO, CA 92401-1400
PHONE (909) 383-4557
FAX (909) 383-5936
TTY (909) 383-6300

Flex your power!
Be energy efficient!

December 23, 2010

Mr. Jay Olivas
Riverside County Planning Department
P. O. Box 1409
Riverside, CA 92505-1409

Dear Mr. Olivas:

Change Of Zone: 7738, Conditional Use Permit 3645
Assessor Parcel Number: 727-271-003
08-RIV 111, PM 17.812

The California Department of Transportation reviewed the above proposed project, located west of Lincoln Street, north of 68th Avenue, and south of and abutting State Route 111 (SR-111), in the community of Mecca. CUP 3645 proposes to replace the existing 95 mobile homes with 136-mobile home units that will include, park, recreational, and child care facilities.

We recommend new striping and pavement markings to the existing SR-111 roadway for the secondary access off of SR-111. Issuance of a Caltrans encroachment permit will be required for this construction and must conform to current Caltrans design standards and construction practices. Information regarding permit application and submittal requirements may be obtained by contacting:

Office of Encroachment Permits
California Department of Transportation
464 West 4th Street, 6th Floor, MS 619
San Bernardino, CA 92401-1400
(909) 383-4526

Or you may visit our web page at http://www.dot.ca.gov/hq/traffops/developserv/permits

These comments are based on the information provided, if this development proposal is later modified, please forward copies of revised plans so that we may reevaluate all proposed changes. If you have any questions regarding this letter, please contact me at (909) 383-4557 for assistance.

Sincerely,

Original signed by Daniel Kopulsky

DANIEL KOPULSKY
Office Chief
Community Planning/Local Development Review

c: Richard Goh, Encroachment Permits-Riverside County

LAND DEVELOPMENT COMMITTEE
INITIAL CASE TRANSMITTAL
RIVERSIDE COUNTY PLANNING DEPARTMENT - DESERT OFFICE
38-686 El Cerrito Road
Palm Desert, CA 92211

RECEIVED
JUL 07 2010
Riverside County
Planning Department
Desert Office

RECEIVED
JUN 23 2010
Facilities Department
CVUSD

DATE: June 17, 2010

TO:

Transportation Dept.
Environmental Health Dept.
Fire Department
Riv. Co. Dept. of Bldg. & Safety - Grading
Riv. Co. Environmental Programs Dept.
Regional Parks & Open Space District
P.D. Geologist / Paleontologist – D. Jones
P.D. Archaeologist – L. Mouriquand
P.D. Landscape Programs Department
Trails Coordinator – J. Jolliffe
Coachella Valley Water District
Riv. Co. Indio Sheriff's Dept.
Riv. Co. Waste Resources Management Dept.
Coachella Valley Recreation & Park District
Mecca Community Council
Fourth District Supervisor Benoit
Planning Commissioner Porras
Coachella Valley Unified School District
Southern California Gas Co.
CALTRANS District #8
Colorado River RWQCB
Desert File / Central Files

CHANGE OF ZONE NO. 7738 / CONDITIONAL USE PERMIT NO. 3645 – EA42325 – Applicant: Pueblo Unido CDC – Engineer/Representative: Sergio Carranza - Fourth Supervisorial District – Mecca Zoning District – Eastern Coachella Valley Community Area Plan: Community Development: Medium Density Residential (CD: MDR) (2-5 DU/AC) & Community Development: Very High Density Residential (CD: VHDR) (14-20 DU/AC) – Location: Northerly of 68th Avenue, southerly of Highway 111, easterly of Lincoln Street, westerly of Johnson St., located at 91250 Avenue 68, Mecca, Ca. – 75 Gross Acres – Zoning: Rural Residential (RR) & Controlled Development Areas (W-2) – **REQUEST**: The Change of Zone proposes to change zoning from R-R (Rural Residential) to Controlled Development Areas (W-2). The conditional use permit proposes 136 unit mobile home park including recreational facility, park and child care center. – APN: 650-290-020 – Concurrent Cases: EA42325, CFG05688 - Related Cases: CUP01654, CUP01229

Please review the case described above, along with the attached map(s) and/or exhibit(s): Exhibit A. Exhibit C & B (for Fire Dept. & E. Health Dept. only, and Exhibit L for Landscape Dept. only). This case is scheduled for a **LDC meeting agenda on July 15, 2010**. All LDC Members please have draft conditions in the Land Management System (LMS) on or before the above date. If it is determined that the attached map(s) and/or exhibit(s) are not acceptable, please have corrections in the system and DENY the routing on or before the above date. Once the route is complete, and the approval screen is approved with or without corrections, the case can be scheduled for a public hearing.

All other transmitted entities, please have your comments, questions and recommendations to the Planning Department on or before the above date. Your comments/recommendations/conditions are requested so that they may be incorporated in the staff report for this particular case. Should you have any questions regarding this project, please do not hesitate to contact **Jay Olivas, Project Planner**, at **(760) 863-8277** or email at jolivas@rctlma.org / **MAILSTOP# 4035**.

COMMENTS: No objections to the above project. Effective June 26, 2010, the new Level I School Fee is $2.97 per sq. ft. on all new residential construction. The commercial/ industrial/senior housing fee remains at the Statutory Fee of $0.47 per sq. ft. Coachella Valley Unified School District is authorized by State Legislature and Judicial Actions to levy a developer fee on new construction.

DATE: June 28, 2010 SIGNATURE: Elsa F. Esqueda

PLEASE PRINT NAME AND TITLE: Elsa F. Esqueda, Director, Facilities, CVUSD

If you do not include this transmittal in your response, please include a reference to the case number and project planner's name. Thank you.

V:\11_PLANNING Primary Folder\Planning Cases-Desert Office\CUP03645\LDC Transmittal Forms\CZ07738 CUP03645. tml.docx

TML: C.M.

FUN IN THE SUN

DESERT RECREATION DISTRICT

RECEIVED
JUL 21 2010
Riverside County
Planning Department
Desert Office

July 12, 2010

Via E-Mail and Regular Mail
jolivas@rctlma.org

Jay Olivas, Project Planner
County of Riverside Planning Department – Palm Desert Office
38-686 El Cerrito Road
Palm Desert, CA 92211

Re: Change of Zone No. 7738 – Conditional Use Permit No. 3645 – Pueblo Unido CDC

Dear Mr. Olivas:

Thank you for providing the Desert Recreation District with a copy of the **Notice of Land Development Committee** regarding **Change of Zone No. 7738/Conditional Use Permit No. 3645.**

The Desert Recreation District is the public entity which provides parks and recreational services on a community wide level and has adopted a Community Parks and Recreation Master Plan, in accordance with Riverside County Ordinance No. 460, to direct the parks and recreation services within the community area. This residential project is located within the District boundaries and will have impacts on the District's provision of services and facilities. Therefore, the District requests that the following mitigation measures be included in any environmental review, mitigation and monitoring plan and as conditions of approval for the project.

1. Developer will enter into an agreement with the Desert Recreation District to dedicate land, pay a fee in-lieu thereof, or both at the option of the Desert Recreation District, for neighborhood or community park and recreational facilities at the time and according to the standards and formula contained in Riverside County Ordinance No. 460 and the Districts Community Parks and Recreation Master Plan. We have attached a copy of the form of agreement which will be used.

2. In order to provide for public park and recreational facilities and/or the maintenance or operation of current and/or future public park and recreational facilities and programs, prior to the issuance of building permits, Developer shall petition for and complete formation of or annexation to Desert Recreation District's Landscape and Lighting Assessment District, and shall pay the costs of such formation and or annexation.

We look forward to working with you on this project. The undersigned or Delia Granados will be the contact persons for this project. (delia@desertrecreationdistrict.ca.gov or kevin@desertrecreationdistrict.ca.gov). Thank you for your assistance.

Very truly yours,

Kevin Kalman, Assistant General Manager
KK/dg

AGREEMENT BETWEEN

DESERT RECREATION DISTRICT
OF RIVERSIDE COUNTY
AND

_____

FOR COLLECTION OF PARK DEVELOPMENT FEES

THIS AGREEMENT is entered into this _____ day of _____ 2010, by and between DESERT RECREATION DISTRICT OF RIVERSIDE COUNTY, CALIFORNIA, a political subdivision of the State of California (hereinafter referred to as **DISTRICT**) and _____ (hereinafter referred to as **DEVELOPER**);

WITNESSETH:

WHEREAS, DEVELOPER presently is seeking approval from the County of Riverside of Tentative Tract Map No. _____ (the "project"); and

WHEREAS, CEQA review for the project has indicated that such additional development within the **DISTRICT** will impact on existing public park and recreation facilities and contribute to the need for construction of new facilities; and

WHEREAS, DISTRICT'S Community Parks and Recreation Master Plan identifies facilities needed to serve such growth; and

WHEREAS, the location of convenient parks near **DEVELOPER'S** proposed residential development would substantially enhance the possibilities of selling the dwellings in such residential development; and

WHEREAS, DEVELOPER desires to assist **DISTRICT** in mitigating the impacts of its new housing by paying to **DISTRICT** a sum of money to be used for such purposes;

NOW, THEREFORE, the parties to this Agreement do mutually agree as follows:

I. RESPONSIBILITIES OF DEVELOPER

A. **DEVELOPER** shall pay to **DISTRICT**, prior to issuance of any building permits for lots in Tentative Tract Map No. _____, the sum of $_____ for each residential unit constructed. .

B. **DEVELOPER** shall, concurrent with requesting any necessary written assurance from **DISTRICT**, request in writing that the County of Riverside include in its approval of **DEVELOPER'S** tentative map a condition that **DEVELOPER**, his successors or assigns, provide evidence of compliance with the terms of this Agreement prior to issuance of any building permit by the County of Riverside, or its successor, for lots in the approved tract.

C. **DEVELOPER** shall notify any successors or assigns that this Agreement has been executed and is in effect. In addition, in the event this property is annexed into a city within our jurisdiction, Desert Recreation District will continue to receive the same amount as the Quimby fees identified in this Agreement, which fees shall mitigate the continuing impacts of such growth.

II. RESPONSIBILITIES OF DISTRICT

A. Monies paid to **DISTRICT** under this Agreement will be deposited by **DISTRICT** in a separate account for such type of fees. Disbursements from that account shall be solely for the procurement of public park and recreation facilities determined by **DISTRICT** to benefit residents of Tentative Tract Map No. _____.

B. The fees specified herein were calculated and are levied in accordance with and shall be collected, administered and disbursed in accordance with Desert Recreation District Community Parks and Recreation Master Plan, Section 10.35 of Riverside County Ordinance No. 460, Government Code Section 66477, and any and all other applicable laws, rules and regulations as they now exist and as they may from time to time be amended.

III. MISCELLANEOUS

A. It is expressly understood and agreed by the **DEVELOPER** and **DISTRICT** that the law of the State of California shall govern them and the interpretation of the Agreement and that any litigation brought because of, or involving this Agreement shall be initiated exclusively in the Superior Court, Riverside County, Indio Division.

B. In the event of litigation to enforce this Agreement, the prevailing party in such litigation shall be entitled to reasonable costs and attorneys fees.

C. In the event that **DEVELOPER'S** tentative subdivision map expires without extension or approval by the County of Riverside, all obligations of **DEVELOPER** and **DISTRICT** herein shall cease.

D. All terms, conditions, and provisions hereof shall inure to and shall bind the parties hereto, their respective successors-in-interest and assigns.

E. No waiver of any term or condition of this Agreement shall be a continuing waiver thereof.

F. This Agreement shall be amended only in writing signed by both parties.

G. This Agreement constitutes the entire agreement of the parties and supersedes all other agreements, whether written or oral.

IN WITNESS WHEREOF, DEVELOPER and **DISTRICT** have caused this Agreement to be signed in their names and on their behalf by their duly authorized representatives.

DEVELOPER:	**DISTRICT:** DESERT RECREATION DISTRICT OF RIVERSIDE COUNTY, CALIFORNIA
By: _____	By: _____
	STAN FORD General Manager

Olivas, Jay

Subject: FW: CUP03645 Pueblo Unido

From: DeLara, Leticia [mailto:LDELARA@rcbos.org]
Sent: Thursday, January 13, 2011 4:33 PM
To: Sergio Carranza; Olivas, Jay
Subject: RE: CUP03645 Pueblo Unido

This is correct.

From: Sergio Carranza [mailto:scarranza@pucdc.org]
Sent: Monday, January 10, 2011 1:56 PM
To: Olivas, Jay
Cc: DeLara, Leticia
Subject: RE: CUP03645 Pueblo Unido

The Mecca Community Council approved the proposed CUP03645 at the Mecca Community Council meeting in September 8, 2010. Leticia Delara was present at the meeting and she can provide a letter to Planning Department from the council.

Thanks.

Sergio Carranza, Executive Director
Pueblo Unido CDC
53-040 Avenida Mendoza
La Quinta, CA. 92253
P.O. Box 1130
Thermal, CA 92274
(760) 427-0985 p
(760) 777-7550 f
www.pucdc.org

COUNTY OF RIVERSIDE

TRANSPORTATION AND LAND MANAGEMENT AGENCY

Planning Department

Ron Goldman · Planning Director

APPLICATION FOR CHANGE OF ZONE

CHECK ONE AS APPROPRIATE:

☑ **Standard Change of Zone**

There are three different situations where a Planning Review Only Change of Zone will be accepted:

☐ **Type 1:** Used to legally define the boundaries of one or more Planning Areas within a Specific Plan.
☐ **Type 2:** Used to establish or change a SP zoning ordinance text within a Specific Plan.
☐ **Type 3:** Used when a Change of Zone application was conditioned for in a prior application.

INCOMPLETE APPLICATIONS WILL NOT BE ACCEPTED.

CASE NUMBER: CZ07738 DATE SUBMITTED: MAY 27, 2010

APPLICATION INFORMATION

Applicant's Name: PUEBLO UNIDO CDC E-Mail: scarranza@pucdc.org

Mailing Address: PO BOX 1130
THERMAL (*City*) CA (*State*) 92274 (*ZIP*) (*Street*)

Daytime Phone No: (760) 427-0985 Fax No: (760) 777-7550

Engineer/Representative's Name: SERGIO CARRANZA E-Mail: scarranza@pucdc.org

Mailing Address: PO BOX 1130
THERMAL (*City*) CA (*State*) 92274 (*ZIP*) (*Street*)

Daytime Phone No: (____) SAME Fax No: (____) ____

Property Owner's Name: MULTINATIONAL INVEST. E-Mail: garodek@sbcglobal.net

Mailing Address: 18425 BURBANK BOULEVARD, SUITE 700
TARZANA (*City*) CA (*State*) 91356 (*ZIP*) (*Street*)

Daytime Phone No: (818) 434-2396 Fax No: (818) 996-4444

If the property is owned by more than one person, attach a separate page that reference the application case number and lists the names, mailing addresses, and phone numbers of all persons having an interest in the real property or properties involved in this application.

APPLICATION FOR CHANGE OF ZONE

The Planning Department will primarily direct communications regarding this application to the person identified above as the Applicant. The Applicant may be the property owner, representative, or other assigned agent.

AUTHORIZATION FOR CONCURRENT FEE TRANSFER

The signature below authorizes the Planning Department and TLMA to expedite the refund and billing process by transferring monies among concurrent applications to cover processing costs as necessary. Fees collected in excess of the actual cost of providing specific services will be refunded. If additional funds are needed to complete the processing of your application, you will be billed, and processing of the application will cease until the outstanding balance is paid and sufficient funds are available to continue the processing of the application. The applicant understands the deposit fee process as described above, and that there will be NO refund of fees which have been expended as part of the application review or other related activities or services, even if the application is withdrawn or the application is ultimately denied.

PUEBLO UNIDO CDC

PRINTED NAME OF APPLICANT

SIGNATURE OF APPLICANT

AUTHORITY FOR THIS APPLICATION IS HEREBY GIVEN:

I certify that I am/we are the record owner(s) or authorized agent and that the information filed is true and correct to the best of my knowledge. An authorized agent must submit a letter from the owner(s) indicating authority to sign the application on the owner's behalf.

All signatures must be originals ("wet-signed"). Photocopies of signatures are **not** acceptable.

MULTINATIONAL INVESTMENTS

PRINTED NAME OF PROPERTY OWNER(S)

SIGNATURE OF PROPERTY OWNER(S)

PRINTED NAME OF PROPERTY OWNER(S)

SEE LOT LINE ADJUSTMENT SIGNATURE ON FILE

SIGNATURE OF PROPERTY OWNER(S)

If the property is owned by more than one person, attach a separate sheet that references the application case number and lists the printed names and signatures of all persons having an interest in the property.

PROPERTY INFORMATION:

Assessor's Parcel Number(s): 727-271-003

Section: 7 Township: 7 SOUTH Range: 9 EAST

Approximate Gross Acreage: 75

General location (nearby or cross streets): North of AVENUE 68TH, South of HIGHWAY 111, East of LINCOLN STREET, West of JOHNSON STREET.

Thomas Brothers map, edition year, page number, and coordinates: _____

APPLICATION FOR CHANGE OF ZONE

Proposal (describe the zone change, indicate the existing and proposed zoning classifications. If within a Specific Plan, indicate the affected Planning Areas):

CURRENTLY THE ZONE IS RR AND W2. THE PLANNING DEPARTMENT HAS REQUESTED TO HAVE A UNIFORM ZONE TO W2

Related cases filed in conjunction with this request:

LAND LOT ADJUSTMENT, AND CONDITIONAL USE PERMIT

COUNTY OF RIVERSIDE

TRANSPORTATION AND LAND MANAGEMENT AGENCY

Planning Department

Ron Goldman · Planning Director

APPLICATION FOR LAND USE AND DEVELOPMENT

CHECK ONE AS APPROPRIATE: CC005999

- ☐ PLOT PLAN
- ☐ REVISED PERMIT
- ☑ CONDITIONAL USE PERMIT
- ☐ PUBLIC USE PERMIT
- ☐ TEMPORARY USE PERMIT
- ☐ VARIANCE

INCOMPLETE APPLICATIONS WILL NOT BE ACCEPTED.

CASE NUMBER: CUP03645/CZ07738 EA42325/CF605684 DATE SUBMITTED: MAY 27, 2010

APPLICATION INFORMATION

Applicant's Name: PUEBLO UNIDO CDC E-Mail: scarranza@pucdc.org

Mailing Address: PO BOX 1130

THERMAL (City) CA (State) 92274 (ZIP) (Street)

Daytime Phone No: (760) 427-0985 Fax No: (760) 777-7550

Engineer/Representative's Name: SERGIO CARRANZA E-Mail: scarranza@pucdc.org

Mailing Address: PO BOX

THERMAL (City) CA (State) 92274 (ZIP) (Street)

Daytime Phone No: (760) 427-0985 Fax No: (760) 777-7550

Property Owner's Name: MULTINATIONAL INVESTMEN E-Mail: garodek@sbcglobal.net

Mailing Address: 18425 BURBANK BOULEVARD, SUITE 700

TARZANA (City) CA (State) 91356 (ZIP) (Street)

Daytime Phone No: (818) 434-2396 Fax No: (818) 996-4444

If the property is owned by more than one person, attach a separate page that reference the application case number and lists the names, mailing addresses, and phone numbers of all persons having an interest in the real property or properties involved in this application.

The Planning Department will primarily direct communications regarding this application to the person identified above as the Applicant. The Applicant may be the property owner, representative, or other assigned agent.

APPLICATION FOR LAND USE AND DEVELOPMENT

AUTHORIZATION FOR CONCURRENT FEE TRANSFER

The signature below authorizes the Planning Department and TLMA to expedite the refund and billing process by transferring monies among concurrent applications to cover processing costs as necessary. Fees collected in excess of the actual cost of providing specific services will be refunded. If additional funds are needed to complete the processing of your application, you will be billed, and processing of the application will cease until the outstanding balance is paid and sufficient funds are available to continue the processing of the application. The applicant understands the deposit fee process as described above, and that there will be NO refund of fees which have been expended as part of the application review or other related activities or services, even if the application is withdrawn or the application is ultimately denied.

All signatures must be originals ("wet-signed"). Photocopies of signatures are **not** acceptable.

PUEBLO UNIDO CDC — *PRINTED NAME OF APPLICANT*

SIGNATURE OF APPLICANT

AUTHORITY FOR THIS APPLICATION IS HEREBY GIVEN:

I certify that I am/we are the record owner(s) or authorized agent and that the information filed is true and correct to the best of my knowledge. An authorized agent must submit a letter from the owner(s) indicating authority to sign the application on the owner's behalf.

All signatures must be originals ("wet-signed"). Photocopies of signatures are **not** acceptable.

MULTINATIONAL INVESTMENTS — *PRINTED NAME OF PROPERTY OWNER(S)*

SIGNATURE OF PROPERTY OWNER(S)

PRINTED NAME OF PROPERTY OWNER(S)

SIGNATURE OF PROPERTY OWNER(S)

If the property is owned by more than one person, attach a separate sheet that references the application case number and lists the printed names and signatures of all persons having an interest in the property.

☐ See attached sheet(s) for other property owners signatures.

PROPERTY INFORMATION:

Assessor's Parcel Number(s): 727-271-003

Section: 7 Township: 7 SOUTH Range: 9 EAST

Approximate Gross Acreage: 75

General location (nearby or cross streets): North of 68TH AVENUE, South of HIGHWAY 111, East of LINCOLN STREET, West of JOHNSON STREET.

Thomas Brothers map, edition year, page number, and coordinates: _____

APPLICATION FOR LAND USE AND DEVELOPMENT

Proposal (describe project, indicate the number of proposed lots/parcels, units, and the schedule of the subdivision, Vesting Map, PRD):

THE PROPOSED PROJECT INTENDS TO BUILD NEW 136 UNIT MOBILE HOME PARK. CURRENTLY, THERE IS AN EXISTING 95 UNIT MOBILE HOME PARK THAT WILL BE REMOVED FOR A COMMUNITY PARK, ~~COMMUNITY AND CHILD CARE CENTER~~

Related cases filed in conjunction with this request:

LOT LINE ADJUSTMENT, AND CHANGE OF ZONE

Is there a previous development application filed on the same site: Yes ☑ No ☐

If yes, provide Case No(s). _____ (Parcel Map, Zone Change, etc.)

E.A. No. (if known) _____ E.I.R. No. (if applicable): _____

Have any special studies or reports, such as a traffic study, biological report, archaeological report, geological or geotechnical reports, been prepared for the subject property? Yes ☐ No ☑

If yes, indicate the type of report(s) and provide a copy: _____

Is water service available at the project site: Yes ☑ No ☐

If "No," how far must the water line(s) be extended to provide service? (No. of feet/miles) _____

Will the proposal eventually require landscaping either on-site or as part of a road improvement or other common area improvements? Yes ☑ No ☐

Is sewer service available at the site? Yes ☑ No ☐

If "No," how far must the sewer line(s) be extended to provide service? (No. of feet/miles) _____

Will the proposal result in cut or fill slopes steeper than 2:1 or higher than 10 feet? Yes ☐ No ☑

How much grading is proposed for the project site?

Estimated amount of cut = cubic yards: 80,667

Estimated amount of fill = cubic yards 80,667

Does the project need to import or export dirt? Yes ☐ No ☑

Import _____ Export _____ Neither _____

APPLICATION FOR LAND USE AND DEVELOPMENT

What is the anticipated source/destination of the import/export?
0

What is the anticipated route of travel for transport of the soil material?

How many anticipated truckloads? _____ truck loads.

What is the square footage of usable pad area? (area excluding all slopes) 300,000 sq. ft.

Is the development proposal located within 8½ miles of March Air Reserve Base? Yes ☐ No ☑

If yes, will any structure exceed fifty-feet (50') in height (above ground level)? Yes ☐ No ☐

Does the development project area exceed more than one acre in area? Yes ☑ No ☐

Is the development project located within any of the following watersheds (refer to Riverside County Land Information System (RCLIS) (http://www3.tlma.co.riverside.ca.us/pa/rclis/index.html) for watershed location)?

☐ Santa Ana River ☐ Santa Margarita River ☐ San Jacinto River ☐ Whitewater River

HAZARDOUS WASTE SITE DISCLOSURE STATEMENT

Government Code Section 65962.5 requires the applicant for any development project to consult specified state-prepared lists of hazardous waste sites and submit a signed statement to the local agency indicating whether the project is located on or near an identified site. Under the statute, no application shall be accepted as complete without this signed statement.

I (we) certify that I (we) have investigated our project with respect to its location on or near an identified hazardous waste site and that my (our) answers are true and correct to the best of my (our) knowledge. My (Our) investigation has shown that:

☑ The project is not located on or near an identified hazardous waste site.

☐ The project is located on or near an identified hazardous waste site. Please list the location of the hazardous waste site(s) on an attached sheet.

Owner/Representative (1) _____ Date 7/15/10

Owner/Representative (2) _____ Date _____

Pueblo Unido CDC
of the Eastern Coachella Valley

February 2, 2011

Jay Olivas, Planner
Riverside County Planning Department

Ref: CUP 03645 - San Antonio del Desierto
Miscellaneous Items

Dear Jay,

This is in response to your questions and comments listed below:

1) Submit Phasing Plan. How are the units going from 100 units to 136 units? What is the timing, how replaced, how many at one time?

   The first phase consists of constructing 92 spaces with an estimated 8 months period. Families will initiate the application process to obtain a new mobile home under the Riverside County EDA prior the beginning of construction. Once the new spaces are available, new mobile homes will be setup. Families will relocate to the new mobile homes and the old mobile home will be removed from the site. The number and timing of setup will be determined by EDA staff.

   The Second phase consists of removing existing substandard mobile homes, demolition and cleans up of existing mobile home park. Then the construction of 44 new spaces, Community Park, community center and child care facility with an estimated 12 month period. The process of setting and relocating new families will be the same as indicated in the first phase (Please enclosed Phasing Plan).

2) Submit simplified graphic (PDF) (8x 11) on future sewer line extension with distance, existing and proposed water system, existing and proposed access.

   Please attached Diagram by CVWD.

3) Please provide total parking space count including ADA spaces around community center.

   The parking space count including ADA spaces around community center is 57.

53040 Avenida Mendoza, La Quinta, CA 92253 - PO Box 1130, Thermal, CA 92274
Phone (760) 777-7550 Mobile (760) 427-0985 Fax (760) 771-0271 - www.pucdc.org

1) Please submit color sample board of community bldg (8x10 prints) (12 copies)

   Please see enclosed sample board of community building

2) What are hours of operation of day care center? How many children?

   The hours of operation of the day care are as follows:

   Monday thru Friday from 7:00 am to 3:00 pm
   Saturdays from 7:00 am to 3:00 pm

   The child care facility will have a capacity of 15 children

3) Submit existing sign picture or diagram.

   Please see enclosed sign design.

4) Please address Mecca Design Guidelines (see www.rctlma.org/planning under dev process)

   San Antonio del Desierto will integrate authentic cultural features including the Traditional Mexican Small Town ambiance and themes that will blend with the natural desert and agricultural environment. Onsite construction and architectural design will incorporate traditional Spanish elements such wrought-iron fences, park entrance and monument signs that will complement the community center and child care facility's rich smooth stucco walls and Capistrano roof architectural design. This environment will be surrounded by native drought-tolerant plants. The community park will provide areas for pedestrian crossing using interlock pavers to add the ultimate accent to the area. Access to the site will include 60' ROW primary and secondary access. These components are based on the existing Mecca Design Guidelines.

5) Are you proposing a life of permit on the CUP?

   The proposed CUP is for a 55 years.

6) Have noise impacts from traffic been addressed?

   Our civil engineer, Robert J. Mainiero has already submitted a letter addressing the noise impacts.

7) Please note final zone change documents will need to be submitted post PC.

   Final zoning plans will be submitted post planning commission.

8) What type of Lighting Plans are proposed?

   The project lighting plan will include low to the ground or shielded and hooded high pressure sodium lights to avoid shining onto adjacent properties and streets. Street lights, and lighting at the park entrance and community park will be installed.

9) Are all units min 750 SF?

The mobile homes are typical 48'x 24 feet (1,152 SF)

10) Have you contacted Desert Recreation Dist to see if Park Fees apply?

We have contacted Kevin Kalman from the Desert Recreation District. The district is in the process of drafting a letter indicating the applicable fees.

11) What sort of fencing is proposed?

The proposed fencing is a ½ wrought-iron fence at the east, west and south, and grout block wall at the north

12) Call Bldg Dept to see if Dev Impact Fees apply (Ord 659)

We have contacted the Riverside County Building Department and indicated that Development Impact Fee will apply.

ROBERT J. MAINIERO, P.E.
Civil Engineering and Related Assistance
P.O. Box 2410
Palm Springs, California 92263
(760) 413-7127 cell
(760) 320-1994 fax
psbob596@aol.com

January 14, 2011

Mr. Jay Olivas
Riverside County Planning Department
4080 Lemon Street---12th Floor
Riverside, CA 92201

Re: Assessment of Traffic Noise Impact
St. Anthony's Mobilehome Park---County of Riverside
APN 727-271-003
West Side of State Highway 111, Avenue 66
Portion of Section 17, T7S, R9E, SBM

Dear Jay:

The existing mobilehome units are more than 1100 feet from Highway 111, more than 500 feet from Lincoln Street, more than 1400 feet from Avenue 68, and more than 2900 feet from Avenue 66. I believe that the traffic noise impact will be minimal.

If you have any questions in regard to the above, please contact me or Sergio Carranza.

Very truly yours,

Robert J. Mainiero, P.E.

cc: Sergio Carranza

NOTICE OF PUBLIC HEARING
and
INTENT TO ADOPT A MITIGATED NEGATIVE DECLARATION

A PUBLIC HEARING has been scheduled, pursuant to Riverside County Land Use Ordinance No. 348, before the **RIVERSIDE COUNTY** PLANNING COMMISSION to consider the project shown below:

CHANGE OF ZONE NO. 7738 / CONDITIONAL USE PERMIT NO. 3645 – Intent to Adopt Mitigated Negative Declaration – Applicant: Pueblo Unido CDC – Representative: Sergio Carranza - Fourth Supervisorial District – Mecca Zoning District – Eastern Coachella Valley Community Area Plan: Community Development: Very High Density Residential (CD: VHDR) (14-20 D.U./Ac.), Community Development: Medium Density Residential (CD: MDR) (2-5 D.U./Ac.), Community Development: Very Low Density Residential (CD: VLDR) (1 Acre Minimum) – Location: Northerly of Avenue 68, southerly of State Highway 111, easterly of Lincoln Street in Mecca, CA – 223 Gross Acres – Zoning: Rural Residential – ½ Acre Minimum (R-R), Controlled Development Areas – ½ Acre Minimum (W-2). **REQUEST**: The Change of Zone proposes to modify existing zoning from Rural Residential (R-R) and Controlled Development Areas (W-2) to Controlled Development Areas (W-2). The conditional use permit proposes to replace an existing 100 unit mobile home park with a new 136 unit mobile home park to be built in two phases with Phase I consisting of 92 spaces and Phase II consisting of 44 spaces along with a 6,200 square foot community building up to 20 feet in height including child care center, community park, recreational facilities, and retention basins. Primary road access is proposed from Avenue 68 and secondary road access is proposed from State Highway 111. APN's: 727-271-002, 727-271-003, 727-271-007, and 727-271-008. (Quasi-judicial)

TIME OF HEARING:	9:30 a.m. or as soon as possible thereafter.
DATE OF HEARING:	May 25, 2011
PLACE OF HEARING:	City of La Quinta Council Chambers 78-495 Calle Tampico La Quinta, CA 92247

For further information regarding this project, please contact Jay Olivas, Project Planner at 951-955-1195 or e-mail jolivas@rctlma.org, or go to the County Planning Department's Planning Commission agenda web page at www.tlma.co.riverside.ca.us/planning/pc.html

The Riverside County Planning Department has determined that the above project will not have a significant effect on the environment and has recommended adoption of a mitigated negative declaration. The Planning Commission will consider the proposed project and the proposed mitigated negative declaration, at the public hearing. The case file for the proposed project and the proposed mitigated negative declaration may be viewed Monday through Friday, 8:30 a.m. to 4:30 p.m., (with the exception of Noon-1:00 p.m. and holidays) at the County of Riverside Planning Department, 4080 Lemon Street, 9th Floor, Riverside, CA 92502. For further information or an appointment, contact the project planner.

Any person wishing to comment on a proposed project may do so, in writing, between the date of this notice and the public hearing or appear and be heard at the time and place noted above. All comments received prior to the public hearing will be submitted to the Planning Commission, and the Planning Commission will consider such comments, in addition to any oral testimony, before making a decision on the proposed project.

If you challenge this project in court, you may be limited to raising only those issues you or someone else raised at the public hearing, described in this notice, or in written correspondence delivered to the Planning Commission at, or prior to, the public hearing. Be advised that, as a result of public hearings and comment, the Planning Commission may amend, in whole or in part, the proposed project. Accordingly, the designations, development standards, design or improvements, or any properties or lands, within the boundaries of the proposed project, may be changed in a way other than specifically proposed.

Please send all written correspondence to:
RIVERSIDE COUNTY PLANNING DEPARTMENT
Attn: Jay Olivas
P.O. Box 1409, Riverside, CA 92502-1409

PROPERTY OWNERS CERTIFICATION FORM

I, VINNIE NGUYEN, certify that on 5/2/2011,

The attached property owners list was prepared by Riverside County GIS,

APN (s) or case numbers CUP03645 For

Company or Individual's Name Planning Department,

Distance buffered 1000'.

Pursuant to application requirements furnished by the Riverside County Planning Department, Said list is a complete and true compilation of the owners of the subject property and all other property owners within 600 feet of the property involved, or if that area yields less than 25 different owners, all property owners within a notification area expanded to yield a minimum of 25 different owners, to a maximum notification area of 2,400 feet from the project boundaries, based upon the latest equalized assessment rolls. If the project is a subdivision with identified off-site access/improvements, said list includes a complete and true compilation of the names and mailing addresses of the owners of all property that is adjacent to the proposed off-site improvement/alignment.

I further certify that the information filed is true and correct to the best of my knowledge. I understand that incorrect or incomplete information may be grounds for rejection or denial of the application.

NAME: Vinnie Nguyen

TITLE GIS Analyst

ADDRESS: 4080 Lemon Street 2nd Floor

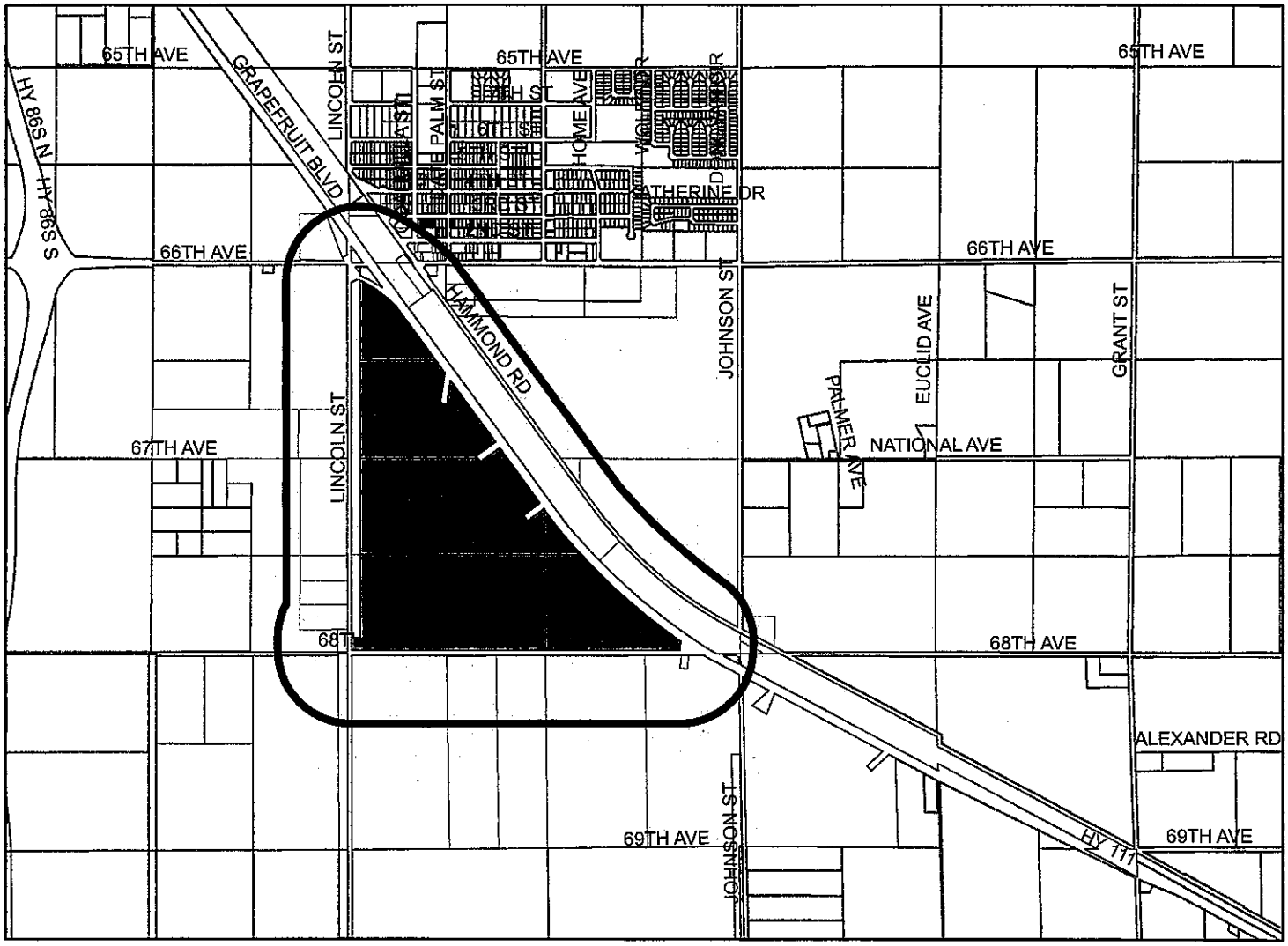
Riverside, Ca. 92502

TELEPHONE NUMBER (8 a.m. – 5 p.m.): (951) 955-8158

5/2/2011

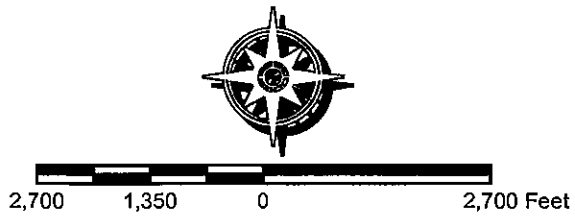
Expires: 11/2/2011

1000 feet buffer



Selected Parcels

727-182-040	727-182-048	727-260-017	727-250-007	727-290-016	729-050-001	729-040-003	729-040-004	729-040-005	729-040-006
727-272-026	727-272-027	727-272-034	727-165-040	727-184-034	727-184-035	727-193-042	727-272-022	727-272-030	727-260-022
727-271-010	727-271-011	727-271-015	727-272-008	729-020-009	727-272-007	727-184-028	727-184-038	727-260-014	727-260-020
727-181-008	727-181-009	727-100-007	727-100-025	727-165-034	727-290-013	727-290-017	727-250-005	727-165-043	727-165-032
727-184-009	727-260-015	727-250-006	727-271-002	727-271-003	727-271-005	727-271-007	727-271-008	727-271-013	727-271-016
729-040-001	729-040-002	727-184-033	727-184-008	727-184-010	727-184-011	727-184-015	727-184-016	727-184-024	727-184-030
727-184-031	727-184-032	727-184-036	727-184-037	727-272-021	727-272-031	727-260-016	727-260-018	727-100-017	727-100-018
727-164-003	727-185-003	727-185-004	727-272-010	727-272-011	727-272-012	727-272-013	727-290-015	729-040-015	729-050-023
727-186-005	729-040-017	727-184-021	729-020-006	727-100-026	727-186-006				



Maps and data are to be used for reference purposes only. Map features are approximate, and are not necessarily accurate to surveying or engineering standards. The County of Riverside makes no warranty or guarantee as to the content (the source is often third party), accuracy, timeliness, or completeness of any of the data provided, and assumes no legal responsibility for the information contained on this map. Any use of this product with respect to accuracy and precision shall be the sole responsibility of the user.

ASMT: 727100025, APN: 727100025
FELIX CHUO, ETAL
P O BOX 1329
THERMAL CA 92274

ASMT: 727165032, APN: 727165032
LETICIA SERRATO, ETAL
P O BOX 206
MECCA CA 92254

ASMT: 727165034, APN: 727165034
HORTENCIA RAMOS
P O BOX 2311
MECCA CA 92254

ASMT: 727165040, APN: 727165040
COUNTY OF RIVERSIDE
C/O SURVEYORS OFFICE
4080 LEMON ST 8TH FL
RIVERSIDE CA 92501

ASMT: 727165043, APN: 727165043
LADISLAO RAMIREZ, ETAL
P O BOX 386
MECCA CA 92254

ASMT: 727181008, APN: 727181008
EDDIES PLACE INC
C/O EDDIE LEON
P O BOX 368
MECCA CA 92254

ASMT: 727181009, APN: 727181009
EDDIES PLACE INC
C/O EDDIE LEON
48651 HEPBURN DR
INDIO CA 92201

ASMT: 727182048, APN: 727182048
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COACHELLA CA 92236

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C/O CHERYL COUSINS
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BRECKENRIDGE CO 80424

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STEVEN HOLIAN
P O BOX 20536
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ASMT: 727184028, APN: 727184028
DAMASOJ INC
91193 2ND ST
MECCA, CA. 92254

ASMT: 727186005, APN: 727186005
STATE OF CALIF
C/O REAL PROP DIVISION
3133 MISSION INN AVE
RIVERSIDE CA 92507

ASMT: 727186006, APN: 727186006
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C/O REAL PROPERTY DIVISION
P O BOX 1180
RIVERSIDE CA 92502

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BEVERLY HILLS CA 90211

ASMT: 727250007, APN: 727250007
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C/O SILVERIA VILLALOBOS
83961 CAROLINA CT
INDIO CA 92203

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C/O MICHAEL MARSHALL
6841 LIVINGSTON DR
HUNTINGTON BEACH CA 92649

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77860 COTTONWOOD COVE
INDIAN WELLS CA 92210

ASMT: 727260018, APN: 727260018
SHAMROCK PROP
C/O MICHAEL P BURKE
28 HAMMOND STE F
IRVINE CA 92618

ASMT: 727260020, APN: 727260020
DESERT DIAMOND PARTNERS
C/O MARTIN A LEVY
11400 W OLYMPIC NO 330
LOS ANGELES CA 90064

ASMT: 727272027, APN: 727272027
CARL MAGGIO
86705 AVENUE 54 STE A
COACHELLA CA 92236

ASMT: 727272031, APN: 727272031
REDEVELOPMENT AGENCY COUNTY OF RIVEI
C/O AMELIA M VAILUU
3525 14TH ST
RIVERSIDE CA 92501

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P O BOX 788
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ASMT: 727290016, APN: 727290016
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P O BOX 24
COACHELLA CA 92236

ASMT: 727290017, APN: 727290017
IMPERIAL IRRIGATION DIST
P O BOX 937
IMPERIAL CA 92251

ASMT: 729020006, APN: 729020006
SUNRISE MARSH
C/O LARRY H STRASBAUGH
P O BOX 1248
SAN LUIS OBISPO CA 93406

ASMT: 729020009, APN: 729020009
CVCWD
P O BOX 1058
COACHELLA CA 92236

ASMT: 729040002, APN: 729040002
MULTI NATIONAL INV
4213 ALONZO AVE
ENCINO CA 91316

ASMT: 729040004, APN: 729040004
BRUCE NOTT
3184 AIRWAY AVE NO J
COSTA MESA CA 92626

ASMT: 729040006, APN: 729040006
BRUCE NOTT
3184 AIRWAY BLDG J
COSTA MESA CA 92626

ASMT: 729040017, APN: 729040017
STATE OF CALIF
STATE OF CALIF
P O BOX 1799
SACRAMENTO CA 95808

ASMT: 729050001, APN: 729050001
BELL LAIW, ETAL
141 CAMPBELL AVE
REDLANDS CA 92373

ASMT: 729050023, APN: 729050023
SOUTHERN PACIFIC TRANSPORTATION CO
SOUTHERN PACIFIC TRANSPORTATION CO
1700 FARNAM ST 10TH FL S
OMAHA NE 68102

CUP03645 5/10/2011 2:43:38 PM

Applicant:
Pueblo Unido CDC
53-040 Avenida Mendoza
La Quinta, CA
92253

Owner:
Multi National Inv
91250 Avenue 68
Mecca, CA 92254

Eng-Rep:
Bob Mainero
P.O. Box 2410
Palm Springs, CA 92263

RIVERSIDE COUNTY
PLANNING DEPARTMENT

Carolyn Syms Luna
Director

MITIGATED NEGATIVE DECLARATION

Project/Case Number: Conditional Use Permit No. 3645

Based on the Initial Study, it has been determined that the proposed project, subject to the proposed mitigation measures, will not have a significant effect upon the environment.

PROJECT DESCRIPTION, LOCATION, AND MITIGATION MEASURES REQUIRED TO AVOID POTENTIALLY SIGNIFICANT EFFECTS. (see Environmental Assessment and Conditions of Approval)

COMPLETED/REVIEWED BY:

By: Jay Olivas Title: Project Planner Date: May 3, 2011

Applicant/Project Sponsor: Pueblo Unido CDC Date Submitted: May 27, 2010

ADOPTED BY: Board of Supervisors

Person Verifying Adoption: _____ Date: _____

The Mitigated Negative Declaration may be examined, along with documents referenced in the initial study, if any, at:

Riverside County Planning Department 4080 Lemon Street, 12th Floor, Riverside, CA 92501

For additional information, please contact Jay Olivas, Project Planner at (951) 955-1195.

Revised: 10/16/07
Y:\Planning Master Forms\CEQA Forms\Mitigated Negative Declaration.doc

Please charge deposit fee case#: ZEA42325 ZCFG05688

FOR COUNTY CLERK'S USE ONLY

RIVERSIDE COUNTY
PLANNING DEPARTMENT

Carolyn Syms Luna
Director

TO: ☐ Office of Planning and Research (OPR)
P.O. Box 3044
Sacramento, CA 95812-3044
☒ County of Riverside County Clerk

FROM: Riverside County Planning Department
☒ 4080 Lemon Street, 12th Floor
P. O. Box 1409
Riverside, CA 92502-1409

☐ 38686 El Cerrito Road
Palm Desert, California 92211

SUBJECT: Filing of Notice of Determination in compliance with Section 21152 of the California Public Resources Code.

EA42325 Conditional Use Permit No. 3645
Project Title/Case Numbers

Jay Olivas
County Contact Person

951-955-1195
Phone Number

N/A
State Clearinghouse Number (if submitted to the State Clearinghouse)

Pueblo Unido CDC
Project Applicant

P.O. Box 1130 Thermal, CA 92274
Address

Northerly of Avenue 68, southerly of Avenue 66/Highway 111, and easterly of Lincoln Street in Mecca, CA.
Project Location

Change of Zone from R-R to W-2; Replace existing 100 unit mobile home park (MHP) with a new 136 unit migrant agricultural worker MHP to be built in phases.
Project Description

This is to advise that the Riverside County Board of Supervisors, as the lead agency, has approved the above-referenced project on _____, and has made the following determinations regarding that project:

1. The project WILL NOT have a significant effect on the environment.
2. A Mitigated Negative Declaration was prepared for the project pursuant to the provisions of the California Environmental Quality Act ($2,044.00 + $64.00).
3. Mitigation measures WERE made a condition of the approval of the project.
4 A Mitigation Monitoring and Reporting Plan/Program WAS adopted.
5. A statement of Overriding Considerations WAS NOT adopted for the project.

This is to certify that the Mitigated Negative Declaration, with comments, responses, and record of project approval is available to the general public at: Riverside County Planning Department, 4080 Lemon Street, 12th Floor, Riverside, CA 92501.

_____ _____ _____
Signature *Title* *Date*

Date Received for Filing and Posting at OPR: _____

DM/rj
Revised 8/25/2009
Y:\Planning Master Forms\CEQA Forms\NOD Form.doc

Please charge deposit fee case#: ZEA42325 ZCFG05688 .

FOR COUNTY CLERK'S USE ONLY

COUNTY OF RIVERSIDE * REPRINTED * I1101206
SPECIALIZED DEPARTMENT RECEIPT
Permit Assistance Center

4080 Lemon Street
Second Floor
Riverside, CA 92502
(951) 955-3200

39493 Los Alamos Road
Suite A
Murrieta, CA 92563
(951) 600-6100

38686 El Cerrito Road
Palm Desert, CA 92211
(760) 863-8277

****

Received from: PUEBLO UNIDO CDC
paid by: CK 1058 $2,044.00
paid towards: CFG05688 CALIF FISH & GAME: DOC FEE
CFG FOR EA42325 (CUP03645/CZ07738)
at parcel #: 91250 AVENUE 68 MECC
appl type: CFG3

By_____ May 10, 2011 09:16
JCMITCHE posting date May 10, 2011

****

Account Code	Description	Amount
658353120100208100	CF&G TRUST	$2,044.00

Overpayments of less than $5.00 will not be refunded!

Additional info at www.rctlma.org

COPY 1-CUSTOMER * REPRINTED *

COUNTY OF RIVERSIDE * REPRINTED * I1001544
SPECIALIZED DEPARTMENT RECEIPT
Permit Assistance Center

4080 Lemon Street Second Floor Riverside, CA 92502 (951) 955-3200	39493 Los Alamos Road Suite A Murrieta, CA 92563 (951) 600-6100	38686 El Cerrito Road Palm Desert, CA 92211 (760) 863-8277

****
****

Received from: PUEBLO UNIDO CDC $64.00
paid by: CK 1018
paid towards: CFG05688 CALIF FISH & GAME: DOC FEE
CFG FOR EA42325 (CUP03645/CZ07738)
at parcel #: 91250 AVENUE 68 MECC
appl type: CFG3

By_____ May 27, 2010 17:04
JCMITCHE posting date May 27, 2010

****
****

Account Code	Description	Amount
658353120100208100	CF&G TRUST: RECORD FEES	$64.00

Overpayments of less than $5.00 will not be refunded!

Additional info at www.rctlma.org

COPY 1-CUSTOMER * REPRINTED *

Market Study:

The Unincorporated Community of Mecca

Project:

San Antonio del Desierto

by

Elena Blank Gross

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1 Data Source: CLARITAS, 2007 Demographic Survey
2 Data Source: 2007 Demographic Snapshot Report, CLARITAS, Inc.
3 Data Source: CLARITAS, 2007 Demographic Survey

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1 Data Source: CLARITAS, 2007 Demographic Survey

I. Executive Summary and Conclusions

Elena Blank Gross as an independent consultant has prepared a comprehensive marketing study to document and analyze the existing housing and market conditions for Farmworker population in the unincorporated community of Mecca, California. The research and information contained on this study outlines new remarkable issues in addition of the pervasive housing conditions that still plague the eastern Coachella Valley. The proposed San Antonio del Desierto project is an innovative approach which effectively responds to the need of housing preservation and a compelling strategy to prevent potential displacement of families.

Significant societal problems, economic viability of the agricultural economic sector, lack of current information as to the population count and accurate information on the specific housing needs for the Farmworker population indicates that this is a high needs population.

Anecdotal information and various estimation reports from state government agencies are the most accurate sources of information. Reports from various Census counts may not reflect the true nature of the Farmworker demographics due in large part to the rural nature of the primary market area and lack of accurate documentation procedures for the Farmworker population.

Various sources indicate that there is a high demand for housing that is able to accommodate the low income of the Farmworker population. San Antonio del Desierto responds and accommodates that demand.

Assumption and Limiting Conditions

1. Unit demand was based on anecdotal reports, general household growth trends, income and the number, type and availability of existing competitive projects in the Mecca Market Area of Riverside County, California.

2. The forecast projections or estimates contained in this study are based on current market conditions, anticipated supply and demand factors based on anecdotal reports and a continued stable agricultural economy. These forecasts are subject to changes with revised future conditions.

3. The information provided by others is believed to be reliable, and sources of information have been documented, however, no warranty is given for the accuracy of anecdotal information and reports.

4. All maps, plot plans and design material are assumed to be correct.

5. Only preliminary plans and specifications were available for use in the preparation of this report. Any subsequent changes to those plans and specifications may affect the conclusions and findings.

6. The occupancy rate of this project is conditional upon a comprehensive marketing plan being implemented by the owners/managers of the project.

7. The information obtained from the census report is known to under count the Farmworker population due to the fluctuating nature of the special needs population.

II. Project Description

Pueblo Unido CDC (PUCDC) proposes to rehabilitate San Antonio del Desierto, formerly known as Lake St. Anthony, 95 units mobile home park currently with code violations and substandard conditions with a construction of new 136 spaces for existing year-round, extremely low Farmworker income families that resides at the park. The project is located east Lincoln St, north of Avenue 68th, west of Johnson Street and south of Highway 111. The project will future 36' paved streets, 50' by 78' foot lots, community park with a community center and child care facility which will serve as on site resource for residents and a facility for local agencies to provide vital educational and social services to residents. Additionally, PUCDC will implement an on site Reverse Osmosis Water Treatment Facility to address the high levels of Arsenic that exist in the area. Currently, the local water district is at capacity to serve new project in Mecca.

PUCDC has submitted a Conditional Use Permit (CUP03645) with the County of Riverside to obtain planning approval for this project, including preparation of a preliminary engineering design for on and off-site improvements, a site plan and special studies.

A copy of the San Antonio del Desierto site plan has been included as Exhibit 2.

III. Delineation of Market Area.

The primary market rental area is the community of Mecca a census designated place in the Eastern Coachella Valley.

A. Location and Boundary

Mecca, a USDA designated Colonia, is a census designated place, (CDP), located in a rural area in the Desert Empowerment Zone of Coachella Valley in Eastern Riverside County. It is a vibrant agricultural community located at the eastern edge of the Coachella Valley just south of the Thermal Community. Its boundary is generally surrounded by the Salton Sea to the south Garfield and Author Street to the west, the All American Canal to the north east, 62nd Avenue to the North and Whitewater river to the West [1].

B. Demographics

In the year 2000 the Mecca CDP had a population of 5,402 people, 1,049 households and 958 families residing in the CDP. The population density was 1,604.4/km sq, (4,167.1/mi sq). There were 1,059 housing units at an average density of 314.5/km sq, (816.9/mi sq). The racial makeup of the CDP was 24.10% White, 0.11% African

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[1] Riverside County General Plan Amendment 2008

American, 1.02% Native American, 0.74% Asian, 70.66% from race, and 3.37% from two or more races. Hispanic or Latino of any race constituted 98.02% of the population.[2]

As of January, 2007, the Mecca area had an estimated population of 7,101: a growth of 31.5% since the Census of 2000[3]. Approximately 43 % of families fall below the federal poverty lines[4], and the majority of the local population constitutes migrant laborers. Every May, the population is estimated to triple by 25,000 to 40,000 giving Mecca the distinction as having the highest population density of any community in rural California, (about 15,000 per square mile).

The median income for a household in the CDP was $22,973, and the median income for a family was $21,250. The per capita income for the CDP was $6,389. About 43.0% of families and 45.5% of the population were below the poverty line, including 52.1% of those under age 18 and 16.8% of those age 65 or over; figures that are considerably higher than the US National average, (Table 1 and Table 2 respectively).

Table 1. Economic Demographics Difference between the Mecca and National Economic Demographics

Categories	Mecca	National
Median Household Income in 1999	22,973	41,994
Families below Poverty Level	43%	9.2%
Individuals below poverty level	45%	12.4%

C. Target Tenant Population

The target tenant population consists predominantly of year round and agricultural migrant workers. Working conditions in the Eastern Coachella Valley are contributing to a high incidence of debilitating health conditions among farm workers. Matched with, meager, stressful and dangerous housing, these conditions impose substantial health risks for workers[5].

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2 US Census 2000

3 Mecca Comprehensive Economic Development Strategy Report 2007. Inland Regional Economic Development Corporation

4 US Census 2000.

5 Pathway to Farm worker Health Care, California Institute for Rural Studies, September 2002.

The unincorporated area of Mecca has the largest concentration of stick-built houses, and there are much smaller groups of houses in Thermal and Oasis. The mobile home parks are mostly small in size, (less than 12 units per park), and are randomly dispersed throughout the triangle. This dispersion tends to isolate the parks from one another and creates transportation hurdles that in turn impact Farmworker access to health care. Public transportation from the park to the more populated areas such as Coachella is virtually nonexistent. Women and children are particularly affected, as they generally remain in parks, while male workers take family automobiles to job sites during the day.

D. Existing housing structures

The majority of structures in the Mecca area are mobile homes of travel trailers. According to the Riverside County Economic Development Administration (EDA), there are at least 307 mobile home parks in the area, with approximately 10 to 15 families in each park. Assuming five people per household a minimum of 15,000 people live in these mobile parks. The parks on the EDA list are mostly without permits and do not comply with local building and safety codes.[6]

E. Comparable Developments and Local Amenities

The small residential community of Mecca is located in an unincorporated area south of the Cities of Coachella and Thermal east of State Route 111. The population of Mecca is composed primarily of agricultural workers employed in the valley on a seasonal and long term basis. The proposed community development project would not divide the community, but is intended to support the members of the community by providing safe, affordable housing and support services for substance abuse recover programs. The proposed community development project would be constructed on land designated for agricultural uses with a Community Development overlay and is in line with the Riverside County General Plan- Hearing Draft- 2008 Eastern Coachella Valley Area plan.

Health: Mecca has one medical clinic staffed by a General Practitioner. John F. Kennedy is located approximately 15.1 miles from the site on Monroe Street in Indio.

Fire: The nearest City Fire Department is located at 91100 4th Street, 1.0 miles from the site.

Education: The Mecca community has one head start facility and is governed by the Coachella Valley Unified school district which has 13 elementary schools, two middle schools, three high schools and one continuation high school. College of the Desert, a two year community college, extensions of University of California, Riverside, Chapman College and University of Redlands, and the Palm Desert Campus of California State University, San Bernardino are located in nearby Palm Desert.

Cultural: Mecca has four churches, one Riverside county library facility located at the Mecca community center, one radio station, one cable TV System, one park and one community center.

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[6] Ayala M. 2002. Patterns of Community Cross Border Migration from a Purhepecha Town: Dispersion of a People and culture.

Shopping: Leon's Market is located within Mecca, at 91200 2nd street, 1.1 miles from the site. Additional shopping can be found in Indio and Coachella along Highway 111.
Scaled Maps showing the San Antonio del Desierto Community proximity to a Mecca Health clinic, the Riverside County Farmworkers Resource Center, a Mecca Head Start center a US Post Office and Saul Martinez School have been included as independent exhibits.

F. Description of the Site, Neighborhood and Accessibility.

A scaled version of the San Antonio del Desierto Neighborhood has been included in Figure 1. The project will be located in a rural community characterized by agricultural development. County roads surround the site on two of the three perimeters of the triangle shaped parcel. There are no residential buildings adjacent to or in the vicinity of the project area.

Adverse conditions: The San Andreas Fault Zone is located approximately three miles northeast of the project site. [7] There are no active fault zones in the project area immediate vicinity.[8] No other adverse conditions are known.

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[7] Riverside County Integrated Project General Plan EIR, January 2003.

[8] Fault Hazard Zones in California: Elquist-Priolo Earthquake Fault Zoning Act with Index to Earthquake Fault Zones. Map. Hart E.W. California Dept. of Conservation, Division of Mines and Geology, revised in 1994. Draft EIR/EIS Coachella Valley MSHCP-October 2004.



San Antonio del Desierto (APN 727-271-003)
Vicinity Map

Figure 1. Scaled Version of the San Antonio del Desierto Site in the Mecca Community Area.

G. Crime Statistics for the surrounding Mecca Area.

The Riverside County Sheriff's Department serves the Community of Mecca. The nearest service station is the Thermal office of community Service, located in Thermal.

Secondary market area statistics of the city of Coachella reflect the only available neighboring crime statistics as illustrated in Table 2. The number of property crimes for the area is high compared to the number of violent crimes.

Table 2. Crime statistics in the city of Coachella.

Crime Type[9]	2006 Total	Per 100,000 People
Overall Coachella Crime Index	1904	5818.4
Coachella Violent Crimes	255	779.2
Coachella Murders	5	15.3
Coachella Rapes	11	33.6
Coachella Robberies	88	268.9
Coachella Aggravated Assaults	151	461.4
Coachella Property Crimes	1649	5039.1
Coachella Burglaries	392	1197.9
Coachella Larceny/Thefts	783	2392.7
Coachella Motor Vehicle Thefts	474	1448.5
Coachella Arsons	13	39.73

IV. MARKET AREA ECONOMY

A. Employment Type by Economic Sector

The current Mecca economy is very modest and does not generate adequate employment for the existing population and labor force. The prevailing employment type is centered on agriculture. Low income and wages reflect the lack of economic diversification and concentration of low paying agricultural, retail and service jobs as demonstrated in table 3. Due to the seasonality and low wages in the agricultural industry, Mecca has a low per capita income and high unemployment rate. The percentage of employed civilians by occupation target area is listed in table 4.

9 Federal Bureau of Investigation, UCR Crime report 2006.

Table 3. Significant Economic Sectors by Business Mecca Target Area – Year 2007

Total Businesses	29
Retail Trade	8
Home Improvement Stores	1
General Merchandise Stores	0
Food Stores	3
Auto Dealers & Gas Stations	1
Apparel & Accessory Stores	1
Furniture/Home Furnishings	0
Eating & Drinking Places	2
Miscellaneous Retail Stores	0
Finance -Insurance – Real Estate	5
Banks, Saving & Lending Institutions	0
Securities Brokers & Investment	0
Insurance Carriers & Agents	0
Real Estate-Trust-Holding Co.	5
Services	9
Hotels & Lodging	0
Personal Services	1
Business Services	0
Motion Picture & Amusement	1
Health Services	2
Legal Services	0
Education Services	2
Social Services	1
Other Services	2
Agriculture	0
Mining	0
Construction	0
Manufacturing	1
Transportation, Communications/Public Utilities	2
Wholesale Trade	3
Government and Non-Profit	6
Industries (Private)	23
Public Administration	1

The surrounding labor market area consisting of the Coachella Valley, Cathedral City-Palm Desert, Palm Springs and Desert Hot Springs County Division is displayed in Table 4.

Table 4. Coachella Valley Economic Sectors by Business

Area Population: 318,125[10]	Total employment: 120,429
Natural Resources & Mining	6,979
Construction	11,771
Manufacturing	4,484
Trade, Transportation & utilities	21,735
Information	2,646
Financial Activities	7,281
Professional and Business Services	12,900
Education and Health Services	18,867
Leisure & Hospitality	23,193
Other Services	6,930
Government	3,643

Table 5[11] Employed Civilians- By Occupation Target Area- Year 2007 Mecca Area

		Total/Percentage
Year 2007 Employed Civilians	2,723	100.00%
Management, Business, and Financial	36	1.32%
Professional and Relate Occupations	76	2.79%
Service	466	17.11%
Sales and Office	224	8.23%
Farming, Forestry & Fishing	1,377	50.57%
Construction, Extraction &Maintenance	312	11.46%
Production, Transportation and Material Moving	232	8.52%

The community area referred to below includes Coachella and the surrounding unincorporated regions. Leading group classes of products are food processing, concrete and defense. A list of Coachella Valley agricultural employers has been included.

Table 6. Coachella California and Unincorporated Area type of Employment.

Name of Company	Employment	Products
Valley Pride Inc	350	Machine crop harvesting
Armtec Defense Products, Inc	300	Artillery cartridge cases

10 U.S. Census, 2000

11 Data Source: CLARITAS, 2007 Demographic Survey.

J & J Brothers construction co	75	Construction
Desert Valley Date, In	50	Crop preparation
Coachella Valley Unified School District	1,750	Public School system
Spotlight 29 Casino	800	Casino
Fantasy Springs Casino	700	Casino
J.F. Kennedy Hospital	700	Hospital
Coachella Valley Water District	477	Public Water Agency
Augustine Casino	400	Casino
Agricultural Employers in the Coachella Valley[12]		
Employer Name	**Employer Size**	**Location**
Valley Pride	250-999	Coachella
Sun world Intl Inc	1,000-4,999	Coachella
Richard Bagdasarian	10-19	Mecca
Rancho Packaging Co	10-19	Thermal
Peter Rabbit Farms	250	Coachella
Oasis Distributing	1000-4999	Thermal
Keber Distributing	5-9	Thermal
K&W cooling Inc	10-19	Palm Desert
Hillside Acres Ranch	20-49	Thermal
Growers Transport	20-49	Thermal
Golden Acre Farms	250-999	Thermal
Frank Capurro and Son	50-99	Thermal
Dimare Co	100-249	Thermal
Desert Fresh Inc	10-19	Coachella
Coachella Valley Citrus	250-999	Thermal
CH sales	50-99	Coachella

B. Unemployment Rate

Labor Force

In 2007, the Mecca target area labor force numbered 3,100 comprising 43.6% of the area total population for the current year. Over 0.34 % of the Riverside County's labor force is located in the Mecca target area. The Riverside County labor force as of May 2008, was 917,100, an increase of more than 25 % over 2000.

Table 7. Mecca Labor Force, Employment, and Unemployment January 2007[13]

	Labor Force	Employed	Unemployment	
			Number	Rate

12 Economic Development Department

13 State of California Employment Development Department Report, 2008.

Mecca Target Area[14]	3,100	2,800	300	11.0%
Riverside County	917,100	847,400	69,700	7.6

The Mecca target area has 0.36% of the County's population, 0.34% of the County's labor force, but 2.04% of the County is unemployed.

Table 8. Civilian Labor Force Historic Trend 2000-2008

	Labor Force			Percentage Change
	2000	2005	2008	
Mecca Target area	2,352	3100	3,100	0.0%
Riverside County	680, 400	862,900	917,100	0.7%
State of California	16,703,000	17,324,829	18,036,100	4,1%

Table 9. Unemployment Mecca Target Area, County National Average Unemployment Rate

	2005	2007
Target Area	9.9%	11.0%
Riverside	6.9%	5.4%
State of California	7.2%	4.8%
National	6.9%	4.6%

The above figures reinforce the facts that while the economy in the State of California and most of Southern California has experienced significant growth since 2000, and the earlier economic downturns the Mecca target area continues to have unemployment levels higher than the County, State and the United States overall.

Table 10. Mecca Labor Force, Employment, and Unemployment January 2007[15]

Labor Force	Employment	Unemployment	Unemployment Rate
3,100	2,800	300	9.9% (U.S. Rate 4.6%)

January 2006[16]

Labor Force	Employment	Unemployment	Unemployment Rate
3,100	2,800	300	9.9% (U.S. Rate 5.1%)

14 2000 U.S. Census Bureaus

15 Source: California – Employment Development Department

16 Source: California – Employment Development Department

Labor Force	Employment	Unemployment	Unemployment Rate
2,352	2,000	352	9.9% (U.S. Rate 4.1%)

The above three tables depict high levels of unemployment in the Mecca area, that have been consistently high, far exceeding the national – U.S. rates of unemployment over the past seven years.

Unemployment Rate Riverside San Bernardino Ontario Metropolitan Statistical Area (MSA) (Riverside and San Bernardino Counties) 2007-2008

The unemployment rate in the Riverside-San Bernardino-Ontario MSA was 7.4 percent in May 2008, up from a revised 6.9 percent in April 2008, and above the year-ago estimate of 5.2 percent. This compares with an unadjusted unemployment rate of 6.5 percent for California and 5.2 percent for the nation during the same period. The unemployment rate was 7.6 percent for Riverside County and 7.2 percent in San Bernardino County.

Table 11. Unemployment Rate Riverside San Bernardino Ontario Metropolitan Statistical Area (MSA) (Riverside and San Bernardino Counties

Industry[17]	Apr-2008 Revised	May-2008 Preliminary	Change	May-2007	May 2008 Prelim	Change
Total Jobs	1,272,100	1,275,100	3,000	1,297,400	1,275,100	(22,300)
Farm jobs	18,700	19,500	800	19,200	19,500	(300)
Nonfarm jobs	1,253,400	1,255,600	2,200	1,278,200	1,255,600	(22,600)
Natural Resources and Mining	1,300	1,300	0	1,300	1,300	0
Construction	98,600	99,100	500	114,800	99,100	(15,700)
Manufacturing	113,100	113,200	100	119,700	113,200	(6,500)
Trade, Transportation and Utilities	293,400	294,200	800	297,300	294,200	(3,100)
Information	14,700	14,800	100	15,300	14,800	(500)
Financial Activities	47,900	47,700	(200)	50,500	47,700	(2,800)
Professional and Business Services	143,500	144,000	500	145,400	144,000	(1,400)
Educational and Health Services	130,400	130,100	(300)	126,200	130,100	3,900
Leisure and	133,300	133,400	100	135,200	133,400	(1800)

[17] State of California 2008 Employment Development Department

Hospitality						
Other Services	42,700	43,000	300	42,900	43,000	100
Government	234,500	234,800	300	229,600	234,800	5,200

Between April 2008 and May 2008, total nonfarm employment increased by 2,200 to reach 1,255,600 jobs. Total farm employment gained 800 jobs, or 4.3 percent.

Trade transportation and utilities posted the greatest nonfarm month-over increase, adding 800 jobs. Retail trade gained 400 jobs, followed by growth in transportation, warehousing and utilities, (up 300), and wholesale trade, (up 100).

Professional and business services grew by 500 jobs. Administrative and support and waste services added 1,100 jobs, which was offset by a decline of 600 in professional scientific and technical services. Management of companies reported no change in employment levels over the next month.

Construction increased by 500 jobs; here specifically trade contractors reported most of the gain, (up 300). Construction of buildings and heavy and civil construction jobs added 100 jobs each.

Between May 2007 and May 2008, total nonfarm employment decreased by 22,600 jobs, or 1.8 percent. Total farm employment gained 300 jobs, or 1.6 percent.

Government recorded the greatest year over increase, adding 5,200 jobs. Local government gained 4,000 jobs, mostly in local government education, (up to 3,200). State government increased by 1,000, while federal government added 200 jobs.

Educational and Health Services grew by 300 jobs. Healthcare and social assistance gained 3,100 jobs, followed by an additional 800 jobs in educational services.

Construction posted the greatest year-over decline, down 15,700 jobs. Specialty trade contractors accounted for most of the job loss, (down 13,000), mainly in building foundation and exterior contractors, (down 9,000). Construction of buildings decreased by 2,500 jobs, while heavy and civil engineering construction declined by 200 jobs.[18]

C. The Economy of the Coachella Valley and the Mecca Area.

By California's epic geographical standards, the Coachella Valley is not especially large. It measures approximately 35 miles from east to west and averages fewer than 19 miles from north to south. Yet, nine cities and the Mecca CDP lie within its approximately 640 miles of wholly desert terrain. The nine cities are: Cathedral City, Coachella, Desert Hot Springs, Indian Wells, Indio, La Quinta, Palm Desert, Palm Springs, and Rancho Mirage. Each claims its own pride of place: Palm Springs is the most famous, Indio the largest and oldest, Palm Desert is the commercial hub.

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18 Ibid

Thus far in the new century, this valley has been one of the fastest-growing parts of Riverside County in a consistently fast-growing state. State demographers estimate that 2005 was another year of rapid population growth for the Valley, although not at the same rate as 2004.

Based upon assessed property values and building permit valuations, in 2005, every Valley city but one experienced a double-digit percentage increase. Two increased the total assessed value of their real estate by well over fifty percent. The single exception was Indian Wells, the desert's wealthiest city. Its current assessed property value ($4.3 billion) gained a "mere" 8.31 percent. Conversely, the two cities showing spectacular increases are Desert Hot Springs and Coachella, historically the Valley's least affluent, yet now with assessed values up by 70.22 percent to $1.7 billion and 64.53 percent to $1.5 billion respectively. Both cities have the availability of open land for new building construction opportunities.

This section describes the economy of the Mecca target area.

D. Mecca Major Economic Factors

The Mecca area is a microcosm of the Valley in general. It is a desert community located southeast of Palm Springs. Agriculture continues to be the major industry for field crops and date groves. The area's agricultural heritage dates back to the late 1800's. The warm, year-long growing season combined with ample amounts of water from the Colorado River create a favorable environment for cultivation.

The economy of Mecca is very modest and the preponderance of employment is in agriculture. Low income and wages reflect the lack of economic diversification and concentration of low paying agricultural, retail and service jobs.

San Antonio del Desierto will specifically address the agricultural Farmworker need for stable housing in the middle of an agricultural area, that is experiencing a significant economic turmoil.

Because of seasonality and low wages in the agricultural industry, Mecca has a low per capita income and high unemployment rate.

E. Available Affordable Housing

An important statistics to measure the affordability of housing units in the Mecca Market Area is "overpayment". Overpayment is defined as monthly shelter costs in excess of 35 percent of a household's gross income. The table below illustrates the proportions of renters overpaying by income group in the Community of Mecca. According to the 2000 Census, 30.2 percent of the renter households in Mecca were paying 35 percent or more of their income towards rent. The proportion of households overpaying is highest among the lowest income groups.

Table 12: Renter Households overpaying by income Group-Community of Mecca-2000[19]

[19] US 2000 Census

Income Group	Number Overpaying/Total in income Group	Percent
Less than $ 10,000	102/114	89.5%
$ 10,000-$19,999	72/238	30.2%
$ 20,000-$34,999	0/127	0%
$ 35,000- $ 49,999	0/62	0%
$ 50,000 or more	0/35	0%
Overall Total	**174/576**	**30.2%**

In the County of Riverside, a total of 35.8 percent of the households were overpaying for the housing in 2000, which is 5.6 percent more than the Community of Mecca. Like Mecca, those earning the least are more frequently overpaying for rent.

Table 13. Renter Households overpaying by Income Group
Riverside County- 2000

Income Group	Number Overpaying/Total in income Group	Percent
Less than $ 10,000	18,268/25,023	73.0%
$ 10,000-$19,999	24,074/32,922	73.1%
$ 20,000- $34,999	11,678/39,579	29.5%
$ 35,000- $ 49,999	1,628/25,458	6.4%
$ 50,000 or more	455/33,857	1.3%
Overall Total	56,103/156,839	35.8%

Approximately 47.2 percent (6,222 households) of the Mecca Market Area general households are less than 50 percent of the designated Riverside County Area Median Income ($55,700). In addition, 22.5 percent of the households are classified as Low Income (50 to 80 percent of AMI), resulting in 69.7 percent of the households in the Mecca Market Area earning less than 80 percent of the AMI for Riverside County.

Based on the unit size, projected mortgages and annual income levels established by the California Tax Credit Allocation Committee, the following income eligibility ranges were used to determine the percentage of Mecca households with the appropriate income for the subject property.

Table 13a. MECCA INCOME LEGIBILITY

MECCA MARKET AREA		
Income Range	**Yearly**	**Hourly**
Income Eligibility Range		
30% of AMI	**$12,891-$22,050**	
40% of AMI	**$17,177-$29,400**	**N/A**
45% of AMI	**$19,337-$33,075**	
50% of AMI	**$21,462-$36,750**	

Average Farmworker Wage Range-2005 1-2 Years 2+ Years	 $ 14,352-$17,590 $ 17,608-$ 21,288	 $ 7.80- $ 9.56 $ 9.57- $ 11.57
Farmworker Household Income Range-2005 30% of AMI 40% of AMI 45% of AMI 50% of AMI Total	$ 14,352- $ 42,576	N/A 16.8% 25.3% 15.9% 27.6% 85.6%

Wages in the Market Area range from $ 4.47 for sales workers to $ 29.48 per hour for healthcare practitioners. The income eligibility range for the subject property is from $ 12,582-$ 43,020. Most employees in the Market area have annual incomes that fall within the eligibility range.

V. POPULATION, HOUSEHOLD and INCOME TRENDS

A. Population Growth Trends

In 1900, thirty-nine percent, (39%), of the state population resided in one of 48 counties, each with less than two percent of the population. The other 61 percent resided in one of nine counties within California. Growth in Riverside County was most significant between 1980 and 1990. During that period Riverside County experienced a population growth of over 76%, making Riverside County the fastest growing county in the State of California. By 1990, however, only 21 percent of the state population resided in one of 45 counties, each with less than two percent of the population. The other 79 percent resided in one of 13 counties within the State. In the year 2000 Riverside County has approximately 5 percent of the statewide population.

Table 14. Population – County and Target Area[20]

[20] Population Data – U.S. Census – American Community Survey; and California Dept. of Finance, California Demographics; December, 2006.

	2000	2005	2007
State of California	34,336,000	36,728,196	37,172,015
Riverside County	1,500,000	1,911,281	1,953,330
Mecca - area	**5,402**	**6,938**	**7,101**

The above figures show the significant growth that both Riverside County and the area of Mecca experienced from 2000 – 2007. The Mecca area experienced population growth of 31.45% between 2000 and 2007.

Table 15. Race/Ethnic Population Percentages[21]

State of California		Mecca area
White Alone	60.90%	17.70%
Black or African Am. Alone	6.10%	0.20%
Nat. Hawaiian & Other Pacific Islander Alone	0.40%	0.00%
Asian Alone	12.40%	0.60%
Am. Indian & Alaska Native Alone	0.70%	1.30%
Some Other Race	16.40%	76.90%
Two or More Races	3.10%	3.40%
Hispanic	35.50%	98.20%

Natural increase accounted for 87 percent of the Hispanic growth. California added 1,354,437 Hispanics through natural increase between 2000 and 2005 and 202,386 from net migration. The Hispanic proportion of the State's population increased from 8.75 percent from the 2000 census to 2005.

Table 16. Area Share of county, State and National Population

Year	County Share	State Share	National
2000	0.36%	.015%	.0019%
2005	0.36%	.015%	.0019%
2007	0.36%	.015%	.0019%

The target area experienced a modest increase in growth rate from 2000 to 2007. Similarly, the rate of growth, relative to that of the county, state and national was of a modest proportion.

[21] Data Source: California Department of Finance; Race/Ethnic Population Estimates Report.

B. Mecca Population Distribution

The Mecca target area's 2007 population is estimated at 7,101. This population is differentiated from the remainder of the Riverside County population as indicated in Table 17, below.

Table 17. 2007 Population Distribution

County/Target Area	Population	
Riverside County	1,953,330 (100.00%)	
Target Area	7,101	(0.36%)

Table 18. Population Projections

Years	2007	2011
Riverside County	1,953,330	2,165,148
Target Area	7,101	8,315

Current population projections anticipate continued growth for Riverside County over the next four years, to an estimated 2,165,148 in the year 2011. Based upon the most recent growth rates for the target area, over the next five years the population is expected to grow by 17.1%, from the current level of 7,101 to approximately 8,315.

C. Age Distribution

The most striking characteristic of the age distribution of the target area's population is its overall youthfulness. Most of the area's population is under the age of 25.

Table 19[22] Mecca Target Area Age Distribution

Under 5	5 to 17	18 to 24	25 to 34	35 to 44	44 to 54	55 to 64	65 to 74	75 +	Female Percent
9.89	25.72	14.43	18.55	13.38	9.24	4.97	2.53	1.29	44.23

Median Age: 24.98

[22] Data Source: 2007 Demographic Snapshot Report, CLARITAS, Inc.

Table 20. Estimate of household incomes in $ 5,000 or $ 10,000 increments.[23]

INCOME IN 1999	Number	Percentage
Households	**1,049**	**100.0**
Less than $10,000	158	15.1
$10,000 to $14,999	142	13.5
$15,000 to $24,999	278	26.5
$25,000 to $34,999	189	18.0
$35,000 to $49,999	108	10.3
$50,000 to $74,999	115	11.0
$75,000 to $99,999	40	3.8
$100,000 to $149,999	19	1.8
$150,000 to $199,999	0	0.0
$200,000 or more	0	0.0
Median household income (dollars)	22,973	(X)
With earnings	972	92.7
Mean earnings (dollars)	27,126	(X)
With Social Security income	195	18.6
Mean Social Security income (dollars)	6,069	(X)
With Supplemental Security Income	108	10.3
Mean Supplemental Security Income (dollars)	6,468	(X)
With public assistance income	99	9.4
Mean public assistance income (dollars)	2,251	(X)
With retirement income	136	13.0
Mean retirement income (dollars)	3,681	(X)

Table 21. Demographic Projections for the Mecca CDP.[24]

Place	Census tract#	2010	2015	2020	2025	2030	2035
Population Projections							
Mecca CDP	45604	7341	8129	18490	44674	63367	77243
Household Projections							
Mecca CDP	45604	1181	1578	1975	2372	2769	3166
Income Projections							
Mecca CDP	45604	1427	1574	3437	8945	12970	15643

23 US Census 2000

24 Riverside County Demographic Research Center 2006.

The income and household projection figures for the Mecca CDP area are based on the 2006 Riverside County Research Demographic estimates and indicate that the number of households in the Mecca Market area will increase to 3166 by the year 2035 with projected income of approximately $ 15,673. There are no known projections as to the expected increase in Farmworker households.

D. Demand Estimate

It is difficult to calculate the fluctuating nature of the Farmworker housing needs and the lack of current information specific to census data calculating the demand estimate is difficult and may not reflect the current specialized needs as the US census tends to under count the Farmworker population[25] [26]. Utilizing the PMA demand estimate model would be based on figures that do not reflect the current demand situation for the Mecca Farmworker population as there is only anecdotal information and current outreach community surveys of one particular mobile home park. The special housing needs of the Farmworker population in the Mecca primary area has been documented in Attachment A.

It is also difficult to estimate the demand estimate of the Secondary Market area for the same reasons as the Farmworker demographics in the Coachella Valley fluctuate in nature.

VIII. COMPETITIVE RENTAL MARKET

The current available Farmworker specific rental properties include the following:

CHAPULTEPEC APARTMENTS
(31 Farmworker Units)
62-600 Lincoln Ave.
Mecca, CA 92274

LAS MANANITAS I-II APARTMENTS
(128 bed -Migrant Farmworker)
91-2011 Avenue 63
Mecca, CA 92254

PIE DE LA CUESTA APARTMENTS
(68 units - Farmworker)
91-720 Avenue 66, #C101
Mecca, CA 92254

VILLAS OSCAR ROMERO
(50 units - Farmworker)
65010 Dale Kiler Road
Mecca, CA 92274

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[25] Gabbard S., Kissam E., and Martin P. The Farmworker under count, U.S. Census Bureau Conference 1996

[26] The 2010 Census: Enumerating the Hard to Count, including Migrant and Seasonal Farm Workers.

FUENTE DE PAZ APARTMENTS
(37 Units - Farmworker)
52-664 Harrison St
Coachella, CA 92236

LAS PALMERAS ESTATES
(96 mobile homes - Family)
51-374 Tyler St.
Coachella, CA 92236

NUEVA VISTA APARTMENTS
(32 units - Family)
65-100 Date Palm Street
Mecca, CA 92254

PASEO DE LOS HEROES
(106 mobile homes - Family)
62-900 Lincoln Ave.
Mecca, CA 92274

PASEO DE LOS POETAS
(21 single-family home - Rentals)
65-100 Date Palm Street
Mecca, CA 92254

PIE DE LA CUESTA APARTMENTS
(68 units - Farmworker)
91-720 Avenue 66, #C101
Mecca, CA 92254

TLAQUEPAQUE APARTMENTS
(76 units - Family)
51-354 Tyler Street
Coachella, CA 92236

COACHELLA COMMUNITY HOMES
(100 units – Family)
84-720 Avenue 52
Coachella, CA 92236

LAS CASAS I APARTMENTS
(50 units - Farmworker)
51-600 Tyler St,
Coachella. CA 92236

LAS CASAS II APARTMENTS
(78 units - Farmworker)
51-600 Tyler St.
Coachella. CA 92236

LAS CASAS III APARTMENTS
(52 units - Family)
51-550 Tyler St,
Coachella, CA 92236

PUEBLO NUEVO APARTMENTS
(50 units - Farmworker)
1492 Orchard Avenue
Coachella, CA 92236

SAN ANTONIO DEL DESIERTO,
(95 units- Farmworker families)
67075 Highway 111
Mecca, CA 92254

SUNBIRD MOBILE HOME PARK
80 Units – Farmworker families)
84950 Echols Rd
Thermal, CA 92274

Comparable rental rates vary from 30% of income to $ 373 - $ 551 for a one – four bedroom apartment. It is not known what other planned rental developments will be available in the PMA market over the next two years.

The Coachella Valley Housing Coalition, a local nonprofit developer based in Indio California, is currently implementing the Los Fundadores Housing Subdivision the only known existing housing comparable in the Mecca area. One hundred and fourteen new homeowners have currently completed the self help program. The program funding was secured by the Coachella Valley Housing Coalition through the U.S. Department of Agriculture Rural Development which provided each family with a one percent to market rate depending on family size and financial need. Families also qualify for mortgage subsidies of approximately $ 40,000-$ 50,000 from the California Housing Finance Agency Cal Home Program, the Joe Serna Jr. Farmworker Housing Grant Program and the Federal Home Loan Bank of San Francisco Affordable Housing Program. The average sales prices for the homes are $ 155,000 - $ 162,000. The average mortgages are $ 115,000-$ 120,000.

The 84 unit San Antonio del Desierto Project will charge a monthly income of approximately $ 275 per unit which is below the current rate charged by some other Farmworker apartment complexes; however, not enough information is available to generate a rent comparability matrix due to the fluctuating nature of the Farmworker special needs population and lack of information that is available in the rural Mecca CDP area.

Attachment A

Market Survey

Farmworkers are traditionally defined as persons whose primary incomes are earned through seasonal agricultural work. They have special housing needs as they earn lower incomes than many other workers and have moved throughout the season from one harvest to the next.

1. Number of Farmworkers in the Primary Market Area.

The Number of Farmworkers in the Mecca, California area has not been formally estimated. Table 1 lists the results from the 2000 U.S. Census which indicates that approximately 52.3 % of the surveyed labor force would fall under the category of Farmworker.

Table 1. Sources of Labor for the Mecca California Region. [27]

INDUSTRY	Number	Percentage
Agriculture, forestry, fishing and hunting, and mining	1,046	52.3
Construction	185	9.3
Manufacturing	27	1.4
Wholesale trade	90	4.5
Retail trade	150	7.5
Transportation and warehousing, and utilities	30	1.5
Information	0	0.0
Finance, insurance, real estate, and rental and leasing	12	0.6
Professional, scientific, management, administrative, and waste management services	87	4.4
Educational, health and social services	174	8.7
Arts, entertainment, recreation, accommodation and food services	160	8.0
Other services (except public administration)	39	2.0
Public administration	0	0.0

An updated 2007 Claritas Survey[28] displayed in Table 2 indicates that 50.57 % and approximately 1,377 of the employed labor force is involved in the agricultural employment sector.

Table 2. Mecca California Claritas Survey Target Area - Year 2007

		Total/Percentage
Year 2007 Employed Civilians	2,723	100.00%
Management, Business, and Financial	36	1.32%
Professional and Relate Occupations	76	2.79%

27 2000 U.S. Census

28 Claritas 2007 Demographic Survey

Service	466	17.11%
Sales and Office	224	8.23%
Farming, Forestry & Fishing	1,377	50.57%
Construction, Extraction &Maintenance	312	11.46%
Production, Transportation and Material Moving	232	8.52%

The Riverside County Department of Public Social Services in conjunction with Poder Popular, a well known community outreach organization in the Eastern Coachella Valley, (ECV), undertook a 2008 survey as to the conditions found in one of the worst mobile home parks in the region.[29] The park is called Duros and is placed on the Torres-Martinez Tribal land. The number of estimated Farmworkers in this park out of an estimated 328 people surveyed is displayed in Table 3.

Table 3. Number of Farmworkers in the Duros Mobile Home Park, located in the Mecca, California area.

Category	Count	Percent
Seasonal Farm worker in the Coachella Valley	30	9.1%
Year Round Farm Worker in the Coachella Valley	130	39.6%
Migrant Farm Worker	101	30.8%
Missing	67	20.4%
Total	328	100%

1.1 Demographic Patterns

The 2000 U.S. Census has reported per capita income in the Mecca area as below $7,000. However, these figures do not reflect the true poverty of the residents. The Census tends to systematically under count the Farmworker population. Workers who are undocumented, mobile and those who live in unconventional or isolated circumstances are usually missed by the Census, relative to the more stable and established part of the population. The under count is conservatively estimated to be 50 percent too low[30] [31]. Since the Census is known to miss many of the poorest residents, it is reasonable to assume that income levels in the ECV reach far below the $ 7,000 per capita.

2. Number of Farmworkers in the Secondary Market Area

According to the Department of Health and Human Services, there were 34,991 migrant or seasonal Farmworkers in Riverside County, (including cities), in 2000. When other

[29] 2008 Riverside County Department of Public Social Services, Duros Mobile Home Park Survey Results.

[30] Gabbard S, Kissam E., and Martin P. The Farmworker under count, U.S. Census Bureau Conference 1996.

[31] The 2010 Census: Enumerating the Hard to Count, including Migrant and Seasonal Farm Workers.

members of Farmworker households are included, (e.g. Spouses and Children), this total rises to over 62,000, (table 4)[32] [33].

[34]Table 4. Farmworkers in Riverside County, 2000 Survey

Category	Farmworkers	Other Household Members	Total Household Population
Migrant	16,201	5,954	21,155
Seasonal	18,790	21,322	40,112
Total	34,991	27,276	62,267

3. Type of Farmworker housing needed in the Market Areas

A Riverside County Housing Market analysis[35] indicated that there has been high activity in mobile home parks in Riverside County over the past few years with the highest rate of movement in the Eastern portion of the county. The County has paid particular attention to the code enforcement actions regarding illegal mobile home parks in the Coachella Valley as the County has a history of undocumented and neglected Farmworker housing. Of particular concern, are the health and safety of the residents in illegal and unsafe mobile homes or mobile parks in the Coachella Valley. The county in the 2000 Housing Market Analysis estimated that there are approximately 100 illegal housing facilities, containing up to 2000 unpermitted and potential substandard mobile home units. HUD currently estimates approximately 400 unpermitted mobile home parks.[36]

The County of Riverside General Plan[37] estimates 28% of all housing units in the unincorporated county and 47% of all units in the eastern county are mobile homes. As of 1990 there were 95.620 housing units in unincorporated Riverside County. According to the State Housing Plan, about 10% of units statewide are estimated to be in need of rehabilitation or repair. On this basis it is estimated that about 9,562 units in the unincorporated county have some physical problems requiring attention. An estimated 1,405 units in Western County area and 538 units in Eastern County may require replacement. The number of units requiring replacement or rehabilitation based on 2000 data is displayed in Table 5 has not been updated since; and is therefore subject to future revision.

Table 5. Eastern Coachella Valley Housing Rehabilitation and Replacement Need

	Total Estimated Units to be	Pre-1940	1941-1960	1961-1980	1980 or newer	Total	Total Investment needed

32 Larson A. 2000. Migrant and Seasonal Farmworker Enumeration Profiles Study California.

33 The 2010 Census: Enumerating the Hard to Count, including Migrant and Seasonal Farm Workers.

34 See Informal email communication from Dr. Larson indicating that there have been no updated Riverside County figures since the 2000 study.

35 Riverside County consolidated Plan 1999-2004

36 HUD, 2008. Case Study: Farmworker Housing, Torres Martinez Desert Cahuilla Indians.

37 Riverside County consolidated Plan 1999-2004

	rehabilitated or replaced						
Eastern County Area	1943	58	214	894	777		
Number of units estimated to require substantial rehabilitation		29	128	626	622	1405	$16,119,954
Number of units estimated to require replacement		29	86	268	155	538	$ 32,835,500

The 2008 Riverside County General Plan - Coachella Valley Hearing draft[38], indicated that safe, healthy and affordable housing needs to be available for Farmworkers as farm work tends to be seasonal in nature. Policy ECVAP 5.1 in the hearing draft indicates the following:

"Allows Farmworker housing that meets basic safety standards in agriculturally designated areas per the Land Use Designations Section of the General Plan Land Use Element, and the Five-Year Action Plan and Special housing Need sections of the Housing Element. "

The Coachella Valley, while supporting a $427 million agricultural industry, continues to face a drastic shortage of decent, affordable Farmworker housing. In fact, the shortage is so severe that the state has obligated Riverside County to build 12,232 housing units in the unincorporated areas of the Valley by 2005. Presently, there are an estimated 400 non-permitted mobile home parks - most of which house Farmworkers and their families - in Riverside County. Many if not all of these parks are undesignated colonias with little-to-no paved road infrastructure, unsafe electrical wiring, and unsanitary and inadequate water and wastewater facilities.[39]

During peak harvest season, the unincorporated desert communities adjacent to the Valley's vast agricultural lands, (Thermal, Mecca, and Oasis), attract hundreds of migrant Farmworkers without a place to stay. Locally, it is commonly known that many of the town's permanent residents rent out their extra rooms, garages, trailers, parking areas, and even mattresses to groups of Farmworkers needing a place to sleep, regardless of the overcrowded conditions these practices create. Many who cannot afford these options seek refuge amongst the local tamarisk trees and empty lots.[40]

The agricultural industry along with demand for agricultural labor is growing and will likely continue to grow in the Coachella Valley. Today there are 370 agriculture companies in the Valley, 100 more than in 1990. New agriculture activities include produce packing and processing, which require an increase in workforce skill levels. Jobs are becoming more year-round and less seasonal. At the end of 1999, there were

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38 Riverside County General Plan EIR, Eastern Coachella Valley Hearing Draft 2008.

39 HUD, 2008. Case Study: Farmworker Housing, Torres Martinez Desert Cahuilla Indians.

40 Ibid

12,380 Coachella Valley residents employed in agriculture, a 7.5 % increase from 1991.[41]

According to a report by the California Institute for Rural studies [42] the unincorporated area of Mecca has the largest concentration of stick built houses, and there other much smaller groups of such houses in Thermal and Oasis. The mobile home parks are mostly small in size, (less than 12 units per park), and are randomly dispersed throughout the Triangle. This dispersion tends to isolate the park from one another and creates transportation hurdles that, in turn, impact Farmworker access to health care.

After years of neglect, in 1992 the Farm Labor Housing Protection Act, AB 3526 (known as the Polanco bill), was passed by the state legislature. The bill was designed to encourage development of farm worker housing on agricultural land. Unscrupulous land owners and opportunistic developers took advantage of the intention of the law. Many of these entrepreneurs built small mobile home parks that not only bypassed the local land use regulations, but also ignored basic health and safety requirements concerning the placement of wells, septic systems and utilities.[43]

Women and children are particularly affected, as they generally remain in the parks while male workers take family automobiles to job sites during the day. The need to group people into more cohesive settlements, however, implies the need to construct centralized sewage and water systems,[44] to prohibit the effects of arsenic contamination.

The majority of all structures in the triangle are mobile homes or trailers. According to the County Economic Development Administration (EDA), there are at least 307 mobile home parks in the area with approximately 10 to 15 families in each park. Assuming five people per household, a minimum of 15,000 people live in these mobile home parks. The parks on the EDA list are without permits and do not comply with local codes. [45]
The deteriorating mobile park situation gained public attention in 1999-2000 when several individuals were electrocuted in a park by wiring that had not been properly grounded. The county subsequently began to enforce its codes, opting to do plan checks, (performed by county inspectors), rather than requiring that parks submit to the full conditional use permit process. The inspections resulted in some individuals being required to leave their trailers, which precipitated a large protest. The California Rural Legal Assistance sued the county, and the Archdiocese of San Bernardino formed a task force to investigate the process. A local county supervisor was appointed as chairman of the investigating group. As a result of these efforts, the county put into practice a loan program to gradually ameliorate the situation in a way that would not provoke

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41 U.S. Department of Housing and Urban Development. January 2005.

42 Pathway to Farmworker Health Care, 2000. Research Institute for Rural studies, sponsored by the California Endowment.

43 HAC Building Rurual communities, Rural Voices, Winter 2009-2010, Vol. 14.

44 Ibid

45 This situation resulted in part from the California Employee Housing Act of 1992, which exempted agricultural housing from the conditional use permit process. Issuance of a conditional use permit usually involves a public hearing before a planning commission. It enables a city or county to consider essential or desirable uses of a given parcel of land that are not automatically allowed as a matter of right within a zoning district.

widespread homelessness among the Triangle's permanently settled Farmworker population. The program was created in 1999 and went into effect in 2000. [46]

Along with mobile home trailers on unincorporated county land, some Farmworkers are finding housing in trailers on tribal lands. The two most important areas are Los Duros and La Chicanita which are both on the land of the Torres Martinez tribe. Living conditions in these areas are unhealthy, with reports of water supplies being contaminated by raw sewage. There is also open burning of plastic and other trash. "Duroville" another community on a swath of desert land belonging to Torres-Martinez reservation, contains some 253 or so trailers which are bunched together into a community. Though not enumerated, the number of residents is estimated to be about 2000-4000 individuals, many of whom are employed in the vineyards, citrus orchards or vegetable fields nearby. The land lies adjacent to a privately owned incineration site described by U.S. EPA as a source of toxic waste. [47]

Those living on tribal lands are not considered to be residents of the county and are thus not able to receive funds under the county loan program. This leaves them few options to improve their situation.

3.1. Additional Factors Impacting on the Heath, Safety, and Welfare of Farmworker Housing. In the Unincorporated Areas of the Eastern Coachella Valley.

The California safe drinking water act, requires the State Department of Public Health to administer provisions relating to the regulation of drinking water to protect public health, including, but not limited to conducting research, studies and demonstration programs relating to the provision of a dependable safe supply of drinking water, enforcing the federal safe drinking water act, adoption of enforcement regulations, and conducting studies and investigations to assess the quality of water in domestic water supplies.

The Coachella Valley eastern Communities, most notably Thermal have an average arsenic level of 2.5-2.8 micrograms per liter. [47a] The problem is isolated to the east valley unincorporated communities affecting the most vulnerable low income population, farmstead and service-sector workers. The State Department of Public Health specifically states that the accumulative effects of Arsenic is a major health risk with symptoms such as stomach ache, nausea, vomiting, and diarrhea. Other effects include decreased production of red and white blood cells, which may cause fatigue, abnormal heart rhythm, blood-vessel damage resulting in bruising, and impaired nerve function causing a "pins and needles" sensation in hands and feet. Perhaps the single-most characteristic effect of long-term oral exposure to inorganic arsenic is a pattern of skin changes. These include patches of darkened skin and the appearance of small "corns" or "warts" on the palms, soles, and torso, and are often associated with changes in the blood vessels of the skin. Skin cancer may also develop. Swallowing arsenic has also been reported to increase the risk of cancer in the liver, bladder, and lungs. The Department of Health and Human Services (DHHS) has determined that inorganic

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[46] Ayala M, Richard M. 2002 Patterns of Community Cross Border Migration from a Purhepecha Town: Dispersion of a People and Culture.

[47] Villarejo D. 2006. Environmental Health Policy and California's Farm Labor Housing. A report prepared for the John Muir Institute on the Environment, University of California, Davis.

[4] [7a] 2009 Coachella Valley Water District, Annual Review Water quality Report.

arsenic is known to be a human carcinogen (a chemical that causes cancer). The International Agency for Research on Cancer (IARC) has determined that inorganic arsenic is carcinogenic to humans. EPA also has classified inorganic arsenic as a known human carcinogen. Children are the most vulnerable population. [47b]

Numerous mobile Home parks in the Mecca region have private wells and water systems that provide drinking water but do not meet government quality standards for arsenic.

In Coachella and the unincorporated eastern valley communities of Mecca, Oasis and Thermal, Riverside County environmental officials are aware of wells at 18 mobile home and RV parks that recently tested positive for dangerous levels ranging from 12 to 91 parts per billion according to state and federal health officials. Children are susceptible to numerous health problems

About 7,000 to 9, 000 residents live on 36 mobile home parks along the Pierce Street, between Avenue 66 and 70 in Oasis, where tests by park owners routinely find unsafe levels of arsenic, (Table 5a).

Table 5a. Arsenic Sampled Test Results from Various Mobile Home Parks in the Mecca and Thermal Region. Rural Community Assistance Corporation 2010.

Mobile Home Park	Result Measured in ug/L	Sample Date
Hope Ranch	8.7	05/19/10
Rancho Garcia	12	05/19/10
D&D	59	05/19/10
Torres Martinez Clinic	12	05/20/10
St. Anthony's	19	05/20/10
Santillanes	33	05/20/10
Public Water Supplies must contain no greater than 10 parts per billion (ppb) or ug/L arsenic (2006). .Safe Drinking Water Act.		

Under Federal law, owners of parks with 27 residents had until 2006 to meet the latest U.S. Environmental Protection Agency drinking water standards of 10 parts per billion or less. The standards were lowered from 50 to 10 parts per billion or less. The owners of the larger east valley trailer parks- including the 96 unit San Antonio Del Desierto, formerly known as Lake St. Antony Trailer Park, is a 95 unit mobile home park, which houses farm houses farm workers and low-income families it has been notorious for its housing code violations and substandard conditions. “La *Union Hace La Fuerza*”, a committee formed by tenants at the park contacted, advocate groups for help to address unhealthy conditions at the site. The California Rural Legal Assistance and the Riverside County filed a joined injunction against Lake St. Anthony Fish Farm, Inc., the owner of the park, to address the foremost priorities: the implementation of a water treatment facility to remove arsenic, and improvement of the electrical system

4 7b Department of Health and Human Services Public Health Service Agency for Toxic Substances and Disease Registry, CAS # 7440-38-2.

San Antonio Del Desierto's groundwater has specifically tested at 20 parts per billion of arsenic, and residents for the past year and a half have drawn safe, portable drinking water from four 250 gallon aluminum tanks placed at the park's entrance shipped from Blythe.

A break through reverse filtration osmosis device has been used with great effect to implement a decentralized filtration system to filter arsenic and generate portable drinking water. So far, 10 of the 19 identified parks have installed filters to treat the water to ensure it' safe for residents to drink as a proposed pipeline that will serve many east valley parks from Vista Santa Rosa to Mesa is estimated to cost $ 22 Million and is currently not cost effective in the current economic climate.

Rural Farm workers have a limited income and are therefore bound by the current living conditions due to the severely limited income, available housing and available social services.

4. Current Availability of Farmworker Housing in the Mecca area

4.1 Number of currently known and projected Farmworker Projects

The number of known Farmworker housing projects for the Mecca region is listed below:

CHAPULTEPEC APARTMENTS
(31 Farmworker Units)
62-600 Lincoln Ave.
Mecca, CA 92274

LAS MANANITAS I-II APARTMENTS
(128 bed -Migrant Farmworker)
91-2011 Avenue 63
Mecca, CA 92254

PIE DE LA CUESTA APARTMENTS
(68 units - Farmworker)
91-720 Avenue 66, #C101
Mecca, CA 92254

VILLAS OSCAR ROMERO
(50 units - Farmworker)
65010 Dale Kiler Road
Mecca, CA 92274

FUENTE DE PAZ APARTMENTS
(37 Units - Farmworker)
52-664 Harrison St
Coachella, CA 92236

NUEVA VISTA APARTMENTS
(32 units - Family)
65-100 Date Palm Street
Mecca, CA 92254

PASEO DE LOS HEROES
(106 mobile homes - Family)
62-900 Lincoln Ave.
Mecca, CA 92274

PASEO DE LOS HEROES II
(65 mobile homes – Family)
Lincoln Ave.
Mecca, CA 92274

PASEO DE LOS POETAS
(21 single-family home - Rentals)
65-100 Date Palm Street
Mecca, CA 92254

PIE DE LA CUESTA APARTMENTS
(68 units – Farmworker Families)
91-720 Avenue 66, #C101
Mecca, CA 92254

SAN ANTONIO DEL DESIERTO,
(95 units- Farmworker families)
67-075 Highway 111
Mecca, CA 92254

LOS VINEDOS
(88 Units – Farmworker families)
Hammond Rd. & Avenue 68th
Mecca, CA 92254

4.2 Types of Housing

A California Agricultural Worker Health Survey, (CAWHS), across seven California Communities including Mecca indicated the number of dwellings in which hired Farm workers were found to be residing. Dwellings in which Farmworkers were found to be residing were mostly permanent structures, (81 %). Temporary structures ranked next in importance, (10%), followed by labor camps, (6%) and vehicles, (2%).[48]

Table 6, shows for each category the total number of dwellings enumerated, contacted with qualified residents, and in which qualified persons agreed to participate in the CAWHS. The two categories “temporary structure” and “vehicles” have been combined.

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48 Ibid

Table 6. Summary of Dwellings by type of Dwelling and Participation
Seven California Communities, CAWHS, 1999, N=935

Type of Dwelling	Enumerated	Contacted	Farm Worker Resident	Participant in CAWHS
Permanent	10,284	2,461	875	762
Labor Camp	554	227	110	60
Temporary and Vehicle	1,038	301	185	113
Totals	11,876	2,989	1,170	935

Table 6 indicated that in these seven communities, just over one third (36%) of permanent structures contacted where dwellings in which farm laborers resided. Nearly half (48%) of labor camp dwellings were occupied by hired farm workers and nearly two-thirds of temporary structures or vehicles serving as dwellings were "home" for farm laborers (61%). Permanent structures were by a large margin, the most numerous of the dwellings in which farm laborers resided.

Villareyo, (2006)[49] found the fact that only one in three permanent structures in these communities served as a residence for a CAWHS eligible participant somewhat surprising as five of the seven communities are well known to be "farm worker towns". The same pattern was found in these five communities indicating that relatively fewer of the permanent structures had residents who were hired farm workers as compared with the proportion of labor camps and temporary structures occupied by farm laborers.

The most extreme case of this was in Mecca, where an estimated 2,752 CAWHS eligible workers were resident at the time of the survey, but nearly two-thirds (60%) were estimated to be living in labor camps, temporary structures or vehicles[50].

CAWHS participants in all seven communities including Mecca were asked to describe the type of housing in which they reside- single family (detached or attached), multiple-apartment structure, mobile homes or trailer, recreational vehicle, automobile etc. The main finding of this self reported classification is that nearly half of the CAWHS participants (48%) said they resided in "single family dwellings" and three quarters of these said they were living in detached single family dwellings.

Another one-third (35%) reported residing in multi-unit apartment buildings, about one-eight (12%) said they lived in a mobile home or trailer. Roughly one in fifty (2%) said they lived in their automobile, and about one in one hundred said they were homeless, living in the open or "under the trees".[51]

The 2008 Duros community survey by the Riverside County Department of Public Social Services in conjunction with Poder Popular indicated that only 57% of the Farmworkers

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49 Ibid

50 Ibid

51 Ibid

that lived in this small community in Mecca were undocumented,[52] (see attached Survey).

5. Vacancy Rates

5.1 General Vacancy Rates

Table 7 provides occupancy and tenure characteristics for the Mecca California unincorporated area according to the 2000 U.S. Census with an average vacancy rate of 0.4%.

Table 7. Mecca California General Housing Occupancy Characteristics.

HOUSING OCCUPANCY		
Total housing units	**1,059**	**100.0**
Occupied housing units	1,049	99.1
Vacant housing units	10	0.9
For seasonal, recreational, or occasional use	3	0.3
Homeowner vacancy rate (percent)	0.4	(X)
Rental vacancy rate (percent)	0.7	(X)
HOUSING TENURE		
Occupied housing units	**1,049**	**100.0**
Owner-occupied housing units	479	45.7
Renter-occupied housing units	570	54.3

5.2 Farmworker Vacancy Rates in the Mecca area

The 1999 CAWHS survey addressed housing-related conditions in the seven surveyed Farmworker communities by determining the vacancy rate.[53] Interviewers directly determined through observation and inquiry which dwellings they sought to contact were vacant at the time of the survey. Dwellings found to be vacant were carefully distinguished from those that were occupied but in which the residents could not be contacted, despite repeated efforts to do so.

Table 8, summarizes the findings regarding vacancies in permanent structures. Villarejo (2006), found the very low vacancy rates in Cutler, Gonzales, Mecca and Vista quite striking, and accounted for it by the disproportionate share of workers residing in labor camps, temporary structures and vehicles. This finding is consistent with the observation that in communities with a housing shortage, hired Farmworkers live wherever they can find shelter, no matter how tenuous it may be.

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52 2008 ,Riverside County Department of Public Social Services, Doros Mobile Home Park Survey.

53 Villarejo D. 2006. Environmental Health Policy and California's Farm Labor Housing. A report prepared for the John Muir Institute on the Environment, University of California, Davis.

Table 8. Vacancy Rates in Permanent Structures, CAWHS, 1999.

Community (CAWHS Site)	Rate
Arbuckle	6.7%
Calistoga	8.6%
Cutler	2.4%
Firebaugh	4.4%
Gonzales	1.3%
Mecca	1.7%
Vista	1.8%

6. Housing costs

6.1 Farmworker and regular housing

Approximately two-thirds, (67%), of CAWHS participants surveyed in the 1999 CAWHS survey rent their dwelling. Roughly one in sixteen (5%) participants rent from their employer. Both of these findings were highly variable from site to site. [54]

Table 9, shows the percent renters as well as the median total rental cost in each of the seven sites. No effort was made to independently determine average rental costs for all apartments in each community. It is unlikely that rental units available to farm laborers accurately represent a cross-section of apartments in a given community. Importantly, most rentals were reportedly month-to-month, thus avoiding the costly initial payment of "first month, last month and security deposit" that might otherwise be a barrier to obtaining typical rental housing in a given community. More than a few participants reported having to pay a security deposit along with the first month's rental in advance. [55]

Table 9. Percent Renters and Median Monthly Total Rental
CAWHS, 1999

Community (CAWHS site)	Renters (percent)	Total Monthly Rent per dwelling
Arbuckle	48%	$ 344
Calistoga	90%	$ 525
Cutler	77%	$ 350
Firebaugh	63%	$ 350
Gonzales	90%	$ 600
Mecca	73%	n.a.
Vista	94%	$ 600

54 Villarejo D. 2006. Environmental Health Policy and California's Farm Labor Housing. A report prepared for the John Muir Institute on the Environment, University of California, Davis.

55 Ibid

The results of the 2008 Riverside County Department of Public Social Services Duros Mobile Home Park survey is reflected in Table 10a and indicates that approximately 73% of people surveyed own their home in this particular community. The average rental rate is reflected in Table 10b.

Table 10a. Duros Community Housing ownership status

Type of housing	Count	Percent
Own	236	72%
Rent	52	15.9%
Pay	1	0.3%
Other	6	1.8%
Missing	33	10.1%
Total	328	100%

Table 10b. Duros Mobile Home Park Survey Rental Average monthly rents, (257 trailers) 1,479 residents.

Category	Average	Notes
Monthly space costs if Mobile home is owned	$ 283.26	182 (80%) listed the cost as $ 275 17 (7.5%) listed the cost as $ 270 The lowest cost was $ 70 The highest cost was $ 1275
Monthly space costs if unit is rented	$304.49	10 (19%) listed the cost as $ 275 The lowest cost was $ 100 The highest cost was $ 650
Monthly payer costs to pay for mobile home and space	522.50	The lowest cost was $ 250 The highest cost was $ 900
Monthly utilities cost	$ 292.29	3% listed utility costs under $ 100 11% listed utility costs > $100 and < $ 200 33% listed utility costs > $ 200 and < $ 300 39% listed utility costs> $ 300 and < $ 400 14% listed utility costs > $ 400

6.2 Housing Conditions

CAWHS participants in the 1999 CAWHS survey were asked to report the number of persons who sleep in the dwelling as well as the number of rooms in the dwelling. The highest number of persons residing in a single dwelling was 17, found in five-room structure in Calistoga. Six or more persons were found to be resident in each of 227 dwellings, or one-fourth of the total number of dwellings. At the other size extreme, just 56 of the total of the 3,842 persons enumerated lived alone. Overall, the reported average number of residents per dwelling was 4.33.[56]

[56] Villarejo D. 2006. Environmental Health Policy and California's Farm Labor Housing. A report

Table 11. Average Number of Residents per Dwelling, CAWHS, 1999.

Dwelling Category	*Persons per Dwelling (mean)*
Permanent	4.37
Temporary	4.13
Labor camp	3.43

As shown in Table 11, the reported average number of residents per dwelling varied with the type of dwelling: permanent dwellings had, on average, more residents while labor camps had the least. The vehicle category is not considered here.

Table 12 reports findings regarding the average number of residents per room. The CAWHS finds that permanent dwellings are, on average, the least crowded whereas temporary dwellings are the most crowded. In fact, temporary dwellings had, on average, 26% more persons per room than did permanent dwellings. Labor camps were only slightly less crowded than temporary dwellings.

Table 12. Average Number of Residents per Room, by Type of Dwelling
CAWHS, 1999

Type of Dwelling	Residents Per Room
Permanent	1.44
Temporary	1.82
Labor camp	1.80

CAWHS project field staff repeatedly presented anecdotal evidence of “crowding” which they observed in dwellings occupied by CAWHS participants. “Overcrowding” is described in the literature as corresponding to an average occupancy of 1.01 or more persons per room. By this measure, 48% of all CAWHS dwellings were “overcrowded,” and 25% of CAWHS dwellings were “extremely overcrowded”, (1.51 or more persons per room).

A surprising finding was that 42% of CAWHS dwellings were shared by two or more unrelated households. This figure varied greatly from site to site. In Vista, the community where it was largest, this figure was a striking 87%. Shared dwellings could not be simply characterized. It was found that sharing arrangements in some instances involved groups of unaccompanied men while in other cases it was two or more families, in which spouses and children were present. It was also found that a “primary” renter would sometimes sub-lease a room, or a bed, to help meet the rental cost, which partly accounts for the large proportion of shared CAWHS dwellings.

In 309 CAWHS dwellings (33%), the participant was *unaccompanied* by even one member of their immediate family. In nearly all such instances, the other members of the participant's family were residing in Mexico at the time of the survey.

In 626 CAWHS dwellings (67%), the participant was *accompanied* by at least one family member. No effort was made to further analyze the nature of the familial relationships of those residing with the CAWHS participant, although the data is available. This is because of the great variety of types of accompanying family members: spouses, parents, children, siblings, aunts, uncles, cousins and nephews were all mentioned. For example, it was not unusual to find that a CAWHS participant was accompanied by his or her spouse, but that some or all of their children remained in Mexico.

Of CAWHS participants who were unaccompanied, 82% were male. Substantial differences were also found regarding the marital status of those who were unaccompanied as compared with those who were accompanied. Of married CAWHS participants, 82% were accompanied by at least one family member, while 66% of single CAWHS participants were unaccompanied.

These findings regarding accompaniment status differ sharply from national findings regarding hired crop farm workers reported by the NAWS. In 2001-02, the NAWS finds that 57% of all hired crop farm workers were unaccompanied vs. the 33% figure reported herein for the CAWHS (United States, Department of Labor, 2005).

Most CAWHS participants reported very low total annual family or household incomes during the year prior to the survey. The median reported value was in the range $12,500 - $14,999 (nominal, 1998 dollars). However, the reported values of median total income varied widely from community to community. The lowest values of median total income that were reported were in Cutler and Vista where it was in the range $7,500 - $9,999. The highest reported values were in Arbuckle and Calistoga. In both of these communities, the reported median total income was in the range $20,000 - $24,999. Table 13 shows the values of median reported family income for all seven CAWHS sites.

Table 13. Median 1998 Family Income, CAWHS, 1999 vs. Median 1999 Family Income, Community-wide, Census, 2000.

Community (CAWHS site)	*Median Family Income (1998), CAWHS 1999*	*Median Family Income (1999), Census 2000*
Arbuckle	$20,000 - $24,999	$36,573
Calistoga	$20,000 - $24,999	$44,375
Cutler	$7,500 - $9,999	$24,432
Firebaugh	$15,000 - $17,499	$33,018
Gonzales	$15,000 - $17,499	$41,773
Mecca	$10,000 - $12,499	$21,250
Vista	$7,500 - $9,999	$45,649

Clearly, self-reported median family incomes in CAWHS households are well below the corresponding community-wide median values. Higher total family income relative to the

community's median family income appears to be associated with a higher percentage of home ownership in Arbuckle (where rentals are relatively low), or with a higher monthly rental in Calistoga (where housing purchase prices are relatively high).

In Vista, where total family income is extremely low - just one-fifth of the community median - the CAWHS finds both higher monthly rentals and an extremely high proportion (87%) of dwellings shared by two or more families.

In Mecca, rents were lower, but so is the reported median total family income, and the proportion of participants who reside in temporary or labor camp dwellings is very high. [57]

7. Photographs of existing Farmworker Housing in the Mecca primary market area.



[57] Villarejo D. 2006. Environmental Health Policy and California's Farm Labor Housing. A report prepared for the John Muir Institute on the Environment, University of California, Davis.







Appendix 3-5: Supporting Documents for *Torres Martinez Avenue 64 Water Supply Connection Project*

Preliminary Engineering Report for the Torres-Martinez Desert Cahuilla Indians

CVWD Water Main Extension to Avenue 64 Housing Subdivision

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June 2012

For
Torres-Martinez Desert Cahuilla Indians
P.O. Box 1160
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Preliminary Engineering Report
for the
Torres-Martinez Desert Cahuilla Indians
June 2012

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ACRONYMS USED:

CVWD	Coachella Valley Water District
PWSID	Public Water System Identification Number
gpm	gallons per minute
hp	horsepower
psi	pounds per square inch
mg/L	milligrams per liter
PVC	polyvinyl chloride
MCL	maximum contaminant level
EPA	Environmental Protection Agency
O&M	operation and maintenance
DI	ductile iron
ROW	right-of-way
ppb	parts per billion

I. GENERAL

The Torres-Martinez Desert Cahuilla Indians are a federally recognized Indian Tribe primarily located in the south central part of Riverside County and north central part of Imperial County in southwestern California (Appendix A, map 1). The reservation is checkerboarded through parts of the Coachella Valley, with most of the population northwest of the Salton Sea and parts of the reservation actually beneath the Salton Sea. The total area of the reservation is 49.3 square miles, of which over 30% is checkerboarded under parts of the Salton Sea. The valley is arid and very low in elevation, with parts of the reservation below sea level. Appendix A, map 2 shows the project planning area.

II. PROJECT PLANNING AREA

The Tribal population living within reservation boundaries is approximately 400 and is spread out throughout the reservation, with higher population density in a housing subdivision located at the intersection of Avenue 64 and Monroe Street and near the Tribal Headquarters on Martinez Road, just off Avenue 66.

A. **Location:** The project planning area is along Monroe St between Ave 62 and Ave 64, including the entire Avenue 64 subdivision area. The proposed water main would connect to an existing 24" water main located at the intersection of Ave 62 and Monroe St, owned by Coachella Valley Water District (CVWD). The water main would be built entirely within the Monroe St right-of-way between Ave 62 and Ave 64. It would connect to the existing water distribution infrastructure within the subdivision at two separate points. Additionally, minor construction near the existing pump house and water storage tanks would be required to physically disconnect the existing water sources from the distribution system.

B. **Environmental Resources Present:** The area of construction is primarily surrounded by agricultural areas or undeveloped desert land, with some residential areas. A complete environmental assessment was underway at the time of this report. As the entire construction area is previously disturbed, no impacts on biological resources are anticipated. There is potential for cultural resources within the area of potential effects. A mitigation plan was being prepared at the time of this report. Aside from cultural resources, no disturbance of critical habitat, floodplain, or other areas of acute environmental concern is anticipated. Construction will be entirely within existing road rights-of-way.

C. **Growth Area and Population Trends:** There are thirty-three (33) single occupancy homes in the Avenue 64 housing subdivision, with an estimated population of 100 people. Additionally there are a church, a park, a ball field, and a cemetery near the subdivision.

The area to be served is Tribal trust land. Most of the surrounding area within reservation boundaries is either individual allotted land or fee land. Therefore, the potential for additional growth is limited to the Tribal trust land available for development. The Tribe has indicated the possibility that another twelve homes could be built adjacent to the existing subdivision. Additionally, the church may expand its footprint and build additional ancillary facilities in the future.

A full estimate of current and projected water uses, including demands from non-residential users, is included in Appendix B.

III. EXISTING FACILITIES

A. Water System: This projects centers on the Ave 64 Water System, PWSID# 0605116. The Ave 64 Water System primarily serves thirty-three (33) single occupancy homes in the Avenue 64 housing subdivision, along with a church, a park, and a ball field. Basic information about existing facilities in the Ave 64 water system is provided below. Much more detailed information can be found in Appendix C, EPA Sanitary Survey Information.

1. **Water Source:** The primary water source is known as Well 1, or Big Bertha. It feeds directly into the old water storage tank. It was drilled in 1997 to a depth of 470 feet. It has a 12" steel casing, and it produces a reported 650 gallons per minute (gpm). It utilizes a turbine line shaft pump, which operates based on level switches in the old water storage tank. At the time of this report, it was offline undergoing repairs.

   The backup water source is known as Well 2. It is currently used as a backup. This well was drilled to an unknown depth and brought online the late 1980's. It has a 6" steel casing, and it produces a reported 35 gpm by a submersible pump. It is located within the pumphouse and near the water storage tanks. It is not connected to the disinfection system; it is connected directly to a storage tank.

2. **Water Storage:** There are two ground-level bolted steel water storage tanks that serve the Ave 64 subdivision. The older tank was built in the late 1980's and has a capacity of 64,000 gallons. The newer tank was built in the late 1990's and has a capacity of 44,000 gallons. These water storage tanks have no capacity to provide sufficient water pressure by gravity. A pressure boosting station provides the pressure within the community.

3. **Pumping Stations:** Water pressure in the system is maintained with a series of booster pumps located within the pump house, which is adjacent to the water storage tanks and the backup well. There are three operable constant speed 5 hp centrifugal booster pumps which maintain pressure of 64 to 65 psi. There is also a 15 hp fire pump which has been inoperable since 2004. There

is also a 2,500 gallon welded steel hydropneumatic tank (also currently inoperable) to maintain system pressure.

4. **Water Treatment:** No water treatment is provided except maintenance of a chlorine residual for disinfection. Disinfection is achieved through injection of liquid sodium hypochlorite to achieve a free chlorine residual of about 1.2 mg/L. The chlorine injection system is only connected to the primary well; the backup well is not disinfected when it is in operation.

5. **Water Distribution:** The Ave 64 Water System consists of about 4,000 feet of 4-inch PVC water main in a looped system. It was constructed in the late 1980's at the same time the subdivision was constructed. It serves 33 residences as well as a church, a park, and a ball field.

B. History: History of system construction is as follows:

late 80's	Initial construction of the Ave 64 Water System, including the current backup well, old water storage tank, pumping station, and the entire existing water distribution system.
late 90's	Construction of the current primary well (Big Bertha) and new water storage tank.

C. Condition of Facilities: In-depth information about the condition of the water facilities can be found in the EPA Sanitary Survey Information (Appendix C). There are more deficiencies than those listed below; only major deficiencies are listed below.

1. **Wells:** The primary well, known as Big Bertha, was experiencing major problems at the time of this report. The vertical turbine line shaft pump is heavily corroded. The packing around the line shaft is leaking excessively. This leaking packing gland sprays water around the well site and on the well's electrical controls. These electrical controls are exhibiting corrosion as a result. There is no functioning flow meter to gauge flow from this well, and the site is overgrown with vegetation and poorly maintained. At the time of this report, the well was offline while the turbine line shaft pump was being replaced by a submersible pump system, estimated by Palm Springs Pump at $24,000.

   The backup well also functions in a basic way. It is only operable manually; there are no automatic controls. It is not disinfected when it is operated – it pumps directly into the old water storage tank with no chlorine injection. There is no flow meter, and the well is not vented. The reported 35 gpm production of this well would not be sufficient to meet the needs of the water system if the primary well were to become inoperable. At the time of this report, with the primary well offline, the Tribe is providing bottled water

service to residents to take some pressure off the backup well, which is not disinfected and does not produce sufficient quantity of water to fully meet residential demands.

2. **Water Storage**: Both water storage tanks are essentially in good condition. The older tank shows some corrosion on its exterior; its interior condition is unknown. Both tanks have minor issues with lack of hatch seals or unlocked gate cages, but both are in good condition overall, with primarily minor issues. Water storage capacity is sufficient for the community. Since the tanks are ground-level, they cannot provide sufficient water pressure when there is a power outage or the pumping stations are otherwise not in operation.

3. **Pumping Stations:** The booster pump system is in very poor condition. The fire pump has been inoperable since 2004, so the system has no capacity to produce high flows sufficient for firefighting. The other booster pumps do not alternate in usage – one booster pump is always in operation, while the other two are rarely in use. This reliance on a single pump results in rapid deterioration of the one pump due to overuse, and deterioration of the other two booster pumps due to underuse. The booster pumps lack inlet and outlet pressure gauges to ensure they are producing the correct pressure. There are electrical connections in need of repair or replacement. The booster pump system shuts down frequently (reported by the Tribe as happening several times per month) due to pump wear, electrical voltage spikes or other local electrical faults, and sometimes commercial power outages. When this occurs, the entire water system loses pressure. This loss of pressure in the system can lead to groundwater, drainage water, or sewage infiltrating into the water distribution system until water pressure is restored again.

   Additionally, the hydropneumatic tank is not providing any useful function to the system. It is persistently waterlogged. It exhibits extensive corrosion, and is leaking from a corroded welded patch. This corroded and leaking area could result in a system shutdown were the leak to increase, or it could result in a tank explosion, since the tank is under pressure. The hydropneumatic tank has no pressure relief valve or sight gauge. Because this tank is not functioning, the booster pumps must work constantly to provide pressure to the system. Were it functioning properly, the booster pumps would not need to work continuously, therefore they would not suffer as much wear and tear, the Tribe would save on electricity, and the system would operate more efficiently.

4. **Water Treatment**: The system to provide chorine disinfection only operates for the primary well; it does not provide disinfection for the backup well and cannot be easily reconfigured to do so. The disinfection system is not operated properly, utilizing a non-NSF-approved liquid sodium hypochlorite in a system designed for calcium hypochlorite tablets. The system does succeed in disinfecting the drinking water and maintaining chlorine residual.

Additionally, the system has also had levels of perchlorate and chromium that, while not yet regulated by EPA, have concerned the Tribe for years. The system has no treatment systems for these contaminants. Both contaminants are being reviewed by EPA for possible changes in the MCL; a change in the EPA limit could result in the water system being out of EPA compliance. (See Appendix D for water quality information from the system's wells.)

5. **Water Distribution**: The water distribution system is in decent condition, and water main breaks are infrequent.

D. Financial Status:

1. **Rate Schedules**: The Band's rates for water usage are on a flat rate – residential units are charged $24/month for water usage.

2. **Annual Operating Budget**: There is no separate budget for water operations within the Torres-Martinez Tribal Government. Water operations are under the tribe's Planning Department. Water department expenses for FY 2012 to date (10/1/11 to 5/31/12) were piecemealed together (Appendix E). Expenses over this eight-month period totaled $81,478.00 to operate two Tribal public water systems. The expenses include salary and benefits for the water technician, vehicle operation and maintenance, electricity for wells and other water utility uses, equipment purchase and repair, and chemicals and other supplies (Appendix E). This total extrapolated over an entire year would total about $122,000.

3. **Maintenance/O&M Costs**: There is no separate budget for water operations within the Torres-Martinez Tribal Government. The operation and maintenance expenses for FY 2012 can be extrapolated to $122,000 per year. The entire budget is for maintenance and O&M costs (Appendix E).

4. **Tabulation of Users by Monthly Usage Categories**: Water usage calculations are shown in Appendix B.

5. **Revenues Received for Last Three Fiscal Years**: The Tribe bills 34 users at $24 per month. This comes out to $9,792 per year. The Tribe pays the remaining expenses (over $100,000 per year) from its general fund.

6. **Existing Debts and Required Reserve Accounts**: No existing debts are listed for the water operations, and it has no reserve accounts separate from those the Tribe maintains in its general fund.

IV. NEED FOR PROJECT

A. **Health and Safety:** The Avenue 64 water system poses multiple health and safety hazards to the community and to the operators who run the system. These are documented extensively in the EPA Sanitary Survey Information (Appendix C) and correspondence from EPA to the Torres-Martinez Desert Cahuilla Indians (Appendix F). In the latter, EPA notified the Tribe that the deficiencies in the water system and its management "pose a critical risk to human health." In this letter, the Tribe was given 120 days to respond with concrete actions to address the many deficiencies in the system or face a formal enforcement action.

The health and safety issues not specifically related to O&M issues can be summarized in a few key themes below.

1. **Water Outages**: The Tribe reports water outages several times per month. The community is served by ground-level water storage tanks, which provides pressure to the system with booster pumps and a hydropneumatic tank. There is no gravity-fed water supply. There is no single cause for the water outages. Sometimes they are related to power surges or loss of commercial power. Sometimes they are related to failure of the booster pumps or failure of the primary well pump (currently offline at the time of this report). Section III-C of this report and the EPA sanitary survey in Appendix C document many of the deficiencies in the system that cause water outages.

   Water outages occur at random and inconvenient times, leaving all the homes with no access to water – no ability to shower or flush toilets, no drinking water coming from the tap. Until the water is restored (usually a few hours later), the residents must either leave home to buy water to drink or live without any source of water.

   These recurring water outages are not only an inconvenience to homeowners in the subdivision; they represent a real risk to human health. When a water system has an outage and loses positive pressure, groundwater, drainage water, or sewage collected near water pipes can infiltrate into the water distribution system. Given the failing septic systems in the community (documented in a separate wastewater preliminary engineering report submitted to USDA Rural Development), there is a good chance that raw sewage can infiltrate into the water distribution system. This water is then used and consumed by homeowners when the water system is restored to service and pressure returns to normal. Directly consuming sewage, even if it is diluted with fresh drinking water, can lead to numerous gastrointestinal diseases, with significant and potentially fatal consequences.

2. **Insufficient Backup Water Source**: The backup well's production is not sufficient to meet community demands without severely stressing the well pump. If the primary well were to run dry or collapse or become inoperable

for more than a couple of days, the backup well would likely not be able to meet demands, and water shortages and/or outages would result. The health and safety problems associated with water outages are described more fully in the previous section.

3. **Inoperable Components**: The hydropneumatic tank is waterlogged and leaking, rendering it useless. If it were working properly, it would regulate booster pump function, preventing the pumps from running constantly. This results in overwork of the booster pumps, increasing the likelihood of their failure, which could result in water outages.

   The fire pump has not been operable since 2004, according to the water operator. The three operable booster pumps cannot provide sufficient flow for firefighting needs. If there is a fire in the subdivision area, the water system does not have the capacity to fight it effectively. Without adequate fire suppression capacity, there is increased risk of property damage, serious injury, and death if a serious fire were to break out in the subdivision.

   At the time of this report, the primary well was offline while the turbine line shaft pump was being replaced by a submersible pump system. With the primary well offline, the Tribe is providing bottled water service to residents to take some pressure off the backup well, which is not disinfected and does not produce sufficient quantity of water to fully meet residential demands.

4. **Safety and Security Risks**: There are numerous open electrical connections and junction boxes without lids throughout the pumphouse. There is also extensive corrosion of many electrical components throughout the system, particularly at the primary well location. Each of these issues represents an electrical shock hazard for the water operator, who frequently conducts O&M activities without an assistant. An electrical shock experienced by the operator while unaccompanied could result in hospitalization or could potentially be fatal.

   Additionally, the welded patch on the hydropneumatic tank is leaking, and there is no pressure relief valve on the tank. If the air compressor were run manually or if its pressure switch were to fail, and the valve exiting the pressure tank were closed, there is no mechanism to prevent pressure from increasing constantly until the tank explosion. Additionally, the extensive corrosion on the welded patch and presumed to be present internally translates to weaker structural integrity of the tank, thereby causing it to explode or fail catastrophically at a lower pressure than its rated pressure. The explosion of such a large steel tank could be lethal to anybody near it, and would result in a massive and difficult-to-repair water system leak, which would again result in a water outage.

Additionally, neither water storage tank is secured to prevent public access to climb the tank or to open the roof hatch. This represents a fall risk for any unauthorized individual who climbs either tank. This lack of security is also a potential health risk for all users on the water system – unauthorized access could lead to vandalism of the tank or potential contamination of the water in the tank (*e.g.* throwing a dead animal in the tank).

5. **Water Quality Potential Risks**: The backup well is not chlorinated and cannot be easily reconfigured to do so. If the primary well were to go offline and the backup well were used, it would only achieve disinfection by mixing with chlorinated water already in the system. If the backup well were used for more than a day or two, the chlorinated water and chlorine residual would be exhausted, and the entire system would be drinking water that has not been disinfected. This is not just a violation of the EPA Groundwater Rule; it is a significant health threat to water system users. Drinking water that hasn't been disinfected is associated with higher rates of gastrointestinal disease as well as skin and eye infections.

   These water quality results also show that perchlorate is present in the water at levels the Tribe is concerned about. While EPA does not regulate perchlorate yet (a rule was being developed at the time of this report), the State of California does. The highest level of perchlorate measured by the Tribe is 5.4 ppb, and it is consistently above 3.3 ppb. The State's action level is 6.0 ppb. It is not clear at this time what level of perchlorate that EPA will assign as the MCL when the rule is implemented. There is certainly a possibility that the system could be in violation of the EPA limit for perchlorate when the rule is published. Ingestion of water with excessive levels of perchlorate is associated with inhibition of thyroid function, which can disrupt metabolic processes and damage fetuses' and infants' brain development.

   Similarly, EPA is in the process of lowering its standard MCL for chromium. Chromium has consistently been around 10 ppb for this water system. While the current standard is 100 ppb, if the new standard is lowered enough, the Ave 64 water system could end up being in violation of the new chromium rule. Chromium can cause allergic dermatitis and the Chromium-6 valence has been determined to be a likely carcinogen.

Any one of the issues described above would justify some improvement of the existing water infrastructure. In combination, these critical or potential risks to human health seem to indicate that a larger-scale solution may be needed.

B. **System O&M:** Many of the health and safety issues with the Ave 64 Water System have their roots in operation and maintenance problems.

1. **Lack of O&M Resources**: Many (though not all) of the Health and Safety issues listed in the previous section have roots in operation and maintenance

(O&M) challenges for the Tribe. Fundamentally, the Tribe has few resources available to conduct O&M activities. Funding and staffing are both insufficient. The income generated from monthly billing for water services ($24 per month per home) is insufficient for even the most basic O&M. If 100% collection were achieved in a year for a system with 34 connections, the Tribe would earn less than $10,000 a year.

The Tribe must supplement significantly from its general fund, but the annual funding provided – about $100,000 per year on average for two public water systems – is still woefully insufficient. This would not be sufficient to pay an operator salary, electricity, chemicals, an inventory of spare parts and supplies, fuel for vehicle, and other related expenses. For small rural water systems like the Ave 64 system at Torres-Martinez, it is nearly impossible to be financially secure. The Tribe would have to charge well over $150 per month to each connection to break even, an expense most families in the subdivision could not afford.

2. **Lack of O&M Structure**: Even if resources were somehow available, the Tribe still lacks structure in many elements of its water O&M operations. The lone water operator reports to the Planning Department. There is no Water Department, and the Public Works Department was dissolved in 2008. There are no codes and ordinances with respect to the water systems on the reservation. There is no separate budget for water operations. There is no safety plan, nor a preventative maintenance plan. There are no O&M manuals for any parts of the system. There is no chlorine monitoring and coliform sampling plan.

   The Tribe's water system O&M program lacks structure. This lack of structure is a hindrance to proper operation and maintenance, and many of the basic tasks that must be accomplished on a regular basis do not get done at all or only if an emergency forces them to occur. This weak O&M structure is visually evident in vegetation growth around the primary well, disorganized supplies piled up throughout the pumphouse, exposed electrical connections, and the like.

3. **Improper Operation & Maintenance of Water System Components**: The lack of O&M resources and weak O&M structure have led to numerous problems within the system that would not exist with proper O&M. These problems are documented extensively in IV-A above.

C. **Growth:** There is not a lot of potential for future growth in this community. The area to be served is Tribal trust land. Most of the surrounding area within reservation boundaries is either individual allotted land or fee land. Therefore, the potential for additional growth is limited to the Tribal trust land available for development. The Tribe has indicated the possibility that another twelve homes

could be built adjacent to the existing subdivision. Additionally, the church may expand its footprint and build additional ancillary facilities in the future.

A full estimate of current and projected water uses, including demands from non-residential users, is included in Appendix B.

V. ALTERNATIVES CONSIDERED

While an attempt to rebuild the existing infrastructure would likely yield the lowest capital cost, it would not address three primary concerns. First, there is no certainty that improving the existing infrastructure could provide a suitable backup water supply. Presumably a new well would need to be drilled, which could have water quality or quantity issues. Second, improvements to existing infrastructure that would address the potential water quality issues concerning the Tribe (perchlorate and chromium) would be very costly and difficult to operate and maintain. Though there have not been MCL violations to date, they could arise with the publication of EPA's final rules on perchlorate and chromium. Finally, capital improvements of any kind would not address the many ongoing O&M issues, which the Tribe would have a hard time resolving without additional financial and manpower resources that would be difficult to obtain.

For these reasons, options involving some rebuilding of the existing infrastructure are not considered in depth. There is a regional water system near this community owned by the Coachella Valley Water District (CVWD). Connecting to this system would address not only the infrastructure deficiencies, but also the O&M problems facing the Tribe. Therefore, the options seriously considered in this proposal are based on connecting to the CVWD water system. Both options listed below have been considered by CVWD and are acceptable to them (see Appendix G for CVWD's letter of support for the different options available to the Tribe).

CVWD has prepared its own cost estimates for facilities they would own under all scenarios (Appendix G). These were used in generating the cost estimates attached here, but do not match exactly for a couple of reasons: (A) some unit costs were increased slightly since construction may not happen until a future date, and (B) the CVWD costs included an overhead charge on the fees, which was removed for this report.

Also, EPA has committed funding through a project funded under the Clean Water Act to assist with planning of a community sewer system to serve the Ave 64 subdivision. Since the water and sewer infrastructure will run parallel with a separation of about 15 feet, the sewer planning and the water planning can be conducted simultaneously with this funding. This project was funded through an Interagency Agreement between EPA and IHS. In this agreement, IHS will maintain and distribute funds and provide engineering assistance to the Torres-Martinez Desert Cahuilla Indians.

The project, CA 09-089 was funded for $100,000 to assist with planning and feasibility study preparation for a community sewer system. The Interagency Agreement, Project

Summary, and Memorandum of Agreement (and MOA Amendment) for this project can be found in Appendix H.

A. **OPTION #1:** Connect the Ave 64 water system to the CVWD regional water system. Tribe to own and maintain 8" PVC water main along Monroe Street. Connect to existing water distribution system in subdivision. Permanently disconnect existing wells, pumping system, and storage tanks.

1. **Description**: Connect the Ave 64 water system to the CVWD regional water system. CVWD would construct a short extension of its existing water distribution system (12" DI water main) and provide a master meter at the southeast corner of Monroe St and Ave 62. From that point, tribe would construct an 8" PVC water main along Monroe Street within the road right-of-way within reservation boundaries. This new water main would be connected at two points to the existing 4" PVC water distribution system in the subdivision. The existing wells, pumping system, and storage tanks currently serving the Ave 64 water system would be permanently disconnected from the system (though they would not be abandoned, in case the Tribe desired to convert them into an irrigation system). CVWD would own only the short extension of 12" DI water main and the master meter; the Tribe would own and maintain the 8" PVC water main and the existing 4" PVC water main within the subdivision.

2. **Design Criteria**: The water mains and appurtenances would follow all applicable American Water Works Association (AWWA) standards for construction of drinking water facilities. These include, but are not limited to the C100 series for ductile iron pipe, the C500 series for valves and hydrants, the C600 series for installation and disinfection of the facilities, the C700 series for water meters, and the C900 series for PVC pipe. The facilities to be owned by CVWD would also follow their own standards, which require installation of ductile iron for all mains and laterals.

3. **Map**: A map of this option is located in Appendix A, map 3.

4. **Environmental Impacts**: Environmental impacts would be limited to construction of the facilities; regular operation and maintenance activities would have no impacts. Biological and cultural studies of the area of potential impact were underway at the time of this report. Biological impacts are not anticipated, as construction is entirely within a previously disturbed shoulder of an existing roadway. There is a potential for impacts on cultural resources. After the cultural study is complete, a mitigation plan will be prepared to address protocol if inadvertent cultural or archaeological sites are encountered during construction.

5. **Land Requirements**: Construction would be entirely within a road right-of-way (ROW), but at the time of this report, it was not clear which entity had control of that ROW. The expectation is that CVWD and the Tribe would have to obtain a utility easement within the road ROW, most likely from the County or the Bureau of Indian Affairs (BIA). If no ROW exists for the road, then CVWD and the Tribe would have to ask for rights-of-way from landowners along the construction corridor. Though almost all the water main route is within reservation boundaries, some of the land is owned by the Tribe, some is owned by individual Tribal members in allotment, and some is owned by non-Tribal individuals as fee land.

6. **Construction Problems**: No construction problems anticipated. Water main construction would be routine. Rock may be encountered, but it is not anticipated to be a significant hurdle to construction.

7. **Cost Estimates**: A detailed cost estimate is in Appendix I. The total estimated cost of Option #1 is $1,460,000. This estimate breaks down to $1,000,000 for the CVWD portion of the project and $460,000 for the Tribal portion of the project. The estimate of $1,000,000 for the CVWD portion of the project is very close to the $1,064,882 estimate CVWD provided (Appendix G).

   a. **Construction**: Estimated construction costs for this option are $402,500. This includes $58,500 in direct construction costs for CVWD, and $344,000 in construction procured by the Tribe.

   b. **Non-construction and Other Projects**: Estimated non-construction costs for this option are $1,057,500. Most of these non-construction costs (almost $900,000) consist of fees that CVWD would charge for connecting to its water system. The remaining non-construction costs (about $166,000) include engineering support, construction inspection, tribal contract administration, and contingencies.

      The EPA has also provided $100,000 of in-kind planning services, including mapping and surveying, environmental assessment costs, and geotechnical investigation. These in-kind funds are not included in the cost estimate above.

   c. **Annual Operation and Maintenance**: The recurring O&M costs of this option are $25,610 (Appendix I). This primarily consists of regular billing for water usage that CVWD would charge the Tribe, but also includes charges for the Tribe to perform fairly minor O&M of the water distribution system that it owns. It also includes regular water testing since the system would still qualify as a consecutive system, and thus would have to comply with SDWA. This would break down to $63 per month per connection.

If charges for capital replacement of the entire water system owned by the Tribe are included in the calculation, the O&M cost increases by $51,081 per year to a total of $76,691 per year. If the Tribe chose to collect these capital replacement costs in monthly billing increases to system users, it would increase the monthly billing to $188 per month per connection.

d. **Present Worth, Based on Federal Discount Rates**: The present worth of this option is $2,052,000 (Appendix I). Capital replacement of facilities owned by CVWD would be the water district's responsibility and would be reflected in the water billing costs, already included in the O&M calculation.

8. **Advantages/Disadvantages**: Both of these options address the primary needs of the Tribe, improving water quality and reliability, while reducing the Tribe's O&M burden. The primary advantage of this option is that it has the lowest capital cost. The primary disadvantage is that this option has the highest O&M cost and burden to the Tribe.

   Since Tribe would own almost a mile of new water main, it would have to operate and maintain it, and it would have to eventually replace when it exceeds its design life. While O&M of the additional water main would not increase O&M costs much (estimated at $5 per home per month), the need to budget for capital replacement of the infrastructure would increase monthly billing greatly (about $70 more per home per month).

   This option would also not contribute to further extension of the regional CVWD water system, which could eventually serve other portions of the reservation. This project would also not receive a credit of over $130,000 in fees for building a portion of the CVWD water distribution. The ductile iron water main required by CVWD would be expected to have a longer design life as well.

B. **OPTION #2:** Connect the Ave 64 water system to the CVWD regional water system. CVWD to own and maintain 12" DI water main along Monroe Street. Connect to existing water distribution system in subdivision. Permanently disconnect existing wells, pumping system, and storage tanks.

1. **Description**: Connect the Ave 64 water system to the CVWD regional water system. CVWD would construct a 12" DI water main from its existing 24" DI water main at the intersection of Monroe St and Ave 62 to the Ave 64 housing subdivision. This new water main would be connected at two points to the existing 4" PVC water distribution system in the subdivision. Both of these connection points would have a master water meter owned by CVWD. After the master meter, the water system

would continue to be owned and maintained by the Tribe. The existing wells, pumping system, and storage tanks currently serving the Ave 64 water system would be permanently disconnected from the system (though they would not be abandoned, in case the Tribe desired to convert them into an irrigation system). CVWD would own the entire 12" DI water main and the master meters; the Tribe would own and maintain the existing 4" PVC water main within the subdivision.

2. **Design Criteria**: The water mains and appurtenances would follow all applicable American Water Works Association (AWWA) standards for construction of drinking water facilities. These include, but are not limited to the C100 series for ductile iron pipe, the C500 series for valves and hydrants, the C600 series for installation and disinfection of the facilities, the C700 series for water meters, and the C900 series for PVC pipe. The facilities to be owned by CVWD would also follow their own standards, which require installation of ductile iron for all mains and laterals.

3. **Map**: A map of this option is located in Appendix A, map 4.

4. **Environmental Impacts**: Environmental impacts would be limited to construction of the facilities; regular operation and maintenance activities would have no impacts. Biological and cultural studies of the area of potential impact were underway at the time of this report. Biological impacts are not anticipated, as construction is entirely within a previously disturbed shoulder of an existing roadway. There is a potential for impacts on cultural resources. After the cultural study is complete, a mitigation plan will be prepared to address protocol if inadvertent cultural or archaeological sites are encountered during construction.

5. **Land Requirements**: Construction would be entirely within a road right-of-way (ROW), but at the time of this report, it was not clear which entity had control of that ROW. The expectation is that CVWD and the Tribe would have to obtain a utility easement within the road ROW, most likely from the County or the Bureau of Indian Affairs (BIA). If no ROW exists for the road, then CVWD and the Tribe would have to ask for rights-of-way from landowners along the construction corridor. Though almost all the water main route is within reservation boundaries, some of the land is owned by the Tribe, some is owned by individual Tribal members in allotment, and some is owned by non-Tribal individuals as fee land.

6. **Construction Problems**: No construction problems anticipated. Water main construction would be routine. Rock may be encountered, but it is not anticipated to be a significant hurdle to construction.

7. **Cost Estimates**: A detailed cost estimate is in Appendix I. The total estimated cost of Option #2 is $1,610,000. This estimate breaks down to $1,590,000 for the CVWD portion of the project and $20,000 for the Tribal portion of the project. The estimate of $1,590,000 for the CVWD portion of the project is close to the $1,498,065 estimate CVWD provided (Appendix G).

   a. **Construction**: Estimated construction costs for this option are $606,000. This includes $588,500 in direct construction costs for CVWD, and $17,500 in construction procured by the Tribe.

   b. **Non-construction and Other Projects**: Estimated non-construction costs for this option are $1,004,000. Most of these non-construction costs (over $760,000) consist of fees that CVWD would charge for connecting to its water system. The remaining non-construction costs (about $244,000) include engineering support, construction inspection, tribal contract administration, and contingencies.

      The EPA has also provided $100,000 of in-kind planning services, including mapping and surveying, environmental assessment costs, and geotechnical investigation. These in-kind funds are not included in the cost estimate above.

   c. **Annual Operation and Maintenance**: The recurring O&M costs of this option are $23,610 (Appendix I). This primarily consists of regular billing for water usage that CVWD would charge the Tribe, but also includes charges for the Tribe to perform fairly minor O&M of the water distribution system that it owns. It also includes regular water testing since the system would still qualify as a consecutive system, and thus would have to comply with SDWA. This would break down to $58 per month per connection.

      If charges for capital replacement of the entire water system owned by the Tribe are included in the calculation, the O&M cost increases by $24,455 per year to a total of $48,065 per year. If the Tribe chose to collect these capital replacement costs in monthly billing increases to system users, it would increase the monthly billing to $118 per month per connection.

   d. **Present Worth, Based on Federal Discount Rates**: The present worth of this option is $2,156,000 (Appendix I). Capital replacement of facilities owned by CVWD would be the water district's responsibility and would be reflected in the water billing costs, already included in the O&M calculation.

8. **Advantages/Disadvantages**: Both of these options address the primary needs of the Tribe, improving water quality and reliability, while reducing the Tribe's O&M burden. The primary advantage of this option is that it has the lowest O&M cost and burden to the Tribe. The primary disadvantage is that it has the highest capital cost.

   This option would require the Tribe to operate a minimal amount of new water distribution infrastructure beyond what it already owns and operates. This decreases O&M costs slightly and greatly decreases the amount the Tribe would need to budget for eventual replacement of the water system when it exceeds its design life.

   This option would also contribute to further extension of the regional CVWD water system, which could eventually serve other portions of the reservation. This project would also receive a credit of over $130,000 in fees for building a portion of the CVWD water distribution. The ductile iron water main required by CVWD would be expected to have a longer design life as well.

VI. SELECTION OF AN ALTERNATIVE

	Improves Reliability	Capital Cost	O&M Cost	Replacement Cost	Contributes to Regionalization
Option #1	X	X			
Option #2	X		X	X	X

Table 1: Evaluation of Alternatives

The Table above evaluates the advantages and disadvantages of both options. Both options improve the water system reliability greatly, resulting in better health for residents in the Ave 64 subdivision. Option #1 is about $150,000 less expensive in terms of capital cost. However, Option #2 costs $2,000 less per year in O&M costs and almost $30,000 less per year when set-aside for capital replacement of Tribally-owned infrastructure is included. Option #2 also reduces the Tribe's O&M burden and contributes to the regionalization of the water system, which could serve other portions of the reservation in the future.

Given the simpler and less costly O&M for the Tribe, **Option #2 is recommended** as the preferred alternative. The Tribe and CVWD both prefer this option, as it results in a better long-term solution for both entities.

VII. PROPOSED PROJECT (RECOMMENDED ALTERNATIVE):

A. Project Design

1. **Water Supply**: The existing water supply wells would be physically disconnected from the system, and water supply would come from

Coachella Valley Water District (CVWD). The Tribe could utilize the existing wells for a separate irrigation system.

2. **Treatment**: The existing disinfection would be taken offline and abandoned, and treatment would be provided by CVWD.

3. **Storage**: The existing water storage tanks would be taken offline. Water storage and adequate system pressure would come from existing CVWD water storage tanks and pumping stations. The Tribe could utilize the existing water storage tanks for a separate irrigation system.

4. **Pumping Stations**: The existing pumphouse would be taken offline, and water pressure would be provided by CVWD. The Tribe could utilize the existing booster pump system for a separate irrigation system.

5. **Distribution Layout**: Construct a 12" ductile iron water main along Monroe Street between Ave 62 and Ave 64. Connect to the existing 4" Tribal water distribution system at two points (see Appendix A, map 4). The existing 4" PVC water distribution system would be disconnected from the existing Tribally-owned wells, tanks, and booster system, but it would remain in service, with water source being from the 12" CVWD water main. The existing water distribution infrastructure would continue to be owned by the Tribe as a consecutive water system, but the 12" water main along Monroe Street would be owned by CVWD.

6. **Hydraulic Calculations**: Hydraulic calculations were not available at the time of this report. However, hydraulic calculations will be employed during the design phase of the project.

B. Cost Estimate: The estimated cost of this project is $1,610,000. This includes both construction and non-construction costs. A breakdown of the cost is shown in Appendix I.

Note that over $700,000 of this budget is in a Supplemental Water Supply Charge, which CVWD charges on a per-acre basis for residential zones. The Tribe is seeking to negotiate this charge to a lower amount. The cost estimate is based on a worst-case scenario, assuming no reduction can be negotiated. However, reasonable negotiation may reduce the charge by $300,000 or more.

C. Annual Operating Budget: The Tribe's O&M burden would decrease considerably as a result of this project.

1. **Income:** CVWD water service would be charged on a monthly basis directly to the Tribe (as opposed to each home). The Tribe would pay an estimated $19,710 per year to CVWD for water billing, as well as another $1,500 per year for its own O&M activities and $2,400 per year for water

quality testing requirements. The Tribe could pay these expenses from its own general account, or it could charge each connection with monthly billing. If monthly billing were used, each connection would need to pay about $58 per month.

2. **Operation and Maintenance Costs**: The recurring O&M costs of this option are $23,610 (Appendix I). This primarily consists of regular billing for water usage that CVWD would charge the Tribe, but also includes charges for the Tribe to perform fairly minor O&M of the water distribution system that it owns. This would break down to $58 per month per connection (Appendix I).

3. **Capital Improvements:** The funding for capital replacement of the entire Tribally-owned portion of the water system that would need to be set aside is $24,455 per year (Appendix I). The Tribe would not need to set aside any funding for capital replacement of any facilities owned by CVWD.

4. **Debt Repayments**: The Tribe has no existing debt repayments, and would incur no debts as a result of this project.

5. **Reserve**:

   - **Debt Service Reserve**: Debt service reserve is established at one-tenth the annual debt repayment requirement. This can be calculated from the annual debt payments above to be $2,446.

   - **Short-Lived Asset Reserve**: No short-lived assets are proposed in this project.

VIII. CONCLUSIONS AND RECOMMENDATIONS

A. **Conclusions:** Between the poor design and construction and numerous operation and maintenance (O&M) challenges imposed on the Tribe, the Avenue 64 water system on the Torres-Martinez Indian Reservation poses serious health threats to the residents who utilize it for their drinking water. Some of these threats (inoperable components, safety and security risks) could be minimized with moderate capital improvements. Other threats (O&M structure and resources) could be minimized if the Tribe had more resources available for O&M. Still others (insufficient backup water supply, water quality potential risks) would be costly and uncertain to address with improvement of the existing infrastructure. Perhaps the most critical problem with the water system, repeated short-term water outages, would fit into all three categories. Any attempt to improve the health and safety of the Ave 64 subdivision residents through upgrades to the existing system and/or O&M improvements would either be prohibitively expensive, or would only solve some of the system's many existing issues. And

no upgrade of existing infrastructure would solve the lingering O&M challenges faced by the Tribe.

Meanwhile, less than a mile away, the regional water system operated by the Coachella Valley Water District (CVWD) provides the potential for much safer, more reliable water, while requiring much less direct O&M from the Tribe. The cost to connect to this water system is high, primarily because of fees the water district charges for all new users (which the Tribe is currently seeking to reduce through negotiation). However, if the Tribe could connect to this regional water system, it would truly be a panacea for its water quality, water quantity, and O&M problems.

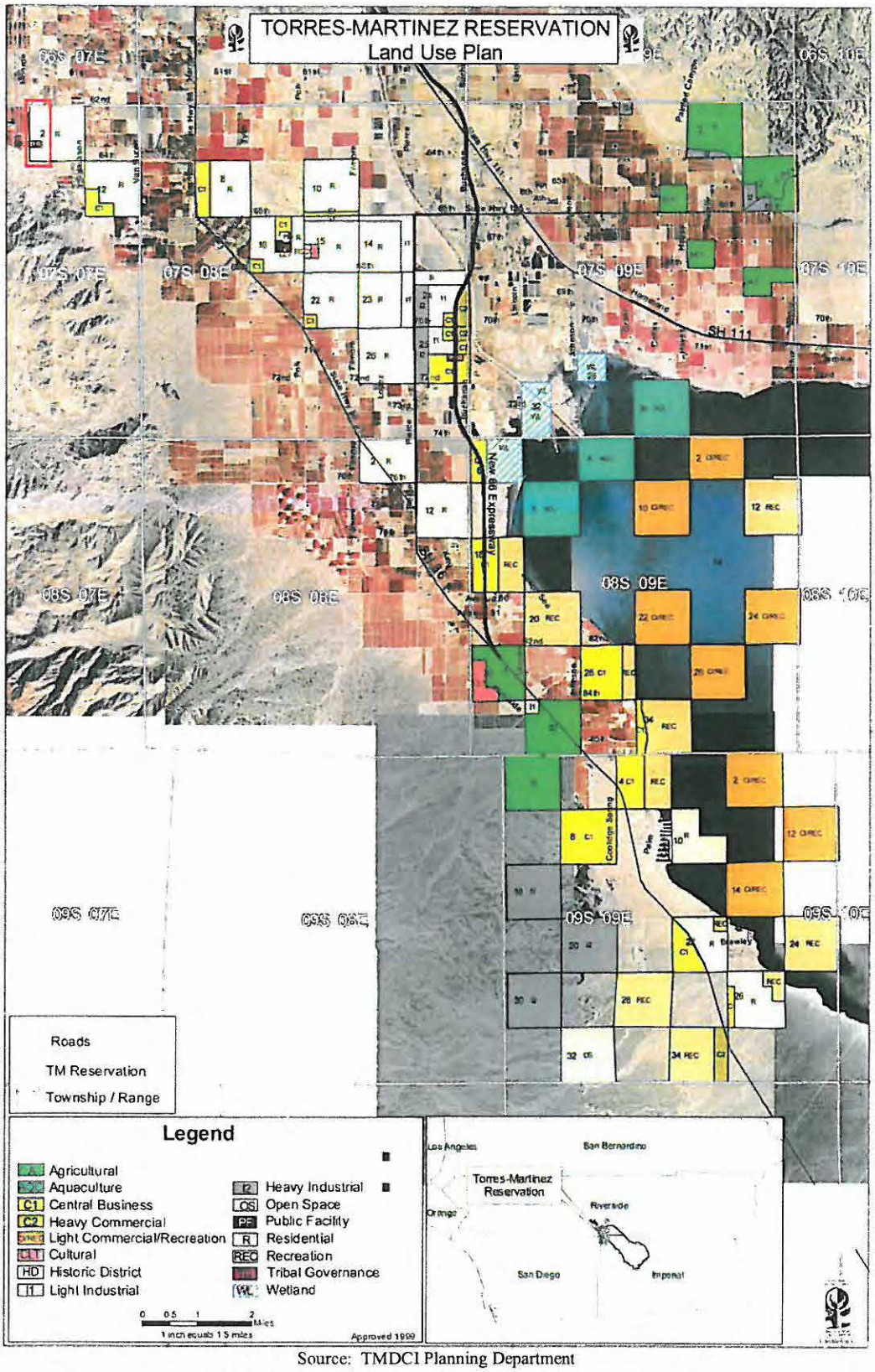
Two alternatives for connecting to CVWD are explored in depth in this report. One involves a minor extension of CVWD water main and a major extension of the Tribally-owned water distribution system. The other would involve a significant extension of the CVWD regional system, with minor additions to the Tribal water system to connect to the regional system. In both options, the existing wells, storage tanks, and pressure stations would be physically disconnected from the system.

While the first option would cost less in terms of capital cost, it would cost more in short- and long- term O&M for the Tribe. The second option would not only cost the Tribe less from an eventual capital replacement standpoint, but it would extend the regional water system a mile into Tribal lands. Eventually other portions of the reservation or other non-Indian communities could benefit from its continued extension starting from the one proposed herein.

B. Recommendations: It is recommended that the second alternative be implemented. The option would involve construction of a CVWD-owned 12" ductile iron water main along Monroe Street between Ave 62 and 64, and connection of the existing Tribal water distribution system to this new water main. In addition, the existing water source for the Tribal system would be permanently disconnected from the distribution system to prevent cross-contamination. While this option is not the cheapest one available, it is the most sensible for both operation and maintenance and regional expansion of the water system.

APPENDIX A

Maps



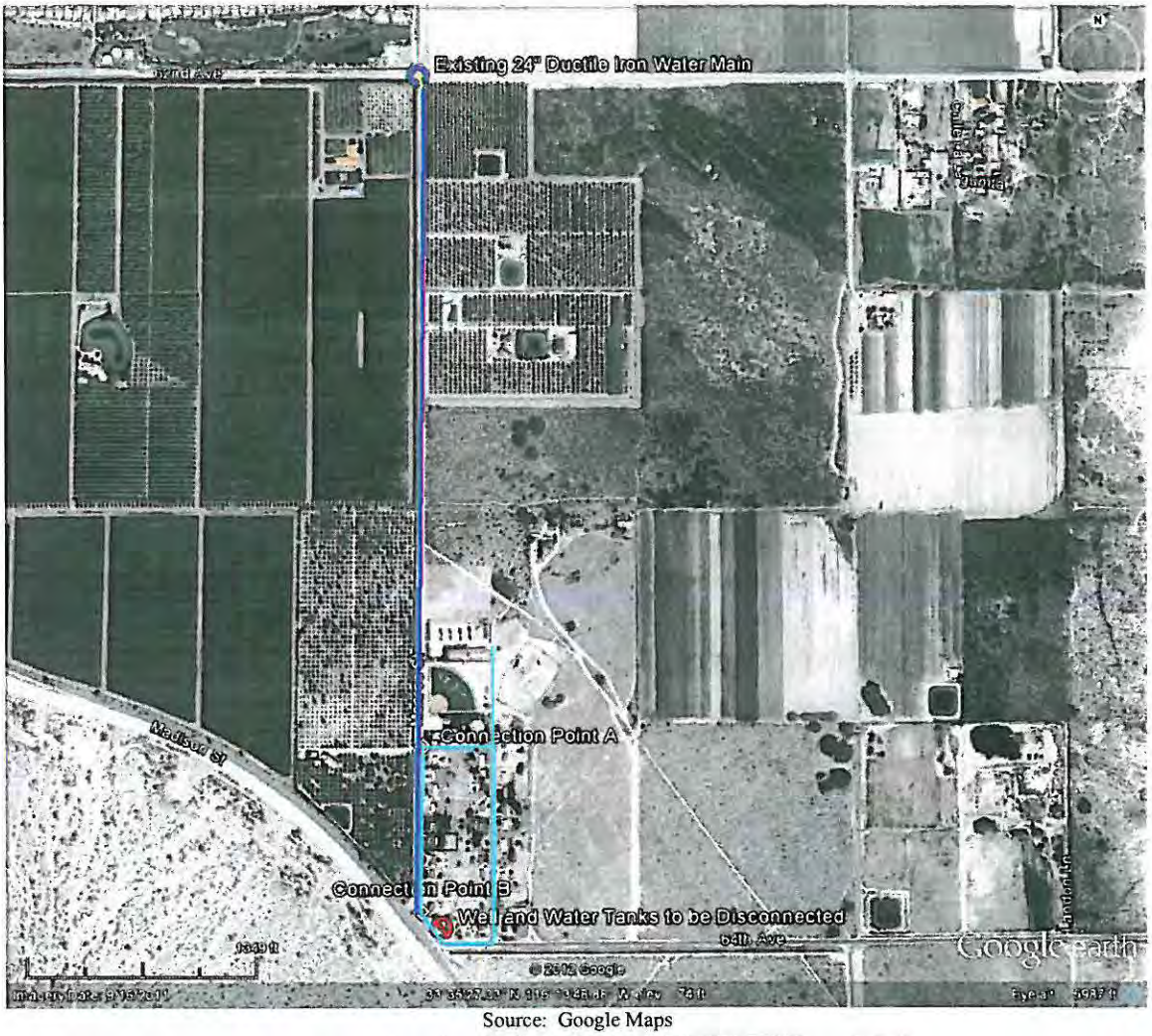
Source: TMDCI Planning Department

Map 1: Torres Martinez Indian Reservation
(Project Planning Area within red box in upper left corner of map)



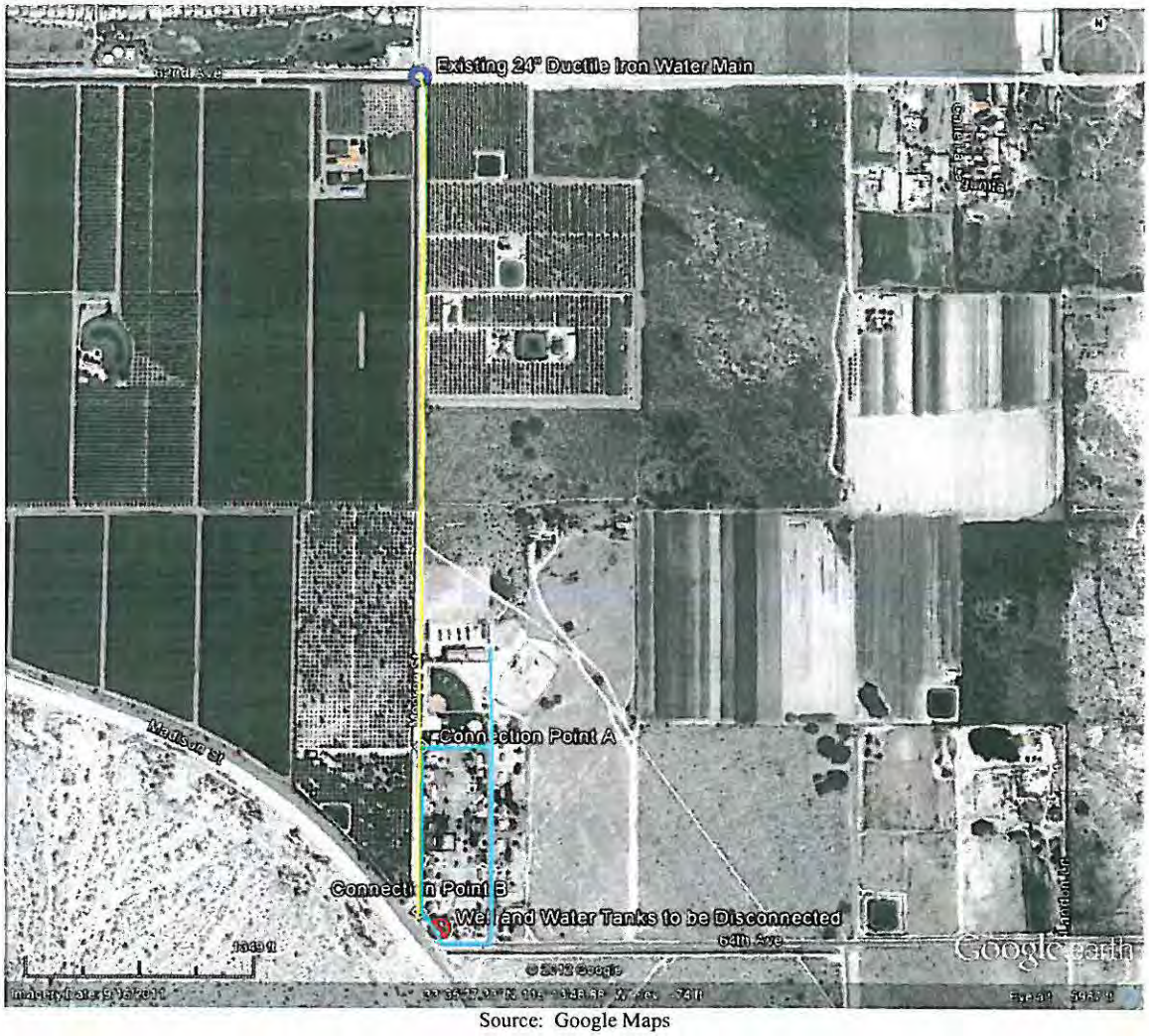
Source: Google Maps

Map 2: Project Planning Area



Source: Google Maps

Map 3: Option #1: Tribe Owned 8" PVC Water Main
(Yellow = CVWD Owned 12" Ductile Iron Water Main
Dark Blue = Tribe Owned 8" PVC Sewer Main
Light Blue = Existing 4" Tribe Owned PVC Water Main)



Source: Google Maps

Map 4: Option #2: CVWD Owned 12" Ductile Iron Water Main
(Yellow = CVWD Owned 12" Ductile Iron Water Main
Light Blue = Existing 4" Tribe Owned PVC Water Main)

Preliminary Engineering Report for the Torres-Martinez Desert Cahuilla Indians

CVWD Sewer Main Extension to Avenue 64 Housing Subdivision

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May 2012

For
Torres-Martinez Desert Cahuilla Indians
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Preliminary Engineering Report
for the
Torres-Martinez Desert Cahuilla Indians
May 2012

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Appendix D: Project Documents for Two EPA Clean Water Act Projects Serving the Ave 64 Subdivision
Appendix E: Cost Estimates, Capital and O&M Costs

ACRONYMS USED:

CVWD	Coachella Valley Water District
VCP	vitrified clay pipe
PVC	polyvinyl chloride
gpd/ft^2	gallons per day per square foot
EPA	Environmental Protection Agency
O&M	operation and maintenance
ROW	right-of-way
VGS	variable grade sewer

I. GENERAL

The Torres-Martinez Desert Cahuilla Indians are a federally recognized Indian Tribe primarily located in the south central part of Riverside County and north central part of Imperial County in southwestern California (Appendix A, map 1). The reservation is checkerboarded through parts of the Coachella Valley, with most of the population northwest of the Salton Sea and parts of the reservation actually beneath the Salton Sea. The total area of the reservation is 49.3 square miles, of which over 30% is checkerboarded under parts of the Salton Sea. The valley is arid and very low in elevation, with parts of the reservation below sea level. Appendix A, map 2 shows the project planning area.

II. PROJECT PLANNING AREA

The Tribal population living within reservation boundaries is approximately 400 and is spread out throughout the reservation, with higher population density in a housing subdivision located at the intersection of Avenue 64 and Monroe Street and near the Tribal Headquarters on Martinez Road, just off Avenue 66.

A. **Location:** The project planning area is along Monroe St between Ave 62 and Ave 64, including the entire Avenue 64 subdivision area. The proposed sewer main would connect to an existing 33" sewer main located at the intersection of Ave 62 and Monroe St, owned by Coachella Valley Water District (CVWD). The sewer main would be built entirely within the Monroe St right-of-way between Ave 62 and Ave 64. It would connect to an internal sewer collection system to be constructed with IHS and EPA funds. Additionally, the existing septic tanks would need to be crushed and abandoned after the sewer was fully online and serving the community.

B. **Environmental Resources Present:** The area of construction is primarily surrounded by agricultural areas or undeveloped desert land, with some residential areas. A complete environmental assessment was underway at the time of this report. As the entire construction area is previously disturbed, no impacts on biological resources are anticipated. There is potential for cultural resources within the area of potential effects. A mitigation plan was being prepared at the time of this report. Aside from cultural resources, no disturbance of critical habitat, floodplain, or other areas of acute environmental concern is anticipated. Construction will be entirely within existing road rights-of-way.

C. **Growth Area and Population Trends:** There are thirty-three (33) single occupancy homes in the Avenue 64 housing subdivision, with an estimated population of 100 people. Additionally there are a church, a park, a hall field, and a cemetery near the subdivision.

   The area to be served is Tribal trust land. Most of the surrounding area within reservation boundaries is either individual allotted land or fee land (Appendix A,

map 3). Therefore, the potential for additional growth is limited to the Tribal trust land available for development. The Tribe has indicated the possibility that another twelve homes could be built adjacent to the existing subdivision. Additionally, the church may expand its footprint and build additional ancillary facilities in the future.

A full estimate of current and projected water demand (which directly correlates to sewage produced), including demands from non-residential users, is included in Appendix B.

III. EXISTING FACILITIES

A. **Individual Septic Systems:** All of the homes and non-residential units in the Avenue 64 subdivision are served by septic systems. Each of these systems is comprised of a 1,000-gallon or 1,500-gallon concrete septic tank, 4" PVC solid sewer pipe connecting the home to the tank and the tank to the drainfield, and 4" perforated pipe with septic rock as drainfield. Septic systems for all of the homes are located behind the home on the same lot the home occupies, while the septic system for the church and associated facilities is located to its side.

B. **History:** History of system construction is as follows:

late 80's	Initial construction of the individual septic systems for each of the homes and non-residential units in the Ave 64 subdivision.

C. **Condition of Facilities:** Many of the septic systems in the subdivision are failing, causing sewage to surface in the backyard area of the homes. Evidence of failing septic systems is often evident by the presence of lush green plant life where it would otherwise be absent. Photo 1 in Appendix A shows several locations at which this is evident, where septic system failure is apparent. Sometimes the failure is hard to detect at the scale of the photo, but when the image is zoomed to a higher resolution (see Photos 2-9 in Appendix A), it becomes more apparent.

The primary cause of septic system failure is because soil in the lower Coachella Valley tends to have a low permeability. Reviewing soil testing IHS has conducted on the Torres-Martinez Reservation over the last 20 years, soils have tended to be silt, silty loam, or silty clay loam. These types of soils tend to have a maximum loading rate from 0.0 to 0.4 gpd/ft^2. Some of these soils simply cannot accept a septic system, while others require very large drainfields to function properly, at least 400-500 linear feet of drainfield for a typical 2 bedroom house. There is not sufficient room within the property lines to support new septic systems.

D. **Financial Status**: Since the community is served with individual septic systems, there is no community utility service. The cost of pumping septic tanks is borne

by the homeowner. If the system fails and requires repairs, those costs are also borne by the homeowner, with costs varying from several hundred to several thousand dollars. Many homeowners cannot afford this expense and live with surfacing sewage near their homes on an intermittent basis or year-round.

IV. NEED FOR PROJECT

A. **Health, Sanitation, and Security:** It is evident (Photos 1-9 in Appendix A) that many of the septic systems in the Ave 64 subdivision are failing, with surfacing sewage or hydraulic overloading from the septic system evident in the homes' backyards. Surfacing sewage can cause numerous diseases by direct contact (*e.g.* Hepatitis A) and by fostering disease-carrying vectors (*e.g.* mosquitoes – West Nile Virus). Children and pets may run through mud standing over a failed septic system and bring sewage-contaminated dirt and dust into the home, further spreading disease.

Hydraulic overloading of the soil by a failed septic system can cause disease by contaminating drinking water sources with many pollutants, such as nitrates (*e.g.* methaemoglobinemia, aka blue baby syndrome) and microorganisms (*e.g.* dysentery, cholera, *giardia*). It is documented in another May 2012 Preliminary Engineering Report prepared by IHS for the Tribe that the existing water system frequently experiences outages. When the water system experiences an outage, the loss of water pressure can cause groundwater or standing sewage around water lines to infiltrate into the water distribution system. When the water system is returned to service, this contaminated water remains in the system and can be consumed by users in the system. In this situation, the people living in the subdivision are essentially drinking diluted sewage. Given extensive evidence of septic system failure and frequent reports of water outages, this is almost certainly true.

Finally, the aesthetic concerns about failing septic systems are not trivial. Residents are less likely to play or exercise in a backyard muddy with sewage from a failed septic system. Unpleasant odors are often associated with failed septic systems. Many failed septic systems will impact community-wide morale and sense of pride in the neighborhood. Property values are adversely impacted. While the health effects of multiple failing septic systems are extensive, other aesthetic impacts similarly harm individuals and the community as a whole.

B. **System O&M:** There is currently no community sewer system, just individual septic systems for each connection. Each homeowner is responsible for O&M, including regular septic tank pumping, any required repairs, and the like. Evidence of failing or failed septic systems for many of the homes may be partially indicative of O&M difficulties. Some failures (*e.g.* clogs or pipe breaks) can be repaired if the homeowner has sufficient resources to do so. It is not clear to what extent the septic system failures evident in the area are due to hydraulic overloading (which could not be fixed with better O&M) or due to clogs or breaks

(which could be improved with better O&M). The former cause of failure is more likely than the latter, due to poor soil permeability and the prevalence of the failures (*i.e.* most communities don't experience septic system clogs or breaks for 40-50% of homes simultaneously).

C. **Growth:** There is not a lot of potential for future growth in this community. The area to be served is Tribal trust land. Most of the surrounding area within reservation boundaries is either individual allotted land or fee land (Appendix A, map 3). Therefore, the potential for additional growth is limited to the Tribal trust land available for development. The Tribe has indicated the possibility that another twelve homes could be built adjacent to the existing subdivision. Additionally, the church may expand its footprint and build additional ancillary facilities in the future.

A full estimate of current and projected water demand (which directly correlates to sewage produced), including demands from non-residential users, is included in Appendix B.

V. ALTERNATIVES CONSIDERED

Due to lack of land base available, creating a small separate community sewer system with a lagoon is not possible. The land held in Tribal trust within this section of the reservation does not extend far beyond the location of existing structures within the Ave 64 subdivision (see Appendix A, Map 3). This small parcel of trust land is surrounded entirely by privately-held fee land or individually-owned Tribal allotment.

For these reasons, options involving building a small separate community sewer system are not considered in depth. There is a regional sewer system near this community owned by the Coachella Valley Water District (CVWD). Connecting to this system would address all of the health and safety needs the Tribe has. Therefore, the options seriously considered in this proposal are based on connecting to the CVWD sewer system. Both options listed below have been considered by CVWD and are acceptable to them (see Appendix C for CVWD's letter of support for the different options available to the Tribe).

CVWD has prepared its own cost estimates for facilities they would own under all scenarios (Appendix C). These were used in generating the cost estimates attached here, but do not match exactly for a couple of reasons: (A) some unit costs were increased slightly since construction may not happen until a future date, and (B) the CVWD costs included an overhead charge on the sanitation capacity fee, which was removed for this report.

Also, EPA has committed funding through two different projects funded under the Clean Water Act to assist with completion of a community sewer system to serve the Ave 64 subdivision. Both of these projects were funded through an Interagency Agreement

between EPA and IHS. In this agreement, IHS will maintain and distribute funds and provide engineering assistance to the Torres-Martinez Desert Cahuilla Indians.

One project, CA 09-089, was funded for $100,000 to assist with planning and feasibility study preparation for a community sewer system. The Interagency Agreement, Project Summary, and Memorandum of Agreement (and MOA Amendment) for this project can be found in Appendix D.

The other project, CA 12-E28, was funded for $680,000 to construct the sewer collection laterals and sewer service lines within the Ave 64 subdivision. The project documents were being prepared at the time of this report, but the award letter confirming the funding for this project is included in Appendix D.

Given (1) the planning and partial construction funding provided by EPA, (2) the engineering assistance IHS will provide as part of these EPA-funded projects, and (3) CVWD's stated interest in expanding to serve this subdivision, this PER is limited to considering different options for extending sewer main along Monroe Street from the existing CVWD sewer system to the Ave 64 subdivision.

A. **OPTION #1:** Connect all the homes and non-residential units in the Ave 64 subdivision to the CVWD regional sewer system. Tribe to own and maintain 8" PVC sewer main along Monroe Street. EPA has funded the construction of sewer laterals and sewer service lines within the subdivision (to be owned by the Tribe). This project just seeks to construct the 8" sewer main along the length of Monroe Street between Ave 62 and Ave 64.

    1. **Description**: Construct 16 feet of 8" VCP gravity sewer main from the existing 33" VCP sewer main at the intersection Monroe St and Ave 66 to the edge of the reservation boundary. This will be the extent of facilities ultimately owned by CVWD under this option.

       Construct approximately 5,000 feet of 8" PVC gravity sewer main along Monroe Street between Ave 62 and Ave 64. Sewer main will include manholes located at least every 500 feet, as well at intersections with sewer laterals. These facilities will be owned by the Tribe permanently.

       Additionally, EPA has provided funding for about 1,700 feet of 8" PVC gravity sewer laterals within the subdivision, and 4" sewer service lines to connect each home or non-residential user to the community sewer system. EPA has also provided funding for all planning activities associated with this project (surveying, NEPA compliance, geotechnical studies). As outside funding for this planning and construction has already been obtained by the Tribe, it is not part of this project, though it is necessary for this project to be meaningful.

2. **Design Criteria**: The sewer mains, manholes and appurtenances would follow all applicable 10-State standards for construction of sewer collection facilities. The facilities to be owned by CVWD would also follow their own standards, which require installation of vitrified clay pipe for all mains and laterals.

3. **Map**: A map of this option is located in Appendix A, map 4.

4. **Environmental Impacts**: Environmental impacts would be limited to construction of the facilities; regular operation and maintenance activities would have no impacts. Biological and cultural studies of the area of potential impact were underway at the time of this report. Biological impacts are not anticipated, as construction is entirely within a previously disturbed shoulder of an existing roadway. There is a potential for impacts on cultural resources. After the cultural study is complete, a mitigation plan will be prepared to address protocol if inadvertent cultural or archaeological sites are encountered during construction.

5. **Land Requirements**: Construction would be entirely within a road right-of-way (ROW), but at the time of this report, it was not clear which entity had control of that ROW. The expectation is that CVWD and the Tribe would have to obtain a utility easement within the road ROW, most likely from the County or the Bureau of Indian Affairs (BIA). If no ROW exists for the road, then CVWD and the Tribe would have to ask for rights-of-way from landowners along the construction corridor. Though almost all the sewer main route is within reservation boundaries, some of the land is owned by the Tribe, some is owned by individual Tribal members in allotment, and some is owned by non-Tribal individuals as fee land.

6. **Construction Problems**: No construction problems anticipated. Sewer main construction would be routine. Rock may be encountered, but it is not anticipated to be a significant hurdle to construction.

7. **Cost Estimates**: A detailed cost estimate is in Appendix E. The total estimated cost of Option #1 is $883,000. This estimate breaks down to $215,000 for the CVWD portion of the project and $668,000 for the Tribal portion of the project. The estimate of $215,000 for the CVWD portion of the project is almost identical to the $216,423 estimate CVWD provided (Appendix C).

    a. **Construction**: Estimated construction costs for this option are $551,000. This includes $49,250 in direct construction costs for CVWD, and $502,000 in construction procured by the Tribe.

    There is an additional $512,000 in construction costs for the internal collection system and sewer service lines which will be provided in-

kind through separate EPA funding. These in-kind funds are not included in the cost estimate above.

b. **Non-construction and Other Projects**: Estimated non-construction costs for this option are $332,000. Some of these non-construction costs (almost $144,000) consist of fees that CVWD would charge for connecting to its sewer system. The remaining non-construction costs (about $188,000) include engineering support, construction inspection, tribal contract administration, and contingencies.

   There is an additional $168,000 in non-construction costs (engineering support, construction inspection, tribal contract administration, and contingencies) which will be provided in-kind through separate EPA funding. These in-kind funds are not included in the cost estimate above.

   The EPA has also provided $100,000 of in-kind planning services, including mapping and surveying, environmental assessment costs, and geotechnical investigation. These in-kind funds are not included in the cost estimate above.

c. **Annual Operation and Maintenance**: The recurring O&M costs of this option are $22,035 (Appendix E). This primarily consists of regular billing for sewer usage that CVWD would charge the Tribe, hut also includes charges for the Tribe to perform fairly minor O&M of the sewer collection system that it owns. This would break down to $54 per month per connection.

   If charges for capital replacement of the entire sewer system owned by the Tribe are included in the calculation, the O&M cost increases by $82,651 per year to a total of $104,686 per year. If the Tribe chose to collect these capital replacement costs in monthly billing increases to system users, it would increase the monthly billing to $257 per month per connection.

d. **Present Worth**: The present worth of this option is $3,303,000 (Appendix E). Annual O&M costs include both regular O&M and capital replacement set-aside for facilities owned permanently by the Tribe. Capital replacement of facilities owned by CVWD would be the district's responsibility and would be reflected in the sewer billing costs, already included in the O&M calculation.

8. **Advantages/Disadvantages**: All of the options considered in this report represent a vast improvement in the health, sanitation, and security issues outlined in Section IV above. This option and Option #2 both provide gravity sewer systems, which would be less likely to become clogged and

result in sewage backups than Option #3, the variable-grade sewer option. Thus, this option would represent the best possible improvement in health for the residents in the Ave 64 subdivision.

Since the Tribe would own almost a mile of new sewer main along with the new sewer laterals and service lines, it would have to operate and maintain these facilities. The Tribe has no experience in O&M of a community sewer system, but the O&M would not be very technical for this option. The Tribe would likely need to enter into an agreement with CVWD for repairs or jetting services as needed. These services would be needed in every option, but would be amplified herein because of the additional mile of sewer main along Monroe Street that the Tribe would own, which it wouldn't own in Option #2.

The Tribe would also have to eventually replace all the facilities when they exceed their design life. This represents a significant and perhaps unrealistic cost for the Tribe and/or the users in the Ave 64 subdivision. The cost of regular O&M would break down to $54 per connection per month. If the cost of capital recovery were included in monthly billing, it would increase to $257 per connection per month. This is not realistic. The Tribe also could not easily save over $82,000 per year for capital replacement.

In terms of capital cost, this option is better than Option #2, but slightly worse than Option #3. In terms of regular O&M cost, this option is slightly worse than Option #2, but much better than Option #3. In terms of present value and capital replacement cost, this option is worse than Option #2, and better than Option #3.

This option would also not contribute to further extension of the regional CVWD sewer system, which could eventually serve other landowners along Monroe Street. This project would also not receive a credit of about $62,000 in fees for building a portion of the CVWD regional sewer system. The vitrified clay pipe gravity sewer main required by CVWD would be expected to have a longer design life as well.

B. **OPTION #2:** Connect all the homes and non-residential units in the Ave 64 subdivision to the CVWD regional sewer system. CVWD to own and maintain 10" VCP gravity sewer main along Monroe Street. EPA has funded the construction of sewer laterals and sewer service lines within the subdivision (to be owned by the Tribe). This project just seeks to construct the 10" gravity sewer main along the length of Monroe Street between Ave 62 and Ave 64.

1. **Description**: Construct approximately 5,000 feet of 10" VCP gravity sewer main along Monroe Street from the existing 33" VCP sewer main at its intersection with Ave 66 nearly to its intersection with Ave 64. Sewer

main will include manholes located at least every 500 feet, as well at intersections with sewer laterals. All of these facilities would be ultimately owned by CVWD under this option.

Additionally, EPA has provided funding for about 1,700 feet of 8" PVC gravity sewer laterals within the subdivision, and 4" sewer service lines to connect each home or non-residential user to the community sewer system. EPA has also provided funding for all planning activities associated with this project (surveying, NEPA compliance, geotechnical studies). As outside funding for this planning and construction has already been obtained by the Tribe, it is not part of this project, though it is necessary for this project to be meaningful.

2. **Design Criteria**: The sewer mains, manholes and appurtenances would follow all applicable 10-State Standards for construction of sewer collection facilities. The facilities to be owned by CVWD would also follow their own standards, which require installation of vitrified clay pipe for all mains and laterals.

3. **Map**: A map of this option is located in Appendix A, map 5.

4. **Environmental Impacts**: Environmental impacts would be limited to construction of the facilities; regular operation and maintenance activities would have no impacts. Biological and cultural studies of the area of potential impact were underway at the time of this report. Biological impacts are not anticipated, as construction is entirely within a previously disturbed shoulder of an existing roadway. There is a potential for impacts on cultural resources. After the cultural study is complete, a mitigation plan will be prepared to address protocol if inadvertent cultural or archaeological sites are encountered during construction.

5. **Land Requirements**: Construction would be entirely within a road right-of-way (ROW), but at the time of this report, it was not clear which entity had control of that ROW. The expectation is that CVWD and the Tribe would have to obtain a utility easement within the road ROW, most likely from the County or the Bureau of Indian Affairs (BIA). If no ROW exists for the road, then CVWD and the Tribe would have to ask for rights-of-way from landowners along the construction corridor. Though almost all the sewer main route is within reservation boundaries, some of the land is owned by the Tribe, some is owned by individual Tribal members in allotment, and some is owned by non-Tribal individuals as fee land.

6. **Construction Problems**: No construction problems anticipated. Sewer main construction would be routine. Rock may be encountered, but it is not anticipated to be a significant hurdle to construction.

7. **Cost Estimates**: A detailed cost estimate is in Appendix E. The total estimated cost of Option #2 is $1,804,000. The entire $1,804,000 is for CVWD facilities, engineering, and fees. This is a bit higher than the $1,665,700 estimate CVWD provided for the same project (Appendix C).

   a. **Construction**: Estimated construction costs for this option are $1,206,000. The entirety of this construction would be owned by CVWD upon completion of the project.

      There is an additional $512,000 in construction costs for the internal collection system and sewer service lines which will be provided in-kind through separate EPA funding. These in-kind funds are not included in the cost estimate above.

   b. **Non-construction and Other Projects**: Estimated non-construction costs for this option are $598,000. Some of these non-construction costs (over $81,000) consist of fees that CVWD would charge for connecting to its sewer system. The remaining non-construction costs (about $517,000) include engineering support, construction inspection, tribal contract administration, and contingencies.

      There is an additional $168,000 in non-construction costs (engineering support, construction inspection, tribal contract administration, and contingencies) which will be provided in-kind through separate EPA funding. These in-kind funds are not included in the cost estimate above.

      The EPA has also provided $100,000 of in-kind planning services, including mapping and surveying, environmental assessment costs, and geotechnical investigation. These in-kind funds are not included in the cost estimate above.

   c. **Annual Operation and Maintenance**: The recurring O&M costs of this option are $20,535 (Appendix E). This primarily consists of regular billing for water usage that CVWD would charge the Tribe, but also includes charges for the Tribe to perform fairly minor O&M of the sewer collection system that it owns. This would break down to $50 per month per connection.

      If charges for capital replacement of the entire water system owned by the Tribe are included in the calculation, the O&M cost increases by $41,713 per year to a total of $62,248 per year. If the Tribe chose to collect these capital replacement costs in monthly billing increases to system users, it would increase the monthly billing to $153 per month per connection.

d. **Present Worth**: The present worth of this option is $3,243,000 (Appendix E). Annual O&M costs include both regular O&M and capital replacement set-aside for facilities owned permanently by the Tribe. Capital replacement of facilities owned by CVWD would be the water district's responsibility and would be reflected in the water billing costs, already included in the O&M calculation.

8. **Advantages/Disadvantages**: All of the options considered in this report represent a vast improvement in the health, sanitation, and security issues outlined in Section IV above. This option and Option #1 both provide gravity sewer systems, which would be less likely to become clogged and result in sewage backups than Option #3, the variable-grade sewer option. Thus, this option would represent the best possible improvement in health for the residents in the Ave 64 subdivision.

   The Tribe would own new sewer laterals and service lines, which it would have to operate and maintain. The Tribe has no experience in O&M of a community sewer system, but the O&M would not be very technical for this option. The Tribe would likely need to enter into an agreement with CVWD for repairs or jetting services as needed. These services would be needed in every option, but would be utilized less frequently in this option because of the mile of sewer main along Monroe Street that the Tribe would not own in this option, which it would in Options #1 and #3.

   The Tribe would have to eventually replace facilities it owns when they exceed their design life. Tbis option represents the lowest cost of capital replacement of all three options considered here. The cost of regular O&M would break down to $50 per connection per month. If the cost of capital recovery were included in monthly billing, it would increase to $153 per connection per month. The Tribe may have difficulty in saving $42,000 per year for eventual capital replacement of the system, but this would be far more realistic than the other two options considered here.

   In terms of capital cost, this option is much higher than the other two. Its regular O&M cost is the best, slightly better than Option #2, and much better than Option #3. In terms of present value and capital replacement cost, this option is better than the other two. This option is clearly the best of the three options in terms of operation and maintenance costs and complexity.

   This option would also contribute to extension of the regional CVWD sewer system, which could eventually serve other landowners along Monroe Street. This project would also receive a credit of about $62,000 in fees for building a portion of the CVWD regional sewer system. The vitrified clay pipe gravity sewer main required by CVWD would be expected to have a longer design life as well.

C. **OPTION #3:** Connect all the homes and non-residential units in the Ave 64 subdivision to the CVWD regional sewer system. Tribe to own and maintain 8" PVC variable-grade sewer (VGS) main along Monroe Street. EPA has funded the construction of sewer laterals and sewer service lines within the subdivision (to be owned by the Tribe). However, the EPA funding is not sufficient for all the VGS laterals and service lines – some funding from this project would be required to fully fund that portion of the project. This project seeks to construct the 8" PVC variable grade sewer main along the length of Monroe Street between Ave 62 and Ave 64, and to contribute about $50,000 toward completion of the sewer laterals and service lines.

1. **Description**: Construct 16 feet of 8" VCP gravity sewer main from the existing 33" VCP sewer main at the intersection Monroe St and Ave 66 to the edge of the reservation boundary. This will be the extent of facilities ultimately owned by CVWD under this option.

   Construct approximately 5,000 feet of 8" PVC variable grade sewer main along Monroe Street between Ave 62 and Ave 64. Sewer main will include two-way cleanout located at least every 500 feet, and manholes would only be located at intersections with sewer laterals. These facilities will be owned by the Tribe permanently.

   Additionally, EPA has provided partial funding for about 1,700 feet of 8" PVC variable-grade sewer laterals within the subdivision, new septic tanks for the VGS connections and 4" sewer service lines to connect each home or non-residential user to the community sewer system. EPA funding is not sufficient for all the septic tanks, sewer laterals, and service lines – this project would need to contribute an additional $50,000 to allow their completion. EPA has also provided funding for all planning activities associated with this project (surveying, NEPA compliance, geotechnical studies). As outside funding for planning and most construction bas already been obtained by the Tribe, it is not part of this project, though it is necessary for this project to be meaningful.

2. **Design Criteria**: The sewer mains, manholes and appurtenances would follow all applicable 10-State Standards for construction of sewer collection facilities. The facilities to be owned by CVWD would also follow their own standards, which require installation of vitrified clay pipe for all mains and laterals.

3. **Map**: A map of this option is located in Appendix A, map 6.

4. **Environmental Impacts**: Environmental impacts would be limited to construction of the facilities; regular operation and maintenance activities would have no impacts. Biological and cultural studies of the area of

potential impact were underway at the time of this report. Biological impacts are not anticipated, as construction is entirely within a previously disturbed shoulder of an existing roadway. There is a potential for impacts on cultural resources. After the cultural study is complete, a mitigation plan will be prepared to address protocol if inadvertent cultural or archaeological sites are encountered during construction.

5. **Land Requirements**: Construction would be entirely within a road right-of-way (ROW), but at the time of this report, it was not clear which entity had control of that ROW. The expectation is that CVWD and the Tribe would have to obtain a utility easement within the road ROW, most likely from the County or the Bureau of Indian Affairs (BIA). If no ROW exists for the road, then CVWD and the Tribe would have to ask for rights-of-way from landowners along the construction corridor. Though almost all the sewer main route is within reservation boundaries, some of the land is owned by the Tribe, some is owned by individual Tribal members in allotment, and some is owned by non-Tribal individuals as fee land.

6. **Construction Problems**: No construction problems anticipated. Sewer main construction would be routine. Rock may be encountered, but it is not anticipated to be a significant hurdle to construction.

7. **Cost Estimates**: A detailed cost estimate is in Appendix E. The total estimated cost of Option #3 is $771,000. This estimate breaks down to $215,000 for the CVWD portion of the project and $556,000 for the Tribal portion of the project. The estimate of $215,000 for the CVWD portion of the project is almost identical to the $216,423 estimate CVWD provided (Appendix C).

    a. **Construction**: Estimated construction costs for this option are $467,000. This includes $49,250 in direct construction costs for CVWD, and $418,000 in construction procured by the Tribe.

    There is an additional $512,000 in construction costs for the internal collection system and sewer service lines which will be provided in-kind through separate EPA funding. These in-kind funds are not included in the cost estimate above.

    b. **Non-construction and Other Projects**: Estimated non-construction costs for this option are $304,000. Some of these non-construction costs (almost $144,000) consist of fees that CVWD would charge for connecting to its sewer system. The other non-construction costs (about $160,000) include engineering support, construction inspection, tribal contract administration, and contingencies.

There is an additional $168,000 in non-construction costs (engineering support, construction inspection, tribal contract administration, and contingencies) which will be provided in-kind through separate EPA funding. These in-kind funds are not included in the cost estimate above.

The EPA has also provided $100,000 of in-kind planning services, including mapping and surveying, environmental assessment costs, and geotechnical investigation. These in-kind funds are not included in the cost estimate above.

c. **Annual Operation and Maintenance**: The recurring O&M costs of this option are $41,168 (Appendix E). This primarily consists of regular billing for sewer usage that CVWD would charge the Tribe, but also includes charges for the Tribe to pump the septic tanks every three years and replace septic tank effluent filters every six years. This would break down to $101 per month per connection.

   If charges for capital replacement of the entire sewer system owned by the Tribe are included in the calculation, the O&M cost increases by $75,801 per year to a total of $116,969 per year. If the Tribe chose to collect these capital replacement costs in monthly billing increases to system users, it would increase the monthly billing to $287 per month per connection.

d. **Present Worth**: The present worth of this option is $3,475,000 (Appendix E). Annual O&M costs include both regular O&M and capital replacement set-aside for facilities owned permanently by the Tribe. Capital replacement of facilities owned by CVWD would be the district's responsibility and would be reflected in the sewer billing costs, already included in the O&M calculation.

8. **Advantages/Disadvantages**: All of the options considered in this report represent a vast improvement in the health, sanitation, and security issues outlined in Section IV above. This option would be more likely to become clogged and result in sewage backups than Options #2 and #3. Variable grade sewer systems are subject to a higher likelihood of clogs because they do not require minimum slopes, and improper O&M of septic tank and effluent filters can result in solids entering the system. Thus, while this option would represent an improvement over the individual septic systems currently in place, it would be less reliable in the long term than the first two options.

   Since the Tribe would own almost a mile of new variable-grade sewer main along with the new variable-grade sewer laterals and service lines, it would have to operate and maintain these facilities. (CVWD would not

accept ownership of a variable-grade sewer main, so no such option was considered.) The Tribe has no experience in O&M of a variable-grade sewer system, and regular O&M is absolutely essential to the system's proper function. Of course, the Tribe would likely need to enter into an agreement with CVWD for repairs or jetting services as needed. These services would be needed in every option, but would be amplified herein because of the mile of variable-grade sewer main along Monroe Street that the Tribe would own, which it wouldn't own in Option #2. Also, the Tribe would have to ensure all septic tanks were pumped and all effluent filters were checked, cleaned, and replaced on a regular basis. If these activities are not carried out on a strict schedule, the system will certainly fail, as solids will enter the system and clog the pipes which do not have minimum slope to maintain the velocity required to prevent solids settling.

The Tribe would also have to eventually replace all the facilities when they exceed their design life. This represents a significant and perhaps unrealistic cost for the Tribe and/or the users in the Ave 64 subdivision. The cost of regular O&M would break down to $101 per connection per month. If the cost of capital recovery were included in monthly billing, it would increase to $287 per connection per month. This is not realistic. The Tribe also could not easily save almost $76,000 per year for capital replacement.

In terms of capital cost, this option is the best, slightly better than Option #1 and much better than Option #3. In terms of regular O&M cost, this option is much worse than the other two. In terms of present value and capital replacement cost, this option is also worse than the other two. The slight improvement in capital cost is clearly not worth the sacrifices in O&M cost and complexity and long-term reliability of the system that would come witb this option.

This option would also not contribute to further extension of the regional CVWD sewer system, which could eventually serve other landowners along Monroe Street. This project would also not receive a credit of about $62,000 in fees for building a portion of the CVWD regional sewer system. The vitrified clay pipe gravity sewer main required hy CVWD would be expected to have a longer design life as well.

VI. SELECTION OF AN ALTERNATIVE

Option	Capital Cost	Present Worth	Annual O&M Cost	Monthly O&M Cost Per Home	Monthly O&M Cost Per Home with Capital Replacement Set-Aside	Advantages	Disadvantages
Option #1: Tribally Owned Gravity Sewer	$883,000	$3,303,000	$22,035	$54	$257	Reasonable capital cost and O&M cost	Requires more Tribal O&M for sewer main; does not allow regionalization of sewer system; very high present worth and replacement cost
Option #2: CVWD Owned Gravity Sewer	$1,804,000	**$3,243,000**	**$20,535**	**$50**	**$153**	Lowest O&M cost and least O&M burden to Tribe; lowest present worth; allows regional expansion of sewer system	Highest capital cost by far
Option #3: Tribally Owned Variable Grade Sewer	**$771,000**	$3,475,000	$41,168	$101	$287	Lowest capital cost	Highest O&M and replacement cost; does not allow regionalization of sewer system; highest present worth; system failure certain if septic tanks not pumped regularly and/or effluent filters not checked and replaced regularly

Table 1: Evaluation of Alternatives

The Table above evaluates the advantages and disadvantages of all three options. All three options result in better health for residents in the Ave 64 subdivision, though the first two options would be more reliable and beneficial long-term.

Given the significantly simpler and less costly O&M for the Tribe, the possibility of regionalization, and the lowest present worth, **Option #2 is recommended** as the preferred alternative. The Tribe and CVWD both prefer this option, as it results in a better long-term solution for both entities.

VII. PROPOSED PROJECT (RECOMMENDED ALTERNATIVE):

A. Project Design

1. **Collection System Layout**: The layout of the collection system would be as shown in Appendix A, map 5. Approximately one mile of 10" VCP sewer main with manholes located every 500 feet would be constructed

within the Monroe St ROW and owned by CVWD. It would be connected to an existing 33" VCP sewer main at the intersection of Monroe St and Ave 62. This is the extent of work funded by this project.

Additionally, about 1,700 feet of 8" PVC sewer main with manholes located every 500 feet would be constructed within existing subdivision roads to serve all the homes. Sewer service lines would consist of 4" PVC solid sewer pipe with a two-way cleanout from each connection to the sewer system. This work would be contributed in-kind with EPA funds, and is not considered a part of this project.

2. **Pumping Stations**: No pumping stations would be constructed in this project. The new collection system would flow by gravity to the existing sewage collection system.

3. **Treatment**: Ultimate treatment and disposal of the wastewater would be provided by existing facilities owned and operated by CVWD. The one-time fee of about $144,000 would pay for the Tribe's share of increased treatment and disposal capacity. (This would be discounted to about $81,000 after a credit is applied for extending the CVWD sewage collection system.)

B. **Total Project Cost Estimate:** The estimated cost of this project is $1,804,000. This includes both construction and non-construction costs. A breakdown of the cost is shown in Appendix E.

C. **Annual Operating Budget:**

1. **Income:** CVWD sewer service would be charged on a monthly basis directly to the Tribe (as opposed to each home). The Tribe would pay an estimated $19,035 per year to CVWD for sewer billing, as well as another $1,500 per year for repairing sewer clogs (estimated at once every 10 years). The Tribe could pay these expenses from its own general account, or it could charge each connection with monthly billing. If monthly billing were used, each connection would need to pay about $50 per month.

2. **Operation and Maintenance Costs**: The recurring O&M costs of this option are $20,535 (Appendix E). This primarily consists of regular billing for water usage that CVWD would charge the Tribe, but also includes charges for the Tribe to perform fairly minor O&M of the sewer collection system that it owns. This would break down to $50 per month per connection (Appendix E).

3. **Capital Improvements:** The funding for capital replacement of the entire Tribally-owned portion of the sewer system that would need to be set

aside is $30,500 per year (Appendix E). The Tribe would not need to set aside any funding for capital replacement of any facilities owned by CVWD.

4. **Debt Repayments**: The Tribe has no existing debt repayments, and would incur no debts as a result of this project.

5. **Reserve**:

   - **Debt Service Reserve**: Debt service reserve is established at one-tenth the annual debt repayment requirement. This can be calculated from the annual debt payments above to be $3,050.

   - **Short-Lived Asset Reserve**: No short-lived assets are proposed in this project.

VIII. CONCLUSIONS AND RECOMMENDATIONS

A. **Conclusions:** With many septic systems in the Ave 64 subdivision failing, members of the Torres-Martinez Desert Cahuilla Indian Tribe are at a higher risk of many diseases, including Hepatitis A and dysentery. Due to a lack of land base, there is no potential for creating properly-sized individual septic systems, nor is there the potential for creating a small, independent community sewer system with a lagoon for ultimate treatment and disposal. With a regional sewer system about a mile away, the Coachella Valley Water District (CVWD) offers the best long-term solution to wastewater needs of the community.

For all of the options, EPA has provided funding of $780,000 for all planning activities and for construction of sewer laterals and service lines within the subdivision. This project only seeks to construct the sewer collection main that would be constructed within the Monroe St ROW between Ave 66 and Ave 64, and connect that sewer main to the existing system operated by CVWD.

Three options are considered in depth for connecting this community to the CVWD regional sewer system. One option for constructing a variable-grade sewer system is really not a sensible option. Though it has the lowest capital cost, it would require much more operation and maintenance, and it would be a less reliable option in the long term.

The other two options do not differ very much from a technical standpoint. Both would involve construction of a gravity sewer main to serve the Ave 64 subdivision. Gravity sewer is the best option available to improve the health of the Ave 64 community residents in a long-term, reliable manner. One option would involve the Tribe constructing and owning its own sewer main, while the other option would involve CVWD constructing and owning the sewer main.

The option for the Tribe to own the sewer main would have a lower capital cost, since the Tribe could construct its sewer with PVC instead of VCP, and since it could install 8" pipe instead of 10" pipe because there would be few if any additional projected future users.

However, this option entails a greater operation and maintenance burden to the Tribe. The Tribe would have a much more extensive sewer system to maintain, which it has no previous experience in running. It would have to save much more money every year for eventual capital replacement of the system. Additionally, the system would have a lower expected lifespan because it is constructed with PVC instead of VCP, the gold standard for community sewer construction.

Also, if CVWD owns the system, other landowners along Monroe Street (some of whom are Tribal members who hold land in individual allotment) could also benefit from the system in the future. The sewer main would be sized to accommodate much more future growth. Other regional expansion of the system could also result if CVWD owns the system. This is the option preferred by both CVWD and the Tribe. It would expand CVWD's regional system and provide the Tribe with the least difficult or expensive O&M of all the options considered in this report.

B. **Recommendations:** It is recommended that the Option #2 be implemented. This option would be for CVWD to construct a 10" vitrified clay pipe gravity sewer main along Monroe Street, to which the Tribe could connect its homes and sewer laterals, to be built with EPA funding. While this option is not the cheapest one available, it is the most sensible for both operation and maintenance and regional expansion of the sewer system.

PREPARED FOR
COACHELLA VALLEY WATER DISTRICT

Coachella Valley Water Management Plan Update

DRAFT REPORT



December 2010

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Appendix 3-5: Torres-Martinez Avenue 64 Water Supply Connection Project Supporting Documents

COACHELLA VALLEY WATER MANAGEMENT PLAN 2010 UPDATE

Draft Report

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December, 2010

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Beaumont and then following the I-10 corridor, 3) San Jacinto Tunnel alignment from Lake Perris paralleling Metropolitan's San Jacinto Tunnel and then following the I-10 corridor, and 4) a Lucerne Valley alignment through the high desert from Hesperia through Yucca Valley and into the Coachella Valley. More detailed studies focused on a Modified North Pass alignment that included joint use of a portion Metropolitan's Inland Feeder system and the Lucerne Valley alignment.

These studies are expected to be completed in 2010. The participating agencies will then decide whether to proceed with detailed environmental studies for CEQA and NEPA compliance. Construction of a SWP extension could cost in the range of $1.0 to 1.5 billion dollars and have an average cost of $450-600/AF of water delivered. This option would be capable of reducing the salinity of water recharged at the Whitewater and Mission Creek recharge facilities from about 700 mg/L to about 350 mg/L. However, it would have no effect on the salinity of Canal water recharged in the East Valley.

Both of these approaches involve significant capital and operating costs. If the cost of recharge water desalination or SWP importation were borne solely by groundwater producers through the replenishment assessment charges, these producers might expect a significant increase in their costs which could affect their ability to operate. Assessment of this impact is beyond the scope of the 2010 WMP Update. Therefore, these options are not considered in the 2010 WMP Update. Consequently, methods for improving recharge water quality might be considered as part of the future Integrated Regional Water Management Plan (IRWMP) or similar approach involving broad stakeholder involvement.

6.7.3 Groundwater Quality and Treatment

A wide variety of water quality constituents can affect groundwater use. Among the more important for the Coachella Valley are:

- Salinity
- Nitrate
- Fluoride
- Arsenic
- Chromium VI
- Perchlorate
- MTBE
- VOCs
- DBCP

Several of these constituents are discussed in **Section 5.1.3** and are considered to be emerging issues because they do not violate water quality standards. In addition to salinity, the water quality constituents of primary concern for the 2010 WMP Update are arsenic, fluoride and dibromochloropropane (DBCP). Other constituents will continue to be monitored for possible action in the future.

The quality of Coachella Valley groundwater is high and most of the groundwater delivered to urban customers receives only disinfection. Currently, the only groundwater treatment being undertaken is for arsenic removal in the East Valley. Naturally-occurring arsenic is found in the eastern Coachella Valley groundwater from Mecca to Oasis and appears to be associated with

local faults and geothermal activity. CVWD identified six of its domestic water wells that showed arsenic levels above the revised federal maximum contaminant limit (MCL) (0.01 mg/L). In early 2006, CVWD completed construction of three groundwater treatment facilities that use an ion-exchange process with a brine minimization and treatment process to remove arsenic. If needed, they can be expanded to treat additional wells in the future.

A number of mobile home and recreational vehicle (RV) parks in the East Valley that utilize private wells have arsenic levels that exceed the drinking water regulations. In addition, several tribal wells have arsenic levels exceeding the MCL. These parks are served by private wells and are located some distance from CVWD's potable water system. CVWD is working with Riverside County and the Torres-Martinez tribe and has applied for federal grants to fund a portion of the cost to extend the potable water system to these communities. CVWD is also evaluating the feasibility of treating Colorado River water instead of constructing additional groundwater treatment facilities.

Fluoride is a naturally occurring element that is found in concentrations exceeding drinking water regulations (2 mg/L) in portions of the Coachella Valley. Most commonly, elevated fluoride concentrations are found near faults and geothermally active areas such as near the San Andreas fault and in the Oasis area. CVWD typically avoids drilling wells in these areas. However, private drinking water wells drilled in susceptible areas may have high fluoride concentrations. Fluoride can be removed from water by using reverse osmosis or activated alumina filtration.

Between 1955 and 1977, DBCP was injected into the soil to control nematodes, parasitic thread-like worms that damage the roots of crops and other plants. DBCP was used in portions of the Coachella Valley, most notably in an area north of Interstate 10 and west of Indio. Detectable concentrations of DBCP that do not exceed drinking water regulations (less than 0.2 µg/L) have occasionally been found in the groundwater of this area. CVWD water quality specialists are concerned that groundwater recharge activities in this area could raise water levels and allow the migration of DBCP to potable water wells. Consequently, the 2010 WMP Update has avoided locating recharge facilities in this area.

6.8 OTHER MANAGEMENT ACTIVITIES

In addition to the five principal management elements described in this Section, additional management considerations are discussed in this section. These include source water protection programs, drainage control, flood control, data monitoring and management, and stakeholder involvement.

6.8.1 Source Water Protection

Well management programs are required to ensure that existing and future wells do not impact the usability of the groundwater resource. Specific programs applicable to the Coachella Valley are: well construction/destruction/abandonment policies, artesian well management and well capping. Each program is described below.

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BIOLOGICAL ASSESSMENT
FOR PLANTS AND ANIMALS, BOTANY, AND WILDLIFE REPORT

FOR

THE TORRES MARTINEZ INDIAN RESERVATION
SEWER AND WATER LINE IMPROVEMENT PROJECT

±6.1 Acres Surveyed

Monroe Street between 62nd Avenue and 64th Avenue, La Quinta Area, Sections 2 & 3, Township 7 South, Range 7 East, USGS Valerie 7.5' Topographic Quadrangle Map

Project within Right-of-Way of APNs: 753-090-001, 753-090-010, 753-090-020, 753-090-021

Project within Portions of APN: 753-100-011

Prepared For:

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EXECUTIVE SUMMARY

The Torres Martinez Desert Cahuilla Indians propose to construct and improve water and sewer lines serving the 64th Avenue subdivision of the Torres Martinez Indian Reservation. The church and houses currently use septic systems and the water line is unreliable. The lines will travel along the east side of Monroe Street between 62nd Avenue and 64th Avenue and into the developed areas of the parcels. Monroe Street runs north-south along the west side of the Torres Martinez Indian Reservation just southeast of the City of La Quinta in Riverside County, California.

The proposed project goals are to install a more reliable water supply to the Reservation for Reservation residents and Tribal members, to improve public safety, and to correct existing problems arising from failing septic systems and surfacing sewage. The project proposes to impact the existing road area and right-of-way east of the present road.

The proposed project falls within the approximately one mile length of roadway (as well as housing and a church east of the road) located along the boundary between Sections 2 (on the east) and 3 (on the west) in Township 7 South, Range 7 East. Almost all of the project area is a heavily disturbed existing dirt and paved roadway and bordered on either side by agriculture, housing, and other developments. One disturbed native community is present in the central portion of the project along the eastern boundary of Monroe Street; this area has been mapped as allscale series habitat.

No threatened or endangered botanical or wildlife species occur or have the potential to occur on the site. One Sensitive species, the black-tailed gnatcatcher, was observed onsite. Several Sensitive wildlife species were determined to have the potential to utilize the allscale habitat or large trees on the project site and in the project area. These species are bird and bat species and were considered to have a low potential of being directly impacted based on the project design, minimal impacts to habitat/vegetation and lack of identification on the site during surveys. With the proposed mitigation measures incorporated the proposed project *May Impact individuals, but is not likely to cause a trend to federal listing or loss of viability* in the planning area.

With the Design Criteria (mitigation measures) outlined in Section 1.3 project impacts are expected to be reduced to the lowest practicable level while attaining the stated project goals.

1.0) INTRODUCTION

The Torres Martinez Reservation Water and Sewer Line Improvement Project has been designated a High Priority Project by the Tribe. The Tribe proposes to implement this water and sewer line improvement project with funding assistance from the U. S. Environmental Protection Agency, the U. S. Department of Agriculture, and possibly other funding sources.

The purpose of this report is to analyze potential effects of this proposed project on state and federally listed endangered, threatened, fully protected, or sensitive species.

This document contains the following sections:

- A Biological Assessment (BA) of impacts or potential impacts to state and federally-listed threatened (T), endangered (E), proposed (P), and candidate (C) plant and wildlife species.
- A General Botany and Wildlife Report that documents the habitats and species observed within the impact area and also discusses general impacts to plants and wildlife in the proposed project area.

1.1) Location

The proposed project area is located just southeast of the City of La Quinta (Figure 1). The area includes Monroe Street from 62nd Avenue to 64th Avenue, Duro Road, Landon Lane and 64th Avenue between Monroe Street and Landon Lane (Figure 2). A detailed description of the improvements are detailed below in Section 1.2. The proposed project area covers portions of Sections 2 and 3 in Township 7 South, Range 7 East of the USGS Valerie 7.5' topographic quadrangle map. Area surrounding the project is generally disturbed agricultural and residential land (Figure 3).

The proposed water and sewer construction falls within the right-of-way of APNs 753-090-001, 753-090-010, 753-090-020, and 753-090-021 and within portions of APN 753-100-011.

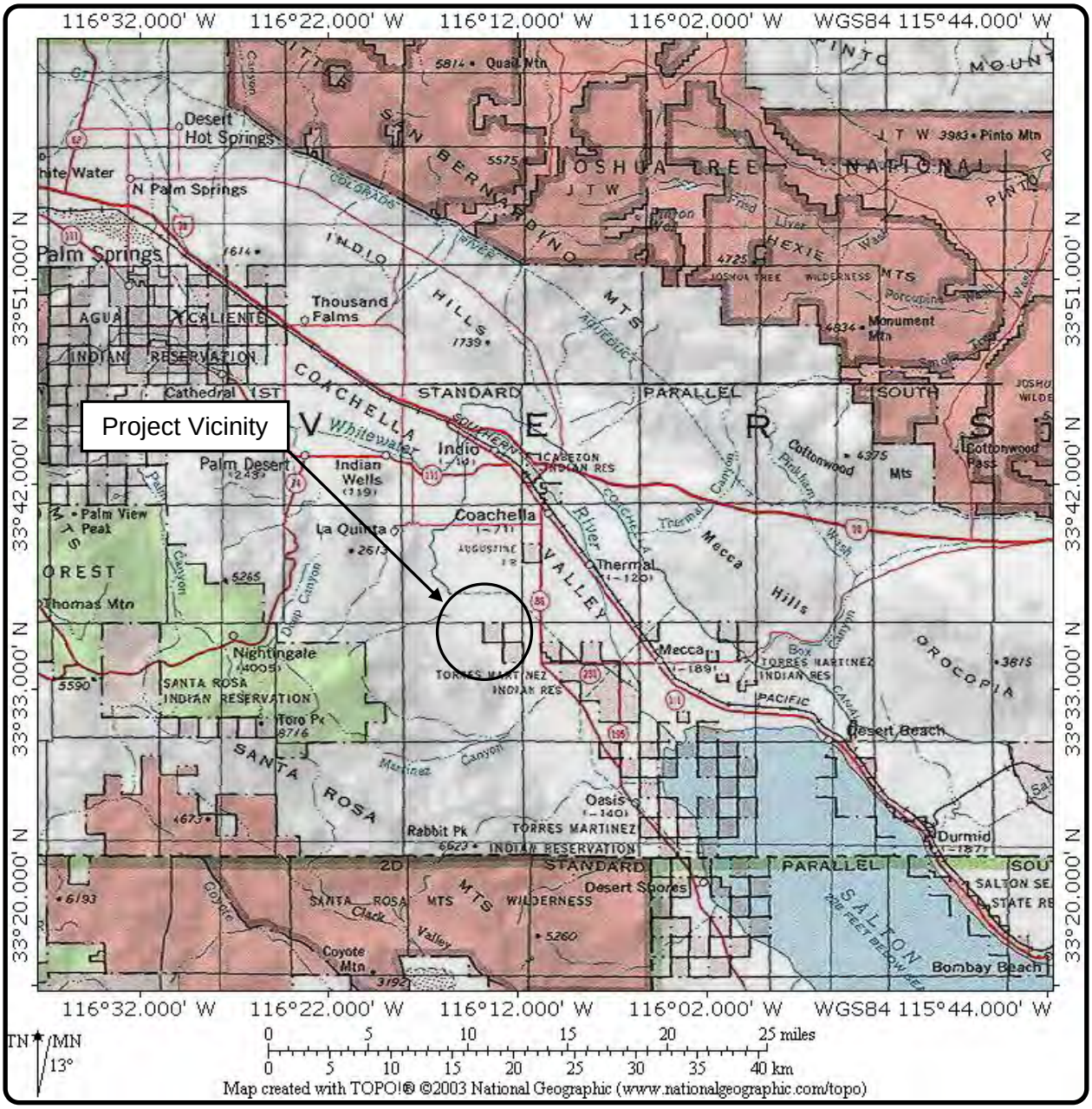
1.2) Proposed Action

The Torres Martinez Desert Cahuilla Indians (TMDCI) propose to place water and sewer lines along the east side of Monroe Street between 62nd Avenue and 64th Avenue and along the length of Duro Road and Landon Lane and that portion of 64th Avenue between Monroe Street and Landon Lane. The proposed project is located just southeast of the City of La Quinta in Riverside County, California, along the west side of the Torres Martinez Indian Reservation.

The present water line serves a group of 33 Tribal homes with an estimated residential population of 135. The water line also provides access to a popular church that serves the area and has a congregation of approximately 100 persons. The church property contains classrooms and a meeting center. In addition, there are recreational facilities and a cemetery located on or near the church property. The church holds services and weekly events. The Torres Martinez Tribe estimates that up to 300 people use the recreational facilities and church buildings. The church recently had a master plan approved by the Tribe that includes building new classrooms, a prayer center, a utility/meeting building, caretaker unit, and a few additional housing units.

The residents currently use septic systems for sewage processing. However, the systems are old and do not function at an adequate level. The sewer line replacement for septic systems is expected to improve health and sanitation onsite.

The water and sewer lines will be either within the existing roadway or right of way with lateral lines to the local residences.



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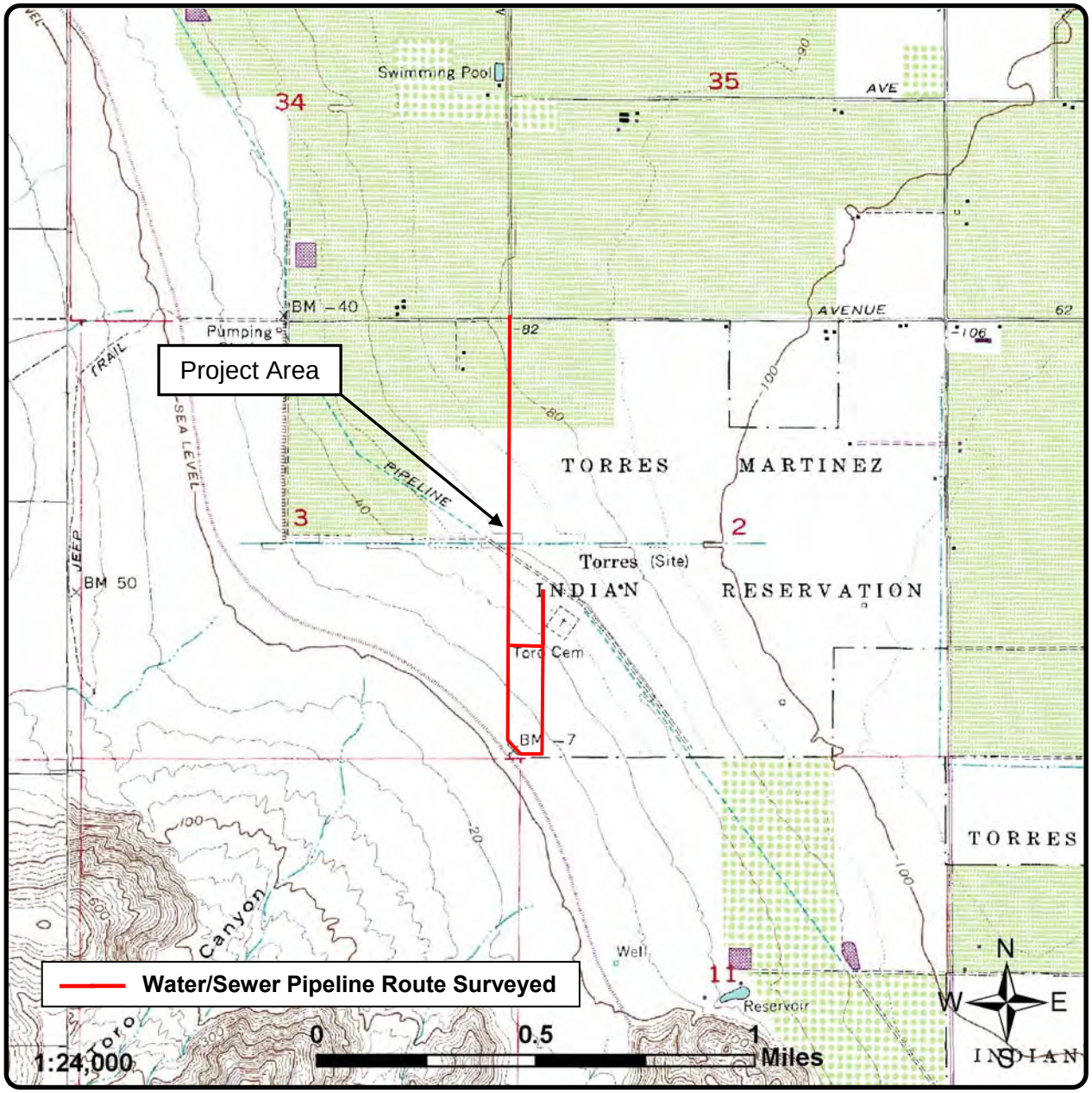
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SAA-12-296
July 2012

Figure 1

Project Vicinity Map

Torres Martinez Water & Sewer Project, La Quinta Area, County of Riverside, California



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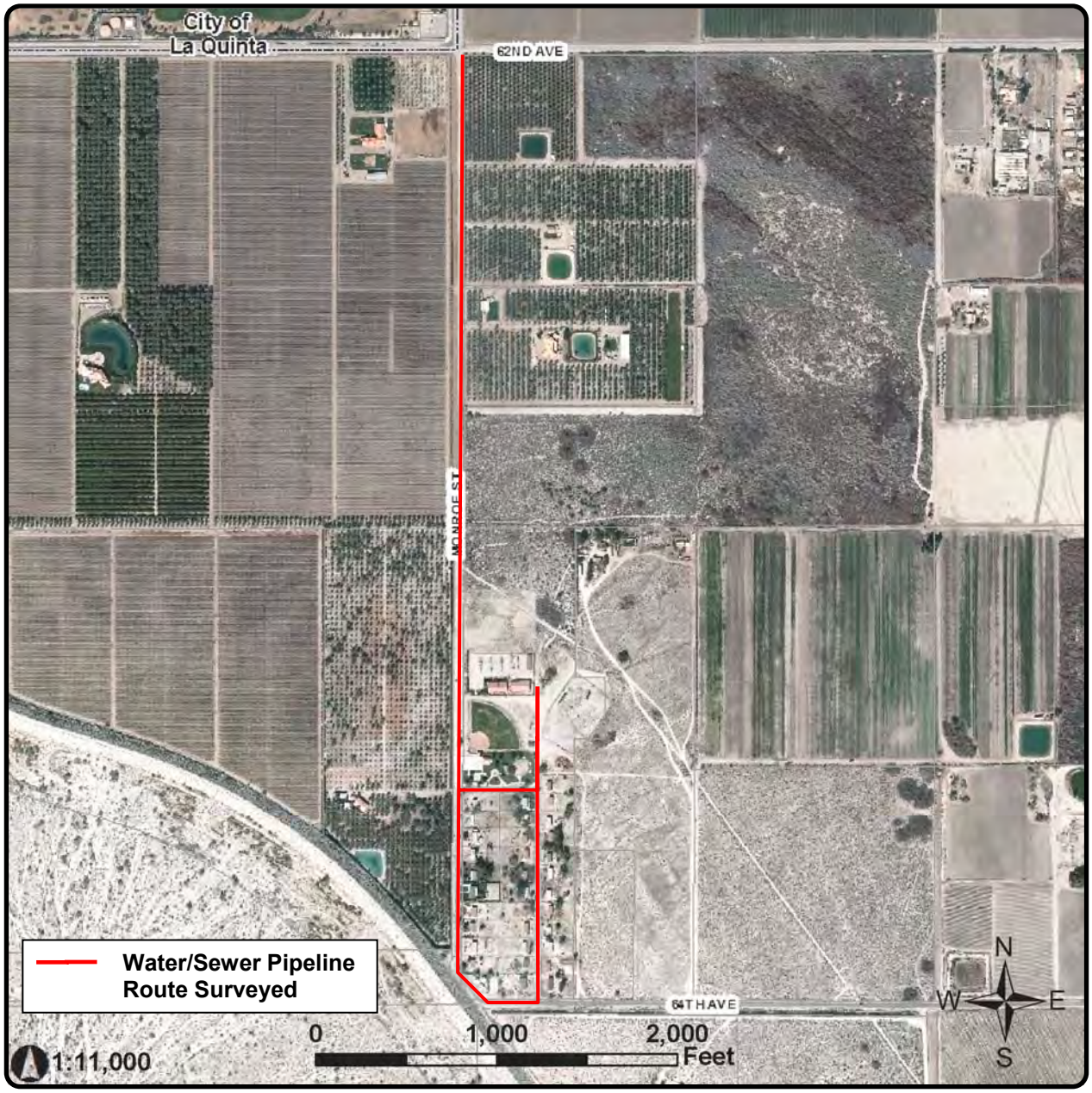
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SAA-12-296
July 2012

Figure 2

Project Location Map
(USGS Valerie [1972] quadrangle)

Torres Martinez Water & Sewer Project, La Quinta Area, County of Riverside, California



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July 2012

Figure 3

Aerial Photograph
(Photo obtained from RCTLMA GIS, 2011)

Torres Martinez Water & Sewer Project,
La Quinta Area, County of Riverside, California

1.3) Design Criteria

The following Design Criteria or Mitigation Measures are incorporated into the Torres Martinez Indian Reservation Water and Sewer Line Improvement Project to minimize and mitigate potential impacts to the natural resources onsite.

1) To prevent impacts to migratory and nesting birds a qualified biologist shall examine the impact area and immediate vicinity for active nests, in which fledging has not occurred, 30 days before construction activities begin if construction occurs between January 1 and July 1. If any bird nests are found (tree nests, cavity nests, or ground nests) during fencing or implementation of the project, the project biologist will evaluate and recommend protection measures to prevent disturbance or abandonment.

2) Prior to construction activities, that portion of the impact area that is adjacent to native habitat shall be fenced with highly visible fencing (e.g., orange construction fencing) to ensure unplanned impacts do not occur outside of the project footprint. Fencing locations shall be approved by a qualified biologist and verified in the field. The construction staging area and equipment yard will not be located within native habitat.

3) The project proponent shall employ all standard best management practices (BMPs) to prevent discharges from entering waters of the U.S. during construction. BMPs, such as:
   - the use erosion control or sedimentation prevention methods; such as fiber rolls, sand bags, rice mats, straw wattles or similar measures, where appropriate,
   - proper use and disposal of oil, gasoline, diesel fuel, antifreeze and other toxic substances will be enforced.

4) The project proponent shall employ standard best management practices (BMPs) to limit the release of fugitive dust. BMPs such as:
   - watering and applying chemical stabilization during construction activities to prevent (or suppress) the fine particulate from leaving the surface and becoming airborne through the action of mechanical disturbance or wind;
   - watering of exposed soils in traffic areas and covering stockpiles of sand, soil and similar materials on construction sites;
   - covering the load of all haul trucks and stockpiles;
   - limiting vehicle/truck speeds on unpaved surfaces to 15 miles per hour;
   - maintaining stationary and mobile equipment in proper working order, i.e., tuned for maximum efficiency per manufacturer's specifications;
   - use of approved methods for cleaning loose soil from construction vehicles before exiting the work site (ridged steel plates or large gravel at exits); and
   - restricting or prohibiting work on days of high winds (>30mph) or when air quality is very poor.

5) All refuse created or brought on site by construction personnel or contractors must be placed in covered containers, removed from the site daily and disposed of properly.

Noxious Weed Design Criteria

6) All heavy equipment will be washed, particularly the wheels and under carriage, prior to bringing it onto the project site.

7) All temporary staging areas shall be placed in unvegetated areas with compacted soils, and shall be fenced if adjacent to natural vegetation communities. Staging areas will be maintained in a weed/noxious weed-free condition. Staging areas will be surrounded with placed in such a way as to prevent runoff into waters of the U.S.

In addition, based on the project location, which includes parcels adjacent to a Conservation Area as designated in the Coachella Valley Multiple Species Habitat Conservation Plan (CVMSHCP), the "Land Use Adjacency Guidelines," taken directly from Section 4.5 of the CVMSHCP and printed below, will be incorporated into the Project Design Criteria. Some of the following items may already be partially or completely included in the above listed criteria.

Land Use Adjacency Guidelines

The purpose of Land Use Adjacency Guidelines is to avoid or minimize indirect effects from Development adjacent to or within the Conservation Areas. Adjacent means sharing a common boundary with any parcel in a Conservation Area. Such indirect effects are commonly referred to as edge effects, and may include noise, lighting, drainage, intrusion of people, and the introduction of non-native plants and non-native predators such as dogs and cats. Edge effects will also be addressed through reserve management activities such as fencing. The following Land Use Adjacency Guidelines shall be considered by the Permittees in their review of individual public and private Development projects adjacent to or within the Conservation Areas to minimize edge effects, and shall be implemented where applicable.

8) Drainage - Proposed Development adjacent to or within a Conservation Area shall incorporate plans to ensure that the quantity and quality of runoff discharged to the adjacent Conservation Area is not altered in an adverse way when compared with existing conditions. Stormwater systems shall be designed to prevent the release of toxins, chemicals, petroleum products, exotic plant materials or other elements that might degrade or harm biological resources or ecosystem processes within the adjacent Conservation Area.

   [A significant slope up from the southern limit of the project area exists between the development and the Coachella Canal and Conservation Area (See Photo 8, Appendix B). This existing increase in elevation should prevent runoff from entering the Conservation Area. Additional BMPs will be incorporated to prevent runoff from entering the stormdrains.]

9) Toxics - Land uses proposed adjacent to or within a Conservation Area that use chemicals or generate biproducts such as manure that are potentially toxic or may adversely affect wildlife and plant species, habitat, or water quality shall incorporate measures to ensure that application of such chemicals does not result in any discharge to the adjacent Conservation Area.

10) Lighting - For proposed Development adjacent to or within a Conservation Area, lighting shall be shielded and directed toward the developed area. Landscape shielding or other appropriate methods shall be incorporated in project designs to minimize the effects of lighting adjacent to or within the adjacent Conservation Area in accordance with the guidelines to be included in the Implementation Manual.

11) Noise - Proposed Development adjacent to or within a Conservation Area that generates noise in excess of 75 dBA Leq hourly shall incorporate setbacks, berms, or walls, as appropriate, to minimize the effects of noise on the adjacent Conservation Area in accordance with the guidelines to be included in the Implementation Manual.

[A significant slope up from the southern limit of the project area exists between the development and the Coachella Canal and Conservation Area (See Photo 8, Appendix B). This existing earthen berm is consistent with the recommendations in the CVMSHCP to minimize noise impacts/achieve the criteria for noise minimization.]

12) Invasives - Invasive, non-native plant species shall not be incorporated in the landscape for land uses adjacent to or within a Conservation Area. Landscape treatments within or adjacent to a Conservation Area shall incorporate native plant materials to the maximum extent Feasible; recommended native species are listed in Table 5, Appendix A. The plants listed in Table 6, Appendix A shall not be used within or adjacent to a Conservation Area. This list may be amended from time to time through a Minor Amendment with Wildlife Agency Concurrence.

13) Barriers - Land uses adjacent to or within a Conservation Area shall incorporate barriers in individual project designs to minimize unauthorized public access, domestic animal predation, illegal trespass, or dumping in a Conservation Area. Such barriers may include native landscaping, rocks/boulders, fencing, walls and/or signage.

[A significant slope up from the southern limit of the project area exists between the development and the Coachella Canal and Conservation Area (See Photo 8, Appendix B). This existing earthen berm could minimize access to the Conservation Area.]

14) Grading/Land Development - Manufactured slopes associated with site Development shall not extend into adjacent land in a Conservation Area.

2.0) REGULATORY REQUIREMENTS

2.1) The Federal Endangered Species Act - By law, it is a requirement of the Endangered Species Act (ESA), 1973 (as amended) at section 7(a)(2) that Federal agencies insure that any action authorized, funded, or carried out by a federal agency is not likely to jeopardize the continued existence of any endangered species or threatened species, or result in the destruction or adverse modification of critical habitat. In order to meet compliance with this requirement, the agency must conduct a Biological Assessment (BA), in which effects to listed species are analyzed and disclosed in the form of an "effects determination."

Section 7 requires Federal agencies to consult with the U.S. Fish and Wildlife Service (USFWS) should it be determined that their actions may affect federally listed species threatened or endangered species. Section 9 of the Act prohibits "take" (e.g., harm, harassment, pursuit, injury, kill) of federally listed wildlife. "Harm" is further defined to include habitat modification or degradation where it kills or injures wildlife by impairing essential behavioral patterns such including breeding, feeding, or sheltering. Take incidental to otherwise lawful activities can be authorized under Section 7 of the Act.

If a proposed project is authorized, funded, or carried out by a Federal agency and may affect a listed species then the Federal agency must consult with the USFWS on behalf of the applicant, pursuant to Section 7 of the Act. During the Section 7 process, measures to avoid and minimize project effects to listed species and their habitat will be identified and incorporated into a biological opinion (written by the USFWS) that includes an incidental take by the Federal agency and applicant.

2.2) The Migratory Bird Treaty Act and Executive Order 13186 - The Migratory Bird Treaty Act imposes obligations on Federal agencies for the conservation of migratory birds and their habitats. Executive Order 13186 ensures that environmental analyses of Federal actions required by the NEPA or other established environmental review processes evaluate the effects of actions on migratory birds, with emphasis on species of concern. The MBTA requires that project-related disturbance at active nesting territories be reduced or eliminated during critical phases of the nesting cycle.

2.3) Federal Clean Water Act

Section 404 - The Federal Water Pollution Control Act was first passed by Congress in 1948. The Act was later amended and became known as the Clean Water Act. The Act establishes the basic structure for regulating discharges of pollutants into the waters of the United States. The Federal Clean Water Act gives the U.S. Environmental Protection Agency (EPA) the authority to implement pollution control programs, including setting wastewater standards for industry and water quality standards for contaminants in surface waters. The Act makes it unlawful for any person to discharge any pollutant from a point source into navigable waters, without a permit under its provisions.

Clean Water Act 404 permits are issued by the U.S. Army Corps of Engineers (ACOE) for dredge/fill activities within wetlands or non-wetland waters of the U.S. Permitting of activities that would result in a discharge of dredge or fill material into Waters of the United States or

adjacent Wetlands and associated habitat is required. By definition, these include all waterways, streams, and intermittent streams, which could be used for interstate commerce, and their tributaries. The term "interstate commerce" has been broadly interpreted to include use by migratory waterfowl and out-of-state tourism. In non-tidal waters, jurisdictional limits extend to the ordinary high water mark (OHWM) which is defined as that line on the shore established by the fluctuations of water and indicated by physical characteristics such as clear natural line impression on the bank, shelving, changes in the character of soil, and destruction of the surrounding area.

Section 401 - The Regional Water Quality Control Board (RWQCB) has jurisdiction over similar "Wetlands" and "Waters of the United States" under Section 401 of the CWA and the Porter-Cologne Water Quality Control Act under the California Water Code. Permitting is required for activities that will result in a discharge of soils, nutrients, chemicals, detrital materials, or other pollutants into Waters of the United States or adjacent wetlands that will affect water quality of those bodies and the area watershed.

2.4) National Environmental Policy Act (NEPA) - The National Environmental Policy Act (NEPA) [42 U.S.C. 4321 et seq.] was signed into law on January 1, 1970. The Act establishes national environmental policy and goals for the protection, maintenance, and enhancement of the environment, and it provides a process for implementing these goals within the federal agencies. The Act also establishes the Council on Environmental Quality (CEQ).

In 1978, CEQ promulgated regulations [40 CFR Parts 1500-15081] implementing NEPA which are binding on all federal agencies. The regulations address the procedural provisions of NEPA and the administration of the NEPA process, including preparation of EISs. To date, the only change in the NEPA regulations occurred on May 27, 1986, when CEQ amended Section 1502.22 of its regulations to clarify how agencies are to carry out their environmental evaluations in situations where information is incomplete or unavailable.

Most federal agencies have promulgated their own NEPA regulations and guidance which generally follow the CEQ procedures but are tailored for the specific mission and activities of the agency.

The NEPA process consists of an evaluation of the environmental effects of a federal undertaking including its alternatives. There are three levels of analysis depending on whether or not an undertaking could significantly affect the environment. These three levels include: categorical exclusion determination; preparation of an environmental assessment/finding of no significant impact (EA/FONSI); and preparation of an environmental impact statement (EIS).

At the first level, an undertaking may be categorically excluded from a detailed environmental analysis if it meets certain criteria which a federal agency has previously determined as having no significant environmental impact. A number of agencies have developed lists of actions which are normally categorically excluded from environmental evaluation under their NEPA regulations.

At the second level of analysis, a federal agency prepares a written environmental assessment (EA) to determine whether or not a federal undertaking would significantly affect the environment. If the answer is no, the agency issues a finding of no significant impact (FONSI).

The FONSI may address measures which an agency will take to reduce (mitigate) potentially significant impacts.

If the EA determines that the environmental consequences of a proposed federal undertaking may be significant, an EIS is prepared. An EIS is a more detailed evaluation of the proposed action and alternatives. The public, other federal agencies, and outside parties may provide input into the preparation of an EIS and then comment on the draft EIS when it is completed. If a federal agency anticipates that an undertaking may significantly impact the environment or if a project is environmentally controversial, a federal agency may choose to prepare an EIS without having to first prepare an EA.

After a final EIS is prepared and at the time of its decision, a federal agency will prepare a public record of its decision addressing how the findings of the EIS, including consideration of alternatives, were incorporated into the agency's decision-making process. (http://www.epa.gov/compliance/basics/nepa.html).

The findings of the BA and BE documented in this report will be included with the EA documentation submitted to the BIA for this proposed project.

2.5) Omnibus Public Land Management Act of 2009 - The Omnibus Public Land Management Act of 2009 (OPLMA) enacts numerous provisions including adding substantial acreage to the National Wilderness Preservation System and designating additions to the National Wild and Scenic Rivers Systems. *Title I – Additions to the National Wilderness Preservation System, Subtitle L – Riverside County Wilderness, California*, addresses local areas that will be affected by this Bill.

Section 1851. Wilderness Designation. Wilderness designation requires that the designated area be devoted to the public purposes of recreational, scenic, scientific, educational, conservation and historical use and expressly prohibits commercial enterprise, permanent or temporary roads, mechanical transports, and structures or installations. Exceptions are noted with regard to existing private rights, area administration, personal health and safety, and as listed under the special provisions section.

This section of the OPLMA details additions to multiple wilderness areas in Riverside County including six with proposed boundaries within the vicinity of the proposed project. These six are the Cahuilla Mountain Wilderness (±5,585 acres), South Fork San Jacinto Wilderness (±20,217 acres), Beauty Mountain Wilderness (±15,621 acres), Orocopia Mountains Wilderness Additions (4,635), Joshua Tree National Park Wilderness Additions (36,700) and Santa Rosa Wilderness Addition (±2,149 acres). With the addition, the Santa Rosa Wilderness now totals aproximately 74,718 acres. The Wilderness areas are approximately 30 miles, 27 miles, 24 miles, 20 miles, 17 miles, and 0.4 miles respectively from the proposed project. Although the project does not fall within a designated wilderness area and creation of these wilderness areas will not restrict implementation of the project, the creation of these Wilderness areas will assure extensive natural open space and a variety of wildlife habitats will be preserved in the project vicinity. The Santa Rosa WIlderness is the closest in proximity, approximately 0.4 miles to the south, and supports similar habitat type found in the proposed project area.

Section 1852. Wild and Scenic River Designations, Riverside County, California. This section

details additions to the National Wild and Scenic Rivers Systems. The original Wild and Scenic Rivers Act (16 U.S.C. 1274(a)) (as amended by section 1805) declared:

> "…that certain selected rivers of the Nation which, with their immediate environments, possess outstandingly remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural, or other similar values, shall be preserved in free-flowing condition, and that they and their immediate environments shall be protected for the benefit and enjoyment of present and future generations."

The rivers affected by the OPLMA include the North Fork San Jacinto River, Fuller Mill Creek, Palm Canyon Creek, and Bautista Creek.

Palm Canyon is the closest of these rivers and lies approximately 12.75 miles west of the southern termination of the Monroe Road improvement project and does not fall within the project boundaries.

Section 1853. Additions and Technical Corrections to Santa Rosa and San Jacinto Mountains National Monument. Detailed additions to these monuments, of which the Southeast Area Expansion falls approximately one mile west, 0.75 miles south, and 0.75 miles southeast of the southern terminus of the project site. This expansion area is designed in a somewhat linear, northwest-southeast orientation. None of the expansion areas that fall under this section will affect the proposed project.

2.6) California Endangered Species Act

California Endangered Species Act (CESA) definitions of endangered and threatened species parallel those defined in the FESA. The CESA defines an endangered species as ". . . a native species or subspecies of a bird, mammal, fish, amphibian, reptile or plant which is in serious danger of becoming extinct throughout all, or a significant portion, of its range due to one or more causes including loss of habitat, change in habitat, over exploitation, predation, competition or disease." Endangered species are in serious danger of becoming extinct and threatened species are likely to become endangered species in the foreseeable future (according to Sections 2062 and 2067, respectively, of the California Fish and Game Code). Candidate species are those under formal review by the CDFG for listing as endangered or threatened (Section 2067). Prior to being considered for protected status the CDFG designates a species as being of special concern. Species of special concern are those for which the CDFG has information indicating decline.

2.7) California Natural Diversity Database

The California Natural Diversity Database (CNDDB) is a database that ranks overall condition of sensitive species and vegetation communities on global (throughout its range) and state (within California) levels. Additionally, subspecies and varieties are assigned a ranking for global condition as well. Ranking is numerical ranging from 1 to 5, with 1 indicating very few remaining individuals or little remaining habitat and 5 indicating a demonstrably secure to ineradicable population condition. State ranks may also include a threat assessment ranging from 1 (very threatened) to 3 (no current threats known).

2.8) California Native Plant Society

The California Native Plant Society (CNPS) has cataloged California's rare and endangered plants into lists according to population distributions and viability. These lists are numbered and indicate the following: (1A) presumed extinct in California; (1B) rare, threatened, or endangered throughout their range; (2) rare, threatened, or endangered in California, but more common in other states; (3) more information is needed to establish rarity; and (4) plants of limited distribution in California (i.e., naturally rare in the wild) but whose populations do not appear to be susceptible to threat.

2.9) California State Department of Fish and Game Code – Section 1600

The California Department of Fish and Game (CDFG), through provisions of the CDFG Code (Sections 1600-1616), is empowered to issue agreements ("Streambed Alteration Agreement") for projects that will adversely affect wildlife habitat associated with any river, stream, or lake edges. Streams and rivers are defined by the presence of a channel bed, banks, and intermittent flow. CDFG regulates wetland areas only to the extent that those wetlands are part of a river, stream, or lake as defined by CDFG.

Determining limits of a wetland is not typically done in obtaining CDFG Agreements because the intent of the 1600 program is to safeguard riparian associated wildlife habitat. Riparian habitat includes willows (*Salix* sp.), mulefat (*Baccharis salicifolia*), and other vegetation typically associated with the banks of a stream or lake shoreline. In most situations wetlands associated with a stream or lake will fall within the limits of riparian habitat. Thus, the limits of CDFG jurisdiction based on riparian habitat will automatically include any wetland areas and may include additional areas that do not meet ACOE criteria for soils and/or hydrology (e.g., where riparian woodland canopy extends beyond the banks of a stream away from frequently saturated soils).

2.10) California Environmental Quality Act

The California Environmental Quality Act (CEQA) requires identification of environmental effects from discretionary projects. While the lead agency may at their discretion find overriding considerations, generally significant effects are to be mitigated by avoidance, minimization, rectification, or compensation whenever possible.

Effects to all state and federal listed species are considered significant under CEQA. In addition to formally listed species, CEQA Section 15380(d) considers effects to species that are demonstrably endangered or rare as important or significant. These definitions can include state designated species of special concern, federal candidate and proposed species, CNDDB tracked species, and California Native Plant Society 1B and 2 plants.

Appendix G of the CEQA Guidelines specifically addresses biological resources and encompasses a broad range of resources to be considered.

2.11) Coachella Valley Multiple Species Habitat Conservation Plan (CVMSHCP)

The County of Riverside, seven (7) additional land jurisdictions, and eight (8) cities have

prepared a Multiple Species Habitat Conservation Plan (MSHCP) for the Coachella Valley. The plan will build upon existing preserves and attempts to provide connectivity and wildlife corridors throughout the region. The plan proposes to conserve approximately 240,000 acres and 27 different plant and animal species (www.cvmshcp.org).

A Natural Community Conservation Plan (NCCP) Permit was issued by the California Department of Fish and Game on September 9, 2008 and the U. S. Fish and Wildlife Service issued the final permit for the CVMSHCP on October 1, 2008. The permit grants take authorization for take of certain species identified in Attachment 2 of the permit as "Covered Species and Take Authorized for Each Species Under the Coachella Valley MSHCP."

The MSHCP establishes 21 Conservation Areas and associated linkages between proposed and existing Conservation Areas. According to the Riverside County GIS website and the “CVMSHCP Parcel Look Up”, parcels that compose and are adjacent to the current road improvement project are outside of the Conservation Areas.

3.0) METHODS AND PERSONNEL

3.1) Literature Review

Pertinent literature was reviewed to identify local occurrences and habitat requirements of special status species and communities occurring in the region. Literature reviewed included compendia provided by resource agencies, USFWS species accounts, (2008) USFWS critical habitat designations, species accounts for sensitive species by the CDFG and CNPS in the vicinity, and other documents as needed.

A CNDDB records search was conducted for the Valerie Quadrangle (3311652) and the eight adjacent quadrangles; Indio (3311662), Rabbit Peak (3311642), Thermal Canyon (3311661), Mecca (3311651), Oasis (3311641), La Quinta (3311663), Martinez Mountain (3311653), and Clark Lake (3311633).

In addition, L&L reviewed the Riverside County GIS Database, *Riverside County General Plan (*Riverside County 2008), *Coachella Valley Multiple Species Habitat Conservation Plan* (2008), *Omnibus Public Land Management Act of 2009* (US. Congress 2009), *Wild and Scenic Rivers Act* (US. Congress 1968) and others references with data that may affect area development and cumulative impacts to the area.

Latin names of plants follow *The Jepson Manual* (Hickman 1993). Latin names of animals follow *A Field Guide to Western Reptiles and Amphibians* (Stebbins 1985) for reptiles and amphibians, *California Mammals* (Jameson and Peeters 1988) for mammals, American Ornithologists' Union (1983, 1989) and National Audubon Society, *The Sibley Guide to Birds* (2000) for birds, and *American Insects: A Handbook of the Insects of America North of Mexico* (Arnett 2000) for insects.

3.2) Survey Methods

L&L botanist Melanie Dicus visited the project area on May 20, 2012 to conduct a general biological survey, describe vegetation and habitat, evaluate probabilities that special status wildlife species and plants might occur within the project site, document wildlife onsite that were observed directly or by sign, and identify potential jurisdictional drainages within the project impact area and immediately adjacent. No focused species surveys were conducted during this survey. During the survey from 9:00 AM to 3:00 PM the weather was 88-101° Fahrenheit with no cloud cover and only a very slight breeze (0-5 mph).

All habitat types within the project area were visited on foot. The site was surveyed by walking along the planned project impact area, Monroe Street, 64th Avenue, Duro Road and Landon Lane, looking at the roadway, right-of-way and into the residential front yards from the roadway, stopping periodically for observations and notations. Along Monroe Street the survey area extended from the center line east 35 feet and on 64th Avenue it extended from the centerline north 35 feet. On Duro Road and Landon Lane the survey area was 35 feet from the centerline on both sides of the roadways. Wildlife species were identified during field surveys by sight, calls, scat, or other sign. A general habitat map and field notes were completed at the time of the survey.

The field survey was conducted during daylight hours. Digital photographs were taken to record condition of the site during the survey. No trapping was conducted. Plants of uncertain identity were collected and subsequently identified from keys, descriptions, and illustrations in Abrams (1923, 1944, 1951, 1960), Abrams and Ferris (1960), Hickman (1993), Munz (1974), and Parker (1999). These procedures provide a general assessment of habitat and vegetation on a site and act as a tool to determine probability of special status species occurring onsite. Probability assessments for many species are based upon presence or absence of what is considered their suitable habitat, as not observing a species does not necessarily mean the species is not present, especially with nocturnal species. A list of those species observed or detected is included in Appendix A.

4.0) EXISTING CONDITION

4.1) Vegetation

The proposed project area runs along existing roadways that are either graded and cleared dirt roads or existing paved roads in need of improvements. Impacts outside of the existing roadway will result from trenching within the dirt road, installation trenching east of Monroe Street for sewer line placement and installation trenching to the residences. Project area within the residential and church portions of the site contains ornamental vegetation and regularly disturbed ground. Overall, the majority of the roadway is bordered by ornamental plant species (tamarisk, bougainvillea, and oleander) associated with the borders of agricultural land and housing (Figure 4). Along the east side of Monroe Street, in the center between 62nd and 64th Avenues, is an area of disturbed Allscale Series of Saltbush Scrub or Chenopod Scrub. The dominant plant in this community is allscale (*Atriplex polycarpa*). Bush seepweed (*Sueda moquinii [torreyana]*) is a common component as well. This habitat community has been heavily disturbed and contains mounds of dirt and debris. Other vegetation observed sparsely within the survey area included Bermuda grass (*Cynodon dactylon*) growing among dumped plant clippings, as well as non-native cheeseweed (*Malva parviflora*). A full list of plant species identified during the survey is provided in Appendix A.

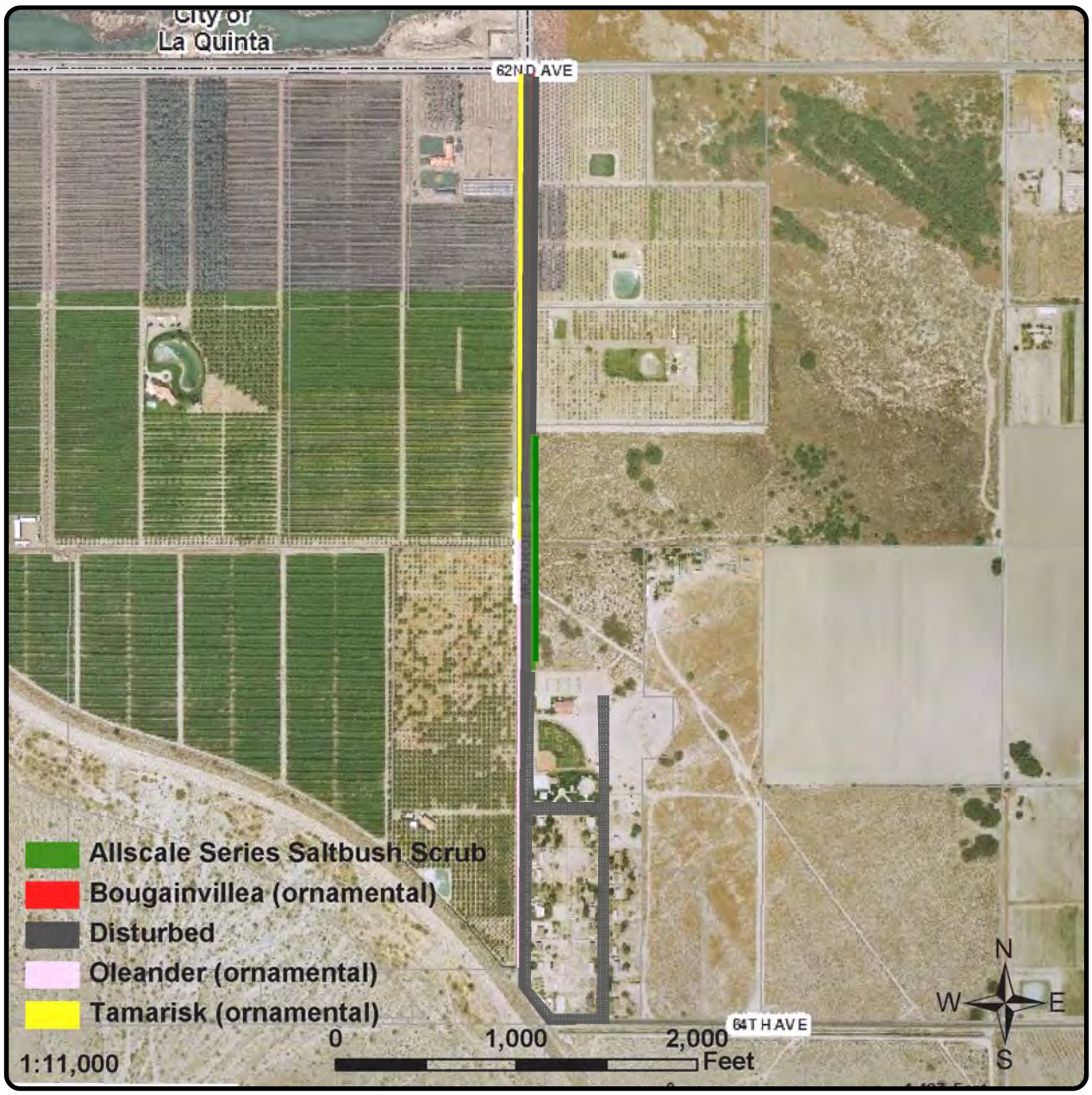
4.2) Soils and Topography

Soils data for the survey area were obtained from the U.S. Department of Agriculture, Natural Resource Conservation Service, Soil Survey Geographic (SSURGO) Database. The site is mapped as a mixture of Carsitas gravelly and cobbly sands (CdC/ChC), Coachella fine sandy loam (CsA), Gilman loamy fine sand (GaB), Gilman fine sandy loam (GbB), Indio fine sandy loam, wet (Ir) and Myoma fine sand (Figure 5).

Topographically, the site is relatively flat with a slight downward slope from south to north. Overall the topography in the project area runs southwest to east-northeast. The site is located within the Coachella Valley, just northeast of the foothills of the Santa Rosa Mountains. The site has a combined maximum vertical relief of roughly 75 feet, with elevations ranging from approximately 7 to 82 feet below mean sea level (AMSL). Surrounding topographic features in the project vicinity to the north and east are flat, with a gentle east slope downward. To the south and west, mountain foothills go from gentle to steeply sloping hills with associated ridgelines and canyons.

4.3) State / Federal Jurisdictional Drainages

The impact area and adjacent property does not support wetlands, marshes, riparian or any woody water dependent vegetation. Bluelines visible on the USGS map are associated with manmade underground piping of water. No drainages or other features subject to state and federal jurisdiction were observed within the impact area during the general biological survey.



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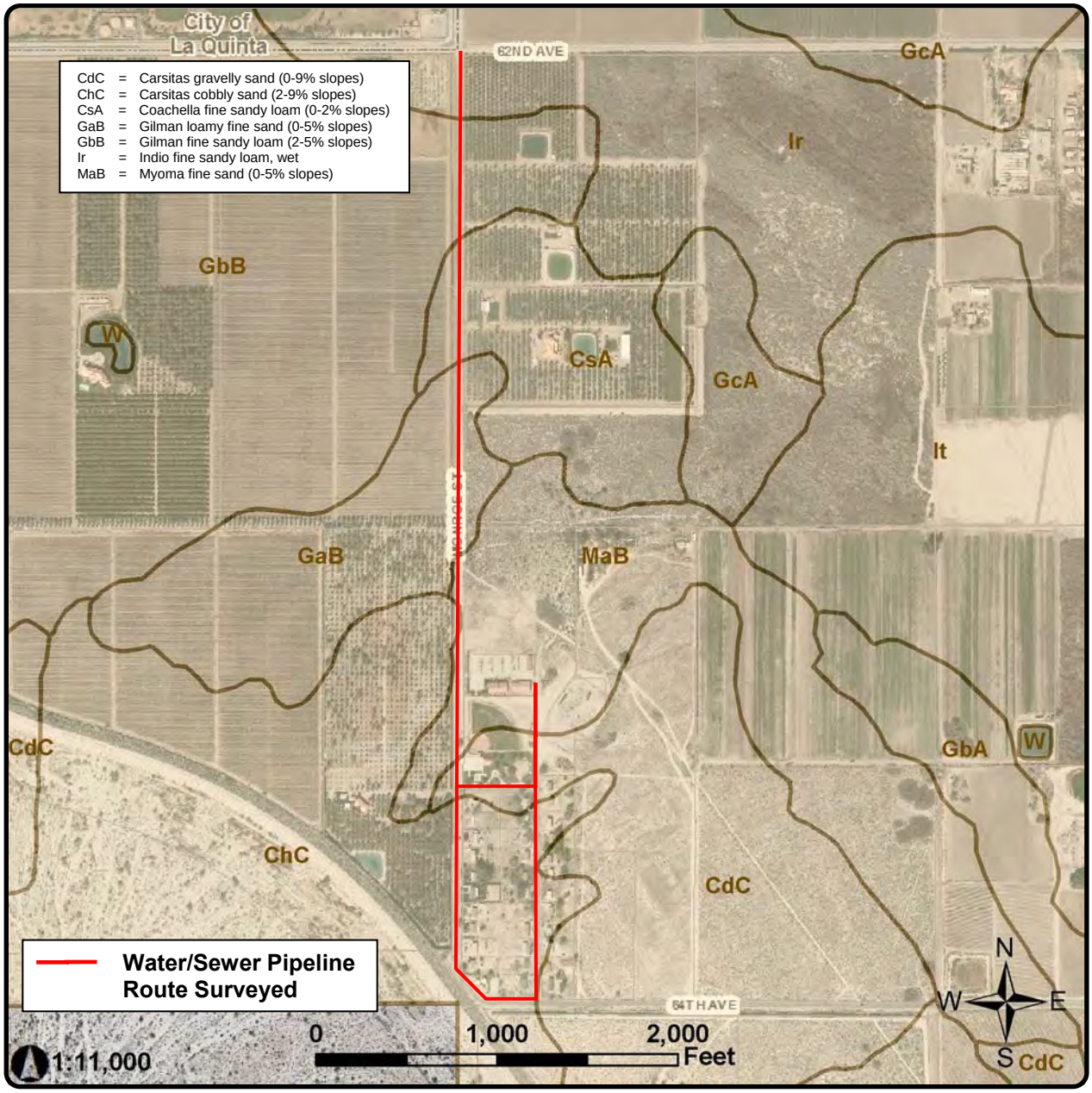
BIOLOGICAL AND CULTURAL INVESTIGATIONS AND MONITORING

SAA-12-296
July 2012

Figure 4

Habitat Map
(Photo obtained from RCTLMA GIS, 2007)

Torres Martinez Water & Sewer Project, County of Riverside, California



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BIOLOGICAL AND CULTURAL INVESTIGATIONS AND MONITORING

SAA-12-296
July 2012

Figure 5

Soils Map

(Photo obtained from RCTLMA GIS, 2011, USDA Nat. Res. Cons. Serv. SSURGO Data)

Torres Martinez Water & Sewer Project, La Quinta Area, County of Riverside, California

5.0) AFFECTED ENVIRONMENT

5.1) General Resources

Habitat on the project site consists of allscale series, disturbed and ornamental habitats. Botanical and wildlife species in the proposed project area would consist of species that occur in or utilize these habitats. Wildlife may also include species that utilize sparse individual trees in open habitat for nesting, roosting, or perching. The project impact area consists of an unvegetated, graded dirt road and developed (church and housing) land bordered by disturbed and ornamental habitats, plus 1,400 linear feet of disturbed allscale series which is approximately 26 feet wide, see exhibit. The project area is surrounded by a mix of agricultural, residential, and open, relatively undisturbed habitat.

5.1.1) Amphibians

Amphibians typically require a relatively consistent source of water as a component of their habitat, although some species can survive periods in drier conditions. The latter species conserve moisture by emerging only when damp or moist weather conditions are present. No forest and/or riparian habitats or perennial flowing water are present in the project area. No blueline stream or drainages cross or run along the road or within the developed survey area (with the exception of underground piping). The Coachella Canal is present approximately 75 feet southwest of the southern most edge of the road alignment on the other side of an estimated 15 foot 45° slope. No riparian habitat occurs in or adjacent to the proposed impact area.

Evidence of ponding water supporting plants species (native and non-native) from leaking faucets/pipes was observed within the survey area in two places. This includes a small patch of willow, cattails and other vegetation wthin a wet patch near the northwest corner of the Church and along Monroe north of the allscale. These areas are very small and were not considered native habitat or suitable to support amphibian species. Habitat for amphibian species does not appear to be present within the survey area.

5.1.2) Reptiles

Reptile species are common in southern California and can be found in both disturbed and native areas, although diversity and abundance are often associated with less disturbed areas with the presence and type of native plant communities. Reptiles are attracted to areas with cover such as rocks, logs, or other debris. The Great Basin whiptail lizard (*Aspidoscelis tigris tigris*) was observed in the survey area. Other common reptiles expected to occur within the project area include side-blotched lizard (*Uta stansburiana*), western fence lizard (*Sceloporus occidentalis*), California kingsnake (*Lampropeltis getula californiae*), California whipsnake (*Masticophis lateralis*), and gopher snake (*Pituophis melanoleucus*) among others.

5.1.3) Birds

Bird species common to allscale or disturbed habitats or that utilize sparse individual trees in open habitat for nesting, roosting, or perching may utilize habitat in the project area or general

vicinity. Birds observed in the survey included the verdin (*Auriparus flaviceps),* Bewick's wren (*Thryomanes bewickii*), house finch *(Carpodacus mexicanus*), Inca dove (*Columbina inca*), common ground-dove (*Columbina passerina*), rock pigeon (*Columba livia*), Eurasian collared-dove (*Streptopelia decaocto*), ladder-backed woodpecker (*Picoides scalaris*), northern mockingbird (*Mimus polyglottos*), Albert's towhee (*Pipilo alberti*), great-tailed grackle (*Quiscalus mexicanus*), Say's phoebe (*Sayornis sayi*), western kingbird (*Tyrannus verticalis*), Black-tailed Gnatcatcher (*Polioptila melaneura*), and house sparrow *(Passer domesticus*).

Although the probability is low, it is possible that the onsite tamarisks, larger date palms and a few isolated large trees could support non-sensitive nesting raptors.

5.1.4) Mammals

Identification of mammals on a project site is typically through sign (i.e., scat, tracks, burrows, etc.) rather than direct observation, because many mammals are nocturnal or timid and keep to cover. Trapping is not used in general surveys. The project vicinity contains suitable habitat for many mammal species including use for foraging, nesting/burrowing, and wildlife movement. Suitable habitat for woodrat middens is present adjacent to the impact area along the base of mature tamarisk trees and there were small rodent burrows in the mounded disturbed soils within the allscale series east of Monroe Street.

5.2) Threatened, Endangered, and Sensitive Species

Species currently listed as Threatened, Endangered, Candidate, Proposed and Sensitive, and Fully Protected species and that have been documented in the NDDB within the nine (9) quadrangles the project site is on or adjacent to, as well as others that have the potential to occur in the Coachella Valley and northeastern slopes/foothills of the Santa Rosa Mountain area were considered in this evaluation. Tables 1 and 2 identify these listed and sensitive species known or expected to occur within the project vicinity, the habitat type each species occupies, whether the species has potential habitat, and its potential to occur in the proposed project impact area or adjacent to the project impact area. A more detailed discussion of individual species is included for those species with known occurrences or potentially suitable habitat and a moderate or high potential of occurring onsite. A complete list of species observed during the site visit to the proposed project area is contained in Appendix B.

5.2.1) Botanical Resources

5.2.1.1) Threatened and Endangered Species

Three (3) Threatened or Endangered botanical species were identified as having potential to occur in the project area: Coachella Valley milk-vetch (*Astragalus lentiginosus* var. *coachellae*), Peirson's milk-vetch (*Astragalus magdalenae var. peirsonii*), and triple-ribbed milk-vetch (*Astragalus tricarinatus*). No designated or proposed critical habitat for these species occurs within the project area. During general surveys of the site it was determined that no suitable habitat for these species occurs within the project impact area and the site is below the elevational range of these species. In addition, almost all habitat is either disturbed or ornamental.

5.2.1.2) Sensitive Species

Of the 24 botanical species evaluated, none were determined to have moderate or high potential to occur on or adjacent to the project site. This is due to the highly disturbed nature of the site, including the majority of which is either an existing paved or hard-packed dirt road, developed and occupied housing parcels and a church. Other habitats impacted are ornamental or heavily disturbed. The areas of native habitat do not support open areas of sand, windblown sands, or sand dunes. Although an absence determination typically requires botanical surveys covering early, mid, and late season blooming plants, the total lack of habitat on the project site and for many of the species the location of the project below their elevational range, some species were determined to be absent. Others were not determined to be absent, but rather to have a low or low-absent potential based only on the lack of an in-depth botanical survey. These species are not expected to occur onsite. During the survey no sensitive plant species were identified onsite, although a focused botanical survey was not conducted.

Table 1: Threatened, Endangered, and Sensitive Botanical Species in the Project Vicinity

Special Status Species	Habitat and Distribution	Flower Season	Status Designation	Occurrence Probability
PLANTS (n=24)				
Abronia villosa var. *aurita* **Chaparral sand verbena**	Sand, mostly broad alluvial fans and benches, 80-1600 m elev (CNPS), 0-1600m (CalFlora), "Inland Empire" and adj. Colorado Des. And interior San Diego Co.	Feb. – July	Fed: None Calif: S2 CNPS: List 1B.1	Low Below elev. Rng, disturbed habitat
Antirrhinum cyathiferum **Deep Canyon snapdragon**	Washes and rocky places in Sonoran desert scrub; Calif. records only from Deep Canyon area, below about 800m elev.; also in Ariz., Baja, and Mexico	Feb. - April	Fed: None Calif: S1.3 CNPS: List 2.3	Low-Absent No suitable habitat, Deep Canyon is loc 10 mi w.
Astragalus lentiginosus var. *coachellae* **Coachella Valley milk-vetch**	Open sand, desert dunes, sonoran desert scrub, between 40-655m. elev.; endemic to Coachella Valley	Feb. - May	Fed: **END** Calif: S2 CNPS: List 1B.2	Low-Absent Below elevational range, No suitable habitat
Astragalus magdalenae var. *peirsonii* **Peirson's milk-vetch**	Desert Dunes, from 55-250 meters. Known from fewer than 5 locations in CA.	Dec-Apr	Fed: **THR** Calif: **END** CNPS: List 1B.2	Low-Absent Below elevational range, No desert dunes
Astragalus preussii var. laxiflorus **Lancaster milk-vetch**	Alkali flats, Chenopod scrub/shadescale scrub, southwest Mojave and Sonoran Deserts. Known from Lancaster and Edwards AFB in CA, with one recorded observation in the La Quinta area in 1928. Identification questioned. 700m. elev.	Mar. - May	Fed: **None** Calif: S1 CNPS: List 1B.1	Low Well Below elevational range, Low quality habitat. Unlikely to occur in area
Astragalus tricarinatus **Triple-ribbed milk-vetch**	Joshua tree woodland, sonoran desert scrub in sandy or gravelly soils. Exposed rocky slopes and canyon walls; Morongo Valley and Coachella Valley areas; 450-1190m. elev.	Feb. - May	Fed: **END** Calif: S1.2 CNPS: List 1B.2	Absent Well Below elevational range, No suitable habitat
Ayenia compacta **California ayenia**	Desert shrublands, gen. in washes,; Sonoran desert margins, S. Calif., Baja, and Sonora (Mex.) Elevational range from 150-1095 m	March - April	Fed: None Calif: S3? CNPS: List 2.3	Low-Absent Below elev.range, no wash

Special Status Species	Habitat and Distribution	Flower Season	Status Designation	Occurrence Probability
Camissonia arenaria **Sand evening-primrose**	Sonoran desert scrub, sandy or rocky soils. From 70-915m. elevation.	Nov-May	Fed: None Calif: S2 CNPS: List 2.2	Low-Absent Below elevational range, No suitable habitat
Chaenactis carphoclinia var. *peirsonii* **Peirson's pincushion**	Sonoran desert scrub on sandy soils. 3-500 m elevation. Known only from the eastern Santa Rosa Mountains.	Mar-April	Fed: None Calif: S 1.3 CNPS: List 1B.3	Low No suitable habitat
Cryptantha ganderi **Gander's cryptantha**	Desert sand dunes, desert shrublands, E Mojave Des., Sonoran Des., to Arizona and Mexico. Few occurences in CA; about 160 – 400m. elev.	Feb-May	Fed: None Calif: S1.1 CNPS: List 1B.1	Low-Absent Below elevational range
Ditaxis claryana **Glandular ditaxis**	Sandy soils in Mojavean desert scrub and Sonoran desert scrub, below about 465 m. elev.; Coachella Val, Coloroado Riv Val, to Ariz. and mainland Mexico	Oct. - March	Fed: None Calif: S1 CNPS: List 2.2	Low
Ditaxis serrata var. *californica* **California ditaxis**	Sonoran desert scrub. about 30-1000 ft. elev.	March-Dec.	Fed: None Calif: S2 CNPS: List 3.2	Low No suitable habitat
Eriastrum harwoodii **Harwood's eriastrum**	Desert dunes, 200-915m elevation. Endemic to California. Known from fewer than 20 occurrences.	Mar-June	Fed: None CA: S2 CNPS: List 1B.2	Absent Well Below elev range, No suitable habitat
Leptosiphon floribundus ssp. *hallii* **Santa Rosa Mountain leptosiphon**	Pinyon-juniper woodland and sonoran desert scrub. Between 1000 and 2000 meters elev	May - July	Fed: None Calif: S1 CNPS: List 1B.3	Absent Well Below elev range, No suitable habitat
Linanthus maculatus **Little San Bernardino Mountains linanthus**	Sandy soils or dunes in desert shrubland or Joshua tree woodland habitats; Whitewater Cyn. through Joshua Tree Natl. Park; about 195-2075m. elev.	Mar-May	Fed: None Calif: S2 CNPS: List 1B.2	Low-Absent Well Below elevational range
Marina orcuttii var. *orcuttii* **California marina**	Chaparral, pinyon-juniper woodland and sonoran desert scrub on rocky terrain. Elevations between 1050 and 1160 m.	May - Oct	Fed: None Calif: S1.3 CNPS: List 1B.3	Absent Well Below elev range, no suitable habitat
Matelea parvifolia **Spear-leaf matelea**	Rocky sites in desert shrublands, widely scattered in Calif., Nev., Texas, and Baja; 440-1095m elev	March - May	Fed: None Calif: S2.2 CNPS: List 2.3	Absent Well Below elev. range
Nemacaulis denudata var. *gracilis* **Slender cottonheads**	Coastal and desert dunes, desert shrubland, 50-400m. elev.; Coachella Valley area and (disjunct) San Diego Co. coast; Ariz., Baja, and mainl. Mex	March - May	Fed: None Calif: S2 CNPS: List 2.2	Low-Absent Below elevational range
Phaseolus filiformis **Slender-stem bean**	Sonoran desert scrub, 125m, known in CA from only one occurrence in the Coachella Valley.	April	Fed: None Calif: S1 CNPS: List 2.1	Low No suitable habitat
Selaginella eremophila **Desert spike moss**	Stream banks and other moist sites, a few scattered sites from Victorville to San Diego Co; 425-2000m elev.	May - Jul	Fed: None Calif: S2.2? CNPS: List 2.2	Absent Well Below elev. range, No suitable habitat
Senna covesii **Coves's cassia**	rocky terrain amid Sonoran desert scrub. Elev 200-900 meters. Found in San Diego Co., Riverside Co., Imperial Co.; AZ; NM; TX; Baja California, Mex	April - June	Fed: None Calif: S1 CNPS: List 2.2	Absent Well Below elevational range, no suitable habitat
Stemodia durantifolia **Purple stemodia**	Chaparral, lower montane coniferous forest, pinyon-juniper woodland; 1200-2500 m elev. Identified on VanDeventer flat in 1937 record.	± year-around	Fed: None Calif: S2.1? CNPS: List 2.1	Absent Well Below elev.range, No suitable habitat

Special Status Species	Habitat and Distribution	Flower Season	Status Designation	Occurrence Probability
Wislizenia refracta ssp. *palmeri* **Palmer's jackass clover**	Chenopod scrub, Sonoran desert scrub, Sonoran thorn woodland and desert dunes from 0-300m. elev.	Jan-Dec	Fed: None Calif: S2? CNPS: List 2.2	Low No suitable habitat
Xylorhiza cognata **Mecca-aster**	Desert shrublands, arid canyons from 20-400m. elev.; known only from Indio Hills and Mecca Hills, Riv. Co.	Jan. - June	Fed: None Calif: S2.2 CNPS: List 1B.2	Low Disturbed potential habitat
Plant references: CDFG (2011), CDFG Bios (2011), Hickman (ed., 1993) Munz (1974), Skinner & Pavlik (1994), USFWS (1993, 1996), CNPS 2010, 2011, Calflora 2010, 2011.				

5.2.2) Wildlife Resources

5.2.2.1) Threatened and Endangered Species

Twelve (12) threatened, endangered, or fully protected wildlife species were identified as having potential to occur in the project area: desert pupfish (*Cyprinodon macularius*), arroyo toad (*Anaxyrus californicus*), desert slender salamander (*Batrachoseps major aridus*), southern rubber boa (*Charina umbratica*), desert tortoise (*Gopherus agassizii*), Coachella Valley fringe-toed lizard (*Uma inornata*), golden eagle (*Aquila chrysaetos*), western snowy plover (*Charadrius alexandrius nivosus*), bald eagle (*Haliaeetus leucocephalus*), Yuma clapper rail (*Rallus longirostris yumanensis*), least Bell's vireo (*Vireo belii pusillus*), and the peninsular bighorn sheep (*Ovis canadensis nelsoni*). No designated or proposed critical habitat for these species occurs within the project area. Of these species the majority are associated with water (lakes, reservoirs, or ponds), wetlands, streams, seeps or springs, riparian woodlands, estuaries, or marshes. None of these water associated habitats are present on or adjacent to the project area, therefore suitable habitat to support these species does not occur within the impact area.

Table 2: Threatened, Endangered, and Sensitive Wildlife Species in the Project Vicinity

Special Status Species	HABITAT AND DISTRIBUTION	Status Designation	Occurrence Probability
FISH (1):			
Cyprinodon macularius **Desert pupfish**	CA and AZ. Known in CA from the two tributaries to the Salton Sea; San Felipe and Salt Creek and associated wetlands (San Sebastian Marsh), shoreline pools of the Sea, and a majority of irrigation drains leading to the Sea. Spawn April – October.	Fed: **END** Ca: **END**	Absent
REPTILES AND AMPHIBIANS (10)			
Anaxyrus californicus **Arroyo toad**	Washes and intermittent streams of semi-arid regions, sandy-banked rivers, riparian woodlands, and loose gravel. Southern California to tip of Baja California. Desert popul. along Mojave R.	Fed: **END** Calif: SSC NDDB: S2S3	Absent No suitable habitat, Outside of range (CDFG Bios)
Batrachoseps major aridus **Desert slender salamander**	Perenial seeps and springs on the desert slopes of the eastern Santa Rosa Mts. Known from 2 locals Hidden Palm Canyon and Guadalupe Canyon.	Fed: **END** Ca: **END** S1 NDDB: S1	Absent Outside the known range, no suitable hab.

Special Status Species	HABITAT AND DISTRIBUTION	Status Designation	Occurrence Probability
Charina umbratica **Southern rubber boa**	Found in a few locales in the San Bernadino and San Jacinto mntn ranges. Woodland and coniferous forest. Usually they are found within several hundred meters of water. From 5000- 9,150 ft. ele	Fed: None Calif: **THR** NDDB: S2S3	Absent Outside the elev. range, no suitable hab.
Charina trivergata **Rosy boa**	Rocky brushlands and desert. Attracted to permanent and intermittent streams. Death Valley, CA., to the tip of Baja California, and coastal southern CA to south-central Arizona.	Fed: None Calif: None NDDB: S3S4	Low Heavy disturb. no consist. water source, No rock outcrops
Crotalus ruber ruber **Northern red-diamond rattlesnake**	Desert scrub, thorn scrub, and chaparral habitats below 4,000ft. San Bernardino County south through most of Baja California, Mexico.	Fed: None Calif: SSC NDDB: S2?	Low No rock outcrops or boulders
Gopherus agassizii **Desert tortoise**	Creosote bush scrub and other desert shrubland habitats; Mojave and Sonoran deserts (E Calif., S Nevada, W Ariz., and Sonora, Mexico)	Fed: **THR** Calif: **THR** NDDB: S2	Low (no suitable burrows), heavy disturbance
Phrynosoma mcallii **Flat-tailed horned lizard**	Sandy desert washes, flats, and dunes; Coachella Valley southward to N Baja Calif. Mostly below 250m. elev.	Fed: None Calif: SSC NDDB: S2	Low-Absent Disturbance, no wash or dunes Not expected based on current distr.
Salvadora hexalepis virgultea **Coast patch-nosed snake**	Shrublands, usually with open sand; SantaB county through southwest Calif., to northwest Baja Calif.	Fed: None Ca: SSC NDDB: S2S3	Low Generally beyond the eastern most range of this species, no open sands
Scaphiopus couchii **Couch's spadefoot toad**	Desert and arid regions of grassland, prairie, mesquite, creosote bush, thorn forest, sandy washes. 0-1800m. elev. West to extreme se of CA. Scattered pop. East of the Algodones sand dunes, Imperial Co. No. into San Bernardino Co.	Fed: None Ca: SSC NDDB: S2S3	Low
Uma inornata **Coachella Valley fringe-toed lizard**	Endemic to wind-blown sand in the Coachella Valley. Typically occurs with large patches of the appropriate substrate. Interspersed with widely spaced desert shrubs.	Fed: **THR** Calif: **END** NDDB:S1	Absent No suitable sand habitat
BIRDS (29):			
Accipiter cooperii **Cooper's hawk**	Cismontane woodland, riparian forest, riparian woodland, upper montane coniferous forest. Forages in open areas over scrublands; California, Mexico, Central America.	Fed: None Calif: None (nesting) NDDB: S3	Nesting:Absent Foraging:Low
Aquila chrysaetos **Golden eagle**	Foraging in rolling foothills, mountainous areas, sage-juniper flats, and deserts. Western North America.	Fed: None Calif: **FP** NDDB: S3	Nesting: Absent Foraging:Low
Ardea alba **Great Egret** (nesting colony)	Shallow water of fresh and saline emergent wetlands along the margins of estuaries, lakes and slow moving streams, on mudflats and salt ponds and in irrigated croplands and pastures. Nests and roosts in large trees. Common in coastal lowlands. One colony known to breed in Riverside Co. Rare to uncommon in deserts, mainly as spring migrants.	Fed: None Calif: None NDDB: S4	Low-Absent No suitable habitat, Could occas.forage in adj. agriculture

Special Status Species	HABITAT AND DISTRIBUTION	Status Designation	Occurrence Probability
Ardea herodias **Great Blue Heron** (nesting colony)	Shallow estuaries and fresh and saline emergent wetlands. Less common along riverine and rocky marine shores, in croplands and pastures and in mountains above foothills. Perches and roosts in secluded tall trees. Nests in colonies in tops of secluded large snags or live trees, usually the tallest available. Rarely nests on ground, rock ledges, sea cliffs or shrubs. Throughout CA.	Fed: None Calif: None NDDB: S4	Low-Absent No suitable habitat, Could occas.forage in adj. agriculture
Athene cunicularia **Burrowing owl**	Open dry grassland, desert or shrubland areas. Southwestern Canada south to Tierra del Fuego.	Fed: None Calif: SSC NDDB: S2	Low (no suitable burrows)
Buteo regalis **Ferruginous hawk**	Foraging in agricultural fields, grasslands and desert scrub. California.	Fed: None Calif: None NDDB: S3S4	Nesting:Low Foraging: Moderate
Charadrius alexandrius nivosus (interior population) **Western snowy plover**	Sparsely vegetated flats and along the shores of alkaline and saline lakes, reservoirs, ponds braided river channels, agricultural waste-water ponds and salt evaporation ponds. Occurs year round in CA mainly in the San Joaquin Valley and the Salton Sea.	Fed: **THR** Calif: SSC NDDB: S2	Absent No suitable habitat
Circus cyaneus **Northern harrier**	Coastal and river marshes, wet meadows, agri. lands and shrubby areas. Throughout North America, winter migratory birds to southern Ca.	Fed: None Calif: SSC (nesting) NDDB: S3	Nesting:Low Foraging:Mod
Dendroica petechia brewsteri **Yellow warbler**	Riparian, inc. willow, cottonwood, sycamore Alders and aspen for nesting and foraging, also conifer forest.	Fed: None Calif: SSC NDDB: S2	Low-Absent No suitable habitat
Egretta thula **Snowy egret** (nesting colony)	Widespread in CA. along shores of coastal estuaries, fresh and sline emergent wetlands, ponds, slow-moving rivers, irrigation ditches and wet fields. In So. CA, common yearlong in the Imperial Valley and along the Colorado River. Desert regions, uncommon in spring migration and rare through summer.	Fed: None Calif: None NDDB: S4	Absent No suitable habitat
Falco columbarius **Merlin**	Woodlands, grasslands, agricultural fields, and areas around livestock feed lots. Winter migratory bird to southern California.	Fed: None Calif: None NDDB: S3	Nesting: Low Foraging: Moderate
Falco mexicanus **Prairie falcon**	Nests on high cliffs, forages primarily over open lands; occurs throughout arid western US and Mexico	Fed: None Calif: None (nesting) NDDB: S3	Nesting: Absent Foraging: Low-Mod
Gelochelidon nilotica **Gull-billed tern**	Confined to two locations in So. CA; Salton Sea and San Diego Bay. In CA. the species requires isolated nesting habitat, small bare islets of fine clay within impoundments at the Salton Sea or isolated sections of earthen levees at the salt works in s. San Diego Bay. Vegetation is spars. Est. breeding pop. At the Salton Sea (Molina, 2003) 100-170 pairs.	Fed: None Calif: SSC NDDB: S1	Absent No suitable habitat
Haliaeetus leucocephalus **Bald eagle**	Breed in large trees, usually near major rivers or lakes; winters more widely; wide but scattered distribution in N America; esp. coastal regions	Fed: Delisted Calif: **END** NDDB: S2	Low-Absent No suitable habitat, 11mi e to a significant body of water, may occas. ffly over
Icteria virens **Yellow-breasted chat**	Summer resident, inhabits riparian thickets of willow near watercourses, low dense riparian willow.	Fed: None Calif: SSC NDDB: S3	Absent No suitable habitat

Special Status Species	HABITAT AND DISTRIBUTION	Status Designation	Occurrence Probability
Junco hyemalis caniceps **Gray-headed junco**	Breeds in mts. And foothills including high desert ranges. Forests and woodland from montane hardwood-conifer up to alpine dwarf-shrub. Desert pops occur in pinyon-juniper. Inyo-White Mts., and Great Basin; winter to S, through much of S Calif.	Fed: None Calif: None NDDB: S1 (breeding)	Absent No suitable habitat
Lanius ludovicianus **Loggerhead shrike**	Open areas where small trees, shrubs, and fences can provide suitable perches. Throughout much of North America.	Fed: None Calif: SSC (nesting) NDDB: S4	Nesting:Low Foraging: Moderate
Nycticorax nycticorax **Black-crowned night-heron** (nesting colony)	Associated with large wetlands including swamps, streams, rivers, marshes, mud flats and the edge of lakes. Widespread in the US.	Fed: None Calif: None NDDB: S3	Absent No suitable habitat
Piranga rubra **Summer tanager** (nesting)	Breeds in mature riparian woodland typically with an extensive canopy of Fremont cottonwood (in CA), southern half of US; northern Mex; winters in southern Mexico to S.	Fed: None Calif: SSC NDDB: S2	Low-Absent No suitable habitat
Plegadis chihi **White-faced ibis** (nesting colony)	Fresh and saltwater marshes containing rushes and sedges for nesting. Also near ponds, rivers and some agricultural fields. 0-4300m elev. Widespread in western and mid-west US.	Fed: None Calif: WL NDDB: S1	Absent No suitable habitat
Polioptila melanura **Black-tailed gnatcatcher**	Desert shrublands, gen. thickets of mesquite, palo verde, or acacia, occas. in open shrubland (mostly winter); Calif. deserts, thr. S Texas, Baja, and arid mainland Mexico	Fed: None Calif: None NDDB: S4	OBSERVED Seen in a littleleaf palo verde in disturbed area
Pyrocephalus rubinus **Vermillion flycatcher**	Arid scrub, farmlands, savanna, agricultural areas, and riparian woodland, often associated with surface water. Nests are placed in native trees such as willows, cottonwoods, mesquites, and Western Sycamores (*Platanus racemosa*), but sometimes in non-native trees. Scattered locations in So. CA. including the Coachella Valley.	Fed: None Calif: SSC NDDB: S2S3	Low
Rallus longirostris yumanensis **Yuma clapper rail**	Cattail and bulrush marsh habitat along and adjacent to the Colorado River. Water depth averages 6.5-20cm. Typically use the less dense margins of habitat to allow for greater mobility. Salton Sea and Whitewater River Delta habitat have been negatively impacted.	Fed: **END** Calif: **THR** Calif: **FP** NDDB: S1	Absent No suitable habitat
Rynchops niger **Black skimmer** (nesting colony)	Primarly in bays, estuaries, lagoons, mudflats, beaches and coastal marshes. Nests on sand, salt marsh mats and dredge spoil. Known breeding range in so. CA includes the Salton Sea, San Diego Bay, Newport Bay, Seal Beach, Los Angeles Harbor, Bolsa Chica Eco. Reserve.	Fed: None Calif: SSC NDDB: S1S3	Absent No suitable habitat
Toxostoma bendirei **Bendire's thrasher**	Open desert shrublands and woodlands; Mojave Des in Calif., much of Ariz, S Utah, NM, mainland Mexico	Fed: None Calif: SSC NDDB: S3	Low Poor habitat
Toxostoma crissali **Crissal thrasher**	Nests in dense brushy thickets of mesquite, willow, or other desert shrubs; assoc. with desert washes, riparian brush and mesquite thickets at lower elev. And dense scrub in arroyos at higher elev. E Calif. to Texas, W mainland Mexico	Fed: None Calif: SSC NDDB: S3	Low Marginal habitat, not associated with a wash
Toxostoma lecontei **LeConte's thrasher**	Open desert flats, dunes, alluvial fans. often sandy or alkaline flats. Typically with Atriplex or Opuntia spp. Mojave and Colorado Deserts, SW Cent. Valley, Owens Valley; to Nevada, Utah, Arizona;	Fed: None Calif: SSC NDDB: S3	Low Marginal hab, but intolerant of human disturbance

Special Status Species	HABITAT AND DISTRIBUTION	Status Designation	Occurrence Probability
Vireo belii pusillus **Least Bell's vireo**	Found in riparian woodlands, bottomlands, and mesquite. Ranges from northern Mex and Baja Ca, into so Ca, and the so. mid-western US	Fed: **END** Calif: **END** NDDB: S2	Absent No suitable habitat
Vireo vicinior **Grey vireo**	Hot, semi-arid, shrubby habitats, especially mesquite and brushy pinyon-juniper woodlands; also chaparral, desert scrub. Located in southern CA, AZ, NM, Utah, TX. In s Cal, in chaparral dominated by chamise or redshanks also in scrub oak, manzanita, pinyon, and sagebrush	Fed: None Calif: CSC NDDB: S2	Low Not typically in desert scrub in so.Cal
MAMMALS (17):			
Antrozous pallidus **Pallid bat**	Rock outcrops of shrublands, ≤ 6000' elevation; in Calif. southwest North America to interior Oregon and Washington; hibernates in winter	Fed: None Calif: SSC NDDB: S3	Roosting: Low Foraging: Moderate
Chaetodipus fallax pallidus **Pallid San Diego pocket mouse**	Open sandy areas in Sonoran desert scrub, desert wash and pinon juniper woodlands. Subspecies is found inland along the southern margins of the Mojave Desert of CA and the northern slopes of the San Bernardino Mts. And the western edge of the Colorado desert south to the Mexican border.	Fed: None Calif: SSC NDDB: S3	Low
Corynorhinus townsendii **Townsends big-eared bat**	Many habitats throughout Calif. and western North America; scattered populations in the east; day roosts in caves, tunnels, mines, but is sensitive to human dist.; feeds primarily on moths	Fed: None Calif: SSC NDDB:S2S3	Roosting: Low-Absent Foraging: Moderate
Dipodomys merriami collinus **Earthquake Merriam's kangaroo rat**	Arid or semi-arid habitat with sage scrub, chaparral or grassland habitat. Sandy loam soils. San Diego Co. in San Felipe, Earthquake and Mason valleys. Riverside Co. in Aguanga Valley, and Wilson Creek and probably scattered throughout sandy wash areas in the Anza Valley.	Fed: None Calif: None NDDB: S1S2	Low-Absent
Euderma maculatum **Spotted bat**	Desert (cool seasons) to pine forest (summer), much of SW N. Amer., very rare; roosts in deep crevices in cliffs, feeds on moths captured over open water	Fed: None Calif: SSC NDDB: S2S3	Roosting: Low Foraging: Low
Eumops perotis californicus **Western mastiff bat**	Lowlands (with rare exceptions); Cent and So Ca., southern AZ, NM, southwest TX; roosts in deep rock crevices, forages over wide area	Fed: None Calif: SSC NDDB: S3?	Roosting: Absent Foraging: Moderate
Lasiurus cinereus **Hoary bat**	Deciduous and coniferous forests and woodlands. Roosts in the open by hanging from a branch, forages over wide area. Prefers trees at the edge of clearings, but can occur in heavy forests, open areas and urban areas. Documented in tamarisks, china berry and fruit trees. Widespread from Canada through the US into Central and S. America.	Fed: None Calif: None NDDB: S4?	Roosting: Low-Moderate Foraging: Moderate
Lasiurus xanthinus **Western yellow bat**	Roosts in trees, hanging from the underside of leaves. Desert regions of the sw. US. With a particular association to palm trees. Distributed in So. CA, AZ, NM and TX, into Mexico.	Fed: None Calif: SSC NDDB: S3	Moderate (palms present)
Macrotus californicus **California leaf-nosed bat**	Desert shrublands and arid low-lands of W San Diego Co., to W Ariz., Baja Calif. and Sonora, Mex; roost in mine shafts, forage over open shrublands	Fed: None Calif: SSC NDDB: S2S3	Roosting: Absent Foraging: Moderate
Myotis yumanensis **Yuma myotis**	Variety of habitats, ie. Juniper and riparian woodlands, Arid shrublands. Closely associated with water. Roosts in caves, attics, buildings, mines, under bridges and similar structures. Western North America from British Columbia to central Mexico as far east as Oklahoma. Widespread in California	Fed: None Calif: None NDDB: S4?	Roosting: Low Foraging: Low (not near open water)

Special Status Species	HABITAT AND DISTRIBUTION	Status Designation	Occurrence Probability
Neotoma albigula venusta **Colorado Valley woodrat**	Desert grasslands, semiarid shrublands, saguaro cactus communities, pinyon-juniper woodland, ponderosa pine forest.	Fed: None Calif: None NDDB: S1S2	Low Small area of Potential hab., none recorded in 2 quads
Neotoma lepida intermedia **San Diego desert woodrat**	Arid shrublands, and rocky outctops and crevices; cismontane Calif., San Luis Obispo to San Diego County and northwest Baja Calif. Found at elevations between 0- 7000ft.	Fed: None Calif: SSC NDDB: S3?	Low
Nyctinomops femorosaccus **Pocketed free-tailed bat**	Deserts and arid lowlands; E Riv and San Diego Cos, through SW US, Baja Calif., mainland Mexico; Roost mainly in crevices of high cliffs	Fed: None Calif: SSC NDDB: S2S3	Roosting: Low Foraging: Moderate
Ovis canadensis nelsoni "distinct population segment" **Peninsular bighorn sheep**	Open shrublands and conifer forest, Canyon bottoms, alluvial fans and mountain slopes. In the Peninsular Ranges range from the lower elevs of desert mountain slopes and canyons from the valley floor up to ±4500ft. elev.	Fed: **END** Calif: **THR** Calif: **FP** NDDB: S1	Low-Absent Disturbed habitat, surrounded by developed area
Perognathus longimembris bangsi **Palm Springs pocket mouse**	Desert habitats with flat to gently sloped topography, sandy to loosely packed soils, and sparse to moderate vegetative cover.	Fed: None Calif: SSC NDDB: S2S3	Low Mainly dist. Habitat w/ hard packed soils
Taxidea taxus **American badger**	Mountains, deserts, interior valleys where burrowing animals are available prey and soil permits digging; throughout Central and western North America	Fed: None Calif: SSC NDDB: S4	Low Mainly dist. Habitat w/ hard packed soils
Xerospermophilus tereticaudus chlorus **Palm Springs round-tailed ground squirrel**	Dunes and mesquite hummocks. Associated with mesquite and creosote. Limited to the Coachella Valley lowlands	Fed: None Calif: SSC NDDB:S1S2	Low –Absent No suitable habitat
INVERTEBRATES (3):			
Macrobaenetes valgum **Coachella giant sand treader cricket**	Active dunes and sand fields; endemic to the west end of the Coachella Valley area	Fed: None Calif: S1S2	Low No active dunes or sandfields
Oliarces clara **Cheeseweed owlfly** (=Cheeseweed moth lacewing)	Generally associated with creosote bush roots, steep, shaded canyons in deserts. On or near drainages. Occurs along the Colorado River Drainage, so. CA. sw. AZ and Clark Co, NV.	Fed: None Calif: S1S3	Low No suitable hab, no creosote obs. in survey area, a few seen offsite
Stenopelmatus cahuilaensis **Coachella Valley Jerusalem cricket**	Sandy to gravelly sandy soils; endemic to Coachella Valley area. Known from Snow Creek area east to Windy Point and around the Palm Springs Airport. (CVMSHCP)	Fed: None Calif: S1S2	Low-Absent West of the range of the species

References: CDFG (1998, 2009, 2010, 2011), Calflora 2010, 2011, Zeiner, et. Al. 1988-1990, Shuford and Gardali, 2008.
Status designations and occurrence probabilities are defined in the Key.

The five (5) remaining species (desert tortoise, golden eagle, bald eagle, Coachella Valley fringe-toed lizard, and the peninsular bighorned sheep) are discussed below:

The **desert tortoise** has a high-domed shell, usually with prominent growth lines on the carapace and plastron. The carapace is brown and the plastron is solid and yellowish. Tortoises typically burrow in areas with friable soil or may remain underground and dormant during the winter. Diurnal activity is greatest in the spring and early summer and to a lesser extent during the fall. Tortoises are often detected by their sign (scat and burrows). The desert tortoise can be found in desert shrublands where soil is suitable for burrows. The range of the desert tortoise includes the Mojave and Sonoran deserts, from southeastern California, southern Nevada, western and southern Arizona, southwestern Utah, and through Sonora and northern Sinaloa, Mexico. The activity season is spring to summer.

Only an estimated 0.84 acres of native desert scrub habitat falls within the impact area and this area is already disturbed. During the survey the site was examined for burrows, although a desert tortoise protocol survey was not conducted, and no burrows were identified within or adjacent to the impact area. Within that portion of the site with disturbed native desert scrub there were mounds of dirt and debris. These mounded areas were thoroughly checked for burrows, but none were found. There are no local occurrence records according to the California Natural Diversity Database. The only record within the selected nine (9) quadrangles was a general record from 1987 identified locations of primary populations in 1977, that covered 500 square miles and included Thermal Canyon quadrangle. The other eight (8) quadrangles do not have recorded occurences of desert tortoise. The species was not observed during field surveys. The site is within the range of the species, but not within designated critical habitat. The probability that this species occurs onsite is low.

The **golden eagle** is a large brown eagle that can be found over much of western North America, from 0 to 13,500 feet above mean sea level. A typical breeding pair home range in southern California averages approximately 25 square miles (Terres 1991). Foraging habitat for the golden eagle typically consists of shrublands and grasslands. This eagle typically nests on cliff ledges, but will also use trees, especially in mountainous or open hilly areas. Suitable nesting habitat for this species does not occur onsite or immediately adjacent to the site, but it is possible for this species to forage in the project area.

Adult **bald eagles** have white heads and tails and large yellow beaks. First-year bald eagles are mostly dark, with blotchy white on the underwing and tail (NGS 1987). These birds roost and breed in large open-branched trees, usually near major rivers or lakes. Bald eagle habitat is widespread, but scattered over most of North America, especially coastal regions. No suitable bodies of water occur on the site or in the immediate vicinity and the species was not observed during field surveys. This species has been observed several miles from the site in the Santa Rosa Mountains and near the Salton Sea. Although the species are not expected to occur on the project site, it is possible the species could occasionally fly over the property.

The **Coachella Valley fringe-toed lizard** is well camouflaged with a dorsal pattern of black flecks that blend well with their habitat. This lizard is similar to the Colorado desert fringe-toed lizard, but it is paler and the black belly spots found on the Colorado desert fringe toed lizard are absent or reduced. When running at high speeds this lizard runs primarily on its hind legs (bipedally: Stebbins 1985). This species is restricted to fine, loose, wind-blown sand of dunes, flats, riverbanks, and washes. It is found in the sand deposits of Coachella Valley.

The CNDDB has a record from 1975 identifying all of Section 2 (the east side of the project area), the Torres Martinez Reservation, as a nonspecific observation location. All of the observations for this species in this quadrangle are from a map in an unidentified report, the information from England & Nelson, Brode & Cordone, and Davis in the years 1969-1975.

Although this early observation is recorded, no fine loose sands are present within or adjacent to the project area. Soils within the native habitat are more of a silt and are relatively compact, although not to the extent of the roadway and shoulder. The species was not observed during field surveys. The probability that this species occurs onsite is low to absent.

The **peninsular big-horned sheep** species color varies from dark brown above in the northern mountains to pale tan in the desert, with white belly, rump, back legs, muzzle, and eye patch. The horns are massive and coiled in males; in females they are smaller and not coiled. The peninsular bighorn sheep is paler with larger and heavier horns than other forms of bighorn sheep (US Dept. Interior 2001). This species is restricted to east facing, lower elevation slopes (typically below 4,600 ft.) of the Peninsular Ranges. It forages on grasses, sedges, and forbes and uses rocky steep terrain for escape and bedding. Optimal habitat includes steep walled canyons and ridges bisected by rocky or sandy washes, with available water (CDFG 2001a). The PBS is found from the San Jacinto and Santa Rosa Ranges in Riverside County south into Mexico. The project site is outside of designated critical habitat for this species. The impact area is almost completely developed or disturbed and this species is shy of humans. It is not likely that the species would utilize this site, therefore the probability this species occurs onsite is low-absent.

5.2.2.2) Sensitive Species

One Sensitive wildlife species, the black-tailed gnatcatcher, was observed during the general biological survey (Figure 6). Four (4) Sensitive wildlife species were determined to have a moderate potential to occur in the immediate project vicinity based on their utilization of desert scrub communities, palm trees, agricultural fields, or being habitat generalists. An additional 10 species were determined to have moderate potential for foraging onsite. These species are discussed below. Species that were determined to have no suitable habitat in the proposed project impact area or immediate vicinity or for which the site was determined to be outside of the geographic or elevational range of the species were determined to be absent or have a low potential of occurring on the site. These species are detailed in Table 2 above only. No focused surveys for any wildlife species were conducted.

Reptiles: None of the Sensitive reptile species were determined to have high or moderate potential to occur on or adjacent to the project site. Many of these species require the presence of or close proximity to water, washes, intermittent streams, springs, seeps, or other regular water sources. None of these habitats occur on or adjacent to the site. The northern red-diamond rattlesnake and coast patch-nosed snake, which can typically be found in desert shrublands, were determined to have low potential due to the minimal amount of habitat as well as the disturbed and developed nature of the site and surrounding properties.



L&L Environmental, Inc.

BIOLOGICAL AND CULTURAL INVESTIGATIONS AND MONITORING

SAA-12-296
July 2012

Figure 6

Sensitive Species
(Photo obtained from RCTLMA GIS, 2011)

Torres Martinez Water & Sewer Project,
La Quinta Area, County of Riverside, California

Birds: The black-tailed gnatcatcher was observed on site during surveys. Two (2) additional sensitive species, including Bendire's thrasher and LeConte's thrasher, were determined to have moderate or low-moderate potential to occur in the immediate project vicinity and five (5) species, including the ferruginous hawk, northern harrier, merlin, prairie falcon, and loggerhead shrike, have moderate potential for foraging in the project area. Each of these species has potential to inhabit or forage in desert scrub habitat or over agricultural lands.

Bendire's thrasher has a mottled breast with a shorter and less curved bill than most thrasher species. It nests in open desert shrublands and woodlands, which occur throughout the Mojave Desert in California, much of Arizona, southern Utah, New Mexico, and mainland Mexico.

LeConte's thrasher is the palest of the thrasher species, with grayish-brown underparts, darker tail, and tawny undertail coverts. The bill and eye are dark. This bird runs with surprising speed, with tail straight up, across open desert or along sandy washes. It is uncommon over most of its range. It occurs throughout the Mojave and Colorado Deserts, southwestern Central Valley and Owens Valley, to Nevada, Utah, and Arizona. LeConte's thrasher can be found in open shrubland, often in sandy or alkaline flats.

These two thrasher species could find potentially suitable habitat with the small area of native allscale scrub on the eastern side of Monroe Street. The habitat is surrounded by development on one to three sides and would only be impacted approximately 26 feet or less into the habitat. As discussed earlier, the habitat closest to the road and housing units is more disturbed and the habitat improves with distance from the road and areas of development. Despite these minimum impacts and low potential of occupation due to proximity to development, the scrub habitat could be utilized. The species' were not observed during field surveys, although they are active year round. The probability that these species occur onsite is low-moderate, based upon presence of a small amount of potential habitat within and adjacent to the project site.

The **black-tailed gnatcatcher** is a tiny gnatcatcher with gray above and whitish coloring below, having a long black tail with white corners. Males have a black crown in the summer. This bird uses desert shrublands, generally thickets of mesquite, palo verde, or acacia. Occasionally, it will use open shrublands, mostly in the winter. The species occurs from California deserts, through south Texas, Baja California, and arid parts of mainland Mexico. The activity season is year-round. Suitable shrubland habitat does occur onsite, although no mesquite, palo verde, or acacia occur. This species can utilize moderately disturbed suitable habitat. The species was **observed** during field surveys in a littleleaf palo verde.

Mammals: Two (2) Sensitive species, western yellow bat and hoary bat, were determined to have moderate potential to occur within the impact area or in the immediate project vicinity and five (5) species were determined to have moderate potential for foraging on the project site; pallid bat, Townsend's big-eared bat, western mastiff bat, California leaf-nosed bat, and the pocketed free-tailed bat.

Although it was determined that habitat for woodrat middens is present adjacent to the impact area at the bases of mature tamarisk trees, the project area is heavily disturbed and none of these Sensitive small mammal species are recorded within either the Valerie or Martinez Mountain quadrangles, with one exception. The pallid San Diego pocket mouse has one recorded location

on the Martinez Mountain quadrangle from 1970. The location is from an elevation of 4,000 feet. It is considered unlikely that the sensitive pocket mouse and woodrat species would occur on or adjacent to the project site.

The **pallid bat** is a medium sized bat with buff or sand colored fur and large ears. The species roosts in cliff faces and rock outcrops, but can also occasionally be found in man-made structures or trees. Roosting and foraging locations are commonly in dry open shrubland habitat, typically near water and below 6,000 feet in elevation. The pallid bat consumes a wide variety of insects, including crickets, scorpions, centipedes, beetles, grasshoppers, cicadas, and praying mantis amongst others, but can occasionally consume small vertebrates, as this species forages by crawling on the ground in search of prey. Because of this unique foraging technique this species of bat is more susceptible to ground predators.

This species occurs in much of California, excepting the high mountains. The pallid bat will break into smaller groups to hibernate in winter. No suitable roosting habitat was observed within or adjacent to the project area (with the exception of manmade structures) and there is no water present near the site. Roosting is unlikely onsite. Suitable foraging habitat occurs adjacent to the project site.

Townsend's big-eared bat is a medium sized bat, light brown in color with very long ears, and prominent bilateral nose lumps. It is located in a wide variety of habitats throughout California and western North America, as long as day roost sites (caves, tunnels, and mines) are present. Colonies can range from a few dozen to several hundred individuals. They feed primarily on moths, but can eat beetles and flies to a lesser extent. This bat typically forages on the perimeter of various habitats where they run along streams adjacent to a variety of woodland habitats. Townsend's big-eared bats hibernate all winter in caves and mines where the temperature is generally above freezing but below 54 degrees Fahrenheit. This species is very sensitive to disturbance by humans and has been documented to abandon roost sites after human visitation. No suitable roosting habitat was observed and it is likely with the amount of development that roost sites are not in close proximity to the project area. Suitable foraging habitat occurs adjacent to the project site.

The **western mastiff** bat is a large bat with truncate ears, has short and dull gray or dark brown fur. With rare exceptions, the California mastiff bat is located in lowland areas, central and southern California, southern Arizona, New Mexico, southwest Texas, and northern Mexico. Roosting occurs in deep rock crevices, with foraging over wide areas. The activity season is year-round. Suitable roosting habitat for this species was not observed onsite, and is unlikely to occur as the project is a linear disturbed project area with little to no potential rock crevices. The probability that roosts occur is Low-none. The species was not observed during field surveys. The possibility for onsite foraging is moderate.

The **hoary bat** has short broad wings and huge ears (Tuttle 1998). The hoary bat can be found in any area of California, but is patchy in the southeastern deserts. It breeds along the coast and in southern California and roosts in dense foliage of medium to large trees. It prefers open habitats with access to trees for cover and open areas or habitat edges for feeding. Hoary bats have been documented roosting in tamarisks, china berry and fruit trees. Hoary bats occupy habitats from 0 – 4,125 meters in elevation. The hoary bat primarily eats moths, although other

insects are eaten as well. Suitable roosting habitat for this species is potentially present in the tamarisk trees. Roosting could potentially occur within the onsite tamarisks. The species was not observed during field surveys. The possibility for onsite foraging is moderate.

The **western yellow bat** is medium size with a short rostrum and short rounded ears. It is distinguished from other California bats by the combination of yellow coloration, size, and short ears (Pierson and Rainey 1998). This species roosts in palm trees, hanging from the underside of the leaves. It is found in desert regions of southwest North America. These bats have year long activity, and although some may be migratory, others appear to be present year round. The species was not observed during field surveys. Suitable roosting habitat is present. The possibility for this species to occur onsite is moderate.

The **California leaf-nosed bat** is a light chocolate colored bat with large ears has a leaf-like appendage at the tip of the snout. It is located in the desert shrublands and arid lowlands of Western San Diego County, to Western Arizona, Baja California, and Sonora, Mexico. Roosting occurs in mineshafts and there is a tendency to forage over open shrublands. The activity season is year-round. The species was not observed during field surveys. Suitable roosting habitat was not observed onsite, and the probability that roosts occur is low-none. The possibility for onsite foraging is moderate.

The **pocketed free-tailed bat** is a medium-sized bat that is dark brown or gray in color. It is located in the deserts and arid lowlands of eastern Riverside and San Diego Counties, throughout the southwestern United States, Baja California, and mainland Mexico. Roosting occurs mainly in crevices of high cliffs. The activity season is year-round. Suitable roosting habitat does not occur onsite, and the probability that roosts occur is none. The species was not observed during field surveys. The possibility for onsite foraging is moderate.

5.2.2.3) Migratory Birds

The Migratory Bird Treaty Act (MBTA) of 1918 (16 USC 703-711) makes it unlawful to take, possess, buy, sell, purchase, or barter any migratory bird listed in 50 CFR Part 10, including feathers or other parts, nests, eggs, or products, except as allowed by implementing regulations (50 CFR 21). The MBTA requires that project-related disturbance at active nesting territories be reduced or eliminated during critical phases of the nesting cycle. Disturbance that causes nest abandonment and/or loss of reproductive effort (e.g., killing or abandonment of eggs or young) or the loss of habitat upon which the birds depend could be considered “take” and constitute a violation of the MBTA. Currently, the USFWS identifies 836 species of migratory birds. This includes both common, sensitive, and listed species. All of the species listed Threatened, Endangered, Proposed, Candidate, or Sensitive are included in this category (USFWS 2009).

The MBTA was supplemented by an Executive Order in 2001 that requires federal agencies to develop mitigation criteria that minimize unintentional take of migratory birds, integrate bird conservation principles, measures, and practices into agency activities, and ensure that environmental analyses required by the NEPA are conducted.

No woodland habitats are present on site, however there are a few large tamarisk, fan palm and other isolated trees present in or adjacent to the project impact area. Although these are not typical, a few raptor species could utilize these trees for nesting. Small migratory birds that nest

in desert scrub or ornamental species could utilize the allscale and ornamental habitats, although the native habitat is disturbed and all communities are in close proximity to an active roadway and inhabited housing units. Nesting is possible, but probability is low. No nesting birds were observed during the site visit.

6.0) ANALYSIS OF POTENTIAL EFFECTS

6.1) General Impacts to Plant and Wildlife Species

This section includes general types of impacts that may result from this project for all wildlife and plants that are present in the project area. During implementation, the project will have some short-term negative effects on wildlife and botanical species. Long-term effects to area plants and wildlife result mainly from permanent removal of habitat. Direct impacts would be similar to current levels. After construction indirect impacts would be similar to current levels.

- ***Direct Effects:***

  Habitat Impacts: Removal of 0.84 acre of allscale series habitat within the project area will result in permanent habitat loss for species dependent on desert scrub habitat within the area. This includes the reduction in the availability of nest sites for shrub-nesting birds and mammals and foraging sites for those species that forage over shrublands. However, the project will impact a small area of habitat located within an area developed on three sides, but within close proximity, just north, of a region with extensive healthy stands of desert scrub and other habitats. To the south of the earthen berm that abuts the southern limits of this project area is the Santa Rosa and San Jacinto Conservation Area, which includes the Santa Rosa and San Jacinto Mountains National Monument. Given the abundance of habitat in adjacent areas, the minor impact to habitat adjacent to existing heavy disturbance are not expected to be significant.

  Direct Losses of Wildlife: Some direct loss of wildlife may occur during construction. The activity and presence of humans in the area and on the worksite will likely discourage wildlife from the site during working hours, but they could take refuge around the equipment in off hours. Wildlife species could be injured or killed by construction vehicles or passenger vehicles when crossing roadways. A few small mammal burrows were observed in the impact area during the general transect surveyand suitable habitat for woodrat middens is present at the base of mature tamarisk trees.

  Design Criteria (identified by their corresponding number in Section 1.3) included in the project that will reduce wildlife impacts include: (DC1) a preconstruction examination of the site for nesting birds, (DC2) fencing that portion of the project adjacent to native habitats will prevent unplanned impacts and impacts within less disturbed habitats, (DC5) all refuse will be placed in covered containers and removed daily, this will prevent wildlife attracted to food refuse from gravitating toward roads and being hit by vehicles or predatory wildlife such as crows being attracted to the site and increasing their typical preying on local wildlife. With these Design Criteria implemented it is likely that wildlife impacts will be minimized or avoided and that impacts would be similar to current levels associated with roadways and/or may include a slight incremental increase above the existing condition.

  Breeding Birds and Other Wildlife: Construction could result in abandonment of active nests/dens and the losses of existing eggs and offspring. Nests on the ground or in trees/bushes within the 0.84 acre of disturbed habitat could be destroyed. Nests within other isolated trees and yards of houses may also be disturbed. Nests are not expected in

the roadways.

Design Criteria are incorporated to reduce impacts to nesting and breeding species. Design Criteria (DC1) a preconstruction examination of the site for nesting birds, (DC2) - fencing that portion of the project adjacent to native habitats will prevent unplanned impacts and impacts within less disturbed habitats. Construction staging area and equipment yard will not be located within native habitat.

- ***Indirect Effects:***

Habitat Impacts: Although the roads and housing units already exists, enhancing water availability and sewage disposal onsite might encourage additional site development and thus create more permanent habitat impacts in the area. Temporary fencing along the work area will be erected to delineate the limits of impacts. The fencing could cause a temporary barrier and habitat fragmentation for wildlife, but will be removed after construction. Because the roads already exists, there is agricultural development on the western side of Monroe Street and to the north of the native habitat onsite, a church and housing units are already present, and the fact that no permanent barriers will be constructed to prevent crossing, no additional habitat fragmentation is expected, nor is it expected to increasingly isolate populations or disrupt movement.

Noise and Vibration Disturbance: Use of heavy equipment (dozers, loaders, trucks, etc.) and presence of crews will result in higher than usual noise levels and vibrations, which will likely displace wildlife that regularly occupy the area. Wildlife responses to noise depend largely on the type, volume, and duration of the noise and species of animal. Physiological responses range from mild, such as an increase in heart rate, to more damaging effects on metabolism and hormone balance. Behavioral responses can vary from head-raising and body-shifting to panicked body movements and escape (National Park Service 1994). These responses have the potential to cause injury, energy loss (from movement away from noise source), decrease in food intake, habitat avoidance and abandonment, and reproductive losses (National Park Service 1994).

Long-term exposure to noise can damage their hearing (upon which many wildlife species rely to avoid predators, obtain food, and communicate), cause an increase in stress hormones, altered behavior, interfere with communication during breeding, and reduction in food supply (Forman and Alexander 1998).

Disturbance from construction activities and long-term maintenance, such as noise, human presence, and vibrations could result in temporary altered behavior of wildlife in the immediate project area. Although the species may alter behavior during the short-term period of construction and periodic maintenance, the presence of additional habitat immediately to the east and farther to the south and southwest in the project vicinity can provide sufficient foraging, nesting, and small mammal denning habitat to ensure that indirect impacts to wildlife would be temporary and minimal. In addition, the increase in noise impacts is expected to be temporary, with long-term impacts similar to current levels.

Fugitive Dust and Emissions: Use of heavy equipment (dozers, skidders, trucks, etc.) will result in higher than usual fugitive dust and emission levels during construction, which can

affect the health of local wildlife and plants. Dust particles settling directly on vegetation can affect plants by physically shading, therefore reducing photosynthesis, blocking leaf stomata, and/or uptake into leaf tissues (Farmer 2002). These impacts can most notably reduce vegetation growth rates. Fugitive dust rates could increase during construction, but would be essentially the same as the existing conditions following the work. Design Criteria for reducing BMPs, (DC 4) including watering exposed soils, covering truck loads and stockpiles, and limiting truck speeds, etc., are incorporated to minimize indirect impacts to the extent possible.

Breeding Birds and Other Wildlife: Disturbances may result in abandonment of areas and disruption of courtship behaviors resulting in failure to reproduce. The project impact area and adjacent areas are overwhelmingly disturbed, developed, or supporting ornamental species. Nesting birds are unlikely to occur within the impact area. Impacts to nesting migratory birds are restricted by the Migratory Bird Treaty Act. Design Criteria (1) a preconstruction review for nesting birds no more than 30 days before impacts for any disturbance between January 1 and July 1, will prevent indirect impacts to nesting migratory birds.

Spread or Establishment of Non-Native Invasive Species: Ground-disturbance can aid the establishment and spread of non-native weed species. These species compete with native plant species, including special status species, for available water and nutrients. Non-native plants can reduce native plant potential for seeding and non-native plants can significantly alter wildlife habitat. Non-native species also provide significant fuel for wildfires, which is a major management concern in southern California. Non-native species on the CVMSHCP Invasive list that occur within the project area include, Russian Thistle (*Salsola tragus*), date palm (*Phoenix dactylifera*), Mexican fan palm (*Washingtonia robusta*), and Tamarisk (*Tamarix spp*.) Non-native grasses onsite include yellow bristlegrass (*Setaria pumila*) and London rocket (*Sisymbrium irio*).

The Design Criteria, which include the CVMSHCP "Land Use Adjacency Guidelines," incorporate the exclusion of invasive species. This is essential to limiting the spread of noxious and invasive species into currently unoccupied areas, particularly the adjacent Santa Rosa and San Jacinto Mountain Conservation Area. The proposed action includes several measures (Design Criteria 2, 6, 7, and 13) to reduce likelihood of spread and establishment of non-native species. Limiting soil disturbance from equipment use to the smallest area, washing of equipment prior to arriving onsite, limiting staging of equipment to areas not occupied by noxious weeds, and preventing the CVMSHCP Prohibited Invasive Ornamental Plants (Table 6, Appendix A) from being included in any landscaping design should all help reduce the spread of non-native species throughout the project area.

6.2) Jurisdictional Drainage/Hydrology

Two (2) mapped intermittent blueline streams cross the road. Both appear to be subsurface drainages. No drainage, wetland, riparian habitat, or other jurisdictional area was observed during field surveys.

- ***Direct/Indirect Impacts*:** Based upon lack of jurisdictional drainages or wetlands, no

impacts are expected as a result of this project.

6.3) Threatened, Endangered, Proposed, and Candidate Species

6.3.1) Botanical Resources

No occurrences of listed Threatened or Endangered plants are known within the project area or were observed during the survey. The site was evaluated for potential presence or absence of suitable habitat to support these botanical resources; however, no suitable habitat was identified.

- ***Direct/Indirect Impacts*:** Based upon lack of habitat, no designated or proposed critical habitat in the area and no documented occurrences of the species, no impacts are expected to these species as a result of this project.

6.3.2) Wildlife Resources

One listed Threatened or Endangered wildlife species, the Coachella Valley fringe-toed lizard, has been documented within the project area. The site was evaluated for potential presence or absence of suitable habitat to support this and other listed wildlife resources; however, no suitable habitat was identified.

- ***Direct/Indirect Impacts*:** Based upon lack of habitat, no designated or proposed critical habitat in the area and no documented occurrences of all but the Coachella Valley fringe-toed lizard, no impacts are expected to these species as a result of this project.

  Regarding the Coachella Valley fringe-toed lizard, although an observation was documented in the NDDB, the observation was nonspecific and anonymous from an unidentified report including data from multiple biologists in a collection of data from 1969-1975. The record includes an entire section, but no specific location. No habitat suitable for the species currently occurs on or adjacent to the impact area and no critical habitat occurs in the project area. No direct or indirect impacts are expected to the Coachella Valley fringe-toed lizard.

6.4) Sensitive Species

6.4.1) Botanical Resources

None of the Sensitive botanical species that occur or could occur in the greater project vicinity have suitable or potentially suitable habitat on the project site. No occurrences of these plants are documented within or adjacent to the project impact area. Disturbed allscale habitat is the only native habitat onsite. No riparian, wetland, marsh, windblown, or dune sands occur onsite.

- ***Direct/Indirect Impacts*:** Based upon lack of habitat and/or the location being outside of the range of the species and a lack of documented occurrences of the species, no impacts are expected to these species as a result of this project.

6.4.2) Wildlife Resources

The allscale habitat that occurs on and adjacent to the east to the project area is marginal and could support the species outlined below. The proposed project impact area only supports 0.84 acre of the allscale habitat. The remainder of the project impact area is existing compacted roadways or developed areas that do not support vegetation or developed areas supporting ornamental species.

Due to the number of Sensitive wildlife species that have potential habitat on or immediately adjacent to the proposed project area, the species were discussed individually, but because they all are similar species occurring in similar habitat (allscale or similar scrub communities) they were analyzed for impacts in groups based upon type of species.

Sixteen (16) other Sensitive species may be impacted by the proposed project: black-tailed gnatcatcher, Bendire's thrasher, LeConte's thrasher, ferruginous hawk (foraging), northern harrier (foraging), merlin (foraging), prairie falcon (foraging), loggerhead shrike (foraging), western yellow bat, Townsend's big-eared bat (foraging), California leaf-nosed bat (foraging), pallid bat (foraging), western mastiff bat (foraging), hoary bat, and the pocketed free-tailed bat (foraging).

- ***Direct Effects:*** Only one of the Sensitive species listed above, the black-tailed gnatcatcher, was observed during the 2012 general survey of the proposed project area. Each of the others has the potential to occur in habitat on or adjacent to the site. Since the roads and developed areas around houses and the church are currently graded and will require minimal additional earthmoving and isolated vegetation removal within what is already a disturbed area, direct impacts should be limited.

  If these species do occur in the project area it is possible for some direct impacts to individuals to occur during construction. Foraging species would be least likely to be impacted. Foraging birds would likely be discouraged by the daytime noise, activity, and presence of humans on the worksite. Foraging bat species would not be present during work hours.

  For the three (3) bird species that could use the habitats onsite for more than just foraging, noise will likely discourage wildlife from the site during working hours, but they may take refuge around the equipment in off hours. These species, if present, could be injured or killed by construction vehicles or passenger vehicles when vehicles are first started/moved.

  Most of the bat species are not expected to be directly impacted, although the western yellow bat, could roost in the palm trees and the hoary bat, could roost in tamarisk within the impact area could be impacted, if present, by the removal of these trees. Based on the habitat descriptions of typical roosting habitat for the remaining bat species, suitable caves, mines, tunnels, cliffs, or rock crops were not observed within the project impact area or the immediate vicinity. It is possible though that potential roosting habitat occurs in the project vicinity. The possibility cannot be completely eliminated that these species might be hit by a passing vehicle; however, the wide territories of these species, vast open habitat in this area, no observed roosting habitat in the impact area, and the nocturnal habits of these species reduce the potential.

None of the sensitive reptile or small mammal species were determined to have a moderate potential of occurrence onsite, therefore they would not likely be impacted by construction activities. If these species were to occur, during construction the noise, activity, and presence of humans on the worksite would likely discourage mammals from the site during working hours, but both reptiles and mammals may take refuge around the equipment in off hours.

After completion of construction, impacts are not expected to increase over current levels.

Design Criteria included in the project that will reduce wildlife impacts include: (DC1) a preconstruction examination of the site for nesting birds, (DC2) fencing that portion of the project adjacent to native habitats will prevent unplanned impacts and impacts within less disturbed habitats, (DC5) all refuse will be placed in covered containers and removed daily, this will prevent wildlife attracted to food refuse from gravitating toward the road and being hit by vehicles or predatory wildlife such as crows being attracted to the site and increasing their typical preying upon local wildlife. With these Design Criteria implemented it is likely that wildlife impacts will be similar to current levels associated with the roadways, houses, and church.

- ***Indirect Effects:*** Habitat fragmentation will consist of the loss of up to 0.84 acre of marginal allscale habitat. No development of movement barriers above what currently exists would occur under the proposed project and wildlife movement across roadways would not be restricted. The proposed project area is within the existing roadways, housing, and church developed area.

  With the vast range of foraging bird and bat species and the fact that bat species are nocturnal, no increase in indirect impacts to bat species, including noise, emissions, human presence, and vibrations, are expected during construction. Indirect impacts to foraging birds may include avoidance or abandonment of the area over the short-term. Those species that may use the project area for foraging will still have access to large expanses of relatively undisturbed habitat in the project area. Foraging habitat will not be reduced by implementation of the proposed project.

  Avian and roosting bat species may experience indirect impacts from pipeline construction. Increases in noise, chemical emissions, and vibration impacts could result in avoidance or abandonment of the area over the short-term.

  Although species may alter behavior, with the Design Criteria, the short-term period of construction, periodic maintenance, and presence of substantial quality habitat nearby, the project vicinity can provide sufficient foraging and nesting habitat, thus indirect impacts to wildlife would be temporary and minimal.

  Noise and emission levels should be similar to current levels after construction, but periodic maintenance will occur.

6.5) Migratory Birds

Migratory birds include both common, sensitive, and listed species. Nesting birds can utilize the allscale habitats on and/or adjacent to the project site. The habitat is marginal based on the edge effect of the existing roadways and development. A few large tamarisk, fan palm and other isolated trees present in or adjacent to the project impact area could be utilized by raptors for nesting, although the probability is low. Impacts to migratory birds (other than those species specifically addressed elsewhere in this document) under this rule are limited to nesting.

- ***Direct Effects (to nesting):*** Approximately 0.84 acre of allscale habitat will be permanently impacted by construction. There would be no significant effect on quantity and/or habitat condition. Isolated trees may be impacted.

- ***Indirect Effects (to nesting):*** Human presence, noise, chemical emissions, and vibration impacts could result from water and sewer line installation. Increases during construction would be temporary and due to the linear nature of the project would be continually progressing along the project area, which would limit the time any one area would be exposed.

  Noise and emission levels should be similar to current levels after construction, but periodic maintenance will occur. With Design Criteria (1) a preconstruction review for nesting birds no more than 30 days before impacts for any disturbance between January 1 and July 1 will prevent indirect impacts to nesting migratory birds.

7.0) CUMULATIVE IMPACTS

Projects and development considered when determining cumulative impacts were within the Torres Martinez Reservation and roadway projects within the Coachella Valley as outlined in the Riverside County General Plan (RCGP) and CVMSHCP.

7.1) Development Considered for Cumulative Impacts

7.1.1) Riverside County General Plan and Coachella Valley Multiple Species Habitat Conservation Plan

The Coachella Valley MSHCP considered future road projects within the Coachella Valley and in adjacent foothills and mountains. In development of the CVMSHCP an effort was made to consider all projects planned, expected, or probable within the Coachella Valley. Projects outside of the Conservation Areas and a certain designated acreage of impacts within each Conservation Area were planned and offset by the conservation of substantial tracts of open habitat and habitat corridors, determined to be of the best quality and widest variety.

The project area falls within the Vista Santa Rosa Community within the Eastern Coachella Valley Area Plan (ECV) (2008). The ECV Area Plan area (453,578 acres) provides for 346,115 acres of open space, 4,772 acres of rural desert development (Vista Santa Rosa is 5 acres required for residential use), 14,501 acres of Indian land, and a build-out population of 115,575. The plan is designed to maintain predominantly rural, agricultural, and open space character of the area and focus growth adjacent to where it currently exists.

Conservation of habitat and species within the Coachella Valley is outlined in the CVMSHCP and it is tied directly to the RCGP so that conservation areas can be coordinated within the County for the greatest environmental benefit and prevent loss and degradation of habitat. The CVMSHCP identifies a total of 890 acres of desert saltbush scrub habitat, which includes the allscale series identified in the Manual for California Vegetation (Sawyer and Keeler-Wolfe 1995) within the MSHCP area, of which 90% (801 acres) are proposed for conservation.

As this project area is outside of the designated Conservation Area, projects in the area may require minimization measures and possibly a review by CVAG, but will not likely require separate consultation with state or federal agencies.

7.1.2) Omnibus Public Lands Management Act of 2009

The OPLMA adds approximately 43,572 acres to designated wilderness areas within Riverside County. These areas are all in the San Jacinto Mountain area, South Fork San Jacinto Wilderness, Cahuilla Mountain Wilderness, Beauty Mountain Wilderness and Santa Rosa Wilderness, and the Santa Rosa – San Jacinto National Monument Expansion area. Creation of these wilderness areas adds to the extensive natural open space and a variety of wildlife habitats will be preserved in the project vicinity. The Southeast area Monument Expansion is approximately 0.75 mile south and southwest of the project site and supports some similar habitat along the alluvial wash to the Coachella Canal. This area was considered and identified within the CVMSHCP as well.

7.1.3) Reservation Lands

The Torres Martinez Reservation comprises approximately 24,800 acres, with approximately 10,240 acres located in the Salton Sea. Reservation land is checkerboarded with private agricultural land. There are approximately 838 Tribal members currently enrolled in the Torres Martinez Band of Desert Cahuilla Indians, 135 of whom live on the reservation. This section of road provides access to a group of 33 Tribal homes with an estimated residential population of 132. The road also provides access to a popular church that serves the area. The church has a congregation of approximately 100 persons, but up to an estimated 300 persons use the recreational and church buildings. Future development currently planned involves the replacement of existing manufactured homes with stick-built construction. New homes are not currently planned and the Reservation population is not expected to increase substantially. Also planned is the repaving and improvement of Monroe Street from 64th Avenue to 62nd Avenue.

The Tribe has approved a master plan for the Body of Christ Church, which includes construction of new classrooms, a prayer center, a utility/meeting building, caretaker unit, and a few additional housing units. Impacts associated with the development would likely include removal of allscale scrub habitat and disturbed or developed areas, although the exact impacts were not known before publication of this report.

7.1.4) Water and Sewer Line Maintenance

The County of Riverside will be responsible for maintenance of the water and sewer lines that fall along Monroe Street and 64th Avenue. The Tribe will be responsible for maintenance of all pipelines that fall within Tribal lands. Maintenance activities will be conducted in accordance with the Operations and Maintenance requirements of the CVMSHCP.

7.2) Cumulative Impacts To Resources

7.2.1) General Vegetation

The project area encompasses roads (devoid of vegetation), and housing units, and a church bordered by disturbed and unvegetated right-of-way, developed areas, developed ornamental habitats, as well as allscale series habitat. Impacts consist of approximately 5.26 acres of unvegetated, dirt road, ornamental, or developed land and 0.84 acre of allscale.

- ***Cumulative Effects*:** The proposed project would result in an additional decrease of as much as 0.84 acres of allscale habitat within the area and will add to habitat fragmentation. Other projects and general development in the vicinity of the proposed project were considered as detailed above. The Coachella Valley MSHCP allows for a total of approximately 89 acres of desert saltbush scrub as a result of development within the Coachella Valley.

  Although typically improved water and sewer facilities invite additional development, the infrastructure is mainly associated with the Torres Martinez Indian Reservation. The reservation is not expected to be utilized regularly by non-tribal members, other than those already considered that may come to the church and community center for events.

Long-term maintenance of the water and sewer lines will be consistent with the Operations and Maintenance requirements of the CVMSHCP. Additional cumulative impacts to vegetation are not expected.

Private development in the project area is limited by natural and infrastructure constraints and is controlled by the Riverside General Plan. Private development in the Vista Santa Rosa community would be restricted to primarily Rural Desert Development.

Development on the Torres Martinez Indian Reservation may impact habitat in the future. The Reservation appears to support a combination of agricultural, aquatic, developed, and desert scrub habitats (i.e., allscale, desert saltbush scrub, desert alkali sink, tamarisk scrub, etc.) L&L determined, from aerial and ground photographs of the area, that the Church Master Plan will most likely impact allscale/desert scrub habitat and developed or disturbed areas.

Impacts to habitat are likely in the future. However, the creation and implementation of the CVMSHCP, addition of 43,572 acres of designated wilderness, and proximity to National Forest lands (all of which will include protecting desert scrub and allscale habitats, among others) will ensure that extensive natural open space is maintained in the project vicinity and that development is limited with impacts minimized.

7.2.2) Threatened, Endangered, Proposed, and Candidate Species

Botanical Resources

- ***Cumulative Impacts*:** As there are no direct or indirect impacts to TEPC botanical species (designated or proposed critical habitat or suitable habitat), implementation of this project would not add to any area cumulative effects.

Wildlife Resources

- ***Cumulative Impacts*:** As there are no direct or indirect impacts to TEPC wildlife species (designated or proposed critical habitat or suitable habitat), implementation of this project would not add to any area cumulative effects.

7.2.3) Sensitive Species

Botanical Resources

- ***Cumulative Impacts*:** As there are no direct or indirect impacts to TEPC botanical species (designated or proposed critical habitat or suitable habitat), implementation of this project would not add to any area cumulative effects.

Wildlife Resources

Sixteen (16) Sensitive wildlife species may be impacted by the proposed project: black-tailed gnatcatcher, Bendire's thrasher, LeConte's thrasher, ferruginous hawk (foraging), northern harrier (foraging), merlin (foraging), prairie falcon (foraging), loggerhead shrike (foraging),

western yellow bat, Townsend's big-eared bat (foraging), California leaf-nosed bat (foraging), pallid bat (foraging), western mastiff bat (foraging), hoary bat, and the pocketed free-tailed bat (foraging).

- ***Cumulative Effects*:** Development in the vicinity of the proposed project was considered as detailed above (Section 7.1). Cumulative habitat loss in the area (detailed in Section 7.2.1) will affect Sensitive species, as loss and degradation of habitat affect the distribution and abundance of the species and can indirectly affect survival of remaining populations through fragmentation and isolation into small populations.

  Long-term maintenance of the water and sewer lines will be consistent with the Operations and Maintenance requirements of the CVMSHCP. Additional cumulative impacts to sensitive wildlife are not expected.

  Private development in the project area is limited by natural and infrastructure constraints and is controlled by the Riverside General Plan. Private development in the project area would be restricted to primarily Rural Desert Development. Private developments may increase cumulative impacts to sensitive species. These impacts were already considered and evaluated in the CVMSHCP.

  Development on the Torres Martinez Indian Reservation may impact sensitive species in the future. The Reservation appears to support a combination of agricultural, aquatic, developed, and desert scrub habitats (i.e., allscale, desert saltbush scrub, desert alkali sink, tamarisk scrub, etc.) L&L determined, from aerial and ground photographs of the area, that the Church Master Plan will most likely impact allscale/desert scrub habitat and developed or disturbed areas. Reservation developments will increase impacts to native habitats, which may also add to cumulative impacts to sensitive species.

  Impacts to habitat are likely in the future. However, the creation and implementation of the CVMSHCP, addition of 43,572 acres of designated wilderness, and proximity to National Forest lands (all of which will include protecting desert scrub and allscale habitats, among others) will ensure that extensive natural open space is maintained in the project vicinity and that development is limited with impacts minimized.

  Although there is some potential for Sensitive species to be impacted by the proposed project and isolated impacts cannot be ruled out, no additional measurable cumulative impacts to these species are expected.

7.2.4) Migratory Birds

- ***Cumulative Effects:*** With the mitigation measures incorporated, the proposed project is not expected to add to the cumulative effects to nesting migratory birds. Because nesting migratory birds could be impacted by maintenance vehicles and activities, maintenance should not be conducted in the nesting season. This would minimize cumulative impacts to breeding migratory bird species.

8.0) DETERMINATIONS OF EFFECTS

8.1) Threatened, Endangered, Proposed, and Candidate Species

- ***Determination*:** The Torres Martinez Indian Reservation Water and Sewer Line Improvement Project would have ***No Effect*** on endangered or threatened botanical and wildlife species or on designated critical habitat.

  Rationale for Determination:
  - There would be no project activity in suitable habitat.
  - The species have not been documented to occur in the project area.
  - No critical habitat occurs within the project area.

8.2) Sensitive Species

8.2.1) Botanical Resources

- ***Determination*:** The Torres Martinez Indian Reservation Water and Sewer Line Improvement Project would have ***No Effect*** on sensitive botanical species.

  Rationale for Determination:
  - There would be no project activity in suitable habitat.
  - The species have not been documented to occur in the project area.

8.2.2) Wildlife Resources

- ***Determination*:** The Torres Martinez Indian Reservation Water and Sewer Line Improvement Project ***May Impact Individuals, But Is Not Likely to Adversely Affect, and Is Not Likely To Cause A Trend To Federal Listing Or Loss Of Viability*** in the planning area for the following species:

  black-tailed gnatcatcher, Bendire's thrasher, LeConte's thrasher, ferruginous hawk (foraging), northern harrier (foraging), merlin (foraging), prairie falcon (foraging), loggerhead shrike (foraging), western yellow bat, Townsend's big-eared bat (foraging), California leaf-nosed bat (foraging), pallid bat (foraging), western mastiff bat (foraging), hoary bat, or pocketed free-tailed bat (foraging).

  - There would be direct reduction of 0.84 acres of allscale habitat.
  - Because the project could result in injury or mortality of undetected individuals, it is uncertain whether there would be impacts to individuals.
  - Design Criteria would lessen potential impacts to individuals.

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APPENDIX A

Table 3: Plants observed during May 2012 survey.

LATIN NAME	COMMON NAME
PINACEAE	**PINE FAMILY**
Pinus sp.*	Pine (ornamental)
AMARANTHACEAE	**AMARANTH FAMILY**
*Amaranthus albus**	Tumbleweed
APOCYNACEAE	**DOGBANE FAMILY**
*Nerium oleander**	Oleander (ornamental)
ASTERACEAE	**SUNFLOWER FAMILY**
Ambrosia [*Hymenoclea*] *salsola*	Cheeseweed
Conyza sp.	Horseweed
Helianthus annuus	Annual Sunflower
*Lactuca serriola**	Prickly Lettuce
Palafoxia arida var. *arida*	Spanish Needle
*Pseudognaphalium leuteoalbum**	Weedy Cudweed
*Sonchus oleraceus**	Common Sowthistle
BIGNONIACEAE	**BIGNONIA FAMILY**
*Jacaranda mimosifolia**	Jacaranda (ornamental)
*Tecoma stans**	Yellow Bells (ornamental)
BORAGINACEAE	**BORAG FAMILY**
Cryptantha sp.	Cryptantha
Heliotropium curassavicum v. *oculatum*	Alkali Heliotrope
Tiquilia plicata	Fan-leaf Crinkle-mat
BRASSICACEAE	**MUSTARD FAMILY**
*Brassica tournefortii**	Sahara Mustard
*Sisymbrium irio**	London Rocket
CACTACEAE	**CACTUS FAMILY**
Opuntia phaeacantha	Brown-spined Prickly Pear
CHENOPODACEAE	**GOOSEFOOT FAMILY**
Atriplex polycarpa	Allscale
Chenopodium sp.*	Pigweed
*Salsola tragus**	Russian Thistle
Suaeda moquinii [*S. torreyana*]	Bush Seepweed
EUPHORBIACEAE	**SPURGE FAMILY**
*Chamaesyce maculata**	Spotted Spurge
*Chamaesyce polycarpa**	Smallseed sandmat
Euphorbia sp.*	Spurge (ornamental)

LATIN NAME	COMMON NAME
FABACEAE	**LEGUME FAMILY**
Acacia sp.*	Acacia (ornamental)
*Caesalpinia pulcherrima**	Red Bird of Paradise (ornamental)
Dalea mollissima	Hairy Dalea
Parkinsonia florida	Blue Palo Verde (ornamental)
Parkinsonia microphylla	Little-leaved Palo Verde
Prosopis sp.*	Mesquite (ornamental)
Psorothamnus spinosus	Smoke Tree
LOASACEAE	**LOASA FAMILY**
Petalonyx thurberi ssp. *thurberi*	Sandpaper Plant
MALVACEAE	**MALLOW FAMILY**
*Malva parviflora**	Cheeseweed
MELIACEAE	**MAHOGANY FAMILY**
*Melia azederach**	China Berry (ornamental)
MORACEAE	**MULBERRY FAMILY**
Morus sp.*	Ornamental Mulberry (ornamental)
MYRTACEAE	**MYRTLE FAMILY**
Callistemon sp.*	Bottlebrush (ornamental)
NYCTAGINACEAE	**FOUR-O'CLOCK FAMILY**
Bougainvillea sp.*	Bougainvillea (ornamental)
POLYGONACEAE	**BUCKWHEAT FAMILY**
*Polygonum arenastrum**	Common Knotweed
SOLANACEAE	**NIGHTSHADE FAMILY**
Datura wrightii	Jimsonweed
TAMARICACEAE	**TAMARISK FAMILY**
*Tamarix aphylla**	Athel, Tamarisk (ornamental)
Tamarix sp.*	Salt Cedar
VERBENACEAE	**VERVAIN FAMILY**
*Lantana montevidensis**	Trailing Lantana (ornamental)
ZYGOPHYLLACEAE	**CALTROP FAMILY**
Larrea tridentata	Creosote Bush
AGAVACEAE	**AGAVE FAMILY**
*Agave americana**	Century Plant (ornamental)
Yucca sp.*	Yucca (ornamental)
ARECACEAE	**PALM FAMILY**
*Phoenix dactylifera**	Date Palm (ornamental/commercial)
Washingtonia sp.*	Fan Palm (ornamental)

LATIN NAME	COMMON NAME
IRIDACEAE	**IRIS FAMILY**
Iris sp.*	Iris (ornamental)
POACEAE	**GRASS FAMILY**
*Cynodon dactylon**	Bermuda Grass
*Hordeum murinum**	Barley
*Pennisetum setaceum***	Fountain Grass
*Polypogon monspeliensis**	Rabbitfoot Grass
Schismus sp.*	Mediterranean Grass
*Setaria pumila**	Yellow Bristlegrass
SALICACEAE	**WILLOW FAMILY**
Populus fremontii ssp. *fremontii**	Cottonwood (ornamental)
Salix lasiolepis	Arroyo willow (isolated to leaking pipe)
TYPHACEAE	**CATTAIL FAMILY**
Typha sp.	Cattail (isolated to leaking pipe)
ZYGOPHYLLACEAE	**CALTROP FAMILY**
*Tribulus terrestris**	Puncture Vine

*denotes non-native species

Table 4: Wildlife observed during May 2012 surveys.

LATIN NAME	COMMON NAME
REPTILES:	
TEIIDAE	**WHIPTAIL LIZARD FAMILY**
Aspidoscelis tigris tigris	Great Basin Whiptail Lizard
BIRDS:	
COLUMBIDAE	**DOVE, PIGEON FAMILY**
Columbina inca	Inca Dove
Columbina passerina	Common Ground-Dove
*Columba livia**	Rock Pigeon
*Streptopelia decaocto**	Eurasian Collared-Dove
PICIDAE	**WOODPECKER FAMILY**
Picoides scalaris	Ladder-backed Woodpecker
TYRANNIDAE	**TYRANT FLYCATCHER FAMILY**
Sayornis sayi	Say's Phoebe
Tyrannus verticalis	Western Kingbird
REMIZIDAE	**VERDIN FAMILY**
Auriparus flaviceps	Verdin
TROGLODYTIDAE	**WREN FAMILY**
Thryomanes bewickii	Bewick's Wren
SYLVIIDAE	**GNATCATCHER FAMILY**
Polioptila melaneura†	Black-tailed Gnatcatcher
MIMIDAE	**MIMID FAMILY**
Mimus polyglottos	Northern Mockingbird
EMBERIZIDAE	**SPARROW, TOWHEE FAMILY**
Pipilo aberti	Abert's Towhee
ICTERIDAE	**ICTERID FAMILY**
Quiscalus mexicanus	Great-tailed Grackle
FRINGILLIDAE	**FINCH FAMILY**
Carpodacus mexicanus	House Finch
PASSERIDAE	**OLD WORLD SPARROW FAMILY**
*Passer domesticus**	House Sparrow

LATIN NAME	COMMON NAME
MAMMALS:	
SCIURIDAE	**SQUIRREL FAMILY**
Spermophilus beecheyi	California Ground Squirrel
INVERTEBRATES:	
HESPERIIDAE	**SKIPPER FAMILY**
Hesperopsis libya	Saltbush Sootywing
LYCAENIDAE	**GOSSAMER-WING FAMILY**
Brephidium exile	
MUSCIDAE	**FLY FAMILY**
Musca domestica	Common House Fly
POMPILIDAE	**SPIDER WASP FAMILY**
Pepsis sp.	Tarantula Hawk Wasp
SPHECIDAE	**SAND WASP FAMILY**
Prionyx sp.	Sand Wasp

* denotes introduced species
† denotes sensitive species (CSC)

Table 5: CVMSHCP Table 4-112: Coachella Valley Native Plants Recommended for Landscaping[1].

BOTANICAL NAME	COMMON NAME
Trees	
Washingtonia filifera	California Fan Palm
Cercidium floridum	Blue Palo Verde
Chilopsis linearis	Desert Willow
Olneya tesota	Ironwood Tree
Prosopis glandulosa var. torreyana	Honey Mesquite
Shrubs	
Acacia greggii	Cat's Claw Acacia
Ambrosia dumosa	Burro Bush
Atriplex canescens	Four Wing Saltbush
Atriplex lentiformis	Quailbush
Atriplex polycarpa	Cattle Spinach
Baccharis sergiloides	Squaw Water-weed
Bebia juncea	Sweet Bush
Cassia (Senna) covesii	Desert Senna
Condalia parryi	Crucilllo
Crossosoma bigelovii	Crossosoma
Dalea emoryi	Dye Weed
Dalea (Psorothamnus) schottii	Indigo Bush
Datura meteloides	Jimson Weed
Encelia farinosa	Brittle Bush
Ephedra aspera	Mormon Tea
Eriogonum fasciculatum	California Buckwheat
Eriogonum wrightii membranaceum	Wright's Buckwheat
Fagonia laevis	(No Common Name)
Gutierrezia sarothrae	Matchweed
Haplopappus acradenius	Goldenbush
Hibiscus denudatus	Desert Hibiscus
Hoffmannseggia microphylla	Rush Pea
Hymenoclea salsola	Cheesebush
Hyptis emoryi	Desert Lavender
Isomeris arborea	Bladder Pod
Juniperus californica	California Juniper
Krameria grayi	Ratany
Krameria parvifolia	Little-leaved Ratany
Larrea tridentate	Creosote Bush
Lotus rigidus	Desert Rock Pea
Lycium andersonii	Box Thorn
Petalonyx linearis	Long-leaved Sandpaper Plant
Petalonyx thurberi	Sandpaper Plant
Peucephyllum schottii	Pygmy Cedar
Prunus fremontii	Desert Apricot
Rhus ovata	Sugar-bush
Salazaria mexicana	Paper-bag Bush
Salvia apiana	White Sage
Salvia eremostachya	Santa Rosa Sage
Salvia vaseyi	Wand Sage
Simmondsia chinensis	Jojoba
Sphaeralcia ambigua	Globemallow (Desert Mallow)
Sphaeralcia ambigua rosacea	Apricot Mallow
Trixis californica	Trixis
Zauschneria californica	California Fuchsia

BOTANICAL NAME	COMMON NAME
Groundcovers	
Mirabilis bigelovii	Wishbone Bush (Four O'Clock)
Mirabilis tenuiloba	White Four O'Clock (Thin-lobed)
Vines	
Vitis girdiana	Desert Grape
Accent	
Muhlenbergia rigens	Deer Grass
Herbaceous Perennials[2]	
Adiantum capillus-veneris	Maiden-hair Fern (w)
Carex alma	Sedge (w)
Dalea parryi	Parry Dalea
Eleocharis montevidensis	Spike Rush (w)
Equisetum laevigatum	Horsetail (w)
Juncus bufonis	Toad Rush (w)
Juncus effuses	Juncus (w)
Juncus macrophyllus	Juncus (w)
Juncus mexicanus	Mexican Rush (w)
Juncus xiphioides	Juncus (w)
Notholaena parryi	Parry Cloak Fern
Pallaea mucronata	Bird-foot Fern
Cacti and Succulents	
Agave deserti	Desert Agave
Asclepias albicans	Desert Milkweed (Buggy-whip)
Asclepias subulata	Ajamete
Dudleya arizonica	Live-forever
Dudleya saxosa	Rock Dudleya
Echinocereus engelmannii	Calico Hedgehog Cactus
Ferocactus acanthodes	Barrel Cactus
Fouquieria splendens	Ocotillo
Mamillaria dioica	Nipple Cactus
Mamillaria tetrancistra	Corkseed Cactus
Nolina parryi	Parry Nolina
Opuntia acanthocarpa	Stag-horn or Deer-horn Cholla
Opuntia bigelovii	Teddy Bear or Jumping Cholla
Opuntia basilaris	Beavertail Cactus
Opuntia echinocarpa	Silver or Golden Cholla
Opuntia ramosissima	Pencil Cholla, Darning Needle Cholla
Yucca schidigera	Mojave Yucca, Spanish Dagger
Yucca whipplei	Our Lord's Candle

[1] Source: "Coachella Valley Native Plants, Excluding Annuals (0 ft. to approximately 3,000 ft. elevation)." Compiled by Dave Heveron, Garden Collections Manager, and Kirk Anderson, Horticulturist, The Living Desert, May, 2000, for the Coachella Valley Mountains Conservancy.
[2] Common names for herbaceous perennials that are followed by "(w)" indicate a water or riparian species.

Table 6: Coachella Valley MSHCP Table 4-113: Prohibited Invasive Ornamental Plants[1].

BOTANICAL NAME	COMMON NAME
Acacia spp. (all species except *A. greggii*)	Acacia (all except nat catclaw acacia)
Arundo donax ( )	Giant Reed or Arundo Grass
Atriplex semibaccata ( )	Australian Saltbush
Avena barbata	Slender Wild Oat
Avena fatua	Wild Oat
Brassica tournefortii ( )	African or Saharan Mustard
Bromus madritensis ssp. *rubens ( )*	Red Brome
Bromus tectorum ( )	Cheat Grass or Downy Brome
Cortaderia jubata [syn.*C. atacamensis*]	Jubata Grass/Andean Pampas Grass
Cortaderia dioica [syn. C. selloana]	Pampas Grass
Descurainia sophia	Tansy Mustard
Eichhornia crassipes	Water Hyacinth
Elaegnus angustifolia	Russian Olive
Foeniculum vulgare	Sweet Fennel
Hirschfeldia incana	Mediterranean or Short-pod Mustard
Lepidium latifolium	Perennial Pepperweed
Lolium multiflorum l	talian Ryegrass
Nerium oleander	Oleander
Nicotiana glauca ( )	Tree Tobacco
Oenothera berlandieri (#)	Mexican Evening Primrose
Olea europea European	Olive Tree
Parkinsonia aculeata ( )	Mexican Palo Verde
Pennisetum clandestinum	Kikuyu Grass
Pennisetum setaceum ( )	Fountain Grass
Phoenix canariensis (#)	Canary Island Date Palm
Phoenix dactylifera (#)	Date Palm
Ricinus communis ( )	Castorbean
Salsola tragus ( )	Russian Thistle
Schinus molle	Peruvian Pepper Tree/Calif. Pepper
Schinus terebinthifolius	Brazilian Pepper Tree
Schismus arabicus	Mediterranean Grass
Schismus barbatus ( )	Saharan Grass, Abu Mashi
Stipa capensis ( )	No Common Name
Tamarix spp. (all species) *( )*	Tamarisk or Salt Cedar
Taeniatherum caput-medusae	Medusa-head
Tribulus terrestris	Puncturevine
Vinca major	Periwinkle
Washingtonia robusta	Mexican fan palm
Yucca gloriosa (#)	Spanish Dagger

[1] Sources: California Exotic Pest Plant Council, United States Department of Agriculture-Division of Plant Health and Pest Prevention Services, California Native Plant Society, Fremontia Vol. 26 No. 4, October 1998, The Jepson Manual; Higher Plants of California, and County of San Diego Department of Agriculture.

Key to Table 4-113:

# indicates species not on CalEPPC Oct 1999 "Exotic Pest Plants of Greatest Ecological Concern in CA"
indicates species known to be invasive in the Plan Area
indicates particularly troublesome invasive species

Table 1 and 2 Reference Guide to Species Status and Probability.

Federal designations: (Federal Endangered Species Act, US Fish and Wildlife Service):

END: Federally listed, endangered.
THR: Federally listed, threatened.
C1: Category l candidate. Sufficient data are available to support federal listing, but not listed at this time (equivalent to "candidate" (USDI Fish and Wildlife Service 1996).
Former C2: Formerly a Category 2 candidate species. Threat and/or distribution data are not sufficient to support federal listing at this time. No longer recognized by FWS.
C3a: Extinct.
C3b: Taxonomically invalid.
C3c: Too widespread and/or not threatened. No longer considered as a federal candidate for listing.
FSC: Federal Species of Concern

***State designations*:** (California Endangered Species Act, California Dept. of Fish and Game)

END: State listed, endangered.
THR: State listed, threatened.
RARE: State listed as rare (Listed "Rare" animals have been re-designated as Threatened, but Rare plants have retained the Rare designation.)
SSC: Species of Special Concern (DFG)
WL: Watch List

CDF&G Natural Diversity Data Base Designations: Applied to special status plants and sensitive plant communities; where correct category is uncertain, CDF&G uses two categories or question marks.

S1: Fewer than 6 occurrences or fewer than 1000 individuals or less than 2000 acres.
S1.1: Very threatened
S1.2: Threatened
S1.3: No current threats known
S2: 6-20 occurrences or 1000-3000 individuals or 2000-10,000 acres (decimal suffixes same as above).
S3: 21-100 occurrences or 3000-10,000 individuals or 10,000-50,000 acres (decimal suffixes same as above).
S4: Apparently secure in California; this rank is clearly lower than S3 but factors exist to cause some concern, i.e., there is some threat or somewhat narrow habitat. No threat rank.
S5: Demonstrably secure or ineradicable in California. No threat rank.

California Native Plant Society (CNPS) designations: (Note: According to CNPS (Skinner and Pavlik 1994), plants on Lists 1B and 2 meet definitions for listing as threatened or endangered under Section 1901, Chapter 10 of the California Fish and Game Code. This interpretation is inconsistent with other definitions; see text.)

List 1A: Plants presumed extinct in California.
List lB: Plants rare and endangered in California and throughout their range.
List 2: Plants rare, threatened or endangered in California but more common elsewhere in their range.
List 3: Plants about which we need more information; a review list.
List 4: Plants of limited distribution; a watch list.

Definitions of occurrence probability:

Occurs: Observed on the site during surveys described here, or recorded onsite by other qualified biologists.
High: Observed in similar habitat in region by qualified biologists, or often occurs in habitat similar to that on the site, and within the known range of the species.
Moderate: Reported sightings in surrounding region, or site is within the known range of the species and often occurs in habitat similar to that on the site.
Low: Site is within the known range of the species but habitat on the site is rarely used by the species.
Absent: A focused study failed to detect the species, or, no suitable habitat is present, or the site is well outside known geographic or elevational ranges.
Unknown: No focused surveys have been performed in the region, and the species' distribution and habitat are poorly known.

APPENDIX B

Site Photographs

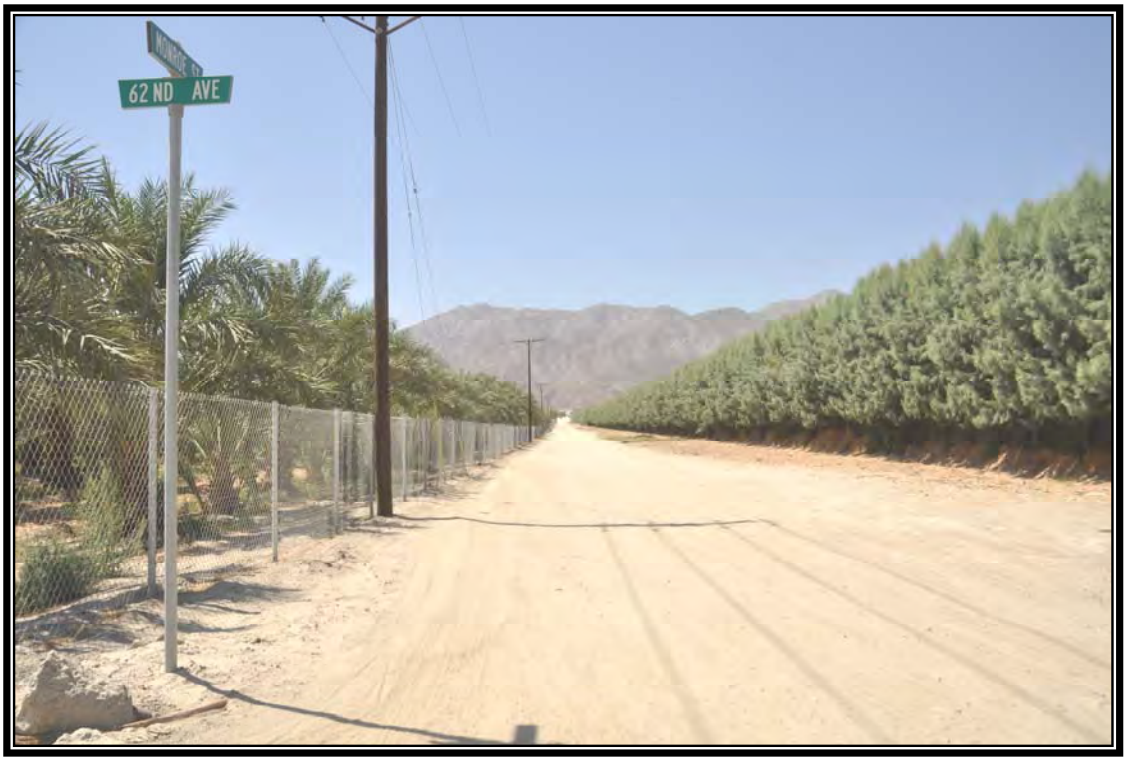


Photo 1: Intersection of Monroe Street and 62nd Avenue facing south. Tamarisk row on right. Date palm on left. ROW disturbed (2382).

Photo 2: View north along Monroe. Tamarisk row on left, low rock wall, chainlink fence and date palms on right.





Photo 3: Allscale habitat. View north. Tamarisk on left (2389).

Photo 4: View south. Allscale habitat on left and church beyond, Tamarisk on right (2385).



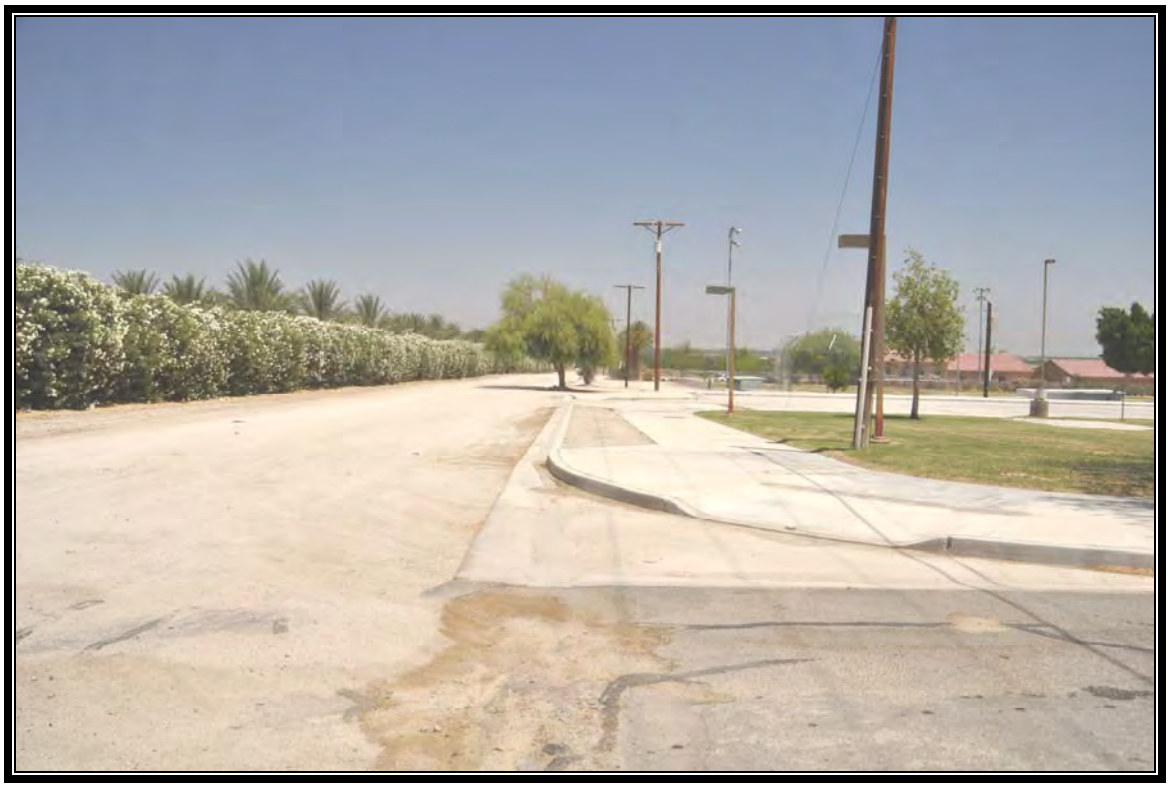


Photo 5: Southwest corner of the park at the intersection of Monroe Street and Duro Road facing north (2391).

Photo 6: Intersection of Monroe Street and Duro Road facing south in residential area (2392).



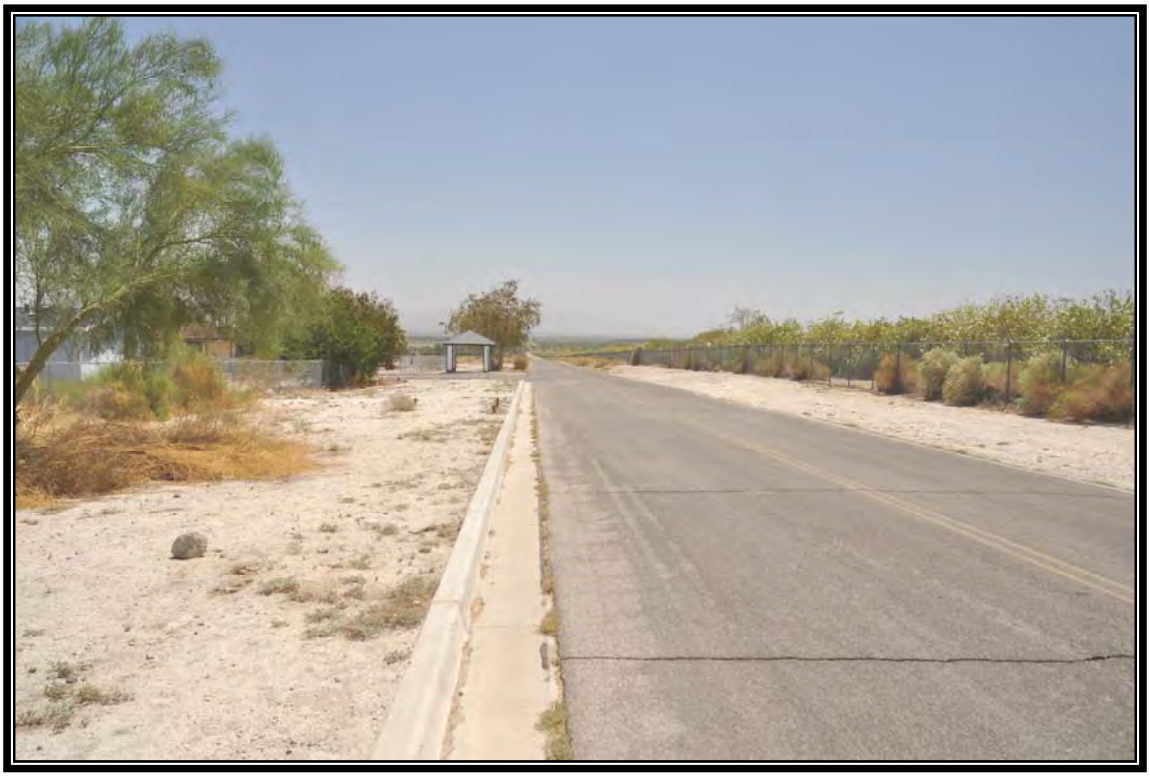


Photo 7: Intersection of Monroe Street and 64th Avenue facing east (2393).

Photo 8: Intersection of Monroe Street and 64th Avenue facing north west (2394).





Photo 9: View north at the intersection of 64th Avenue and Landon Lane (2403).

Photo 10: View south from just north of the terminus of the paved portion of Landon Lane. Duro Road is visible on the right (2401).

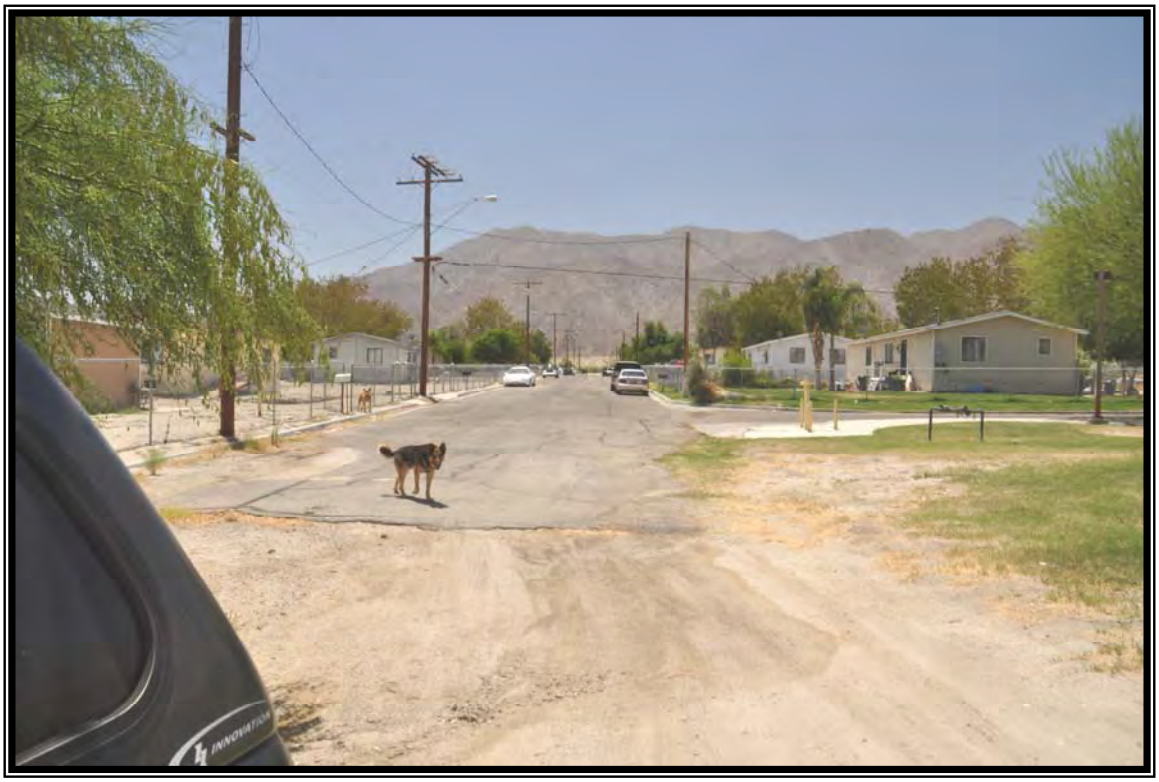




Photo 11: View facing south from just outside the northeast corner of the church property and north of Landon Lane.

APPENDIX C

County Forms

Certification

Certification: I hereby certify that the statements furnished above and in the attached exhibits present the data and information required for this biological evaluation, and that the facts, statements, and information presented are true and correct to the best of my knowledge and belief.

DATE: July 16, 2012 SIGNED: _____

Leslie Irish, Principal, L&L Environmental, Inc.
909-335-9897

1) Fieldwork Performed By:

Melanie Dicus
Name

2) Fieldwork Performed By:

_____
Name

3) Fieldwork Performed By:

_____
Name

4) Fieldwork Performed By:

_____
Name

5) Fieldwork Performed By:

_____
Name

6) Fieldwork Performed By:

_____
Name

Check here _ if adding any additional names / signatures below or on other side of page.

BIOLOGICAL REPORT SUMMARY SHEET

Applicant Name: _Torres Martinez Desert Cahuilla Indians_
Assessor's Parcel Number(s): _Within Monroe Street Right-of-Way & Residential Area___
Section, Township and Range: _Sections 2 & 3, Township 7 South, Range 7 East_____
Building and Safety Log Number: _____
Case Number: _____ Lot/Parcel _____ EA Number _____

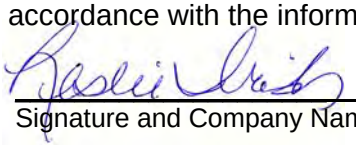
Within Monroe Street Right-of-Way:_ 753-090-001, 753-090-010, 753-090-020, 753-090-021, 753-100-011

MARK ITEM(S) SURVEYED FOR	**SPECIES or ENVIRONMENTAL ISSUE of CONCERN**	***(Mark Yes, No, or N/A regarding species findings on the referenced site)***		
		Yes	**No**	**n/a**
X (HA)	Arroyo Southwestern Toad		**X**	
X	Blueline Stream(s)		**X**	
X (HA)	Burrowing Owl		**X**	
X (HA)	Coachella Valley Fringed-toed Lizard		**X**	
	Coastal California Gnatcatcher			**X**
	Coastal Sage Scrub			**X**
	Delhi Sands Flower-loving Fly			**X**
X (HA)	Desert Pupfish		**X**	
X (HA)	Desert Slender Salamander		**X**	
X (HA, burrows)	Desert Tortoise		**X**	
X (HA)	Flat-tailed Horned Lizard		**X**	
X (HA)	Least Bell's Vireo		**X**	
	Oak Woodlands			**X**
	Quino Checkerspot Butterfly			**X**
	Riverside Fairy Shrimp			**X**
	Santa Ana River Woolystar			**X**
	San Bernardino Kangaroo Rat			**X**
	Slender-horned Spineflower			**X**
	Stephens' Kangaroo Rat			**X**
	Vernal Pools			**X**
X	Wetlands		**X**	

MARK ITEM(S) SURVEYED FOR	SPECIES or ENVIRONMENTAL ISSUE of CONCERN	*(Mark Yes, No, or N/A regarding species findings on the referenced site)*		
	Other	Yes	No	n/a
	Other	Yes	No	n/a
	Other	Yes	No	n/a
	Other	Yes	No	n/a
	Other	Yes	No	n/a
	Other	Yes	No	n/a

Species of concern shall be any unique, rare, endangered, or threatened species. It shall include species used to delineate wetlands and riparian corridors. It shall also include any hosts, perching, or food plants used by any animals listed as rare, endangered, threatened, or candidate species by either state, or federal regulations, or for Riverside County as listed by the California Department of Fish and Game Natural Diversity Data Base (CNDDB).

I declare under penalty of perjury that the information provided on this summary sheet is in accordance with the information provided in the biological report or habitat assessment.



L & L Environmental, Inc.
Signature and Company Name

July 16, 2012
Date

10(a) Permit Number (if applicable)

Permit Expiration Date

County Use Only

Received By: _____ Date: _____

PD-B# _____

Attachment E-4

LEVEL OF SIGNIFICANCE CHECKLIST
For Biological Resources
(Submit two copies to the County)

Case Number: _____ Lot/Parcel No. _____ EA Number _____

Assessor's Parcel Number(s): Within Monroe Street Right-of-Way: 753-090-001, 753-090-010, 753-090-020, 753-090-021. Resident and church property: 753-100-011

Date: July 16, 2012

Biological Resources: (Check the level of impact that applies to the following questions.)

Potentially Significant Impact	Less than Significant Impact with Mitigation Incorporated	Less than Significant Impact	No Impact

a) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Conservation Community Plan, or other approved local, regional, or state conservation plan?

☐ ☐ ☐ ■

b) Have a substantial adverse effect, either directly or through habitat modifications, on any endangered, or threatened species, as listed in Title 14 of the California Code of Regulations (Sections 670.2 or 670.5) or in Title 50, Code of Federal Regulations (Sections 17.11 or 17.12)?

☐ ☐ ☐ ■

c) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game, or U. S. Wildlife Service?

☐ ☐ ■ ☐

d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species, or with established native resident migratory wildlife corridors, or impede the use of native wildlife nursery sites?

☐ ☐ ■ ☐

LEVEL OF SIGNIFICANCE CHECKLIST
For Biological Resources
(Submit two copies to the County)

e) Have a substantial adverse effect on any riparian habitat, or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Game, or the U.S. Fish and Wildlife Service?

☐ ☐ ☐ ■

f) Have a substantial adverse effect on federally protected wetlands, as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pools, coastal, etc.) through direct removal, filling, hydrological interruption)

☐ ☐ ☐ ■

g) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

☐ ☐ ☐ ■

Findings of Fact:

The proposed installment of water and sewer lines along Monroe Street between 62nd and 64th Avenue, Duro Road and Landon Lane will impact 0.84 acres of disturbed allscale series habitat. The remainder of the impact area is either devoid of vegetation, developed or supporting ornamental species. No threatened or endangered species have habitat on site. No jurisdictional waters occur onsite. Five sensitive species may utilize allscale habitat or isolated trees; and were either observed (black-tailed gnatcatcher) or determined to have a moderate or low-moderate potential of occuring: Bendire's thrasher, LeConte's thrasher, hoary bat and western yellow bat. An additional ten species may forage on the site. Impacts to these species are not separately regulated or require mitigation under the CVMSHCP.

Proposed Mitigation:

The project site is within the CVMSHCP and does not fall within a conservation area. The property is adjacent to a Conservation Area, therefore Land Use Adjacency Guidelines will be incorporated into the Design Criteria/mitigation Measures.

Monitoring Recommended:

None.

Source: CGP Fig. VI.36-VI.40
Revised October 1999

Attachment D

NOTIFICATION TO COUNTY OF RIVERSIDE OF CONSULTANT TO PREPARE ARCHAEOLOGICAL OR BIOLOGICAL REPORT

Notification to the County of Riverside is hereby made that **Indian Health Services** project sponsor, has entered into a contract with **L&L Environmental, Inc.** for the preparation of an __X__(**X**) biological, __X__ (**X**) archaeological to be submitted to the County of Riverside in satisfaction of a request made by the county for additional environmental information prior to completion of an environmental assessment for the property and development proposal, if any, described below:

Assessor's Parcel Number(s) (APN): **Monroe Street with portions of apns 753070028, 753070030, 753080011, 753080014, 753080017, 753080018, 753090001, 753090010, 753090020, 753090021, 753100011, 753130009, 753140053, 764280030, 764280054, 764300004**

Development Proposal Case Number(s): _____

In accordance with the notice of additional environmental information provided by the county, the scope of work for the report will be as follows:

*For Archaeological Reports (Standardized - Check those that apply):
__X__ Phase 1 _____Phase 2 _____Phase 3 _____Phase 4

*For Biological Reports (Please describe Scope): Biological Assessment and any supporting studies that may be required, or appropriate

Both the Consultant and the project sponsor acknowledge that the consultant may not submit reports to the County for use in completing initial environmental assessments or EIRs for development proposals unless the consultant has been previously qualified by the County to submit such reports and unless the consultant has entered into a Memorandum of Understanding (MOU) with the County governing the preparation and handling of such reports. The project sponsor hereby acknowledges that they have been furnished a copy of the MOU, have read it, and understand the responsibilities of both the county and the consultant as set forth therein.

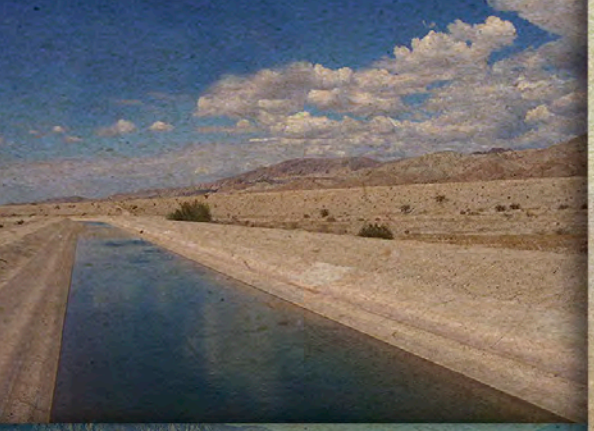
Project sponsor acknowledges that the report for which notification is hereby made is the:
__X__ 1st, _____ 2nd, or _____ (specify number) archaeological, or biological report for which contractual arrangements have been made under the direction of the project sponsor for the property described above.

PROJECT SPONSOR AND CONSULTANT are to execute the following:
I hereby affirm that all information provided above is, to the best of my knowledge, true, correct, and complete.

Project sponsor: _____ Dated: 6/22/12

Consultant: _____ Dated: 4/2/12

A Riverside County Planning Department "Date Received" stamp hereon shall acknowledge receipt of this Notice by the County.







Attachment 4

Budget

Implementation Grant, Round 2

Coachella Valley IRWM
Implementation Grant Proposal

Attachment 4

Coachella Valley Integrated Regional Water Management Implementation Grant Proposal – Round 2

Budget

Attachment 4 consists of the following items:

1. Proposal Budget(s)

This attachment provides a budget estimate for each work plan task of each project within this Implementation Grant Proposal.

The proposal budget provides detailed budget documentation to support each cost shown in Table 4-1: Summary Budget. Table 4-1 presents the requested grant amount, proposed (non-state) funding match, and other state funding. Following Table 4-1 are detailed descriptions of individual project budgets; there may be several tasks and sub-tasks that are included in project budget descriptions.

Tables 4-2 through 4-39 present the proposed funding match for each project within the Proposal, including information that describes how each project will contribute to the overall funding match. Though three of the five projects included in this proposal address critical water supply or water quality needs of disadvantaged communities (DACs) and may not have the full 25% funding match, as a whole this proposal meets the requirement with a funding match of 45%. None of the proposed projects will be applying for a funding match waiver, even those projects that are addressing DAC issues.

Total Proposal Cost Estimate

As described in Attachment 3, the *Coachella Valley IRWM Implementation Grant Proposal – Round 2* involves implementation of five high priority projects to meet the region's water management needs:

1) Non-Potable Water Use Expansion Program
2) Coachella Valley Salt and Nutrient Management Program
3) Groundwater Quality Protection Program – Subarea D2
4) San Antonio del Desierto DAC Sewer Extension Project
5) Torres-Martinez Avenue 64 Water Supply Connection Project

The total cost to implement this proposal is $9,540,674. Of this amount, $5,240,000 (55%) is being requested as grant funding from the IRWM Grant Program and $4,300,674 (45%) is provided as funding match by the local agencies and organizations or by federal agencies.

Approximately $100,000 from the *Non-Potable Water Use Expansion Program* will be allocated to grant administration by Coachella Valley Water District (CVWD) for the entire proposal. This amount represents 1% of the total proposal cost, and is therefore within the 5% of total proposal cost limit DWR has set for administration costs.

Table 4-1: Summary Budget (PSP Table 8)

Proposal Title: Coachella Valley IRWM Implementation Grant Proposal – Round 2						
Individual Project Title		(a) Requested Grant Amount	(b) Cost Share: Non-State Fund Source* (Funding Match)	(c) Cost Share: Other State Fund Source*	(d) Total Cost	(e) % Funding Match
(a)	Project 1: Non-Potable Water Use Expansion Program	$2,000,000	$1,080,478	$0	$3,080,478	35%
(b)	Project 2: Coachella Valley Salt and Nutrient Management Program	$500,000	$177,540	$0	$677,540	26%
(c)	Project 3: Groundwater Quality Protection Program – Subarea D2	$1,845,000	$1,980,952	$0	$3,825,952	48%
(d)	Project 4: San Antonio del Desierto DAC Sewer Extension Project	$740,000	$978,436	$0	$1,718,436	43%
(e)	Project 5: Torres-Martinez Avenue 64 Water Supply Connection Project	$155,000	$83,269	$0	$238,269	35%
(i)	Proposal Total	$5,240,000	$4,300,674	$0	$9,540,674	45%
(j)	DAC Funding Match Waiver Total	$0	$0	$0	$0	$0
(k)	**Grand Total**	**$5,240,000**	**$4,300,674**	**$0**	**$9,540,674**	**45%**

Note that due to rounding, the total costs presented herein are not necessarily equal to the hourly wage multiplied by the number of hours. As the hourly wages and total costs are fixed in some cases, the hours expended will be adjusted as necessary to account for rounding discrepancies.

Detailed budgets for each of the projects included within this proposal, including a summary budget and supporting cost information, are provided in the following sections.

Project 1: Non-Potable Water Use Expansion Program

The *Non-Potable Water Use Expansion Program* will involve tasks designed to increase the number of agricultural and golf course connections to the existing non-potable water systems in Coachella Valley. This project will reduce groundwater pumping and overdraft, and help utilize the capacity of existing non-potable distribution infrastructure. Funding for this program involves the following aspects of project implementation: project administration, design and engineering, and construction/ implementation.

The total cost associated with the *Non-Potable Water Use Expansion Program* is $3,080,478. Of these total costs, $2,000,000 is being requested for grant funding through the IRWM Grant Program. The remaining $1,080,478 will be provided by the partner agencies. In total, the non-State share of the total project cost (funding match) is 35% for this program. The funding match will be provided by the conservation budgets of the operating funds of the individual partner agencies.

Table 4-2 below provides a more detailed break-down of the total project budget.

Table 4-2: Project Budget
Non-Potable Water Use Expansion Program

Proposal Title: Coachella Valley IRWM Implementation Grant Proposal – Round 2
Project Title: Non-Potable Water Use Expansion Program
Project serves a need of a DAC?: ☐ Yes ☒ No
Funding Match Waiver request?: ☐ Yes ☒ No

	Category	(a) Requested Grant Amount	(b) Cost Share: Non-State Fund Source* (Funding Match)	(c) Cost Share: Other State Fund Sources*	(d) Total
(a)	Direct Project Administration	$100,000	$0	$0	$100,000
(b)	Land Purchase/ Easement	$0	$0	$0	$0
(c)	Planning/ Design/ Engineering/ Environmental Documentation	$0	$265,000	$0	$265,000
(d)	Construction/ Implementation	$1,900,000	$815,478	$0	$2,715,478
(e)	Environmental Compliance/ Mitigation/ Enhancement	$0	$0	$0	$0
(f)	Construction Administration	$0	$0	$0	$0
(g)	Other Costs	$0	$0	$0	$0
(h)	Construction/ Implementation Contingency	$0	$0	$0	$0
(i)	**Grand Total**	**$2,000,000**	**$1,080,478**	**$0**	**$3,080,478**

** Sources of funding: The non-state funding match will be provided by the conservation budgets of the operating funds of the individual partner agencies.*

This proposal is requesting funding for three project tasks identified within the *Non-Potable Water Use Expansion Program* work plan (refer to Attachment 3). The sections below provide detailed descriptions of each of the row and task budgets (where applicable). In addition, each section below describes how cost estimates for each of the tasks or rows were calculated.

Row (a) Direct Project Administration

The total direct project administration costs for the program are $100,000 and will be spent by CVWD for administration and processing of the IRWM Implementation Grant. The entirety of this cost is included in the *Non-Potable Water Use Expansion Program*'s budget. Table 4-3 provides a detailed listing of all applicable costs.

Task 1: Project Administration

This task involves administration of the *Coachella Valley IRWM Implementation Grant – Round 2* for the region. Costs will be borne by CVWD's planning manager to coordinate receipt of quarterly progress reports from all of the project sponsors, and then compile them into an overall regional progress report for submittal to the Department of Water Resources (DWR). Costs will also be borne by CVWD's analyst, who will receive and reconcile the invoices for both grant reimbursable and funding match from the project sponsors, and compile them into an overall regional grant invoice for DWR. The hourly budget estimated in Table 4-3 below also includes CVWD's project administration costs for the *Non-Potable Water Use Expansion Program.*

Task 2: Labor Compliance Program

Not applicable.

Task 3: Reporting

CVWD will assume all reporting costs under Task 1: Project Administration.

Table 4-3: Row (a) Direct Project Administration
Non-Potable Water Use Expansion Program

Activity	Discipline	Hourly Wage ($/hr)	Number of Hours	Total	Grant Request	Funding Match
Task 1: Project Administration						
CVWD Grant Administration	Planning Manager	$85	580	$49,300	$49,300	$0
	Analyst	$60	845	$50,700	$50,700	$0
Task 1 Total				**$100,000**	**$100,000**	**$0**
Row (a) Total				**$100,000**	**$100,000**	**$0**

Row (b) Land Purchase/ Easement

No pipeline easement costs will be required for this project. CVWD will obtain construction easements for connections and delivery points, then deed the new infrastructure back to the land owners for O&M.

Row (c) Planning/ Design/ Engineering/ Environmental Documentation

Program costs for the *Non-Potable Water Use Expansion Program* include final design and engineering for the proposed golf course connections. Table 4-4 provides a detailed listing of all applicable costs.

Task 4: Assessment and Evaluation

Not applicable.

Task 5: Project Design

Preliminary design activities were completed by CVWD's engineering staff prior to development of this funding application, and are not included in this budget. Costs for the final design activities identified in Table 4-4 below were based on contractor bids and CVWD's standard hourly rate of $50 per hour plus 40% extra for benefits, or a total of $70 per hour for engineering services. Final design costs for this project total $265,000 and will be provided as funding match by CVWD. As indicated in Table 4-4, part of the final design for the L4 La Quinta Extensions will be completed by a contractor, and will not be completed by CVWD. The lump sum estimate of $40,000 budgeted for a contractor to complete this task was estimated by CVWD's engineering staff based on other non-potable water system connections that have been completed through the *Non-Potable Water Use Expansion Program* prior to this funding application.

Task 6: Environmental Documentation

Not applicable.

Task 7: Permitting

Not applicable.

Table 4-4: Row (c) Planning/ Design/ Engineering/ Environmental Documentation
Non-Potable Water Use Expansion Program

Activity	Discipline	Hourly Wage ($/hr)	Number of Hours	Total	Grant Request	Funding Match
Task 5: Final Design						
Connection 1: Desert Horizons - CVWD Final Design	Engineer	$70	840	$58,800	$0	$58,800
Connection 2: Indian Springs - CVWD Final Design	Engineer	$70	980	$68,600	$0	$68,600
Connection 3: The Lakes - CVWD Final Design	Engineer	$70	464	$32,500	$0	$32,500
Connection 4: L4 Pump Station Improvements - CVWD Final Design	Engineer	$70	320	$22,400	$0	$22,400
Connection 5: L4 La Quinta Extensions - CVWD + Contracted Final Design	Engineer	$70	410	$28,700	$0	$28,700
	Contractor	$40,000	Lump Sum	$40,000	$0	$40,000
Connection 6: Indian Palms - CVWD Final Design	Engineer	$70	200	$14,000	$0	$14,000
Task 5 Total				**$265,000**	**$0**	**$265,000**
Row (c) Total				**$265,000**	**$0**	**$265,000**

Row (d) Construction/ Implementation

The Construction/ Implementation costs for the program are estimated to be $2,715,478. Table 4-5 provides a detailed listing of all applicable costs.

Task 8: Construction Contracting

Not applicable.

Task 9: Construction/ Implementation

Construction for the *Non-Potable Water Use Expansion Program* will occur through public works contracts. Construction costs for this program, summarized below, are necessary to complete the six connections that are described in Attachment 3. These construction costs were developed by CVWD's engineering staff based on other non-potable water system connections that have been completed through the *Non-Potable Water Use Expansion Program* prior to this funding application. Approximately $1,900,000 is being requested through the IRWM Grant Program and $815,478 will be provided as funding match by CVWD.

Table 4-5: Row (d) Construction/ Implementation - Summary
Non-Potable Water Use Expansion Program

Materials Used	Unit Costs ($)	Number of Units	Total ($)	Grant Request	Funding Match
Task 9: Construction/ Implementation					
Connection 1: Desert Horizons	See Table 4-6		$553,920	$346,000	$207,920
Connection 2: Indian Springs	See Table 4-7		$436,077	$353,250	$82,827
Connection 3: The Lakes	See Table 4-8		$919,470	$635,810	$283,660
Connection 4: L4 Pump Station Improvements	See Table 4-9		$78,140	$78,140	$0
Connection 5: L4 La Quinta Extensions	See Table 4-10		$581,070	$340,000	$241,070
Connection 6: Indian Palms	See Table 4-11		$146,800	$146,800	$0
Task 9 Total			**$2,715,478**	**$1,900,000**	**$815,478**
Row (d) Total			**$2,715,478**	**$1,900,000**	**$815,478**

Connection 1: Desert Horizons – Construction of Connection 1: Desert Horizons will include installation of a 24" pipeline, water meter, and water level controller. Construction costs for this connection were determined based on CVWD engineering staff experience and draft pipeline alignments developed during the preliminary design phase of the project. From these plans, along with contractor bids for similar projects, total construction costs were estimated at $553,920.

Table 4-6: Row (d) Construction/ Implementation Costs
Non-Potable Water Use Expansion Program
Connection 1: Desert Horizons

Activity	Materials Used	Unit Costs ($)	Number of Units	Total ($)	Grant Request	Funding Match
Meter	Water meter	$48,000	1	$48,000	$48,000	$0
24" Pipeline in channel	LF of 24" pipe	$200	300	$60,000	$60,000	$00
24" Pipeline in grass area	LF of 24" pipe	$90	1700	$153,000	$153,000	$0
24" Pipeline in pavement	LF of 24" pipe	$120	1650	$198,000	$85,000	$113,000
Water level control over pond	Controller	$15,000	1	$15,000	$0	$15,000
Contingency				$79,920	$0	$79,920
Connection 1 Subtotal				**$553,920**	**$346,000**	**$207,920**

Connection 2: Indian Springs - Construction of Connection 2 Indian Springs will include installation of a 18" pipeline, concrete panel, water meter, and water level controller. Construction costs for this connection were determined based on CVWD engineering staff experience and draft pipeline alignments developed during the preliminary design phase of the project. From these plans, along with contractor bids for similar projects, total construction costs were estimated at $436,077.

Table 4-7: Row (d) Construction/ Implementation Costs
Non-Potable Water Use Expansion Program
Connection 2: Indian Springs

Activity	Materials Used	Unit Costs ($)	Number of Units	Total ($)	Grant Request	Funding Match
Meter	Water meter	$48,000	1	$48,000	$48,000	$0
New 18" stub out from 54" steel pipe	Stun	$45,000	1	$45,000	$45,000	$0
18" pipeline in channel	LF of 18" pipe	$200	200	$40,000	$40,000	$0
18" pipeline outside channel	LF of 18" pipe	$135	200	$27,000	$27,000	$0
Remove and replace concrete panel	LF of 18" pipe	$950	20	$19,000	$19,000	$0
Traffic control and striping at Fiesta Drive	Lump Sum	$2,000	1	$2,000	$2,000	$0
Connection to CVWD pipe	Lump Sum	$40,000	1	$40,000	$40,000	$0
18" pipeline in golf course	LF of 18" pipe	$85	1000	$85,000	$85,000	$0
18" pipeline from end of golf course to well site	LF of 18" pipe	$135	350	$47,250	$47,250	$0
Water level control over pond	Controller	$15,000	1	$15,000	$0	$15,000
Traffic control and striping	Lump Sum	$2,000	1	$2,000	$0	$2,000
Contingency				$65,827	$0	$65,827
Connection 2 Subtotal				**$436,077**	**$353,250**	**$82,827**

Connection 3: The Lakes - Construction of Connection 3: The Lakes will include installation of a 12" pipeline, water meters, power supplies, air release valves, concrete vault, and water level controller. Construction costs for this connection were determined based on CVWD engineering staff experience and draft pipeline alignments developed during the preliminary design phase of the project. From these plans, along with contractor bids for similar projects, total construction costs were estimated at $919,470.

Table 4-8: Row (d) Construction/ Implementation Costs
Non-Potable Water Use Expansion Program
Connection 3: The Lakes

Activity	Materials Used	Unit Costs ($)	Number of Units	Total ($)	Grant Request	Funding Match
Meter	Water meter	$35,000	3	$105,000	$105,000	$0
12" Pipeline	LF of 12" pipe	$225	1700	$382,500	$382,500	$0
Power supply	Lump Sum	$10,000	3	$30,000	$30,000	$0
2" Air release valve	Valve	$2,900	2	$5,800	$5,800	$0
12" pipeline in golf course	LF of 12" pipe	$185	400	$74,000	$74,000	$0
12" pipeline in pavement	LF of 12" pipe	$225	500	$112,500	$38,510	$73,990
6'x8' Concrete vault	Vault	$5,500	3	$16,500	$0	$16,500
Automated water level control valve	Valve	$5,500	3	$16,500	$0	$16,500
Floater and telemetry	Lump Sum	$7,500	3	$22,500	$0	$22,500
Power supply	Lump Sum	$10,000	3	$30,000	$0	$30,000
Contingency				$124,170	$0	$124,170
Connection 3 Subtotal				**$919,470**	**$635,810**	**$283,660**

Connection 4: L4 Pump Station Improvements – Construction of Connection 4: L4 Pump station Improvements will include installation of a water meter and two variable frequency drives. Construction costs for this connection were determined based on CVWD engineering staff experience and draft pipeline alignments developed during the preliminary design phase of the project. From these plans, along with contractor bids for similar projects, total construction costs were estimated at $78,140.

Table 4-9: Row (d) Construction/ Implementation Costs
Non-Potable Water Use Expansion Program
Connection 4: L4 Pump Station Improvements

Activity	Materials Used	Unit Costs ($)	Number of Units	Total ($)	Grant Request	Funding Match
Meter	Water meter	$45,000	1	$45,000	$45,000	$0
Variable frequency drives	VFDs	$12,000	2	$24,000	$24,000	$0
Contingency				$9,140	$9,140	$0
Connection 4 Subtotal				**$78,140**	**$78,140**	**$0**

Connection 5: L4 La Quinta Extensions – Construction of Connection 5: L4 La Quinta Extensions will include installation of a 6” pipeline, 30” pipeline, and water meters. Construction costs for this connection were determined based on CVWD engineering staff experience and draft pipeline alignments developed during the preliminary design phase of the project. From these plans, along with contractor bids for similar projects, total construction costs were estimated at $581,070.

Table 4-10: Row (d) Construction/ Implementation Costs
Non-Potable Water Use Expansion Program
Connection 5: L4 La Quinta Extensions

Activity	Materials Used	Unit Costs ($)	Number of Units	Total ($)	Grant Request	Funding Match
Meter	Water meter	$15,000	2	$30,000	$30,000	$0
6" pipeline	LF of 6" pipe	$30	2640	$79,200	$79,200	$0
30" pipeline	LF of 6" pipe	$96	4300	$412,800	$230,800	$182,000
Contingency				$59,070	$0	$59,070
Connection 5 Subtotal				**$581,070**	**$340,000**	**$241,070**

Connection 6: Indian Palms – Construction of Connection 6: Indian Palms will include installation of a 12" pipeline, upstream tie-in, water meter, and appurtenances. Construction costs for this connection were determined based on CVWD engineering staff experience and draft pipeline alignments developed during the preliminary design phase of the project. From these plans, along with contractor bids for similar projects, total construction costs were estimated at $146,800.

Table 4-11: Row (d) Construction/ Implementation Costs
Non-Potable Water Use Expansion Program
Connection 6: Indian Palms

Activity	Materials Used	Unit Costs ($)	Number of Units	Total ($)	Grant Request	Funding Match
Mobilization	Lump Sum	$5,000	1	$5,000	$5,000	$0
Remove and replace pavement	Lump Sum	$20,000	1	$20,000	$20,000	$0
12" pipeline	LF of 12" pipe	$40	1450	$58,000	$58,000	$0
Upstream tie-in at Monroe	Lump Sum	$9,000	1	$9,000	$9,000	$0
8" meter and appurtenances	Water Meter	$20,000	1	$20,000	$20,000	$0
Abandon existing pipeline per USBR standards	Lump Sum	$15,000	1	$15,000	$15,000	$0
Traffic control	Lump Sum	$3,000	1	$3,000	$3,000	$0
Contingency				$16,800	$16,800	$0
Connection 6 Subtotal				**$146,800**	**$146,800**	**$0**

Row (e) Environmental Compliance/ Mitigation/ Enhancement

Task 10: Environmental Compliance/ Mitigation/ Enhancement

Not applicable.

Row (f) Construction Administration

Task 11: Construction Administration

Not applicable.

Row (g) Other Costs

No other costs will be required for implementation of this program.

Row (h) Construction/Implementation Contingency

All construction contingency costs are included as part of the construction cost estimates (Task 9).

Row (i) Grand Total

The Grand Total for the *Non-Potable Water Use Expansion Program* ($3,080,478) was calculated as the sum of rows (a) through (h).

Table 4-12: Row (i) Grand Total Costs
Non-Potable Water Use Expansion Program

Row	Category	Total
(a)	Direct Project Administration	$100,000
(b)	Land Purchase/Easement	$0
(c)	Planning/Design/Engineering/ Environmental Documentation	$265,000
(d)	Construction/Implementation	$2,715,478
(e)	Environmental Compliance/ Mitigation/Enhancement	$0
(f)	Construction Administration	$0
(g)	Other Costs	$0
(h)	Construction/Implementation Contingency	$0
(i)	**Grand Total**	**$3,080,478**

Project 2: Coachella Valley Salt and Nutrient Management Program

The *Coachella Valley Salt and Nutrient Management Program* is the second phase of a proposed three-phase program. It will involve developing an initial Salt and Nutrient Management Plan (SNMP) for the Coachella Valley Groundwater Basin in order to meet the requirements of the State of California's Recycled Water Policy. Phase I (Initial SNMP Scoping and Work Plan Development) was funded through an IRWM Proposition 84 Planning Grant and was completed in 2012. Funding for Phase II involves the planning and assessment aspect of program implementation.

The total cost associated with the *Coachella Valley Salt and Nutrient Management Program* is $677,540. Of these total costs, $500,000 is being requested for grant funding through the IRWM Grant Program. The remaining $177,540 will be provided through in-kind staff contributions from the five Coachella Valley Regional Water Management Group (CVRWMG) agencies – CVWD, DWA, MSWD, IWA, and CWA. In total, the non-State share of the total project cost (funding match) is 26% for this project.

Table 4-13 below provides a more detailed break-down of the total project budget.

Table 4-13: Total Project Budget
Coachella Valley Salt and Nutrient Management Program

Proposal Title: Coachella Valley IRWM Implementation Grant Proposal – Round 2
Project Title: Coachella Valley Salt and Nutrient Management Program
Project serves a need of a DAC?: ☐ **Yes** ☒ **No**
Funding Match Waiver request?: ☐ **Yes** ☒ **No**

		(a)	(b)	(c)	(d)
Category		**Requested Grant Amount**	**Cost Share: Non-State Fund Source* (Funding Match)**	**Cost Share: Other State Fund Sources***	**Total**
(a)	Direct Project Administration	$0	$0	$0	$0
(b)	Land Purchase/ Easement	$0	$0	$0	$0
(c)	Planning/ Design/ Engineering/ Environmental Documentation	$500,000	$177,540	$0	$677,540
(d)	Construction/ Implementation	$0	$0	$0	$0
(e)	Environmental Compliance/ Mitigation/ Enhancement	$0	$0	$0	$0
(f)	Construction Administration	$0	$0	$0	$0
(g)	Other Costs	$0	$0	$0	$0
(h)	Construction/ Implementation Contingency	$0	$0	$0	$0
(i)	**Grand Total**	**$500,000**	**$177,540**	**$0**	**$677,540**

** Sources of funding: The non-state funding match will include in-kind staff labor from the five CVRWMG agencies.*

This Implementation Grant Proposal is requesting funding for one task as identified within the *Coachella Valley Salt and Nutrient Management Program* work plan (refer to Attachment 3).

The sections below provide detailed descriptions of each of the row and task budgets (where applicable). In addition, each description below describes how cost estimates for each of the tasks or rows were calculated.

Row (a) Direct Project Administration

Task 1: Project Administration

CVWD will assume all direct project administration costs for this project. Although the reporting deliverables identified in the work plan (Attachment 3) will be submitted per the grant contract, those costs will not be tracked by CVWD and therefore are not included in this budget.

Task 2: Labor Compliance Program

Not applicable.

Task 3: Reporting

Not applicable.

Row (b) Land Purchase/Easement

Not applicable.

Row (c) Planning/Design/Engineering/Environmental Documentation

The total planning/ design/ engineering/ environmental documentation costs for the project are $677,540. Table 4-14 provides a detailed listing of all applicable costs.

Task 4: Assessment and Evaluation

This task includes the steps necessary for creating an SNMP for the Coachella Valley Groundwater Basin. These steps are detailed in the work plan (see Attachment 3). The costs associated with this task are anticipated to total $677,540, which was calculated based on the detailed work plan and consultant estimate of the required personnel and time to achieve each subtask.

The proposed staffing for the *Coachella Valley Salt and Nutrient Management Program* includes the following roles/responsibilities. Each of the subtask budgets below includes one or more of these staffing categories:

- Principal in Charge: Overall project oversight and responsible for quality assurance/quality control (QA/QC) of all deliverables
- Senior Project Manager: Day-to-day project management of staff, scope, schedule, and budget, as well as providing technical leadership and management of stakeholder process
- Project Manager: Assist Senior Project Manager with day-to-day management of the project, including stakeholder outreach. Lead for all technical tasks and oversight of technical staff.
- Project Engineer: Staff level engineers, scientists, and planners who will work under Senior Project Manager and Project Manager to conduct technical analysis and prepare presentations for meeting, technical memorandums, and reports.
- Project Administrator: Provide assistance to Project Manager and technical team for invoices, formatting and printing reports, and other administrative support.
- Subconsultant: Assist with stakeholder outreach/management process and provide technical expertise on certain tasks.

Table 4-14: Row (c) Planning/ Design/ Environmental Documentation - Summary
Coachella Valley Salt and Nutrient Management Program

Subtask	Hourly Wage ($/hr)	Number of Hours	Total	Grant Request	Funding Match
Task 4: Assessment and Evaluation					
4.1 Establish Collaborative Process	See Table 4-15		$235,617	$77,445	$158,172
4.2 Conduct Basin Characterization	See Table 4-16		$83,150	$83,150	$0
4.3 Identify Salt/Nutrient Loading and Trends	See Table 4-17		$86,655	$86,655	$0
4.4 Identify Water Management Goals and Potential Strategies	See Table 4-18		$89,930	$89,930	$0
4.5 Conduct Anti-Degradation Process	See Table 4-19		$32,130	$32,130	$0
4.6 Finalize Phase 2 SNMP	See Table 4-20		$150,058	$130,690	$19,368
Task 4 Total			**$677,540**	**$500,000**	**$177,540**
Row (c) Total			**$677,540**	**$500,000**	**$177,540**

Subtask 4.1: Establish Collaborative Process – This subtask involves developing working groups, conducting technical review meetings and conference calls, conducing SNMP stakeholder workshops, and program management/technical team oversight. Costs for these activities were developed by a consultant during Phase I and are based on estimations of labor costs from past experience. Each technical review meeting and stakeholder workshop will require 8 hours of time for each of the five CVRWMG agencies (4 hours to attend meetings, 4 hours to review and comment on materials), which will be provided as funding match. Six hours of effort from each of the five CVRWMG agencies is expected for program management/technical team oversight for each of the monthly meetings required during the length of this project. This subtask is anticipated to cost $235,617.

Table 4-15: Row (c) Planning/ Design/ Environmental Documentation Costs
Coachella Valley Salt and Nutrient Management Program
Subtask 4.1: Establish Collaborative Process

Discipline	Hourly Wage ($/hr)	Number of Hours	Total	Grant Request	Funding Match
Subtask 4.1: Establish Collaborative Process					
4.1.1 Develop Working Groups					
Sr. Project Manager	$225	2	$450	$450	$0
Project Engineer	$175	16	$2,800	$2,800	$0
Project Administrator	$95	1	$95	$95	$0
Subtotal			**$3,345**	**$3,345**	
4.1.2 Conduct Technical Review Meetings					
Principal in Charge	$270	4	$1,080	$1,080	$0
Sr. Project Manager	$225	48	$10,800	$10,800	$0
Project Manager	$205	48	$9,840	$9,840	$0
Project Engineer	$175	20	$3,500	$3,500	$0
Project Administrator	$95	1	$95	$95	$0
CVWD rep	$220	48	$10,560	$0	$10,560
MSWD rep	$207	48	$9,936	$0	$9,936

Discipline	Hourly Wage ($/hr)	Number of Hours	Total	Grant Request	Funding Match
DWA rep	$180	48	$8,640	$0	$8,640
IWA rep	$100	48	$4,800	$0	$4,800
CWA rep	$100	48	$4,800	$0	$4,800
Subconsultant			$4,400	$4,400	$0
Total ODC			$1,100	$1,100	$0
Subtotal			**$69,551**	**$30,815**	**$38,736**
4.1.3 Conduct Technical Review Conference Calls					
Principal in Charge	$270	2	$540	$540	$0
Sr. Project Manager	$225	12	$2,700	$2,700	$0
Project Manager	$205	10	$2,050	$2,050	$0
Project Engineer	$175	20	$3,500	$3,500	$0
Project Administrator	$95	1	$95	$95	$0
Subconsultant			$2,200	$2,200	$0
Subtotal			**$11,085**	**$11,085**	**$0**
4.1.4 Conduct SNMP Stakeholder Workshops					
Principal in Charge	$270	8	$2,160	$2,160	$0
Sr. Project Manager	$225	36	$8,100	$8,100	$0
Project Manager	$205	24	$4,920	$4,920	$0
Project Engineer	$175	32	$5,600	$5,600	$0
Project Administrator	$95	8	$760	$760	$0
CVWD Representative	$220	40	$8,800	$0	$8,800
MSWD Representative	$207	40	$8,280	$0	$8,280
DWA Representative	$180	40	$7,200	$0	$7,200
IWA Representative	$100	40	$4,000	$0	$4,000
CWA Representative	$100	40	$4,000	$0	$4,000
Subconsultant			$8,800	$8,800	$0
Total ODC			$1,860	$1,860	$0
Subtotal			**$64,480**	**$32,200**	**$32,280**
4.1.5 Program Management/Oversight of Technical Team					
CVWD Representative	$220	108	$23,760	$0	$23,760
MSWD Representative	$207	108	$22,356	$0	$22,356
DWA Representative	$180	108	$19,440	$0	$19,440
IWA Representative	$100	108	$10,800	$0	$10,800
CWA Representative	$100	108	$10,800	$0	$10,800
Subtotal			**$87,156**	**$0**	**$87,156**
Task 4.1 Total			**$235,617**	**$77,445**	**$158,172**

Subtask 4.2: Conduct Basin Characterization – This subtask will involve identifying groundwater basins, reviewing existing studies and data, documenting beneficial uses, characterizing groundwater, and identifying salt/nutrient/constituents of concern. Costs are expected to total $83,150 and were estimated by a consultant.

Table 4-16: Row (c) Planning/ Design/ Environmental Documentation Costs
Coachella Valley Salt and Nutrient Management Program
Subtask 4-2: Conduct Basin Characterization

Discipline	Hourly Wage ($/hr)	Number of Hours	Total	Grant Request	Funding Match
Subtask 4.2: Conduct Basin Characterization					
4.2.1 Identify Groundwater Basins Being Evaluated					
Sr. Project Manager	$225	2	$450	$450	$0
Project Manager	$205	12	$2,460	$2,460	$0
Project Engineer	$175	4	$700	$700	$0
Project Administrator	$95	1	$95	$95	$0
Subtotal			**$3,705**	**$3,705**	**$0**
4.2.2 Identify, Collect, and Review Existing Groundwater Studies and Data					
Sr. Project Manager	$225	4	$900	$900	$0
Project Manager	$205	16	$3,280	$3,280	$0
Project Engineer	$175	32	$5,600	$5,600	$0
Project Administrator	$95	8	$760	$760	$0
Total ODC			$1,100	$1,100	$0
Subtotal			**$11,640**	**$11,640**	**$0**
4.2.3 Document Beneficial Uses					
Principal in Charge	$270	2	$540	$540	$0
Sr. Project Manager	$225	10	$2,250	$2,250	$0
Project Manager	$205	24	$4,920	$4,920	$0
Project Engineer	$175	40	$7,000	$7,000	$0
Project Administrator	$95	1	$95	$95	$0
Subconsultant			$4,400	$4,400	$0
Subtotal			**$19,205**	**$19,205**	**$0**
4.2.4 Characterize Groundwater Quality and Occurrences					
Principal in Charge	$270	$540	$540	$540	$0
Sr. Project Manager	$225	$5,400	$5,400	$5,400	$0
Project Manager	$205	$13,120	$13,120	$13,120	$0
Project Engineer	$175	$14,000	$14,000	$14,000	$0
Project Administrator	$95	$95	$95	$95	$0
Subconsultant		$4,400	$4,400	$4,400	$0
Subtotal			**$37,555**	**$37,555**	**$0**
4.2.5 Identify Salinity, Nutrients, and Constituents of Concern					
Sr. Project Manager	$225	8	$1,800	$1,800	$0
Project Manager	$205	16	$3,280	$3,280	$0
Project Engineer	$175	20	$3,500	$3,500	$0
Project Administrator	$95	1	$95	$95	$0
Subconsultant			$1,100	$1,100	$0
Subtotal			**$9,775**	**$9,775**	**$0**
4.2.6 Establish Baseline Conditions					

Discipline	Hourly Wage ($/hr)	Number of Hours	Total	Grant Request	Funding Match
Sr. Project Manager	$225	2	$450	$450	$0
Project Manager	$205	4	$820	$820	$0
Subtotal			**$1,270**	**$1,270**	**$0**
Task 4.2 Total			**$83,150**	**$83,150**	**$0**

Subtask 4.3: Identify Salt/Nutrient Loading and Trends – This subtask will involve identifying salinity and nutrient sources, quantifying salinity and nutrient source loads, and developing a plan for data gaps. These costs were developed by a consultant contracted in Phase I. Costs are expected to total $86,655 and were estimated by a consultant.

Table 4-17: Row (c) Planning/ Design/ Environmental Documentation Costs
Coachella Valley Salt and Nutrient Management Program
Subtask 4.3: Identify Salt/Nutrient Loading and Trends

Discipline	Hourly Wage ($/hr)	Number of Hours	Total	Grant Request	Funding Match
Subtask 4.3: Identify Salt/Nutrient Loading and Trends					
4.3.1 Identify Salinity and Nutrient Sources					
Principal in Charge	$270	1	$270	$270	$0
Sr. Project Manager	$225	12	$2,700	$2,700	$0
Project Manager	$205	26	$5,330	$5,330	$0
Project Engineer	$175	32	$5,600	$5,600	$0
Project Administrator	$95	1	$95	$95	$0
Subconsultant			$2,200	$2,200	$0
Subtotal			**$16,195**	**$16,195**	**$0**
4.3.2 Quantify Salinity and Nutrient Source Loads					
Principal in Charge	$270	2	$540	$540	$0
Sr. Project Manager	$225	42	$9,450	$9,450	$0
Project Manager	$205	128	$26,240	$26,240	$0
Project Engineer	$175	116	$20,300	$20,300	$0
Project Administrator	$95	1	$95	$95	$0
Subconsultant			$2,200	$2,200	$0
Subtotal			**$58,825**	**$58,825**	**$0**
4.3.3 Develop a Plan for Data Gaps					
Principal in Charge	$270	1	$270	$270	$0
Sr. Project Manager	$225	6	$1,350	$1,350	$0
Project Manager	$205	24	$4,920	$4,920	$0
Project Engineer	$175	16	$2,800	$2,800	$0
Project Administrator	$95	1	$95	$95	$0
Subconsultant			$2,200	$2,200	$0
Subtotal			**$11,635**	**$11,635**	**$0**
Task 4.3 Total			**$86,655**	**$86,655**	**$0**

Subtask 4.4: Identify Water Management Goals and Potential Strategies – This subtask will include identifying water supply and quality management goals, developing a list of potential management strategies, evaluating the feasibility of potential management strategies, and an assimilative capacity analysis. Costs are expected to total $89,930 and were estimated by a consultant.

Table 4-18: Row (c) Planning/ Design/ Environmental Documentation Costs
Coachella Valley Salt and Nutrient Management Program
Subtask 4.4: Identify Water Management Goals and Potential Strategies

Discipline	Hourly Wage ($/hr)	Number of Hours	Total	Grant Request	Funding Match
Subtask 4.4: Identify Water Management Goals and Potential Strategies					
4.4.1 Identify Water Supply and Water Quality Management Goals					
Principal in Charge	$270	4	$1,080	$1,080	$0
Sr. Project Manager	$225	16	$3,600	$3,600	$0
Project Manager	$205	30	$6,150	$6,150	$0
Project Engineer	$175	12	$2,100	$2,100	$0
Project Administrator	$95	1	$95	$95	$0
Subconsultant			$8,800	$8,800	$0
Subtotal			**$21,825**	**$21,825**	**$0**
4.4.2 Develop List of Potential Management Strategies					
Principal in Charge	$270	4	$1,080	$1,080	$0
Sr. Project Manager	$225	24	$5,400	$5,400	$0
Project Manager	$205	42	$8,610	$8,610	$0
Project Engineer	$175	24	$4,200	$4,200	$0
Project Administrator	$95	1	$95	$95	$0
Subconsultant			$8,800	$8,800	$0
Subtotal			**$28,185**	**$28,185**	**$0**
4.4.3 Evaluate Feasibility of Potential Management Strategies					
Principal in Charge	$270	2	$540	$540	$0
Sr. Project Manager	$225	8	$1,800	$1,800	$0
Project Manager	$205	40	$8,200	$8,200	$0
Project Engineer	$175	24	$4,200	$4,200	$0
Project Administrator	$95	1	$95	$95	$0
Subtotal			**$14,835**	**$14,835**	**$0**
4.4.4 Assimilative Capacity Analysis					
Principal in Charge	$270	2	$540	$540	$0
Sr. Project Manager	$225	20	$4,500	$4,500	$0
Project Manager	$205	40	$8,200	$8,200	$0
Project Engineer	$175	42	$7,350	$7,350	$0
Project Administrator	$95	1	$95	$95	$0
Subconsultant			$4,400	$4,400	$0
Subtotal			**$25,085**	**$25,085**	**$0**
Task 4.4 Total			**$89,930**	**$89,930**	**$0**

Subtask 4.5: Conduct Anti-Degradation Process – This subtask involves assessing load reductions and water quality improvements, and identifying preferred management strategies. Subtask 4-5 is expected to cost $32,130, based on a consultant estimate.

Table 4-19: Row (c) Planning/ Design/ Environmental Documentation Costs
Coachella Valley Salt and Nutrient Management Program
Subtask 4.5: Conduct Anti-Degradation Process

Discipline	Hourly Wage ($/hr)	Number of Hours	Total	Grant Request	Funding Match
Subtask 4.5: Conduct Anti-Degradation Process					
4.5.1 Assess Load Reductions and Water Quality Improvements					
Principal in Charge	$270	2	$540	$540	$0
Sr. Project Manager	$225	8	$1,800	$1,800	$0
Project Manager	$205	60	$12,300	$12,300	$0
Project Engineer	$175	36	$6,300	$6,300	$0
Project Administrator	$95	1	$95	$95	$0
Subconsultant			$2,200	$2,200	$0
Subtotal			**$23,235**	**$23,235**	**$0**
4.5.2 Identify Preferred Management Strategies					
Principal in Charge	$270	2	$540	$540	$0
Sr. Project Manager	$225	4	$900	$900	$0
Project Manager	$205	22	$4,510	$4,510	$0
Project Engineer	$175	10	$1,750	$1,750	$0
Project Administrator	$95	1	$95	$95	$0
Subconsultant			$1,100	$1,100	$0
Subtotal			**$8,895**	**$8,895**	**$0**
Task 4-5 Total			**$32,130**	**$32,130**	**$0**

Subtask 4.6: Finalize Phase 2 SNMP – This subtask will include all activities necessary for finalizing the SNMP deliverable. This will include developing an implementation plan; identifying metrics and developing a monitoring plan; developing a data management, reporting and auditing process; determining CEQA/NEPA compliance needs; and finalizing the plan itself. These costs are expected to total $150,058, based on a consultant estimate.

Table 4-20: Row (c) Planning/ Design/ Environmental Documentation Costs
Coachella Valley Salt and Nutrient Management Program
Subtask 4.6: Finalize Salt and Nutrient Management Plan

Discipline	Hourly Wage ($/hr)	Number of Hours	Total	Grant Request	Funding Match
Subtask 4.6: Finalize Salt and Nutrient Management Plan					
4.6.1 Develop Implementation Plan					
Principal in Charge	$270	4	$1,080	$1,080	$0
Sr. Project Manager	$225	24	$5,400	$5,400	$0
Project Manager	$205	40	$8,200	$8,200	$0
Project Engineer	$175	16	$2,800	$2,800	$0
Project Administrator	$95	1	$95	$95	$0

Discipline	Hourly Wage ($/hr)	Number of Hours	Total	Grant Request	Funding Match
Subconsultant			$1,100	$1,100	$0
Subtotal			**$18,675**	**$18,675**	**$0**
4.6.2 Identify Metrics and Develop Monitoring Program					
Principal in Charge	$270	1	$270	$270	$0
Sr. Project Manager	$225	26	$5,850	$5,850	$0
Project Manager	$205	40	$8,200	$8,200	$0
Project Engineer	$175	44	$7,700	$7,700	$0
Project Administrator	$95	1	$95	$95	$0
Subconsultant			$1,100	$1,100	$0
Subtotal			**$23,215**	**$23,215**	**$0**
4.6.3 Develop SNMP Data Management, Reporting, and Audit Process					
Principal in Charge	$270	1	$270	$270	$0
Sr. Project Manager	$225	4	$900	$900	$0
Project Manager	$205	16	$3,280	$3,280	$0
Project Engineer	$175	14	$2,450	$2,450	$0
Project Administrator	$95	1	$95	$95	$0
Subconsultant			$1,100	$1,100	$0
Subtotal			**$8,095**	**$8,095**	**$0**
4.6.4 Determine CEQA/NEPA Compliance Needs					
Principal in Charge	$270	1	$270	$270	$0
Sr. Project Manager	$225	26	$5,850	$5,850	$0
Project Manager	$205	64	$13,120	$13,120	$0
Project Engineer	$175	80	$14,000	$14,000	$0
Project Administrator	$95	1	$95	$95	$0
Subconsultant			$1,100	$1,100	$0
Subtotal			**$34,435**	**$34,435**	**$0**
4.6.5 Finalization of the SNMP					
Principal in Charge	$270	8	$2,160	$2,160	$0
Sr. Project Manager	$225	40	$9,000	$9,000	$0
Project Manager	$205	80	$16,400	$16,400	$0
Project Engineer	$175	88	$15,400	$15,400	$0
Project Administrator	$95	8	$760	$760	$0
CVWD Representative	$220	24	$5,280	$0	$5,280
MSWD Representative	$207	24	$4,968	$0	$4,968
DWA Representative	$180	24	$4,320	$0	$4,320
IWA Representative	$100	24	$2,400	$0	$2,400
CWA Representative	$100	24	$2,400	$0	$2,400
Subconsultant			$1,100	$1,100	$0
Total ODC			$1,450	$1,450	$0
Subtotal			**$65,638**	**$46,270**	**$19,368**
Task 4-6 Total			**$150,058**	**$130,690**	**$19,368**

Task 5: Final Design

Not applicable.

Task 6: Environmental Documentation

Not applicable.

Task 7: Permitting

Not applicable.

Row (d) Construction/ Implementation

There are no Construction/ Implementation costs for this project.

Task 8: Construction Contracting

Not applicable.

Task 9: Construction

Not applicable

Row (e) Environmental Compliance/ Mitigation/ Enhancement

Task 10: Environmental Compliance/ Mitigation/ Enhancement

Not applicable.

Row (f) Construction Administration

Task 11: Construction Administration

Not applicable.

Row (g) Other Costs

There are no Other Costs for this project.

Row (h) Construction/Implementation Contingency

Not applicable.

Row (i) Grand Total

The Grand Total for the *Coachella Valley Salt and Nutrient Management Program* ($677,540) was calculated as the sum of rows (a) through (h).

Table 4-21: Row (i) Grand Total Costs
Coachella Valley Salt and Nutrient Management Program

Row	Budget Category	Total Costs
(a)	Direct Project Administration Costs	$0
(b)	Land Purchase/Easement	$0
(c)	Planning/Design/Engineering/ Environmental Documentation	$677,540
(d)	Construction/Implementation	$0
(e)	Environmental Compliance/ Mitigation/Enhancement	$0
(f)	Construction Administration	$0
(g)	Other Costs (Including Legal Costs, Permitting and Licenses)	$0
(h)	Construction/Implementation Contingency	$0
(i)	**Grand Total**	**$677,540**

Project 3: Groundwater Quality Protection Project – Subarea D2

This project will involve extending the Mission Springs Water District's (MSWD) municipal wastewater collection system to a residential area, designated as Subarea D2. By eliminating the need for on-site septic systems in that area, this project will reduce the potential for groundwater contamination from densely clustered and/or failing septic systems. Funding for this project involves the following aspects of project implementation: project administration, planning/ design/ engineering/ environmental documentation, construction/ implementation, construction administration, and construction/ implementation contingency.

The total cost associated with the *Groundwater Quality Protection Program – Subarea D2* is $3,825,952. Of these total costs, $1,845,000 is being requested for grant funding through the IRWM Grant Program. The remaining $1,980,952 will be provided by MSWD. In total, the non-State share of the total project cost (funding match) is 48% for this project. This funding match will include funds from MSWD Assessment District No. 12 bonds and MSWD Capital Improvement Project (CIP) fund.

Table 4-22 below provides a more detailed break-down of the total project budget.

Table 4-22: Total Project Budget
Groundwater Quality Protection Program - Subarea D2

Proposal Title: Coachella Valley IRWM Implementation Grant Proposal – Round 2
Project Title: Groundwater Quality Protection Program - Subarea D2
Project serves a need of a DAC?: ☒ **Yes** ☐ **No**
Funding Match Waiver request?: ☐ **Yes** ☒ **No**

	Category	(a) Requested Grant Amount	(b) Cost Share: Non-State Fund Source* (Funding Match)	(c) Cost Share: Other State Fund Sources*	(d) Total
(a)	Direct Project Administration	$41,545	$41,545	$0	$83,090
(b)	Land Purchase/Easement	$0	$0	$0	$0
(c)	Planning/Design/Engineering/ Environmental Documentation	$0	$7,680	$0	$7,680
(d)	Construction/Implementation	$1,468,172	$1,595,196	$0	$3,063,368
(e)	Environmental Compliance/ Mitigation/Enhancement	$0	$0	$0	$0
(f)	Construction Administration	$162,000	$162,000	$0	$324,000
(g)	Other Costs	$0	$0	$0	$0
(h)	Construction/Implementation Contingency	$173,283	$174,531	$0	$347,814
(i)	**Grand Total**	**$1,845,000**	**$1,980,952**	$0	**$3,825,952**

** Sources of funding: The non-state funding match will include funds from MSWD Assessment District No. 12 bonds and MSWD Capital Improvement Project (CIP) fund.*

This Implementation Grant Proposal budget allocates funding for five project tasks, as well as a Construction/ Implementation Contingency, identified within the *Groundwater Quality Protection Program - Subarea D2* work plan (refer to Attachment 3).

The sections below provide detailed descriptions of each of the row and task budgets (where applicable). In addition, each description below describes how cost estimates for each of the tasks or rows were calculated.

Row (a) Direct Project Administration Costs

The total direct project administration costs for the project are $83,090 or 2% of the total project budget. Table 4-23 provides a detailed listing of all applicable costs.

Task 1: Project Administration

This task includes the cost for all project administration efforts to be completed by MSWD engineering staff. These costs were determined based on MSWD's past experience implementing septic-to-sewer conversion for the other subareas of Assessment District No. 12. Costs will be borne by MSWD's General Manager to review overall project progress and by MSWD's Project Manager who will be responsible for day-to-day project management. Costs are expected to total $26,250.

Task 2: Labor Compliance Program

MSWD will hire a consultant to implement a labor compliance program (LCP) for the *Groundwater Quality Protection Program - Subarea D2.* Costs required to implement the LCP will total $23,040 and will include the following activities: field interview project labor force, review contractor certified payroll, prepare deficiency notification, and prepare final report summarizing labor compliance. Costs for implementation of the LCP are estimated to total $23,040.

Task 3: Reporting

This task includes the cost associated with preparing the invoice work summary, quarterly progress reports, and final reports for submittal to CVWD and DWR. This is based on the estimate that 240 hours will be allocated to the administration of the DWR reports (collecting information and assembling reports). Costs for reporting are estimated to total $28,800.

In addition to the individual task costs described above, it is assumed that the project would require other direct costs associated with professional services. This amount has been estimated as $5,000 based on previous experience with administration, labor compliance, and reporting for grants.

Table 4-23: Row (a) Direct Project Administration
Groundwater Quality Protection Program - Subarea D2

Activity	Discipline	Hourly Wage ($/hr)	Number of Hours	Total	Grant Request	Funding Match
Task 1 – Project Administration						
Project Coordination	General Manager	$125	50	$6,250	$3,125	$3,125
	Project Manager	$100	200	$20,000	$10,000	$10,000
Task 1 Total				**$26,250**	**$13,125**	**$13,125**
Task 2 – Labor Compliance Program						
Field Interview Project Labor Force	Consultant	$120	72	$8,640	$4,320	$4,320
Review Contractor Certified Payroll	Consultant	$120	48	$5,760	$2,880	$2,880

Activity	Discipline	Hourly Wage ($/hr)	Number of Hours	Total	Grant Request	Funding Match
Prepare Deficiency Notification	Consultant	$120	48	$5,760	$2,880	$2,880
Prepare Final Report Summarizing Labor Compliance	Consultant	$120	24	$2,880	$1,440	$1,440
Task 2 Total				**$23,040**	**$11,520**	**$11,520**
Task 3 - Reporting						
Compile Invoices and Work Summary	Consultant	$120	40	$4,800	$2,400	$2,400
Prepare Quarterly Reports	Consultant	$120	120	$14,400	$7,200	$7,200
Prepare Final Report	Consultant	$120	80	$9,600	$4,800	$4,800
Task 3 Total				**$28,800**	**$14,400**	**$14,400**
Equipment/Supplies						
Professional Services ODCs				$5,000	$2,500	$2,500
Row (a) Total				**$83,090**	**$41,545**	**$41,545**

Row (b) Land Purchase/ Easement

Not applicable.

Row (c) Planning/ Design/ Engineering/ Environmental Documentation

The total planning/ design/ engineering/ environmental documentation cost for the project is $7,680 and is shown in Table 4-24. All planning and engineering has been completed for implementation of sewer construction in Assessment District No. 12, save permitting for the individual subarea projects.

Task 4: Assessment and Evaluation

Not applicable.

Task 5: Final Design

Design was completed in conjunction with a U.S. Army Corps of Engineers planning grant that required a 25% local cost share. Not applicable.

Task 6: Environmental Documentation

Not applicable.

Task 7: Permitting

MSWD will apply for an NPDES General Construction Permit, which requires development and implementation of a Stormwater Pollution Prevention Plan (SWPPP). MSWD will also apply for encroachment permits from the City of Desert Hot Springs and County of Riverside. Costs required to finalize this documentation involve 64 hours of consultant effort, for a total of $7,680.

Table 4-24: Row (c) Planning/ Design/ Environmental Documentation
Groundwater Quality Protection Program - Subarea D2

Activity	Discipline	Hourly Wage ($/hr)	Number of Hours	Total	Grant Request	Funding Match
Task 7: Permitting						
NPDES General Construction Permit, including SWPP	Consultant	$120	24	$2,880	$0	$2,880
Encroachment Permits from City of Desert Hot Springs and County of Riverside	Consultant	$120	40	$4,800	$0	$4,800
Task 7 Total				**$7,680**	**$0**	**$7,680**
Row (c) Total				**$7,680**	**$0**	**$7,680**

Row (d) Construction/ Implementation

The Construction/ Implementation costs for the project are estimated to be $3,050,888. Table 4-25 provides a detailed listing of all applicable costs.

Task 8: Construction Contracting

A consultant will complete construction contracting for this project, including bidding, bid evaluation and award, and contract execution. This cost was based on MSWD experience managing implementation of the *Groundwater Quality Protection Program* in other subareas and is estimated to cost $12,480.

Task 9: Construction/ Implementation

Construction activities associated with Subtasks 9.1 – 9.3 are described within the work plan (refer to Attachment 3). The total construction cost estimate of $3,063,368 is based on a cost estimate provided by a licensed engineer contracted by MSWD to manage the sewer construction program. Of these costs, 48%, or $1,468,172, is being requested as grant funding and the remaining $1,595,196 will be matched by local revenue from Assessment District No. 12 – a voter approved fund of $28 million to provide matching funds for septic-to-sewer conversion projects within the Desert Hot Springs DAC between 2004 and 2014. The cost estimates were based on the materials, equipment, and labor required for installing sewer mains, laterals, and manholes, which will protect the hot water aquifer that is the basis for the spa economy in the city of Desert Hot Springs and the Coachella Valley. The grant funding and MSWD's match will cover costs for the construction of the sewer lines and laterals, including all manholes and appurtenances.

Table 4-25: Row (d) Construction/ Implementation
Groundwater Quality Protection Program - Subarea D2

Activity or Deliverable	Discipline	Hourly Wage by discipline ($)	Number of hours	Total ($)	Value of Total in Grant Request	Value of Total in Funding Match
Task 8: Construction Contracting						
Bidding and pre-construction meeting	Consultant	$120	40	$4,800	$0	$4,800
Bid Evaluations, award, and approvals	Consultant	$120	40	$4,800	$0	$4,800
Contract Execution	Consultant	$120	24	$2,880	$0	$2,880
Task 8 Total				**$12,480**	**$0**	**$12,480**
Task 9: Construction / Implementation						
Activity or Deliverable	**Materials Used**	**Unit Costs ($)**	**Number of Units**	**Total ($)**	**Value of Total in Grant Request**	**Value of Total in Funding Match**
Materials						
Subtask 9.1 Mobilization and Site Preparation						
SWPPP BMPs	Bags, Rumble Plates, and Fences	$10,000	Lump Sum	$10,000	$5,000	$5,000
Traffic Control	Delineators, Etc.	$10,000	Lump Sum	$10,000	$5,000	$5,000
Subtask 9.2 Project Construction						
Sewer Pipelines (per LF)	VCP	$12.50	18555	$231,938	$115,969	$115,969
Manhole	Precast Concrete	$1,350	70	$94,500	$47,250	$47,250
Laterals (per LF)	VCP	$10	15,281	$152,810	$76,405	$76,405
Connections	Pipe and PCC	$50	10	$500	$250	$250
Pavement Restoration (per SF)	Asphalt	$1.50	643,477	$965,216	$482,608	$482,608
Striping and Clean-Up	Paint	$1,000	1	$1,000	$500	$500
Subtask 9.3 Performance Testing and Demobilization						
N/A	N/A	N/A	N/A	N/A	N/A	N/A
Materials Total				**$1,465,963**	**$732,982**	**$732,982**
Activity or Deliverable	**Discipline**	**Hourly Wage by discipline ($)**	**Number of Hours**	**Total ($)**	**Value of Total in Grant Request**	**Value of Total in Funding Match**
Labor						
Subtask 9.1 Mobilization and Site Preparation						
Mobilization	Contractor	$98,000	Lump Sum	$98,000	$49,000	$49,000

Activity or Deliverable	Discipline	Hourly Wage by discipline ($)	Number of hours	Total ($)	Value of Total in Grant Request	Value of Total in Funding Match
Pavement Pulverization (per SF)	Contractor	$85	4,015	$341,279	$170,639	$170,639
Potholing	Contractor	$10,000	Lump Sum	$10,000	$5,000	$5,000
Traffic Control	Contractor	$10,000	Lump Sum	$10,000	$5,000	$5,000
Subtask 9.2 Project Construction						
Sewer Installation (per SF)	Contractor	$85	3,820	$324,713	$162,356	$162,356
Manhole	Contractor	$85	1,112	$94,500	$47,250	$47,250
Laterals (per SF)	Contractor	$85	2,697	$229,215	$114,608	$114,608
Connections	Contractor	$85	180	$15,300	$7,650	$7,650
Pavement Restoration (per SF)	Contractor	$85	3,799	$322,919	$161,459	$161,459
Striping and Clean-Up	Contractor	$14,000	Lump Sum	$14,000	$7,000	$7,000
Subtask 9.3 Performance Testing and Demobilization						
Testing	Contractor	$25,000	Lump Sum	$25,000	$0	$25,000
Demobilization	Contractor	$100,000	Lump Sum	$100,000	$5,228	$94,772
Labor Total				**$1,584,925**	**$735,190**	**$849,734**
Task 9 Total				**$3,050,888**	**$1,468,172**	**$1,582,716**
Row (d) Total				**$3,063,368**	**$1,468,172**	**$1,595,196**

Row (e) Environmental Compliance/ Mitigation/ Enhancement

Task 10: Environmental Compliance/ Mitigation/ Enhancement

Not applicable.

Row (f) Construction Administration

The Construction Administration costs for the project are estimated to be $324,000.

Task 11: Construction Administration

The total costs for this task includes work anticipated from a construction management consultant, including construction management, materials testing, inspection, and construction staking. It is estimated that construction will take 12 months (from mobilization through performance testing). Labor hours were calculated with an estimate of about 216 hours per month for the construction management team, including inspection. The staking labor is based on the amount of surveying required for sewer, related facilities, and street reconstruction. These budgeted costs are summarized in Table 4-26 below.

Table 4-26: Row (f) Construction Administration
Groundwater Quality Protection Program - Subarea D2

Labor Category	Hourly Wage ($)	Number of hours	Total ($)	Grant Request	Funding Match
Task 11: Construction Administration					
Consultant – Construction Management	$120	600	$72,000	$36,000	$36,000
Consultant – Materials Testing	$120	600	$72,000	$36,000	$36,000
Consultant – Inspection	$100	1,000	$100,000	$50,000	$50,000
Consultant – Construction Staking	$200	400	$80,000	$40,000	$40,000
Task 11 Total			**$324,000**	**$162,000**	**$162,000**
Row (f) Total			**$324,000**	**$162,000**	**$162,000**

Row (g) Other Costs

No other costs are expected for this project.

Row (h) Construction/Implementation Contingency

The Construction/Implementation Contingency costs for the *Desert Hot Springs Groundwater Quality Protection Program – Subarea D2* are estimated to be $347,814. This was estimated to be approximately 10% of the total project budget (Rows (a) – (g)). This value was based on MSWD experience and standard industry practice for municipal sewer construction projects.

Table 4-27: Row (h) Construction / Implementation Contingency Costs
Groundwater Quality Protection Program - Subarea D2

Category	Contingency Percentage	Total ($)	Grant Request	Funding Match
Construction / Implementation Contingency	10%	$347,814	$173,283	$174,531
Row (h) Total		**$347,814**	**$173,283**	**$174,531**

Row (i) Grand Total

The Grand Total for the *Groundwater Quality Protection Program - Subarea D2* project ($3,825,952) was calculated as the sum of rows (a) through (h).

Table 4-28: Row (i) Grand Total Costs
Groundwater Quality Protection Program - Subarea D2

Row	Category	Total
(a)	Direct Project Administration	$83,090
(b)	Land Purchase/Easement	$0
(c)	Planning/Design/Engineering/ Environmental Documentation	$7,680
(d)	Construction/Implementation	$3,063,368
(e)	Environmental Compliance/ Mitigation/Enhancement	$0
(f)	Construction Administration	$324,000
(g)	Other Costs	$0
(h)	Construction/Implementation Contingency	$347,814
(i)	**Grand Total**	**$3,825,952**

Project 4: San Antonio del Desierto DAC Sewer Extension Project

The *San Antonio del Desierto DAC Sewer Extension Project* will involve replacing the existing on-site wastewater system (wastewater lagoons) with sewer service for the San Antonio del Desierto Mobile Home Park. Funding for this project involves the following aspects of project implementation: project administration, planning/ design/ engineering/ environmental documentation, construction/ implementation, construction administration, and construction/ implementation contingency.

The total cost associated with the *San Antonio del Desierto DAC Sewer Extension Project* is $1,718,436. Of these total costs, $740,000 is being requested for grant funding through the IRWM Grant Program. The remaining $978,436 will be provided by the project sponsor, Pueblo Unido Community Development Corporation (PUCDC). In total, the non-State share of the total project cost (funding match) is 43%for this project. This funding match will be provided through in-kind staff labor from PUCDC for administration, PUCDC operating budget for contract engineering, and a U.S. Department of Agriculture (USDA) Rural Development grant for construction.

Table 4-29 below provides a more detailed break-down of the total project budget.

Table 4-29: Total Project Budget
San Antonio del Desierto DAC Sewer Extension Project

Proposal Title: Coachella Valley IRWM Implementation Grant Proposal – Round 2
Project Title: San Antonio del Desierto DAC Sewer Extension Project
Project serves a need of a DAC?: ☒ **Yes** ☐ **No**
Funding Match Waiver request?: ☐ **Yes** ☒ **No**

	Category	**(a) Requested Grant Amount**	**(b) Cost Share: Non-State Fund Source* (Funding Match)**	**(c) Cost Share: Other State Fund Sources***	**(d) Total**
(a)	Direct Project Administration	$0	$7,200	$0	$7,200
(b)	Land Purchase/Easement	$0	$0	$0	$0
(c)	Planning/Design/Engineering/ Environmental Documentation	$0	$84,350	$0	$84,350
(d)	Construction/Implementation	$740,000	$594,326	$0	$1,334,326
(e)	Environmental Compliance/ Mitigation/Enhancement	$0	$0	$0	$0
(f)	Construction Administration	$0	$68,416	$0	$68,416
(g)	Other Costs	$0	$0	$0	$0
(h)	Construction/Implementation Contingency	$0	$224,144	$0	$224,144
(i)	**Grand Total**	**$740,000**	**$978,436**	**$0**	**$1,718,436**

** Sources of funding: The non-state funding match will be provided through in-kind staff labor from PUCDC for administration, PUCDC operating budget for contract engineering, and a USDA Rural Development grant for construction.*

This Implementation Grant Proposal is requesting funding for five project tasks identified within the *San Antonio del Desierto DAC Sewer Extension Project* work plan (refer to Attachment 3).

The sections below provide detailed descriptions of each of the row and task budgets (where applicable). In addition, each description below describes how cost estimates for each of the tasks or rows were developed.

Row (a) Direct Project Administration Costs

Project administration will be completed by PUCDC as described below and in Table 4-30.

Task 1: Project Administration

Project administration includes the cost for all project management activities, including coordination of construction plans and exhibits, tracking budgets, preparing invoices and quarterly reports, and providing all contract reporting materials to the overall grant manager. These costs, which total $7,200, were determined based on PUCDC experience with similar grant projects.

Task 2: Labor Compliance Program

CVWD, the primary project partner, will be responsible for the construction component of this project. CVWD has an established Labor Compliance Program (LCP) in place and will utilize this program for this sewer construction project. Staff costs required to implement the LCP are not included within the proposed budget.

Task 3: Reporting

PUCDC will submit quarterly invoices and progress reports in accordance with grant contracting requirements. However, these costs are included in Task 1: Project Administration.

Table 4-30: Row (a) Direct Project Administration
San Antonio del Desierto DAC Sewer Extension Project

Activity or Deliverable	Discipline	Hourly Wage ($/hr)	Number of Hours	Total ($)	Grant Request	Funding Match
Task 1: Project Administration						
Track budgets, prepare invoices, compile backup documentation, and prepare quarterly reports	PUCDC Project Manager	$60	80	$4,800	$0	$4,800
Prepare and administer PAEP	PUCDC Project Manager	$60	16	$960	$0	$960
Prepare project completion report	PUCDC Project Manager	$60	16	$960	$0	$960
Coordination of construction plans and exhibits	PUCDC Project Manager	$60	8	$480	$0	$480.
Task 1 Total				**$7,200**	**$0**	**$7,200**
Row (a) Total				**$7,200**	**$0**	**$7,200**

Row (b) Land Purchase/Easement

Not applicable.

Row (c) Planning/ Design/ Engineering/ Environmental Documentation

The total planning/ design/ engineering/ environmental documentation costs for the project are $84,350 and are currently being implemented and funded by PUCDC directly. Table 4-31 provides a detailed listing of all applicable costs.

Task 4: Assessment and Evaluation

Not applicable.

Task 5: Final Design

PUCDC is currently in the process of completing a *Preliminary Engineering Report* and geotechnical investigations. Following completion of these reports, 100% design will be initiated. All architecturel and engineering (A&E) costs included in this task, estimated at $84,350, are being funded through PUCDC's operating budget.

Task 6: Environmental Documentation

Not applicable.

Task 7: Permitting

Not applicable.

Table 4-31: Row (c) Planning/ Design/ Environmental Documentation
San Antonio del Desierto DAC Sewer Extension Project

Activity	Discipline	Hourly Wage ($/hr)	Number of Hours	Total	Grant Request	Funding Match
Task 5: Final Design						
Preliminary Engineering Report	A&E	$90	100	$23,325	$0	$23,325
Geotechnical Investigations	A&E	$90	100	$6,600	$0	$6,600
Final design (100%)	A&E	$90	100	$54,425	$0	$54,425
Task 5 Total				**$84,350**	**$0**	**$84,350**
Row (c) Total				**$84,350**	**$0**	**$84,350**

Row (d) Construction/ Implementation

The Construction/ Implementation costs for the project are estimated to be $1,334,326. Table 4-32 provides a detailed listing of all applicable costs.

Task 8: Construction Contracting

This task will include preparing bid packages and awarding the construction contract. PUCDC will work with CVWD to initiate construction contracting. Costs associated with this task are not included in this budget.

Task 9: Construction

Construction costs for this project, which are summarized in Table 4-32 below, are necessary to complete Subtasks 9.1 through 9.3 as in the work plan (refer to Attachment 3). All of the cost estimates for the following subtasks are based on the preliminary construction cost estimate produced by Coachella Valley Engineers, the consultant currently under contract with PUCDC for the *Preliminary Engineering Report*.

The initial cost estimate provided by the Coachella Valley Engineers, which was used as a basis for the lump sum cost estimates presented below is included as Appendix 4-1 to this attachment. $740,000 is being requested from the IRWM Grant Program, while the remaining $594,326 will be funded through a USDA Rural Development grant.

- ***Subtask 9.1 Mobilization and Site Preparation*:** Costs associated with this task are for mobilization necessary for pipeline installation.
- ***Subtask 9.2 Project Construction*:** Costs associated with this task are for construction of a sewage lift station, an 8-inch gravity sewer, a 6-inch sewage force main, and all related connections.
- ***Subtask 9.3 Performance Testing and Demobilization*:** Costs associated with demobilization include the CVWD connection fees necessary to become operational.

Table 4-32: Row (d) Construction/ Implementation
San Antonio del Desierto DAC Sewer Extension Project

Activity or Deliverable	Material	Unit Costs ($)	Number of Units	Total ($)	Grant Request	Funding Match
Task 9: Construction / Implementation						
Subtask 9.1 Mobilization and Site Preparation						
Engineering and Construction Staking		$74,750	Lump sum	$74,750	$55,840	$18,910
Sewer Offsite Force	Mobilization	$10,000	Lump sum	$10,000	$10,000	$0
Sewer Offsite Gravity	Mobilization	$5,000	Lump sum	$5,000	$5,000	$0
Lift Station	Mobilization	$9,750	Lump sum	$9,750	$9,750	$0
Subtotal 9.1				**$99,500**	**$80,590**	**$18,910**
Subtask 9.2 Project Construction						
Sewer Offsite Force	6" DIP Class 125 Schedule 80	$49.50	5280	$261,360	$261,360	$0
	Backflow Valve connection to 18"	$7,500	2	$15,000	$15,000	$0
Sewer Offsite Gravity	8" VCP	$37.50	1320	$49,500	$49,500	$0
	48" Manhole	$4,1000	5	$20,500	$20,500	$0
	12" Cleanout	$650	1	$650	$650	$0
	Adjust Cleanout to Grade	$200	1	$200	$200	$0
	Adjust manhole to Grade	$250	5	$1,250	$1,250	$0
Lift Station	Furnish and Install Airvalve/ Vacuum	$7,250	1	$7,250	$7,250	$0
	Furnish and	$145,675	1	$145,675	$145,675	$0

Activity or Deliverable	Material	Unit Costs ($)	Number of Units	Total ($)	Grant Request	Funding Match
	install wet well and pump assembly					
	Furnish and install station piping	$14,750	1	$14,750	$14,750	$0
	Furnish and install control Panel	$125,500	1	$125,500	$125,500	$0
	Building and Site Fencing	$17,775	1	$17,775	$17,775	$0
Subtotal 9.2				**$659,410**	**$659,410**	**$0**
Subtask 9.3 Performance Testing and Demobilization						
Performance Testing and Connection Fees	Mobile home units	$4,231	136	$575,416	$0	$575,416
Subtotal 9.3				**$575,416**	**$0**	**$575,416**
Task 9 Total				**$1,334,326**	**$740,000**	**$594,326**
Row (d) Total				**$1,334,326**	**$740,000**	**$594,326**

Row (e) Environmental Compliance/ Mitigation/ Enhancement

Task 10: Environmental Compliance/ Mitigation/ Enhancement

Not applicable.

Row (f) Construction Administration

The Construction Administration costs for the project are shown in Table 4-33.

Task 11: Construction Administration

Construction management costs for this project were estimated based on the preliminary construction cost estimate prepared by Coachella Valley Engineers, which is included as Appendix 4-1 to this attachment. The Construction Administration costs for the project will be borne by a USDA Rural Development grant and are expected to total $68,416.

Table 4-33: Row (f) Construction Administration
San Antonio del Desierto DAC Sewer Extension Project

Labor Category	Hourly Wage ($)	Number of hours	Total ($)	Grant Request	Funding Match
Task 11: Construction Administration					
Construction Management	$68,416	Lump Sum	$68,416	$0	$68,416
Task 11 Total			**$68,416**	**$0**	**$68,416**
Row (f) Total			**$68,416**	**$0**	**$68,416**

Row (g) Other Costs

No other costs will be required for implementation of this project.

Row (h) Construction/ Implementation Contingency

The Construction/ Implementation Contingency costs for the *San Antonio del Desierto DAC Sewer Extension Project* are estimated to be $224,144. This was estimated to be 15% of the total project budget (rows (a) – (g)), based on PUCDC experience implementing infrastructure projects in DACs.

Table 4-34: Row (h) Construction / Implementation Contingency Costs
San Antonio del Desierto DAC Sewer Extension Project

Labor Category	Contingency Percentage	Total ($)	Grant Request	Funding Match
Construction / Implementation Contingency	15%	$224,144	$0	$224,144
Row (h) Total		**$224,144**	**$0**	**$224,144**

Row (i) Grand Total

The Grand Total for the *San Antonio del Desierto DAC Sewer Extension Project* ($1,718,436) was calculated as the sum of rows (a) through (h).

Table 4-35: Row (I) Grand Total Costs
San Antonio del Desierto DAC Sewer Extension Project

Row	Category	Total
(a)	Direct Project Administration	$7,200
(b)	Land Purchase/Easement	$0
(c)	Planning/Design/Engineering/ Environmental Documentation	$84,350
(d)	Construction/Implementation	$1,334,326
(e)	Environmental Compliance/ Mitigation/Enhancement	$0
(f)	Construction Administration	$68,416
(g)	Other Costs	$0
(h)	Construction/Implementation Contingency	$224,144
(i)	**Grand Total**	**$1,718,436**

Project 5: Torres-Martinez Avenue 64 Water Supply Connection Project

The *Torres-Martinez Avenue 64 Water Supply Connection Project* involves design and engineering for a future connection between the existing Torres-Martinez Avenue 64 tribal water system and the CVWD regional water system. This will allow for future construction that would eliminate use of the tribe's well system and allow for the abandonment of this aging infrastructure, thereby protecting human health and the groundwater basin. Funding for this project involves project administration and planning/ design/ engineering/ environmental documentation only.

The total cost associated with the *Torres-Martinez Avenue 64 Water Supply Connection Project* is $238,269. Of these total costs, $155,000 is being requested for grant funding through the IRWM Grant Program. The remaining $83,269 will be provided by the Torres-Martinez Desert Cahuilla Indians (DCI) and project partners, Indian Health Services (IHS) and U.S. Environmental Protection Agency (USEPA). In total, the non-State share of the total project cost (funding match) is 35%for this project. This funding match will be provided through a USEPA planning grant and IHS in-kind design/engineering services.

Table 4-36 below provides a more detailed break-down of the total project budget.

Table 4-36: Total Project Budget
Torres-Martinez Avenue 64 Water Supply Connection Project

Proposal Title: Coachella Valley IRWM Implementation Grant Proposal – Round 2
Project Title: Torres-Martinez Avenue 64 Water Supply Connection Project
Project serves a need of a DAC?: ☒ **Yes** ☐ **No**
Funding Match Waiver request?: ☐ **Yes** ☒ **No**

	Category	(a) Requested Grant Amount	(b) Cost Share: Non-State Fund Source* (Funding Match)	(c) Cost Share: Other State Fund Sources*	(d) Total
(a)	Direct Project Administration	$19,200	$15,219	$0	$34,419
(b)	Land Purchase/ Easement	$0	$0	$0	$0
(c)	Planning / Design/ Engineering/ Environmental Documentation	$135,800	$68,050	$0	$203,850
(d)	Construction/ Implementation	$0	$0	$0	$0
(e)	Environmental Compliance/ Mitigation/ Enhancement	$0	$0	$0	$0
(f)	Construction Administration	$0	$0	$0	$0
(g)	Other Costs	$0	$0	$0	$0
(h)	Construction/ Implementation Contingency	$0	$0	$0	$0
(i)	**Grand Total**	**$155,000**	**$83,269**	**$0**	**$238,269**

** Sources of funding: The non-state funding match will be provided through a USEPA planning grant and IHS in-kind design/engineering services.*

This Implementation Grant Proposal is requesting funding for five project tasks identified within the *Torres-Martinez Avenue 64 Water Supply Connection Project* work plan (refer to Attachment 3).

The sections below provide detailed descriptions of each of the row and task budgets (where applicable). In addition, each description below describes how cost estimates for each of the tasks or rows were developed.

Row (a) Direct Project Administration Costs

This project is for the design and engineering of a future water supply connection for the Torres-Martinez DCI Avenue 64 subdivision. Project administration will be partially funded via a USEPA planning grant.

Task 1: Project Administration

Project administration includes the cost for all project management activities, including coordination of construction plans and exhibits, tracking budgets, preparing invoices and quarterly reports, and providing all contract reporting materials to the overall grant manager. These costs are estimated to be $34,419, as shown in Table 4-37 below.

Task 2: Labor Compliance Program

Not applicable.

Task 3: Reporting

Not applicable.

Table 4-37: Row (a) Direct Project Administration
Torres-Martinez Avenue 64 Water Supply Connection Project

Activity	Discipline	Hourly Wage ($/hr)	Number of Hours	Total	Grant Request	Funding Match
Task 1: Project Administration						
Tribal Administration for Contracting Engineering Services	Various	$60.00	320	$19,200	$19,200	$0
Tribal Administration for Planning Tasks (EPA Planning Funds)	Various	$60.00	42	$2,537	$0	$2,537
IHS Project Technical Support for Planning Tasks (EPA Planning Funds)	Various	$60.00	211	$12,683	$0	$12,683
Task 1 Total				**$34,419**	**$19,200**	**$15,219**
Row (a) Total				**$34,419**	**$19,200**	**$15,219**

Row (b) Land Purchase/ Easement

Not applicable.

Row (c) Planning/ Design/ Engineering/ Environmental Documentation

The total planning/ design/ engineering/ environmental documentation costs for the project are $203,850. Table 4-38 provides a detailed listing of all applicable costs.

Task 4: Assessment and Evaluation

A *Preliminary Engineering Report*, prepared by IHS, was completed for the *Torres-Martinez Avenue 64 Water Supply Connection Project* in June 2012. Aerial mapping and geotechnical studies have also been

completed via funding through a USEPA planning grant. The total cost for assessment and evaluation activities is $23,850, all of which are being provided as funding match.

Task 5: Final Design

This task includes the cost for finalizing 100% design plans and plan/specifications review by CVWD, and represents the largest component of the proposed project. Costs for this task were based on the cost estimate developed in the *Preliminary Engineering Report* and total $77,900.

Task 6: Environmental Documentation

Environmental documentation includes preparation of biological and cultural resources technical studies, CEQA and NEPA documentation, and cultural/archeological mitigation planning due to the project's location within tribal lands. These costs will total $94,600.

Task 7: Permitting

Again due to the project's location on tribal lands, a Bureau of Indian Affairs (BIA) roadway permit will be secured. Estimated labor required to obtain this permit totals $7,500.

Table 4-38: Row (c) Planning/ Design/ Environmental Documentation
Torres-Martinez Avenue 64 Water Supply Connection Project

Activity or Deliverable	Discipline	Hourly Wage ($/hr)	Number of Hours	Total	Grant Request	Funding Match
Task 4: Assessment and Evaluation						
Aerial Mapping (EPA Planning Funds)	Surveying	$75	45	$3,350	$0	$3,350
Preliminary Engineering Report (IHS Services)	Engineering	$100	80	$8,000	$0	$8,000
Geotechnical Studies (EPA Planning Funds)	Geotech Engineering	$100	125	$12,500	$0	$12,500
Task 4 Total				**$23,850**	**$0**	**$23,850**
Task 5 Final Design						
30% Design Plans (Contracted Eng Services)	Engineering	$200	120	$24,000	$24,000	$0
60% Design Plans (Contracted Eng Services)	Engineering	$200	78	$15,600	$15,600	$0
90% Design Plans/Specs (Contracted Eng Services)	Engineering	$200	70	$14,000	$14,000	$0
100% Design Plans/Specs (Contracted Eng Services)	Engineering	$200	64	$12,800	$12,800	$0
Plan/Spec Review (CVWD Eng/Insp Direct)	Engineering	$100	75	$7,500	$7,500	$0
Final Design Plans/Specs for Torres-Martinez DCI Construction (IHS Services)	Engineering	$100	40	$4,000	$0	$4,000
Task 5 Total				**$77,900**	**$73,900**	**$4,000**
Task 6: Environmental Documentation						
Biological Study/Reoprt (EPA Planning Funds	Biologist	$75	57	$4,250	$0	$4,250

Activity or Deliverable	Discipline	Hourly Wage ($/hr)	Number of Hours	Total	Grant Request	Funding Match
Cultural/Archeological Study/Report (EPA Planning Funds)	Archaeologist	$75	79	$5,950	$0	$5,950
NEPA Documentation (EPA Planning Funds)	Archaeologist/Biologist	$75	200	$15,000	$0	$15,000
CEQA Documentation (EPA Planning Funds	Archaeologist/Biologist	$75	200	$15,000	$0	$15,000
Cultural/Archeological Mitigation Planning (Contracted Environmental)	Archeologist	$160	340	$54,400	$54,400	$0
Task 6 Total				**$94,600**	**$54,400**	**$40,200**
Task 7: Permitting						
BIA Road Permit Application Process and Fee (CVWD Eng/Insp. Dir.)	Engineering	$100	75	$7,500	$7,500	$0
Task 7 Total				**$7,500**	**$7,500**	**$0**
Row (c) Total				**$203,850**	**$135,800**	**$68,050**

Row (d) Construction/ Implementation

The *Torres-Martinez Avenue 64 Water Supply Connection Project* is a design and engineering project that supports a tribal DAC. Once the tribe has design plans in-hand, they can apply for construction funding (estimated $1.5 million) from USDA or USEPA. The proposed project in this funding application will not involve any construction.

Task 8: Construction Contracting

Not applicable.

Task 9: Construction

Not applicable.

Row (e) Environmental Compliance/ Mitigation/ Enhancement

Task 10: Environmental Compliance/ Mitigation/ Enhancement

Not applicable.

Row (f) Construction Administration

Task 11: Construction Administration

Not applicable.

Row (g) Other Costs

No other costs will be required for implementation of this project.

Row (h) Construction/Implementation Contingency

Not applicable.

Row (i) Grand Total

The Grand Total for the *Torres-Martinez Avenue 64 Water Supply Connection Project* ($238,269) was calculated as the sum of rows (a) through (h).

Table 4-39:Row (i) Grand Total Costs
Torres-Martinez Avenue 64 Water Supply Connection Project

Row	Category	Total
(a)	Direct Project Administration	$34,419
(b)	Land Purchase/ Easement	$0
(c)	Planning / Design/ Engineering/ Environmental Documentation	$203,850
(d)	Construction/ Implementation	$0
(e)	Environmental Compliance/ Mitigation/ Enhancement	$0
(f)	Construction Administration	$0
(g)	Other Costs	$0
(h)	Construction/ Implementation Contingency	$0
(i)	**Grand Total**	**$238,269**

Confidential

COACHELLA VALLEY ENGINEERS
PRELIMINARY CONSTRUCTION COST ESTIMATE

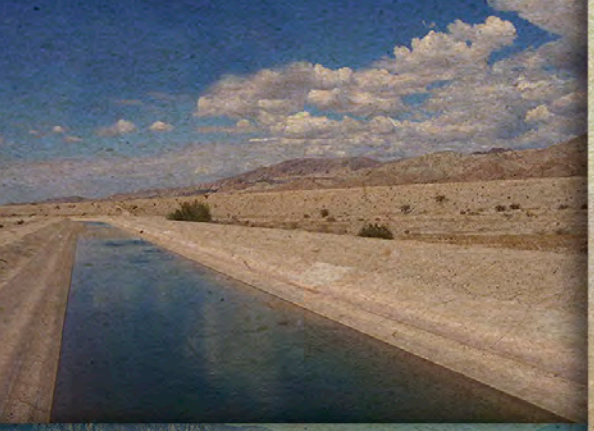
24-Jul-12

SAN ANTONIO DEL DESIERTO

HOUSING SANITARY SEWER, LIFT STATION AND FORCE MAIN
MECCA, RIVERSIDE COUNTY, CA

SEWER BOND ESTIMATE

ITEM	QUANTITY	UNIT	UNIT COST	TOTAL COST
1 SEWER OFFSITE FORCE				
MOBILIZATION		LS		$ 10,000.00
6" DIP CLASS 125 SCHEDULE 80	5,280	LF	$ 49.50	$261,360.00
BACKFLOW VALVE CONNECTION TO 18"	2	LS	$ 7,500.00	$15,000
				$ 286,360.00
2 SEWER OFFSITE GRAVITY				
Mobilization	0	LS	$ 5,000.00	$ 5,000.00
8" VCP	1,320	LF	$ 37.50	$ 49,500.00
48" Manhole	5	EA	$ 4,100.00	$ 20,500.00
12" Cleanout	1	EA	$ 650.00	$ 650.00
				$ -
Adjust Cleanout to Grade	1	EA	$ 200.00	$ 200.00
Adjust Manhole to Grade	5	EA	$ 250.00	$ 1,250.00
Subtotal Sewer				**$ 77,100.00**
3 LIFT STATION				
MOBILIZATION	0	LS	$5,000	$ 5,000.00
building site grading,, utility service, includes clearing, grubbing, dewatering, bedding,testing	1	LS	$ 4,750.00	$ 4,750.00
FURNISH AND INSTALL AIRVALVE/VACUUM	1	LS	$ 7,250.00	$ 7,250.00
FURNISH AND INSTALL WET WELL AND PUMP ASSBLY		LS		$ 145,675.00
FURNISH AND INSTALL STATION PIPING		LS		$ 14,750.00
FURNISH AND INSTALL CONTROL PANEL		LS		$ 125,500.00
BUILDING AND SITE FENCING		LS		$ 17,775.00
Subtotal Lift Station				**$ 320,700.00**
Permits/Fees				**$ 50,000.00**
Connection Fees	136		$ 4,231.00	**$ 575,416.00**
Engineering and construction staking				**$ 74,750.00**
Construction Management				**$ 68,416.00**
CONTINGENCY				**$ 217,911.30**
TOTAL				**$ 1,670,653.30**











Attachment 5

Schedule

Implementation Grant, Round 2

Coachella Valley IRWM
Implementation Grant Proposal

Attachment 5

Coachella Valley Integrated Regional Water Management Implementation Grant Proposal – Round 2

Schedule

Attachment 5 consists of the following items:

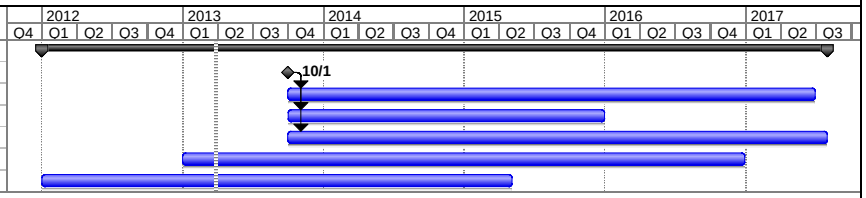
- ✓ **Project Schedule(s)**
  This attachment provides a schedule for implementation of each project contained within this Implementation Grant Proposal, including the sequence and timing of each project.

The enclosed schedules provide start and end dates, as well as milestones, for each work plan task of each project within this Proposal, consistent with the work plans (refer to Attachment 3) and budgets (refer to Attachment 4). The schedules also demonstrate any dependencies or predecessors by showing links between tasks. The assumed start date of the implementation grant is October 1, 2013, and each project has an assumed end date that is reasonable based on their individual work plan and budget.

Figure 5-1 is an overall schedule for the entire proposal, while Figure 5-2 through Figure 5-6 are individual project schedules for each project included in this proposal. As indicated in Figure 5-2, the *Non-Potable Water Use Expansion Program* is ready to begin construction during the first construction cycle; construction will begin for the L4 Pump Station Improvements Connection and the L4 La Quinta Extensions Connection in July of 2014.

Figure 5-1
CVIRWM Implementation Grant Proposal - Round 2
Schedule

ID	Task Name	Duration	Start	Finish	Predecessors
1	**Coachella Valley IRWM Implementation Grant Proposal - Round 2**	**1456 days**	**Mon 1/2/12**	**Mon 7/31/17**	
2	**Grant Award Date**	**0 days**	**Tue 10/1/13**	**Tue 10/1/13**	
3	Project 1: Non-Potable Water Use Expansion Program	979 days	Tue 10/1/13	Fri 6/30/17	2
4	Project 2: Coachella Valley Salt and Nutrient Management Program	587 days	Wed 10/2/13	Thu 12/31/15	2FS+1 day
5	Project 3: Groundwater Quality Protection Program - Subarea D2	1000 days	Tue 10/1/13	Mon 7/31/17	2
6	Project 4: San Antonio del Desierto DAC Sewer Extension Project	1043 days	Tue 1/1/13	Thu 12/29/16	
7	Project 5: Torres-Martinez Avenue 64 Water Supply Connection Project	872 days	Mon 1/2/12	Tue 5/5/15	

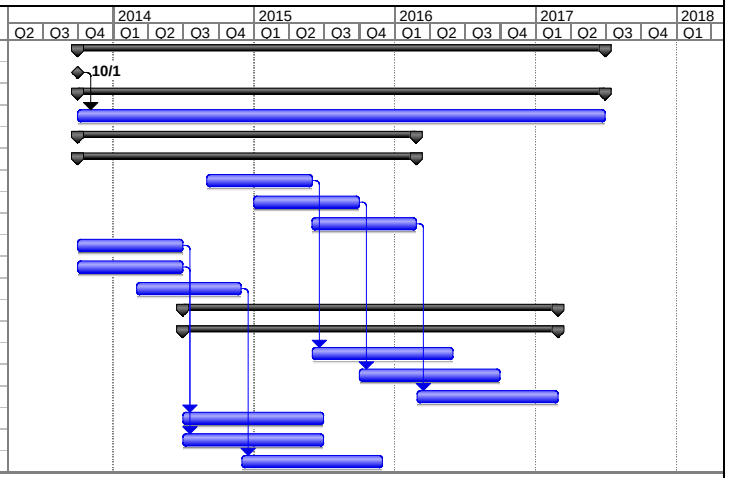


Project: 5.Project# Schedule
Date: Tue 3/26/13

Task | Progress | Summary | External Tasks | Deadline
Split | Milestone | Project Summary | External Milestone

Figure 5-2
Non-Potable Water Use Expansion Program
Schedule

ID	Task Name	Duration	Start	Finish	Predecessors
1	**Non-Potable Water Use Expansion Program**	**979 days**	**Tue 10/1/13**	**Fri 6/30/17**	
2	**Grant Award Date**	**0 days**	**Tue 10/1/13**	**Tue 10/1/13**	
3	**Budget Category (a): Direct Project Administration**	**979 days**	**Tue 10/1/13**	**Fri 6/30/17**	
4	**Task 1: Project Administration**	979 days	Tue 10/1/13	Fri 6/30/17	2
5	**Budget Category (c): Planning/Design/Engineering/Environmental Documentation**	**629 days**	**Tue 10/1/13**	**Fri 2/26/16**	
6	**Task 5: Final Design**	**629 days**	**Tue 10/1/13**	**Fri 2/26/16**	
7	Connection 1: Desert Horizons	196 days	Mon 9/1/14	Mon 6/1/15	
8	Connection 2: Indian Springs	196 days	Thu 1/1/15	Thu 10/1/15	
9	Connection 3: The Lakes	195 days	Mon 6/1/15	Fri 2/26/16	
10	Connection 4: L4 Pump Station Improvements	195 days	Tue 10/1/13	Mon 6/30/14	
11	Connection 5: L4 La Quinta Extensions	195 days	Tue 10/1/13	Mon 6/30/14	
12	Connection 6: Indian Palms	195 days	Mon 3/3/14	Fri 11/28/14	
13	**Budget Category (d): Construction/Implementation**	**696 days**	**Tue 7/1/14**	**Tue 2/28/17**	
14	**Task 9: Construction**	**696 days**	**Tue 7/1/14**	**Tue 2/28/17**	
15	Connection 1: Desert Horizons	261 days	Tue 6/2/15	Tue 5/31/16	7
16	Connection 2: Indian Springs	261 days	Fri 10/2/15	Fri 9/30/16	8
17	Connection 3: The Lakes	262 days	Mon 2/29/16	Tue 2/28/17	9
18	Connection 4: L4 Pump Station Improvements	261 days	Tue 7/1/14	Tue 6/30/15	10
19	Connection 5: L4 La Quinta Extensions	261 days	Tue 7/1/14	Tue 6/30/15	11
20	Connection 6: Indian Palms	261 days	Mon 12/1/14	Mon 11/30/15	12



Project: 5.Project# Schedule
Date: Tue 3/26/13

Task | Progress | Summary | External Tasks | Deadline
Split | Milestone | Project Summary | External Milestone

Figure 5-3
Coachella Valley Salt & Nutrient Management Program
Schedule

ID	Task Name	Duration	Start	Finish
1	**Develop SNMP Workplan - Phase I**	148 days	Tue 7/10/12	Thu 1/31/13
2	**Grant Award**	1 day	Tue 10/1/13	Tue 10/1/13
3	Salt and Nutrient Management Plan Kickoff	1 day	Wed 10/2/13	Wed 10/2/13
4				
5	**Coachella Valley Salt & Nutrient Management Program - Phase II**	**587 days**	**Wed 10/2/13**	**Thu 12/31/15**
6	**Row A: Direct Project Administration**	**586 days**	**Wed 10/2/13**	**Wed 12/30/15**
7	Task 1: Project Administration	**586 days**	Wed 10/2/13	Wed 12/30/15
8				
9	**Row C: Planning/Design/Engineering/Environmental Documentation**	**586 days**	**Thu 10/3/13**	**Thu 12/31/15**
10	**Task 4: Assessment and Evaluation**	**586 days**	**Thu 10/3/13**	**Thu 12/31/15**
11	**Subtask 4.1: Establish Collaborative Process**	**586 days**	**Thu 10/3/13**	**Thu 12/31/15**
12	Subtask 4.1.1: Develop Working Groups	10 days	Wed 10/9/13	Tue 10/22/13
13	Subtask 4.1.2: Conduct Technical Review Meetings	270 days	Thu 10/3/13	Wed 10/15/14
14	Meeting 1 - Kickoff and data collection	1 day	Thu 10/3/13	Thu 10/3/13
15	Meeting 2 - Groundwater characterization review	1 day	Wed 11/13/13	Wed 11/13/13
16	Meeting 3 - Salt/Nutrient loading assessment review	1 day	Wed 1/29/14	Wed 1/29/14
17	Meeting 4 - Establish goals and identify management strategies for SNMP	1 day	Wed 4/30/14	Wed 4/30/14
18	Meeting 5 - Review anti-degradation process and assess management strateg	1 day	Wed 7/9/14	Wed 7/9/14
19	Meeting 6 - Develop implementation and monitoring plans	1 day	Wed 10/15/14	Wed 10/15/14
20	Subtask 4.1.3: Conduct Technical Review Conference Calls	432 days	Thu 10/3/13	Fri 5/29/15
21	Subtask 4.1.4: Conduct SNMP Stakeholder Workshops	271 days	Wed 1/8/14	Wed 1/21/15
22	Workshop 1 - Review Basin Characterization	1 day	Wed 1/8/14	Wed 1/8/14
23	Workshop 2 - Review Salt / Nutrient Loading and Trends	1 day	Wed 4/16/14	Wed 4/16/14
24	Workshop 3 - Input on SNMP Goals and Management Strategies	1 day	Wed 5/28/14	Wed 5/28/14
25	Workshop 4 - Review Anti-Degradation Analysis and Management Strategies	1 day	Wed 9/17/14	Wed 9/17/14
26	Workshop 5 – Review Draft SNMP	1 day	Wed 1/21/15	Wed 1/21/15
27	Subtask 4.1.5: Program Management/Oversight of Technical Team	586 days	Thu 10/3/13	Thu 12/31/15
28	**Subtask 4.2: Conduct Basin Characterization**	**55 days**	**Wed 10/23/13**	**Tue 1/7/14**
29	Subtask 4.2.1 Identify the Groundwater Basin Being Evaluated	10 days	Wed 10/23/13	Tue 11/5/13
30	Subtask 4.2.2 Identify, Collect, and Review Existing Groundwater Studies and Dat	20 days	Wed 10/23/13	Tue 11/19/13
31	Subtask 4.2.3 Document Beneficial Uses	15 days	Wed 11/20/13	Tue 12/10/13
32	Subtask 4.2.4 Characterize Groundwater Quality and Occurrences	20 days	Wed 12/11/13	Tue 1/7/14
33	Subtask 4.2.5 Identify Salinity, Nutrient, and Constituents of Concern	10 days	Wed 12/11/13	Tue 12/24/13
34	Subtask 4.2.6 Establish Baseline Conditions	10 days	Wed 12/25/13	Tue 1/7/14
35	**Subtask 4.3: Identify Salt/Nutrient Loading and Trends**	**70 days**	**Wed 1/8/14**	**Tue 4/15/14**
36	Subtask 4.3.1 Identify Salinity and Nutrient Sources	20 days	Wed 1/8/14	Tue 2/4/14
37	Subtask 4.3.2 Quantify Salinity and Nutrient Source Loads	40 days	Wed 2/5/14	Tue 4/1/14
38	Subtask 4.3.3 Develop a Plan for Data Gaps	10 days	Wed 4/2/14	Tue 4/15/14
39	**Subtask 4.4: Identify Water Management Goals and Potential Strategies**	**50 days**	**Wed 4/16/14**	**Tue 6/24/14**
40	Subtask 4.4.1 Identify Water Supply and Water Quality Management Goals	20 days	Wed 4/16/14	Tue 5/13/14
41	Subtask 4.4.2 Develop List of Potential Management Strategies	10 days	Wed 5/14/14	Tue 5/27/14
42	Subtask 4.4.3 Evaluate Feasibility of Potential Management Strategies	10 days	Wed 5/28/14	Tue 6/10/14
43	Subtask 4.4.4 Assimilative Capacity Analysis	10 days	Wed 6/11/14	Tue 6/24/14
44	**Subtask 4.5: Conduct Anti-Degradation Process**	**60 days**	**Wed 6/25/14**	**Tue 9/16/14**
45	Subtask 4.5.1 Assess Load Reductions and Water Quality Improvements	30 days	Wed 6/25/14	Tue 8/5/14
46	Subtask 4.5.2 Identify Preferred Management Strategies	30 days	Wed 8/6/14	Tue 9/16/14
47	**Subtask 4.6: Finalize Phase 2 SNMP**	**131 days**	**Wed 9/17/14**	**Wed 3/18/15**
48	Subtask 4.6.1 Develop Implementation Plan	15 days	Wed 9/17/14	Tue 10/7/14
49	Subtask 4.6.2 Identify Metrics and Develop Monitoring Program	15 days	Wed 10/8/14	Tue 10/28/14
50	Subtask 4.6.3 Develop SNMP Data Management, Reporting, and Audit Processes	20 days	Wed 10/29/14	Tue 11/25/14
51	Subtask 4.6.4 Determine CEQA/NEPA Compliance Needs	10 days	Wed 11/26/14	Tue 12/9/14
52	Subtask4.6.5 Finalization SNMP	70 days	Wed 12/10/14	Tue 3/17/15
53	*Draft Plan*	*30 days*	*Wed 12/10/14*	*Tue 1/20/15*
54	*Public Stakeholder Review*	*10 days*	*Wed 1/21/15*	*Tue 2/3/15*
55	*Finalize Plan*	*30 days*	*Wed 2/4/15*	*Tue 3/17/15*
56	Submit Plan to RWQCB	1 day	Wed 3/18/15	Wed 3/18/15
57	**RWQCB Approves/Adopts Plan**	150 days	Thu 3/19/15	Wed 10/14/15

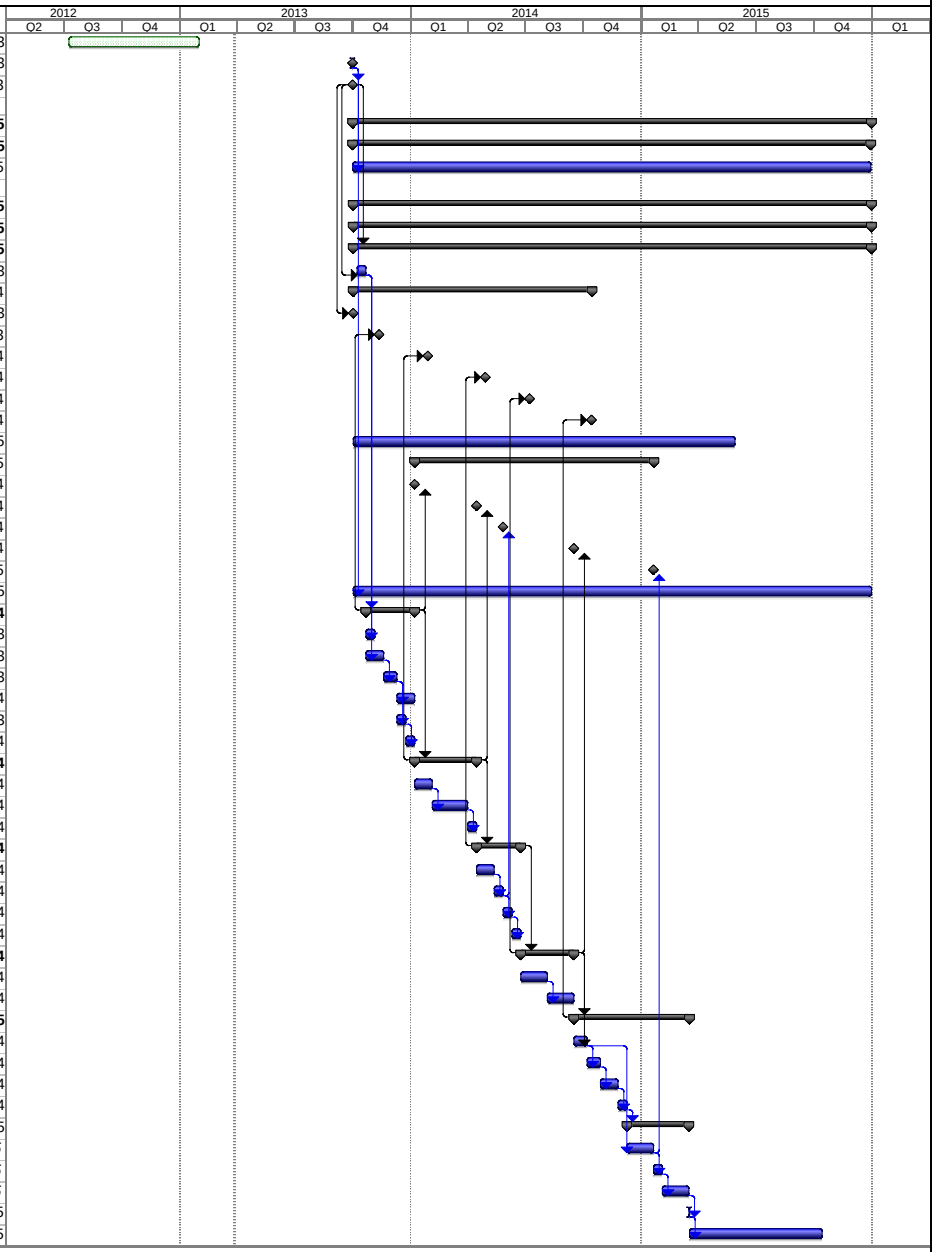
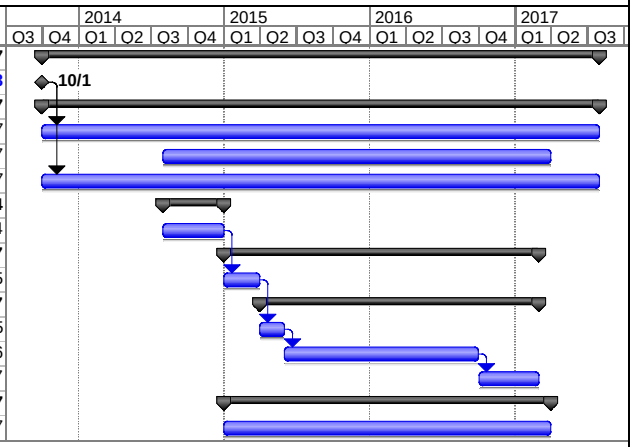


Figure 5-4
Groundwater Quality Protection Program - Subarea D2
Schedule

ID	Task Name	Duration	Start	Finish
1	**Groundwater Quality Protection Program - Subarea D2**	**1000 days**	**Tue 10/1/13**	**Mon 7/31/17**
2	**Grant Award Date**	**0 days**	**Tue 10/1/13**	**Tue 10/1/13**
3	**Budget Category (a): Direct Project Administration**	**1000 days**	**Tue 10/1/13**	**Mon 7/31/17**
4	Task 1: Project Administration	1000 days	Tue 10/1/13	Mon 7/31/17
5	Task 2: Labor Compliance Program	696 days	Fri 8/1/14	Fri 3/31/17
6	Task 3: Reporting	1000 days	Tue 10/1/13	Mon 7/31/17
7	**Budget Category (c): Planning/Design/Engineering/Environmental Documentation**	**109 days**	**Fri 8/1/14**	**Wed 12/31/14**
8	Task 7: Permitting	109 days	Fri 8/1/14	Wed 12/31/14
9	**Budget Category (d): Construction/Implementation**	**565 days**	**Thu 1/1/15**	**Wed 3/1/17**
10	Task 8: Construction Contracting	64 days	Thu 1/1/15	Tue 3/31/15
11	Task 9: Construction	**501 days**	**Wed 4/1/15**	**Wed 3/1/17**
12	Subtask 9.1: Mobilization and Site Preparation	44 days	Wed 4/1/15	Mon 6/1/15
13	Subtask 9.2: Project Construction	349 days	Tue 6/2/15	Fri 9/30/16
14	Subtask 9.3: Performance Testing and Demobilization	108 days	Mon 10/3/16	Wed 3/1/17
15	**Budget Category (f): Construction Administration**	**587 days**	**Thu 1/1/15**	**Fri 3/31/17**
16	Task 11: Construction Administration	587 days	Thu 1/1/15	Fri 3/31/17

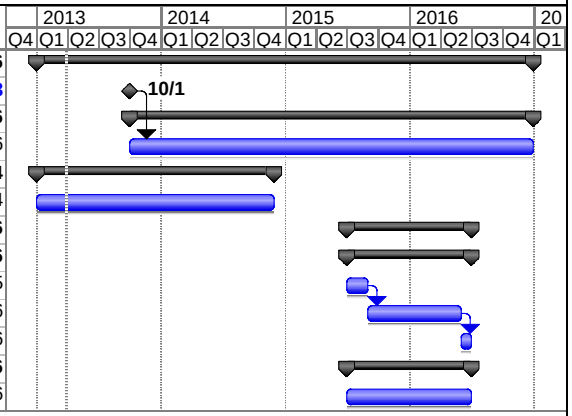


Project: 5.Project# Schedule
Date: Tue 3/26/13

Task
Split
Progress
Milestone
Summary
Project Summary
External Tasks
External Milestone
Deadline

Figure 5-5:
San Antonio del Desierto DAC Sewer Extension Project Schedule

ID	Task Name	Duration	Start	Finish
1	**San Antonio del Desierto DAC Sewer Extension Project**	**1043 days**	**Tue 1/1/13**	**Thu 12/29/16**
2	**Grant Award Date**	**0 days**	**Tue 10/1/13**	**Tue 10/1/13**
3	**Budget Category (a): Direct Project Administration**	**848 days**	**Tue 10/1/13**	**Thu 12/29/16**
4	Task 1: Project Administration	848 days	Tue 10/1/13	Thu 12/29/16
5	**Budget Category (c): Planning/Design/Engineering/Environmental Documentation**	**499 days**	**Tue 1/1/13**	**Fri 11/28/14**
6	Task 5: Project Design	499 days	Tue 1/1/13	Fri 11/28/14
7	**Budget Category (d): Construction/Implementation**	**262 days**	**Wed 7/1/15**	**Thu 6/30/16**
8	Task 9: Construction	**262 days**	**Wed 7/1/15**	**Thu 6/30/16**
9	Subtask 9.1: Mobilization and Site Preparation	44 days	Wed 7/1/15	Mon 8/31/15
10	Subtask 9.2: Project Construction	196 days	Tue 9/1/15	Tue 5/31/16
11	Subtask 9.3: Performance Testing and Demobilization	22 days	Wed 6/1/16	Thu 6/30/16
12	**Budget Category (f): Construction Administration**	**262 days**	**Wed 7/1/15**	**Thu 6/30/16**
13	Task 11: Construction Administration	262 days	Wed 7/1/15	Thu 6/30/16

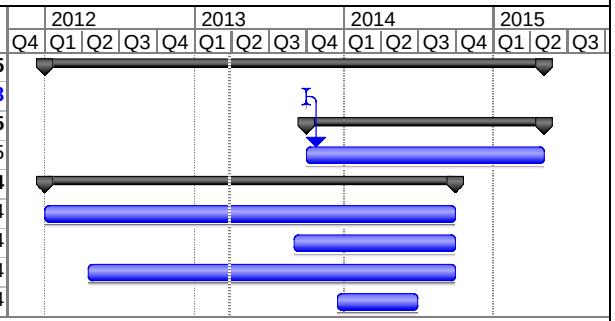


Project: 5.Project# Schedule
Date: Tue 3/26/13

Task
Split
Progress
Milestone
Summary
Project Summary
External Tasks
External Milestone
Deadline

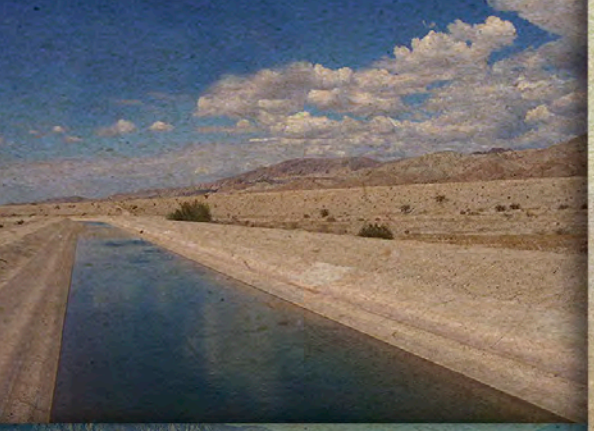
Figure 5-6:
Torres-Martinez Avenue 64 Water Supply Connection Project Schedule

ID	Task Name	Duration	Start	Finish
1	**Torres-Martinez Avenue 64 Water Supply Connection Project**	**872 days**	**Mon 1/2/12**	**Tue 5/5/15**
2	**Grant Award Date: October 2013**	**1 day**	**Tue 10/1/13**	**Tue 10/1/13**
3	**Budget Category (a): Direct Project Administration**	**415 days**	**Wed 10/2/13**	**Tue 5/5/15**
4	Task 1: Project Administration	415 days	Wed 10/2/13	Tue 5/5/15
5	**Budget Category (c): Planning/Design/Engineering/Environmental Doc**	**717 days**	**Mon 1/2/12**	**Tue 9/30/14**
6	Task 4: Assessment and Evaluation	717 days	Mon 1/2/12	Tue 9/30/14
7	Task 5: Project Design	282 days	Mon 9/2/13	Tue 9/30/14
8	Task 6: Environmental Documentation	641 days	Tue 4/17/12	Tue 9/30/14
9	Task 7: Permitting	140 days	Tue 12/17/13	Mon 6/30/14



Project: 5.Project# Schedule
Date: Tue 3/26/13

Task
Split
Progress
Milestone
Summary
Project Summary
External Tasks
External Milestone
Deadline











Attachment 6

Monitoring, Assessment, and Performance Measures

Implementation Grant, Round 2

Coachella Valley IRWM
Implementation Grant Proposal

Attachment 6

Coachella Valley Integrated Regional Water Management Implementation Grant Proposal – Round 2

Monitoring, Assessment, and Performance Measures

Attachment 6 consists of the following item:

- ✓ **Performance Measures**

The purpose of this attachment is to describe the monitoring, assessment, and performance measures that will be used to evaluate each proposed project. These measures will ensure that this proposal meets its intended goals, achieves measurable outcomes, and provides value to the Region and the State of California.

For each project in this *Coachella Valley IRWM Implementation Grant Proposal – Round 2*, specific performance measures and monitoring approaches have been developed to assess project performance on an ongoing basis. The purpose of this attachment is to provide a discussion of the monitoring system to be used to verify project performance with respect to the project benefits or objectives identified. For each proposed project, listed below, this attachment will identify data collection and analysis to be used.

This attachment will also discuss how monitoring data will be used to measure the performance in meeting the overall goals and objectives of the Coachella Valley IRWM Plan. Each project applicant has prepared a Project Performance Measures Table (included in this attachment) that includes the following:

- Project goals
- Desired outcomes
- Targets – measureable targets that are feasible to meet during the life of the project
- Performance indicators – measures to evaluate change that is a direct result of the project being built
- Measurement tools and methods – to effectively track performance

Project 1: Non-Potable Water Use Expansion

The purpose of the *Non-potable Water Use Expansion Program* is to reduce groundwater overdraft by providing non-potable water supply for agricultural and golf course irrigation in lieu of groundwater, which would reduce groundwater extraction and associated overdraft. The program will increase the number of golf courses using untreated Colorado River water and recycled water for irrigation in the Coachella Valley. It will increase the utilization of recycled water from the Mid-Valley Pipeline, which has the capacity to serve 50 golf courses though only 14 are currently connected to the system.

Program Goals

The goals listed below are an elaboration on the goals explained for the project in Attachment 3 of this proposal. As such, the goals are organized and lettered in accordance with the IRWM Plan Objectives, and include additional project components necessary to verify project performance with respect to the objectives identified in Attachment 3.

A. Provide reliable water supply: The program will help to provide a reliable water supply for commercial/tourism needs (the golf course industry) via the provision of non-potable water consisting of Canal water and recycled water. Connections to existing non-potable infrastructure will allow golf courses to use non-potable water as a reliable source of irrigation, as current groundwater overdraft calls for a sustainable alternative for future irrigation demands. Engineering and construction records will document where these connections are made. Customer use records for non-potable water will provide data that demonstrate the use pattern of this more sustainable supply for golf course irrigation. Coachella Valley Water District (CVWD) will submit construction records and water purchase data for the system expansion.

B. Manage groundwater levels: Replacing groundwater with non-potable water supply for irrigation will reduce the current groundwater demand, thus prevent overdraft and subsidence in the project region. Substituted groundwater demand will be computed from non-potable water purchase data, assuming the irrigation demands for groundwater and non-potable water are equivalent. As a performance measure, CVWD will compile water usage record and calculate reduced groundwater pumping.

C. Secure reliable imported water supply: By maximizing the capacity of non-potable water infrastructure, this project will offset the need to import additional State Water Project (SWP) water to the Region, and will therefore reduce net diversions from the SWP. This will help to improve the reliability of SWP water by reducing regional demands for this water source for non-potable uses. Engineering and construction records will document non-potable connections. Customer use records for non-potable water will provide data that demonstrate the amount of SWP water that is offset.

D. Maximize local supply opportunities: By expanding non-potable water service (including recycled water and Canal water), the project will provide local non-potable water for purposes of source substitution. Engineering and construction records will document where these connections are made. Customer use records for non-potable water will demonstrate this objective is achieved.

I. Optimize conjunctive use: Construction of this project will enhance the region's ability to match water quality with use. Using non-potable water for irrigation purpose will preserve the groundwater resource for domestic demand. Preserved potable groundwater resources will be documented by non-potable water billing data.

J. Maximize stakeholder involvement: This project will involve direct coordination between CVWD and non-potable water customers, and will help to provide education and awareness for source substitution and the ability to use non-potable water for irrigation. Therefore, the project will help assist with increasing stewardship in water resource management through education and awareness. Meetings will be

held to coordinate directly with the golf course operators. CVWD will submit outreach records to keep track of stakeholder participation.

K. Address water-related needs of Tribes: Expansion of the non-potable system will preserve the groundwater resource to be used by tribal communities for their domestic and cultural needs. CVWD will calculate substituted groundwater demand based on non-potable water billing data.

L. Address water and sanitation needs of DACs: Using non-potable water for golf course irrigation will preserve the groundwater resource to be used by DAC communities for their needs. CVWD will calculate substituted groundwater demand based on non-potable water billing data.

M. Maintain affordability of water: The project will reduce irrigation cost of golf course. Current operation requires pumping groundwater which is every energy and capital intensive. Replacing with non-potable infrastructure will provide a more sustainable resource at a lower cost. The comparison of irrigation cost will be documented to demonstrate improved affordability.

Monitoring System

As project sponsor for the *Non-potable Water Use Expansion Program*, CVWD will provide 1) engineering and construction records, 2) customer billing data for non-potable water, and 3) stakeholder outreach records. CVWD will provide the calculated preserved groundwater from non-potable water usage data and cost comparison between potable and non-potable purchases.

Table 6-1 summarizes performance measures for this project.

Table 6-1: Performance Measures Table
Non-Potable Water Use Expansion Program

Benefit Type	Project Goals	Desired Outcomes	Targets	Performance Indicators	Measurement Tools and Methods
A. Provide Reliable Water Supply	Provide non-potable water for golf course irrigation	Connect to golf courses to non-potable water supply system for irrigation purposes	Allow golf courses to use non-potable water as a reliable source of irrigation	1. Use of non-potable supply 2. LF of pipeline	1. Engineering/ construction records 2. Non-potable water billing data
B. Manage Groundwater Levels	Reduce groundwater overdraft and minimize subsidence	Substitute groundwater with non-potable water for golf course irrigation	Reduced groundwater usage in golf course irrigation	1. MGD of non-potable used 2. MGD of groundwater use reduced	Calculated substituted groundwater demand from non-potable water billing data
C. Secure Reliable Imported Water Supply	Provide non-potable water for golf course irrigation, thereby reducing SWP demands and improving SWP reliability	Connect to golf courses to non-potable water supply system for irrigation purposes	Allow golf courses to use non-potable water instead of SWP water	1. Use of non-potable supply 2. LF of pipeline	1. Engineering/ construction records 2. Calculated SWP offset based on non-potable water billing data
D. Maximize Local Supply Opportunities	Provide local non-potable water for golf course irrigation	Connect to golf courses to non-potable water supply system for irrigation purposes	Allow golf courses to use non-potable water as a reliable source of irrigation	1. Use of non-potable supply 2. LF of pipeline	1. Engineering/ construction records 2. Non-potable water billing data
I. Optimize Conjunctive Use of Water Resources	Match quality with use and optimize usage of available water resources	Connect golf courses to non-potable water supply system	Use untreated canal water for non-potable use such as golf course irrigation	MGD of non-potable water demand	Calculated groundwater preserved based on non-potable water billing data
J. Maximize Stakeholder Involvement and Stewardship	Increase stakeholder awareness and involvement in the project area	1. Hold stakeholder meetings during system planning and design 2. Distribute informative flyers about the project	Improved stakeholder awareness and enhanced involvement	1. Golf course outreach meetings 2. Distributed project information	1. Meeting record 2. Information distribution record
K. Address Water-related Needs in Tribal Culture	Reserve available domestic water resource for tribal community	Substitute groundwater with non-potable water for golf course irrigation	Increased groundwater reserve for tribal usage	MGD of groundwater use avoided	Calculated groundwater preserved based on non-potable water billing data
L. Address Water and Sanitation Needs for DAC	Reserve available potable water resource for DAC	Reduce groundwater usage by applying non-potable water for golf course irrigation	Increased groundwater reserve for DAC community	MGD of groundwater use avoided	Calculated groundwater preserved based on non-potable water billing data
M. Maintain Affordability of Water	Provide less costly water for irrigation use	Replace groundwater supply with non-potable water for golf course irrigation	Reduced irrigation water cost	Lower cost for golf course irrigation	Cost comparison between non-potable supply and pumping costs

Project 2: Coachella Valley Salt and Nutrient Management Program

The purpose of *Coachella Valley Salt and Nutrient Management Program* is to develop a Salt and Nutrient Management Plan (SNMP) for the Coachella Valley Basin to meet the requirements of the State of California's Recycled Water Policy. This is the second phase of a three-phase project, and builds on the work completed during Phase I's initial SNMP scoping and work plan development. Below is a list of project goals and their corresponding monitoring methods. As the Coachella Valley Regional Water Management Group (CVRWMG) representative administering the *Coachella Valley Salt and Nutrient Management Program*, CVWD is listed as the responsible entity in the goals and monitoring activities described below.

Project Goals

The goals listed below are an elaboration on the goals explained for the project in Attachment 3 of this proposal. As such, the goals are organized and lettered in accordance with the IRWM Plan Objectives, and include additional project components necessary to verify project performance with respect to the objectives identified in Attachment 3.

A – Provide reliable water supply: Development of the Salt and Nutrient Management Plan will help to ensure that the Region can continue to use recycled water, which is a reliable, local, drought-proof water supply. Because the development of future recycled water projects is dependent on this program, it is critical that the CVRWMG and stakeholders fully implement the work plan contained in this funding application. CVWD will submit the Final SNMP and projected recycled water system expansion opportunities based on the SNMP outcomes as part of grant contract compliance.

B – Manage groundwater levels: This program will facilitate the permitting and use of recycled water, which will help the Region to continue to manage groundwater overdraft via source substitution with recycled water. Source substitution helps to reduce localized groundwater pumping, which could potentially help manage land subsidence. Because the development of future recycled water projects (and therefore source substitution with recycled water) is dependent on this program, it is critical that the CVRWMG and stakeholders fully implement the work plan contained in this funding application. CVWD will submit the Final SNMP and projected recycled water system expansion opportunities based on the SNMP outcomes as part of grant contract compliance.

D – Maximize local supply: This program will assist Valley water purveyors in continuing and expanding use of recycled water supplies by achieving compliance with the State Water Resources Control Board's Recycled Water Policy. Because the development of future recycled water projects is dependent on this program, it is critical that the CVRWMG and stakeholders fully implement the work plan contained in this funding application. CVWD will submit the Final SNMP and projected recycled water system expansion opportunities based on the SNMP outcomes as part of grant contract compliance.

E – Protect groundwater quality: This program will assist Valley water purveyors in managing salt and nutrient loading to the groundwater basin in order to preserve the beneficial uses identified for the basin. Data collected from baseline condition assessment and anti-degradation process will be an important deliverable that then allows stakeholders to develop effective management strategies for inclusion in the Final SNMP. All of this data will be made publicly available through the CVRWMG website.

J – Maximize stakeholder involvement: The State requires that SNMPs be developed in a cooperative and collaborative manner among water and wastewater agencies and other salt/nutrient stakeholders. This program will continue the collaborative stakeholder process established in Phase I to characterize groundwater basins, identify salt/nutrient loading and trends, identify water management goals and strategies, and draft a SNMP. This project will involve water and wastewater agencies, the golf industry, agricultural industry, and tribes. An outreach process will be utilized to collect data, understand

stakeholder concerns, and reach consensus on a final plan. To document the breadth of involvement garnered during the SNMP process, CVWD will compile and submit stakeholder and technical team lists, workshop records (agendas and meeting notes), and comments submitted on the draft SNMP.

K – Address water-related needs of Tribes: Salt and nutrient management is a concern to the tribes who also utilize the groundwater supply. Collaboration with the tribes to address groundwater quality will improve relations among stakeholders in the Valley. To document that tribal interests were considered, CVWD will compile tribal member participation and comments submitted on the draft SNMP.

L – Address Water and Sanitation Needs for DACs: This program will serve to protect groundwater quality in communities throughout the Region, including DACs. It will also provide evaluation of management strategies for salt and nutrient loading, which may reduce future conflicts over permitting and potential violations. Having a clear set of standards and management strategies in place will make it easier for communities to make planning decisions, and has the potential to make growth easier and more attractive for DACs. To document that DAC interests were considered, CVWD will compile tribal and DAC group member participation and comments submitted on the draft SNMP.

M – Maintain affordability of water: This project will facilitate continued use and expansion of recycled water supplies. Recycled water is generally provided to customers at a reduced rate to maximize incentives for using this water. Therefore, the program will help to maintain the affordability of water by facilitating the current and future use of a less-costly water supply source (recycled water). The comparison of recycled water vs. potable water costs will be documented to demonstrate improved affordability.

Monitoring System

As the CVRWMG representative administering the *Coachella Valley Salt and Nutrient Management Program*, CVWD will compile and submit 1) all TM deliverables during the SNMP process, 2) the Final SNMP, and 3) projected recycled water system expansion opportunities based on the SNMP outcomes. To document a robust and collaborative stakeholder involvement process, CVWD will also submit stakeholder and technical team lists, workshop records (agendas and meeting notes), and comments and responses on the draft SNMP.

Table 6-2 summarizes the project monitoring for this project.

Table 6-2: Performance Measures Table
Coachella Valley Salt and Nutrient Management Program

Benefit Type	Project Goals	Desired Outcomes	Targets	Performance Indicators	Measurement Tools and Methods
A. Provide reliable water supply	Comply with the adopted Recycled Water Policy for future recycled water system expansion	Achieve compliance with the State Water Resources Control Board's Recycled Water Policy	Facilitate streamlining the permitting of recycled water system expansion	Adopt Salt and Nutrient Management Plan to achieve compliance with Recycled Water Policy	1. Final SNMP 2. Projected recycled water system expansion opportunities based on SNMP outcomes
B. Manage groundwater levels	Comply with the adopted Recycled Water Policy for future recycled water system expansion and ability to expand source substitution policies	Achieve compliance with the State Water Resources Control Board's Recycled Water Policy	Facilitate streamlining the permitting of recycled water system (source substitution) expansion	Adopt Salt and Nutrient Management Plan to achieve compliance with Recycled Water Policy	1. Final SNMP 2. Projected recycled water system expansion/source substitution opportunities based on SNMP outcomes
D. Maximize Local Supply Opportunities	Comply with the adopted Recycled Water Policy for future recycled water system expansion	Achieve compliance with the State Water Resources Control Board's Recycled Water Policy	Facilitate streamlining the permitting of recycled water system expansion	Adopt Salt and Nutrient Management Plan to achieve compliance with Recycled Water Policy	1. Final SNMP 2. Projected recycled water system expansion opportunities based on SNMP outcomes
E. Protect Ground Water Quality	Improve groundwater quality via development SNMP for each groundwater basin	1. Baseline condition 2. Loading trends and management strategies 3. Anti-degradation process 4. Adopted SNMP	Develop and adopt SNMP that will address current groundwater quality issues while protecting critical beneficial use	1. Salt and nutrient load reduction 2. Finalized SNMP	1. Data collected from baseline condition assessment and anti-degradation process 2. All TM deliverables 3. Final SNMP
J. Maximize Stakeholder Involvement and Stewardship	Maximize stakeholder and technical group involvement and stewardship in SNMP development	Conduct stakeholder workshops and conference calls to facilitate development of SNMP	1. Identify additional stakeholders/technical team members 2. Hold stakeholder workshops 3. Review and provide comments on technical TM	1. Additional stakeholders/technical team member contacted 2. No. of workshops/calls 3. TM review comments	1. List of stakeholders and technical team members 2. Workshop records 3. Draft SNMP comments and responses

Table 6-2: Performance Measures Table
Coachella Valley Salt and Nutrient Management Program

Benefit Type	Project Goals	Desired Outcomes	Targets	Performance Indicators	Measurement Tools and Methods
K. Address Water-related Needs in Tribal Culture	Addressing issues with existing groundwater resource for tribal community	1. Salt/Nutrient loading and trends analysis 2. Anti-Degradation process	Improve groundwater quality for tribal community	1. Additional stakeholders/technical team member contacted2. Salt and nutrient load reduction 3. Projected groundwater quality improvements from SNMP strategies	1. List of tribal stakeholders 2.Workshop records 3. Draft SNMP comments and responses
L. Address Water and Sanitation Needs for DAC	Addressing issues with existing groundwater resource for DAC	1. Salt/Nutrient loading and trends analysis 2. Anti-Degradation process	Improve groundwater quality for DAC area	1. Salt and nutrient load reduction 2. Projected groundwater quality improvements from SNMP strategies	1. List of tribal and DAC stakeholders 2. Draft SNMP comments and responses
M. Maintain Affordability of Water	Comply with the adopted Recycled Water Policy for future recycled water system expansion to provide recycled water, which is less costly, for irrigation and other applicable uses	Achieve compliance with the State Water Resources Control Board's Recycled Water Policy	Facilitate streamlining the permitting of recycled water system expansion	Adopt Salt and Nutrient Management Plan to achieve compliance with Recycled Water Policy	1. Final SNMP 2. Projected recycled water system expansion opportunities based on SNMP outcomes 3. Cost comparison between expanding the water system with recycled water vs. potable water supplies

Project 3: Groundwater Quality Protection Program – Subarea D2

The purpose of the *Groundwater Quality Protection Program-Subarea D2* is to 1) extend the Mission Springs Water District (MSWD) municipal wastewater collection system to Subarea D2 in Assessment District 12, 2) eliminate the need for on-site septic systems in the project area, and 3) comply with State law and an MSWD ordinance that require customers to connect to the wastewater collection system once it is available to their property.

The project will expand wastewater collection systems, enhance water quality by protecting drinking water supply, and reduce septic tank density. Each project goal will be complimented by a monitoring or assessment program to quantify and verify overall project performance.

Project Goals

The goals listed below are an elaboration on the goals explained for the project in Attachment 3 of this proposal. As such, the goals are organized and lettered in accordance with the IRWM Plan Objectives, and include additional project components necessary to verify project performance with respect to the objectives identified in Attachment 3.

A. Provide reliable water supply: The program will help to provide a reliable water supply for MSWD customers by contributing flows to the Horton Wastewater Treatment Plant (HWWTP) for future recycled water use. Volume of wastewater collected from sewer expansion will be obtained from the influent flow records at HWWTP. The influent flows will reveal water supply increases from septic tank abatement. Monthly reports will also identify new sewer connections which will indicate local supply increases.

B. Manage groundwater levels: This project will help to manage groundwater levels by capturing flows currently lost to the non-potable Desert Hot Springs Subbasin and reusing them within the potable Mission Creek subbasin. This will help to manage groundwater levels in the Mission Springs subbasin through recharge (percolation) and through source substitution (recycled water use).

D. Maximize local supply opportunities: This project indirectly maximizes local supplies by capturing septic effluent that is currently lost to the Desert Hot Springs Subbasin for possible future recycled uses. The sewer flows captured via new customer connections to the MSWD collection system will be treated for future groundwater recharge in the basin. This will alleviate the current overdraft in the region's groundwater basin and prevent potential subsidence.

Volume of wastewater collected from sewer expansion will be obtained from the influent flow records at Horton Wastewater Treatment Plant (HWWTP). The influent flows will reveal water supply increases from septic tank abatement. Monthly reports will also identify new sewer connections which will indicate local supply increases.

E. Protect groundwater quality: Expansion of MSWD's municipal wastewater collection system will eliminate the need for on-site septic systems in the project area. This will reduce septic tank densities in the region and prevent potential negative impact to Mission Creek and Desert Hot Springs groundwater aquifers from improperly functioning septic systems. In addition, this project protects hot mineral water sources from contamination by septic systems, thus preserving the primary industry of the local economy of a DAC.

MSWD will compile construction records for the municipal system expansion and customer connections that document local residences have connected to the system. MSWD will also provide groundwater monitoring data adjacent to the project area as a measurement of program success. The water quality data will demonstrate the success of diverting the septic tank effluent through long term trends in groundwater nitrate levels, thus demonstrating protection of the groundwater quality.

J. Maximize stakeholder involvement: This project will involve coordination with residents within Sub Area D-2 of Assessment District 12 within MSWD's service area. As residents within this area are required to connect to the sewer system once it is in place, these residents are considered primary stakeholders and will be made aware of the project, its schedule, and its benefits to the Region.

Records of communication with residents, including public notices and flyers, will be documented and reported as a performance measure.

L. Address water and sanitation needs of DACs: Connection to MSWD wastewater collection system will help a local DAC meet their water and sanitation needs by providing for expansion of the municipal wastewater collection system and providing means for connection to the collection system. Removal of the septic systems will avoid any potential unsanitary conditions resulting from future system failures at residences. Potential nitrate and pathogen contaminations of the Desert Hot Springs aquifer will be eliminated via abatement of septic system. Hot mineral water will also be secured to continue supporting the local spa and hotel economy.

MSWD will compile construction records for the municipal system expansion and customer connections that document local residences have connected to the system. These records will document that the sanitation needs of the Desert Hot Springs DAC have been met through IRWM grant funding.

M. Maintain affordability of water: Protecting groundwater quality indirectly helps maintain the affordability of water. Eliminating the potential for nitrate contamination in water supplies will help project proponents avoid costly mitigation measures. It is, therefore, imperative that continual monitoring for nitrates in MSWD's potable wells be implemented in order to achieve this project goal. Tests will ensure that nitrate levels remain below the MCL and costly treatments remain unnecessary.

MSWD will provide groundwater monitoring data on nitrates and pathogens.

Monitoring System

As project sponsor for *Groundwater Quality Protection Program- Subarea D2*, MSWD will compiled and submit 1) construction records, 2) list of customer connections, 3) groundwater level and quality monitoring data, and 4) HWWTP influent records. MSWD will use the HWWTP influent records to calculate the amount of treated wastewater available for future recycled use.

Table 6-3 summarizes performance measures for this project.

Table 6-3: Performance Measures Table
Groundwater Quality Protection Program – Subarea D2

Benefit Type	Project Goals	Desired Outcomes	Targets	Performance Indicators	Measurement Tools and Methods
A. Provide Reliable Water Supply	Capture wastewater and recharge to the Mission Creek subbasin either directly or indirectly via source substitution (water recycling)	Increase the reliability of the Region's water supply by capturing and recharging water to the Mission Creek subbasin and providing additional flows for future recycled water	Provide additional water for recharge or for recycled water	Volume wastewater collected from new connections	Volume of wastewater collected from influent flow records
B. Manage Groundwater Levels	Capture wastewater and recharge to the Mission Creek subbasin either directly or indirectly via source substitution (water recycling)	Manage groundwater levels via source substitution or direct recharge	Provide additional water for recharge or for in lieu groundwater recharge (recycled water)	Volume wastewater collected from new connections	Volume of wastewater collected from influent flow records
D. Maximize Local Supply Opportunities	Capture wastewater and recharge to the Mission Creek subbasin for future use	Capturing and recharging water to the Mission Creek subbasin	Provide treated wastewater to be recharged in the Mission Creek subbasin	Volume wastewater collected from new connections	Volume of wastewater collected from influent flow records
E. Protect Groundwater Quality	Improve groundwater quality from eliminating septic system and recharge with treated wastewater	Eliminate septic systems in the project area and connect customers to wastewater collection system	Septic tank abatement and reduce potential groundwater contamination	1. # of septic tanks abated 2. # of customers connected 3. Reduced groundwater nitrate and pathogen levels	1. Construction records 2. List of customer connections 3. Groundwater nitrate and pathogen monitoring data
J. Maximize Stakeholder Involvement	Enhanced stakeholder awareness and stewardship	Distribute information about the project and its benefit to local stakeholders	Improved awareness of the project	Distributed information	Flyers, notices, and other materials about the project and distribution record
L. Address Water and Sanitation Needs for DAC	Provide reliable sewer conveyance and treatment for DAC area	Expand municipal wastewater collection system and connect to DAC area	Eliminate pollutant discharge from on-site septic systems in DAC area	1. LF of sewer pipe 2. # of customers connected	1. Construction record 2. List of customer connections
M. Maintain Affordability of Water	Maintain affordability by reducing and preventing contamination of local groundwater	Maintain groundwater quality to prevent additional treatment requirements	Eliminate the potential for nitrate removal systems to be installed at potable wells	No substantial or sustained long term trend in increased of nitrate and pathogen levels in potable wells	1. Volume of wastewater collected 2. Groundwater nitrate and pathogen monitoring data

Project 4: San Antonio del Desierto DAC Sewer Extension Project

The purpose of the *San Antonio del Desierto DAC Sewer Extension Project* is to replace the existing on-site wastewater treatment system at the San Antonio del Desierto (St. Anthony) Mobile Home Park with a sewer connection. The project proposes the installation of a gravity sewer pipeline, lift station, and a sewer force main pipeline that will collect wastewater from the St. Anthony Mobile Home Park, which has an approximate population of 400 people. The project will provide sewer service to the residents and convey the wastewater to the CVWD Water Reclamation Plant No. 4 (WRP-4).

The project will protect groundwater quality, improve sanitation in a disadvantaged community (DAC), and facilitate permitting compliance for the mobile home park, which will help to ensure that residents can remain in their homes and are not displaced. Each project goal will be complimented by a monitoring or assessment program, as described below, to quantify and verify overall project progress.

Project Goals

The goals listed below are an elaboration on the goals explained for the project in Attachment 3 of this proposal. As such, the goals are organized and lettered in accordance with the IRWM Plan Objectives, and include additional project components necessary to verify project performance with respect to the objectives identified in Attachment 3.

A. Provide reliable water supply: This project will help to provide a reliable water supply by connecting the St. Anthony Mobile Home Park to a municipal sewer system, thereby transferring wastewater to a water reclamation plant for future water reuse. Volume of wastewater collected from sewer expansion will be obtained from the influent flow records at WRP-4. The influent flows will reveal water supply increases from connecting the St. Anthony Mobile Home Park to the municipal wastewater system.

D. Maximize local supply opportunities: This project indirectly maximizes local supplies by capturing wastewater lagoon effluent that is currently lost to the shallow aquifer, and ultimately the Salton Sea for future recycled uses at CVWD's WRP-4. Wastewater that is sent to WRP-4 is currently discharged to the Coachella Valley Stormwater Channel (CVSC) after undergoing secondary treatment. While these flows are not currently beneficially reused, CVWD intends to upgrade WRP-4 to tertiary treatment to produce recycled water for beneficial reuse. This will maximize local supply opportunities by providing additional flows for recycled water, which will alleviate groundwater pumping via source substitution.

Volume of wastewater collected from sewer expansion will be obtained from the influent flow records at WRP-4. The influent flows will reveal water supply increases from connecting the St. Anthony Mobile Home Park to the municipal wastewater system.

E. Protect groundwater quality: The St. Anthony Mobile Home Park utilizes an on-site wastewater facility that is inadequate, does not meet current minimum standards, and is in need of replacement. The presence of a high groundwater table and poor percolation rates in the vicinity can negatively impact the operation of the onsite wastewater lagoons. The project will connect to CVWD's wastewater collection system and will protect public health, preserve valuable water resources, and diminish the possibility for groundwater contamination.

Pueblo Unido CDC, in coordination with CVWD, will compile construction records for the municipal system expansion. CVWD will also provide groundwater monitoring data adjacent to the project area as a measurement of program success. The water quality data will demonstrate the success of capturing wastewater flows through long term trends in groundwater nitrate levels.

F. Preserve and improve surface water quality: The existing on-site wastewater facilities consist of anaerobic wastewater lagoons. The majority of the existing on-site wastewater system is in immediate need of replacement and has a history of overflow, spills, and leaks. Existing groundwater levels are very

close to ground surface and may result in subsurface flow of water from the lagoons to adjacent agricultural drains.

CVWD will provide surface water monitoring data for agricultural drains and demonstrate successful nitrate and pathogen reduction in surface drainage channels.

G. Preserve local environment: This project will divert flows from onsite wastewater lagoons to the CVWD municipal water system. Therefore, the project will divert untreated wastewater from flowing into the Salton Sea or to the Torres-Martinez wetlands located adjacent to the Salton Sea. Wastewater from the project will be treated to tertiary levels and reused as recycled water, assuming that WRP-4 is upgraded to tertiary treatment by 2015. Therefore, the project will improve the quality of wastewater before it is discharged to the local environment.

Volume of wastewater collected from sewer expansion will be obtained from the influent flow records at WRP-4. The influent flows will reveal the amount of wastewater that is diverted to WRP-4, and will therefore reveal the amount of wastewater that is diverted from entering the local environment prior to treatment.

J. Maximize stakeholder involvement: The project is a community-driven project supported by CVWD. This constitutes a true testimony of community involvement. The community has expressed serious interest in replacing the existing wastewater lagoons that have been adversely impacted by the high water table and poor percolation in the area for many years. This has resulted in the formulation of this project, which will ensure better living conditions and new opportunities for future generations.

Distribution records will be documented and reported as a performance measure.

L. Address water and sanitation needs of DACs: Connection to the CVWD wastewater collection system will help a local DAC meet their water and sanitation needs by providing for expansion of the municipal wastewater collection system and providing means for connection to the collection system. Removal of the wastewater lagoon system will avoid any potential unsanitary conditions resulting from future system failures. Potential nitrate and pathogen contaminations of the shallow aquifer will be eliminated via abatement of the lagoons.

Pueblo Unido CDC, in coordination with CVWD, will compile construction records for the municipal system expansion. These records will document that the sanitation needs of the St. Anthony DAC have been met through IRWM grant funding.

M. Maintain affordability of water: Protecting groundwater quality indirectly helps maintain the affordability of water. Eliminating the potential for nitrate contamination in water supplies will help project proponents avoid costly mitigation measures. It is, therefore, imperative that continual monitoring for nitrates in CVWD's potable wells be implemented in order to achieve this project goal. Tests will ensure that nitrate levels remain below the MCL and costly treatments remain unnecessary.

CVWD will provide groundwater monitoring data on nitrates and pathogens.

Monitoring System

As project sponsor for *San Antonio del Desierto DAC Sewer Extension Project*, Pueblo Unido CDC will work with CVWD to compile and submit 1) construction records, 2) groundwater quality monitoring data, 3) agricultural drain water quality monitoring, and 4) WRP-4 influent records. Pueblo Unido CDC will also prepare distribution records for the community information flyer.

CVWD will use the WRP-4 influent records to calculate the amount of treated wastewater available for future recycled use.

Table 6-4 summarizes performance measures for this project.

Table 6-4: Performance Measures Table
San Antonio del Desierto DAC Sewer Extension Project

Benefit Type	Project Goals	Desired Outcomes	Targets	Performance Indicators	Measurement Tools and Methods
A. Provide Reliable Water Supply	Capture treated wastewater for future recycled water opportunity	Increase the reliability of the Region's water supply by providing additional supplies for future recycled water	Provide additional treated wastewater for recycled water	Volume wastewater collected from new connections	Volume of wastewater collected from influent flow records
D. Maximize Local Supply Opportunities	Capture treated wastewater for future recycled water opportunity	Increased future recycled water supply	Provide additional treated wastewater for recycled water	Volume wastewater collected from new connections	Volume of wastewater collected from influent flow records
E. Protect Groundwater Quality	Improve groundwater quality and reduce sewage contamination	Connect mobile home park to municipal wastewater collection systems	Lagoon abatement and eliminated groundwater contamination	1. Acreage of lagoons abated 2. Confirm municipal sewer connection 3. Reduced groundwater nitrate concentration	1. Construction record 2. Groundwater nitrate and pathogen monitoring data
F. Preserve Surface Water Quality	Protect surface water from lagoon subsurface and surface overflow, spills, and leaks	Replace failing lagoon system with sewer connection	Prevent lagoon contamination via shallow groundwater transport	Reduced nitrate and pathogen level in surface water body	Surface water monitoring data for agricultural drains
G. Preserve Local Environment	Protect the local environment from sewage contamination	Replace failing lagoon system with sewer connection	Prevent contaminated water from entering the local environment	Volume wastewater collected and treated, and not discharged to the local environment	Volume of wastewater collected from influent flow records
J. Maximize Stakeholder Involvement and Stewardship	Enhanced stakeholder awareness and stewardship	Distribute flyers about project and its benefit to local stakeholders	Improved awareness of the project	Distributed information	Informative flyer on project and distribution record
L. Address Water and Sanitation Needs for DAC	Provide reliable sewer conveyance and treatment for DAC and eliminate potential public health problems	Replace failing lagoon system with sewer connection	Eliminate pollutant discharge from lagoon systems in DAC area	1. Confirm municipal sewer connection 2. MGD of sewer collected	1. Construction record 2. Volume wastewater collected from influent flow records
M. Maintain Affordability of Water	Maintain affordability by reducing and preventing contamination of local groundwater	Maintain groundwater quality to prevent additional treatment requirements	Eliminate the potential for nitrate removal systems to be installed at potable wells	No substantial or sustained long term trend in increased of nitrate and pathogen levels in potable wells	1. Volume of wastewater collected 2. Groundwater nitrate and pathogen monitoring data

Project 5: Torres-Martinez Avenue 64 Water Supply Connection Project

The *Torres-Martinez Avenue 64 Water Supply Connection Project* would provide a safer and more reliable supply of water and require much less direct operations and maintenance from the Torres-Martinez Desert Cahuilla Indians (DCI). Once implemented, this project will resolve the water outages and improve the health and safety issues associated to the residents and the operators of the system. It will also restore the fire protection service, which has been inoperable since 2004.

This project will provide engineering services to design the extension of the existing CVWD regional water supply system and connect it to the Torres-Martinez DCI domestic water and fire water supply system at Avenue 64. The existing Torres-Martinez DCI wells, storage tanks, and pressure stations would be physically disconnected from the water supply system.

This project is a critical component of the concrete actions that the Torres-Martinez DCI is taking to resolve water system deficiencies within the Avenue 64 Subdivision. Torres-Martinez DCI is actively pursuing U.S. Department of Agriculture (USDA) funding for construction activities (Phase II), but does not have the financial or technical means to complete engineering and design work that are required prior to construction in order to be eligible for funding from USDA. As such, this project would meet the critical water supply needs of a tribal DAC by including work necessary to lead to a construction project that would permanently resolve water supply and associated public health issues within the Avenue 64 Subdivision by connecting the subdivision to the CVWD municipal water supply system.

Project Goals

The goals listed below are an elaboration on the goals explained for the project in Attachment 3 of this proposal. As such, the goals are organized and lettered in accordance with the IRWM Plan Objectives, and include additional project components necessary to verify project performance with respect to the objectives identified in Attachment 3.

A. Provide reliable water supply: This project will connect the Avenue 64 Subdivision to the current CVWD water distribution system, which will provide safe and reliable domestic water and fire suppression services to the community. The project will allow the Torres-Martinez DCI to disconnect their exiting well system, which experiences frequent outages and poses a risk to human health and safety. Engineering drawings produced through this project will be reviewed and approved by CVWD for use during Phase II.

B. Manage groundwater levels: This Project will allow the Torres-Martinez DCI to disconnect their current well system and eliminate local groundwater pumping in the community, which is located in the eastern Coachella Valley. Reduced local groundwater extraction in this portion of the Coachella Valley will help to manage the perched water aquifer. Engineering drawings produced through this project will be reviewed and approved by CVWD for use during Phase II.

J. Maximize stakeholder involvement: By partnering with adjacent agencies and doing outreach to local residents, along with CVWD, this project will optimize stakeholder involvement in extension of municipal services to a disadvantaged tribal community. Flyers containing project information will be produced and distributed to local stakeholders by Torres-Martinez DCI.

K. Address water-related needs of Tribes: This project is designed to address the critical drinking water supply needs of the Torres-Martinez DCI tribe, and provides reliable and safe drinking water directly to a tribal community located on tribal lands. In addition, operations and maintenance (O&M) requirements will be reduced for the local tribal operator. Engineering drawings produced through this project will be reviewed and approved by CVWD for use during Phase II.

L. Address water and sanitation needs of DACs: This project will provide for a more reliable and safer water source for a DAC. With the elimination of the existing groundwater wells, this will project will reduce the risks to human health and safety that are posed by the community's current water system. By

connecting to the CVWD potable water system, the project will also provide a long-term solution to addressing water-related needs of a DAC. Engineering drawings produced through this project will be reviewed and approved by CVWD for use during Phase II.

M. Maintain affordability of water: Residents currently need a periodic provision of bottled water supplies for potable consumption during frequent outages in their current water supply system. This project will eliminate the need for costly bottled water provisions to the community. The project will also greatly reduce the operations and maintenance needs and costs associated with the existing onsite potable water system. Cost comparison between bottled water and municipal water supply will be provided by Torres-Martinez DCI to demonstrate the economic advantage.

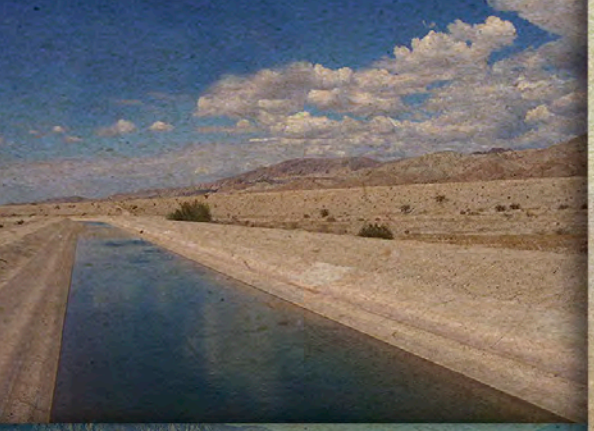
Monitoring System

As the project sponsor for the *Torres-Martinez Avenue 64 Water Supply Connection Project*, the Torres-Martinez DCI staff will provide 1) engineering drawings, 2) informational flyer for distribution to tribal residents, and 3) cost comparison of bottled water vs. municipal service based on the systems' design capacity. CVWD will review and approve the engineering drawings for use during Phase II.

Table 6-5 summarizes performance measures for the *Torres-Martinez Avenue 64 Water Supply Connection Project*.

Table 6-5: Performance Measures Table
Torrez Martinez Avenue 64 Water Supply Connection Project

Benefit Type	Project Goals	Desired Outcomes	Targets	Performance Indicators	Measurement Tools and Methods
A. Provide Reliable Water Supply	Design a CVWD water connection to eliminate supply outages and improve potable water quality in the Avenue 64 Subdivision	Connect the Avenue 64 Subdivision to CVWD municipal water infrastructure to provide a safe and reliable domestic water supply	Safe and reliable water supply	100% design completed for CVWD water supply connection	Engineering drawings
B. Manage Groundwater Levels	Design a CVWD water connection to manage the shallow (perched) aquifer by eliminating tribal groundwater pumping	Connect the Avenue 64 Subdivision to CVWD municipal water infrastructure to reduce groundwater extraction for potable use	Replace local groundwater pumping from the shallow aquifer with CVWD municipal water supply	100% design completed for CVWD water supply connection	Engineering drawings
J. Maximize Stakeholder Involvement and Stewardship	Enhanced stakeholder awareness and stewardship	Inform tribal residents about the project and its benefit to local stakeholders	Improved awareness of the project	Distributed information	Informative flyer on project
K. Address Water-related Needs in Tribal Culture	Reduce outages and improve potable water quality in tribal land	Connect the tribal community to CVWD to provide a safe and reliable water supply for potable use and fire suppression	Safe and reliable water supply	100% design completed for CVWD water supply connection	Engineering drawings
L. Address Water and Sanitation Needs for DAC	Improve water supply reliability and water quality for DAC	Connect the tribal community to CVWD and reduce O&M burden for the tribal water operator	Safe and reliable water supply	100% design completed for CVWD water supply connection	Engineering drawings
M. Maintain Affordability of Water	Eliminate the need for bottle water supply due to frequent water outages and poor water quality	Connect the tribal community to CVWD which provides reliable high quality water at a lower cost	Reduced potable water supply costs	Projected drinking water cost pre- and post-project completion	Cost comparison between bottled water and CVWD water based on design capacity







Attachment 7

Technical Justification of Projects

Implementation Grant, Round 2

Coachella Valley IRWM
Implementation Grant Proposal

Attachment **7**

Coachella Valley Integrated Regional Water Management Implementation Grant Proposal – Round 2

Technical Justification of Projects

Attachment 7 consists of the following items:

- ✓ **Technical Justification**

This attachment provides a regional background and overview of the physical benefits associated with each individual project in this proposal, as well as a technical justification for these benefits.

This attachment contains information on the technical justification for the five projects contained in this Proposal. Please note that one project in this Proposal, the *Torres-Martinez Avenue 64 Water Supply Connection Project*, does not include physically or economically quantified benefits, as this project is a disadvantaged community (DAC) project and was evaluated with a Cost-Effectiveness Analysis in Attachment 8. The other four projects include a multitude of physical benefits, which were both physically and economically quantified.

A number of studies and documents have been used to support the projects included in this proposal. These studies and documents have been referenced as footnotes in this attachment, including specific references to the page locations and sections of the studies or documents that support the claims made in this attachment. **Please note that in accordance with guidance from DWR on Page 11 of the *Proposal Solicitation Package*, the documents referenced in this section have been provided in an electronic format only (on the supporting CD) and are not included within the printed hard copies that have been mailed to DWR**.

Regional Water Supply Background

The Coachella Valley IRWM Region is chiefly the same boundary as the Whitewater River watershed boundary, also known as the Coachella Valley. The area is drained primarily by the Whitewater River that flows southward to the Salton Sea. The Coachella Valley is characterized by low precipitation and high summer daytime temperatures.

Water supply for the Coachella Valley is generally pumped from subbasins of the Coachella Valley Groundwater Basin. Water is pumped from many wells around the region into each of the regional water purveyor's distribution systems. Each of the five water purveyors of the region – Coachella Valley Water District (CVWD), Coachella Water Authority (CWA), Desert Water Agency (DWA), Indio Water Authority (IWA), and Mission Springs Water District (MSWD) – operates its own water distribution system.

Groundwater is the largest source of water supply for the region. The Coachella Valley Groundwater Basin has an estimated storage capacity of 39 million acre-feet (AF) of water. Prior to 1949, groundwater levels steadily declined due to agricultural pumping. The Coachella branch of the All American Canal (Coachella Canal) was completed in 1949 and the first deliveries of Colorado River water to the Coachella Valley began in that year. As a result, groundwater pumping was significantly reduced from 1950 to the early 1980s, and water levels rose in the eastern Coachella Valley. However, since the 1980s,

increased pumping has caused water levels in the eastern Coachella Valley to decline despite recharge with Colorado River water sources. CVWD estimates the decrease in freshwater storage in the Coachella Valley Groundwater Basin for 1999 to be 137,000 AF, with a cumulative overdraft of nearly 4.8 million acre-feet between 1936 and 1999.[1]

Due to potentially significant consequences caused by groundwater overdraft, the region has developed water supplies to supplement and replenish groundwater supplies. CVWD and DWA obtain additional water supplies through two primary sources 1) Imported State Water Project (SWP) supply, which is exchanged for Colorado River water via the Metropolitan Water District of Southern California's (MWD) Colorado River Aqueduct and 2) Colorado River supply via the Coachella Canal.

Further, due to the importance of groundwater to the Region, all of the projects included in this proposal will address either the quantity or quality of groundwater in order to maximize benefits to the Region and address the Region's most critical issues.

[1] CVWD. 2002. Coachella Valley Water Management Plan.

Project 1: Non-potable Water Use Expansion Program

Background

Abstract

The proposed Non-potable Water Use Expansion Program is a form of source substitution - the delivery of an alternate source of water to users who currently depend on groundwater pumping. The substitution of an alternate non-potable water source reduces groundwater extraction and allows the groundwater to remain in storage, thus reducing overdraft. It also matches source to use by providing untreated Colorado River water (Canal water) and recycled water for outdoor irrigation in lieu of higher quality groundwater.

Canal water and recycled water are significant existing local resources that are underutilized for agricultural and golf course irrigation. Backbone distribution systems exist to deliver non-potable water, but funding is needed to connect potential customers to existing non-potable water distribution systems and further reduce groundwater pumping.

In the eastern portion of the Coachella Valley (generally east of Washington Street), the Coachella Canal (Canal) and its adjacent irrigation distribution system have delivered Canal water to the agricultural community since 1950. However, this system has not been fully utilized. In the western portion of the Coachella Valley, the backbone of the area's non-potable water system, the Mid-Valley Pipeline (MVP), was completed in 2008. It has the capacity to serve approximately 50 golf courses.

There are over 110 golf courses in the Coachella Valley with access to non-potable water. CVWD has entered a standardized non-potable water use agreement with 43 of these golf courses that requires them to meet at least 80% of their demand with non-potable water. Of these 43 courses, 14 receive water from the MVP system and 29 receive water from the Canal distribution system.

This project would fund three west Valley golf course connections (connections to the MVP), one improvement to the L4 Pump station, and four east Valley golf course connections (to the Canal system) that are more or less shovel ready:

Mid Valley Pipeline

1. *Desert Horizons Country Club* – this project extends the 24" distribution pipeline from the existing stub-out at the Coachella Valley Stormwater Channel to Fred Waring Drive and constructs a new pipeline and meter to the Desert Horizons Country Club.
2. *Indian Springs Country Club* – this project extends the 24" distribution pipeline from the existing stub-out at the Coachella Valley Stormwater Channel to Fiesta Drive and constructs a new pipeline and meter to the Indian Springs Country Club.
3. *The Lakes Country Club* – this project constructs two new sections of 12" pipeline and meters from the 24" high pressure pipeline and one new 12" pipeline and meter from the low pressure pipeline to the Lakes Country Club.

Canal System

4. *L4 Pump Station Improvements* – this project replaces the broken meter at Citrus Country Club and installs Variable Frequency Drives (VFDs) at the L4 Pump Station.
5. *L4 La Quinta Extensions* – this project extends Irrigation Lateral 120.8 from the relocated L4 Pump Station to Avenue 52 and includes three new meters for Canal water delivery to the La

Quinta Country Club, the La Quinta Resort Mountain Course, and the La Quinta Resort Dunes Course.

6. *Indian Palms Golf Course* – this project extends the 12" Irrigation Lateral 117.8 from Monroe Street to the Indian Palms Golf Course.

The three golf courses located in the western portion of CVWD's service area would receive 2,152 AFY of recycled water and 1,998 AFY of Canal water via the existing MVP. The four golf courses located in the eastern portion of the service area would receive a total of 3,900 AFY of Canal water. In total, the *Non-potable Water Use Expansion Program* will provide 8,050 AFY in non-potable water supplies.

Description and Relationship to Other Projects in the Proposal

This program would involve construction of facilities necessary to deliver additional non-potable water (including recycled water) to agricultural and golf course users. This program is directly connected to Project 2, the *Coachella Valley Salt & Nutrient Management Program*, as implementation of recycled water programs would not be possible without development of a Salt and Nutrient Management Plan consistent with the Recycled Water Policy.

Without Project Baseline

The purpose of the *Non-potable Water Use Expansion Program* is to allow more groundwater to remain in storage by reducing groundwater extraction, thus reducing overdraft and the need for additional groundwater recharge. In their 2010 *Urban Water Management Plan*, CVWD provides estimates for the change in storage in the aquifer, noting that in 2009, loss of storage in the groundwater basin was estimated to be 74,812 AFY.[2] Due to continued overdraft conditions, if the program is not implemented CVWD would need to offset the 8,050 AFY of groundwater currently used by the golf courses through groundwater recharge.

Imported water is the primary sources of groundwater recharge to the basin. Therefore, additional groundwater recharge to balance overdraft would involve increased purchases of SWP exchange water (which is imported from the Colorado River via the Colorado River Aqueduct). SWP supplies vary annually due to weather and runoff variations, as well as regulatory limitations on exports from the Sacramento-San Joaquin Bay Delta (Delta). Under current conditions, the SWP can only provide about 60% of CVWD's Table A contract allocation.[3] In the absence of state and federal actions in the Delta to increase SWP supplies, it is anticipated that CVWD's long-term SWP reliability (deliveries) could decrease to 50% of current Table A allocations.[4]

Without the *Non-Potable Water Use Expansion Program*, water purveyors in the Coachella Valley would continue to rely on local groundwater and SWP exchange water for groundwater recharge. Thus, water supply reliability would not improve within the CVWD service area as it would if the program were implemented. In addition, without the program, CVWD would need to construct five additional groundwater injection wells to facilitate the amount of water that would need to be recharged.

Without the program, the use of local water resources would not be maximized. Recycled water and Canal water delivered through Coachella Canal are significant existing local resources that are currently underutilized for agricultural and golf course irrigation. Backbone distribution systems exist to deliver

[2] Coachella Valley Water District (CVWD). 2011. C*oachella Valley Water District 2010 Urban Water Management Plan Final Report*. Page 4-10, Section 4.2.1.3 Overdraft.

[3] Coachella Valley Water District (CVWD). 2011. C*oachella Valley Water District 2010 Urban Water Management Plan Final Report*. Page 4-33, Section 4.6.2.2 Additional SWP Exchange Water.

[4] Coachella Valley Water District (CVWD). 2011. C*oachella Valley Water District 2010 Urban Water Management Plan Final Report*. Page 5-5, Section 5.2.3 State Water Program.

non-potable water, but funding is needed to connect potential customers to existing non-potable water distribution systems and further reduce groundwater pumping.

Without the project, the golf courses that would use non-potable water would continue to contribute to overdraft via localized groundwater pumping. In order to account for this overdraft, it is assumed that (without the project) the Region would implement localized groundwater recharge within the project area via the construction and operation of injection wells. It is assumed that one well would need to be installed every five years, beginning in 2014. Therefore, recharge activities via localized groundwater injection would not be complete until 2034, meaning that from 2014 to 2034 the groundwater basin would not be balanced, because the golf courses would extract more groundwater than would be recharged.

Finally, if the program is not implemented, increased use of imported water and groundwater pumping under the "without program" scenario would result in increased energy usage [and associated greenhouse gas (GHG) emissions]. The energy requirements would be much lower if locally generated recycled water and Canal water were used instead of groundwater combined with imported SWP Exchange water.

Potential Adverse Physical Effects of the Program

This program would facilitate existing and continued use of non-potable water. As such, any impacts associated with the program would be accounted for in the *Coachella Valley Water Management Plan Update Supplemental Program Environmental Impact Report* (2010) and the *Mid-Valley Pipeline Environmental Impact Report* (2007), along with supplemental environmental documentation created for individual non-potable alignments. Due to the scope and nature of these alignments, it is not anticipated that any significant, long-term adverse physical effects would result from implementation of this program.

Recent/ Historical Conditions

The MVP project was initially proposed by CVWD in 2000 in a study entitled *Conjunctive Use/Surplus Water Storage Study*, and was later incorporated as a preferred alternative into the 2002 *Coachella Valley Water Management Plan*.[5] This project was proposed to deliver water from the Coachella Canal to golf courses in the Mid-Valley for purposes of in lieu groundwater recharge (source substitution) through which golf courses would cease localized groundwater pumping and instead rely on Canal water for irrigation.[6] The original MVP concept only considered irrigation with Canal water; however, an updated concept paper produced in 2005 recommended blending of recycled water with Canal water to address seasonal fluctuations and allow for increased utilization of recycled water supplies for non-potable uses.[7] The backbone for the MVP, which consisted of a pipeline connecting the Coachella Canal to CVWD's Water Reclamation Plant-10 (WRP-10), was completed in 2009. This component of the MVP allows for delivery of Canal water to WRP-10 where it is blended with recycled water to create the non-potable water delivered by the MVP.[8] The blending of Canal water with recycled water varies; the 2005 concept paper demonstrates that additional Canal water is necessary in the summer months as the amount of recycled water available from WRP-10 is not sufficient to meet non-potable demands.[9] This report demonstrates that on a yearly average, the blending that occurs in the MVP is approximately 52%

[5] Coachella Valley Water District (CVWD). 2005. *Concept Paper: Mid-Valley Pipeline.* Page 1, Introduction.

[6] Coachella Valley Water District (CVWD). 2005. *Concept Paper: Mid-Valley Pipeline.* Page 1, Introduction.

[7] Coachella Valley Water District (CVWD). 2005. *Concept Paper: Mid-Valley Pipeline.* Page 3, Irrigation Water Use in Mid-Valley Area.

[8] Coachella Valley Water District (CVWD). 2010. *Coachella Valley Water Management Plan 2010 Update.* Page 6-32, Section 6.5.3 Mid-Valley Pipeline.

[9] Coachella Valley Water District (CVWD). 2005. *Concept Paper: Mid-Valley Pipeline.* Page 9, Section 4.1 Required Canal Water Flow.

recycled water and 48% Canal water; although in the winter months (December, January, February) when irrigation demands are low, there is substantial recycled water to meet anticipated demands. [10]

The 2010 *Coachella Valley Water Management Plan Update* assumes that the MVP will continue to serve non-potable water, and, will, therefore continue to help the Region address groundwater overdraft via source substitution provided by this project. It is anticipated that the MVP will meet 72% of non-potable demands required by golf courses in the Mid-Valley area by the year 2045.[11]

The Coachella Canal has been delivering Canal water to irrigation customers since the 1950's and is considered in the *Coachella Valley Water Management Plan Update* as source substitution that (similar to the MVP) helps to alleviate groundwater overdraft by replacing localized groundwater use with Canal water. One of the underlying principles of groundwater management in the *Coachella Valley Water Management Plan Update* is to fully use the available Canal water supply, which can be achieved, in part, by using Canal water for irrigation of local golf courses.[12] Further, the *Coachella Valley Water Management Plan Update* states that one of the Region's groundwater management goals is to use 90% of the Region's allotted Canal water by 2015.[13]

New Facilities, Policies, and Actions Required to Obtain Physical Benefits

The backbone of the Mid-Valley Pipeline and irrigation system are complete. The scope of work included in the work plan (refer to Attachment 3) includes all infrastructure necessary to connect the seven identified golf courses to the CVWD non-potable water system.

Uncertainties in the Physical Benefits

Connecting the seven golf courses to the non-potable system is considered a high-priority component of the Region's efforts to reduce groundwater overdraft via source substitution. As such, while the specific monetized benefits associated with the *Non-Potable Water Use Expansion Program* may have uncertainties (refer to Attachment 8), given the priority nature of this program, it is highly likely that it would be successfully implemented and that the physical benefits described herein would be accrued.

Physical Benefits Overview

Table 7-1 provides a summary of the physical benefits of the *Non-Potable Water Use Expansion Program*, including quantification of the physical benefit where possible.

[10] Coachella Valley Water District (CVWD). 2005. *Final Concept Paper: Mid-Valley Pipeline.* Page 10, Chart 4-2: Expanded Recycled Water Distribution System using a blend of Recycled and Canal Water.

[11] Coachella Valley Water District (CVWD). 2010. *Coachella Valley Water Management Plan 2010 Update.* Page 6-32, Section 6.5.3 Mid-Valley Pipeline.

[12] Coachella Valley Water District (CVWD). 2010. *Coachella Valley Water Management Plan 2010 Update.* Page 6-27, Section 6.5.2 Groundwater to Canal Water Conversion.

[13] Coachella Valley Water District (CVWD). 2010. *Coachella Valley Water Management Plan 2010 Update.* Page 6-28, Section 6.5.2.2 Golf Course Conversion.

Table 7-1: Physical Benefits
Non-Potable Water Use Expansion Program

Physical Benefit	Result of Physical Benefit	Quantification of Physical Benefit
Reduce Localized Groundwater Pumping and Associated Overdraft	A-Avoid Costs of Imported Water Purchases	8,050 AFY
	B-Avoid Groundwater Pumping	8,050 AFY
	C- Avoid Groundwater Replenishment	Five (5) Injection Wells
	D-Reduce Social Costs Associated with CO_2 Emissions	3,196 MT/year
	E-Provide Social Recreation or Access Benefits	Qualitative
	F-Help Avoid, Reduce, or Resolve Various Public Water Resources Conflicts	Qualitative
	G-Reduce Demand for Net Diversions from the Delta	Qualitative
	H-Provide a Long-Term Solution	Qualitative
	I-Improve Water Supply Reliability	Qualitative
Manage Groundwater Quality	J-Reduce Fertilizer Application	Qualitative
	K-Improve Water Quality	Qualitative

Physical Benefit 1: Reduce Localized Groundwater Pumping and Associated Overdraft

Amount/Volume and Unit: 8,050 AFY of non-potable water

Technical Justification of Physical Benefit

The groundwater supply of the Whitewater River Subbasin consists of a combination of natural runoff and returns from groundwater and imported water use. The supply is supplemented with artificial recharge with Colorado River water (SWP water exchanged with MWD). Total inflows are estimated to be about 331,000 acre-feet per year (AFY). Outflows from the basin consist of pumping, flows to the agricultural drainage system, evapotranspiration by native vegetation, and subsurface outflow to the Salton Sea. Total basin outflows are estimated to be 441,000 AFY.[14]

The *Coachella Valley Water Management Plan Update* identifies source substitution as one of the primary tools to address the Coachella Valley's overdraft issue and specifically recommends maximizing use of local sources of non-potable water for agricultural and golf course irrigation. [15] The *Non-Potable Water Use Expansion Program* would provide an alternative source of non-potable water supply to seven golf courses that currently depend on local groundwater for irrigation purposes. Three of these golf courses are located in the western portion of CVWD's service area and would receive a blend of recycled water and untreated surface water supplies from the Coachella Canal (Canal water) via the MVP. The other four golf courses are located in the eastern portion of CVWD's service area and would receive Canal water directly from the Coachella Canal.

[14] CVWD. 2010. *Coachella Valley Water Management Plan Update*. Section 4.1.6 Overdraft Status, page 4-11.
[15] CVWD. 2010. *Coachella Valley Water Management Plan Update*. Section 6.5 Source Substitution, page 6-24.

The purpose of this program is to allow more groundwater to remain in storage by reducing groundwater extraction, thus reducing overdraft and the need to import additional water for groundwater recharge. In total, the non-potable water supplied by this program would offset the use of 8,050 AFY of local groundwater and the subsequent purchase of 8,050 AFY of imported water that would otherwise be needed for groundwater recharge.

Table 7-2 shows the breakdown of water use by golf course for the proposed MVP and Coachella Canal connections. The water supply mix of MVP water is both recycled water and Canal water (approximately 52% recycled water and 48% Canal water), but the water supply provided by the Coachella Canal is only Canal water.[16] Table 7-3 below provides an overview of the approximate water supply mix of non-potable water provided by the program; the MVP non-potable water supply mix is considered approximate as the percent make-up of recycled water and Canal water varies throughout the year depending upon the availability of recycled water.

Table 7-2: Amount of Non-Potable Water Supplied by Conveyance Facility
Non-Potable Water Use Expansion Program

Facility and User	Amount Supplied (AFY)
Mid-Valley Pipeline	
Indian Springs	975
Desert Horizons	867
Lakes Country Club	2,308
Total	**4,150**
Coachella Canal	
La Quinta Country Club	975
La Quinta Resort Mountain Course	975
La Quinta Resort Dunes Course	975
Indian Palms	975
Total	**3,900**

[16] Coachella Valley Water District (CVWD). 2005. *Final Concept Paper: Mid-Valley Pipeline.* Page 10, Chart 4-2: Expanded Recycled Water Distribution System using a blend of Recycled and Canal Water.

Table 7-3: Approximate Water Supply Mix of Non-Potable Water
Non-Potable Water Use Expansion Program

Facility and User	Amount Supplied (AFY)	Total Amount of Recycled Water (AFY)	Total Amount of Canal Water (AFY)
Mid-Valley Pipeline			
Indian Springs	975	506	469
Desert Horizons	867	450	417
Lakes Country Club	2,308	1,197	1,111
MVP Subtotal	**4,150**	**2,152 (52%)**	**1,998 (48%)**
Coachella Canal			
La Quinta Country Club	975	0	975
La Quinta Resort Mountain Course	975	0	975
LA Quinta Resort Dunes Course	975	0	975
Indian Palms	975	0	975
Canal Subtotal	**3,900**	**0**	**3,900**
TOTAL	**8,050**	**2,152**	**5,898**

Source: CVWD. 2005. *Final Concept Paper: Mid-Valley Pipeline.* Table 2-1: Projected Mid-Valley Use of Irrigation Water (2015), page 4.

Capital components of the program include installation of water meters, pipelines, water level controllers, and related facilities necessary to connect each of the seven golf courses to the non-potable distribution system. In addition, the program includes expansion and improvements to an existing CVWD pump station that would be necessary to provide Canal water via the Coachella Canal.

The *Non-Potable Water Use Expansion Program* matches source to use by providing non-potable water for outdoor irrigation in lieu of higher quality groundwater. Canal water and recycled water are significant existing local resources that are currently underutilized. In the eastern portion of the Coachella Valley, the Coachella Canal and its adjacent irrigation distribution system have delivered Canal water to the agricultural community since 1950. In the western portion of the Coachella Valley, the backbone of the MVP was completed in 2008 and has the capacity to serve approximately 50 golf courses.

CVWD has already signed standardized non-potable water use agreements with 43 golf courses in the Coachella Valley. Of these 43 courses, 29 receive Canal water and 14 receive blended water from the MVP system. This program would fund additional golf course connections to the Coachella Canal and MVP systems to further utilize non-potable water.

In total, the non-potable water (recycled water and Canal water) supplied by this program would offset the use of 8,050 AFY of local groundwater.

Methods Used to Estimate the Physical Benefits

A-Avoid Costs of Imported Water Purchases

Information from the 2010 *Coachella Valley Water Management Plan Update* demonstrates that the Region already uses its full Colorado River and SWP allocations and purchases additional SWP transfers for additional recharge water.[17] As such, it is reasonable to assume that non-potable water provided by

[17] CVWD. 20120200a. *Coachella Valley Water Management Plan Update.* Page 4-15, Section 4.3, State Water Program.

this program would directly offset the need to purchase additional SWP transfer water for recharge, because the program would provide non-potable water for source substitution (in lieu groundwater recharge).

Specifically, in order to account for the avoided imported water purchases that would be required as a result of this program, 8,050 AFY of additional water would need to be imported from outside the Region. The Region already uses its full SWP imported water allocations, so additional recharge water needs to be acquired from other external sources. This is done by acquiring rights to SWP water held by other entities, and exchanging these purchased rights with MWD for locally-available Colorado River water. It is assumed that water demands would remain consistent and that non-potable water use would be directly offset by additional imported water.

As discussed in the "Without Project Baseline" section, without this project, CVWD would need to construct five groundwater injection wells in order to accommodate infiltration of 8,050 AFY of water into the groundwater aquifer to offset the golf course extractions from the basin. These wells would be built over a 20-year period (with one well being constructed every 5 years). Each well would provide about 1,610 AFY of infiltration capacity. Thus, the first well, which would be constructed in 2014 will allow for 1,610 AFY of groundwater recharge beginning in 2016 when the avoided imports start to accrue (note that assumed recharge timing starts in 2016, not 2015, due to the project construction schedule). When the second well is completed in 2019, total infiltration capacity will amount to 3,220 AFY (beginning in 2020). This will continue through 2034, when the fifth well is completed. As demonstrated in Table 7-4, together, the wells would provide a cumulative infiltration capacity of 8,050 AFY, which would offset the full amount of water used by the golf courses (see also C-Avoid Groundwater Replenishment below).

Given the construction schedule for the infiltration wells, the program would avoid a total of 425,040 AF of SWP exchange water over its expected 60-year project life.

Table 7-4: Physical Benefits for A-Avoid Costs of Imported Water Purchases
Non-Potable Water Use Expansion Program

(a)	(b)	(c)	(d)	(e)
Year	**Type of Benefit**	**Without Program (AFY)**	**With Program (AFY)**	**Change Resulting from Program (AFY)**
2016 - 2019	Avoid Additional Water Imports	1,610	0	1,610
2020 - 2024	Avoid Additional Water Imports	3,220	0	3,220
2025 - 2029	Avoid Additional Water Imports	4,830	0	4,830
2030 - 2034	Avoid Additional Water Imports	6,440	0	6,440
2035 - 2077	Avoid Additional Water Imports	8,050	0	8,050

B-Avoid Groundwater Pumping

By offsetting the use of local groundwater at the seven golf courses participating in this program, the *Non-Potable Water Use Expansion Program* would avoid the need for local groundwater pumping that currently occurs at these golf courses to provide water for non-potable (irrigation) purposes. For the golf courses that currently receive non-potable water from local groundwater pumping, CVWD has estimated that average groundwater pumping costs are approximately $53.08 per acre-foot.[18] This value is estimated based upon pumping costs provided by Southern California Edison and are an average of pumping costs

[18] CVWD. 2012. *Non-Potable Water Agreement Charges and Details.*

for 19 golf courses within the CVWD service area. Table 7-5 provides an overview of measured pumping costs for golf courses within CVWD's service area, which were used as the basis of the cost analysis associated with this benefit (refer to Attachment 8).

Table 7-5: Average Pumping Costs from CVWD Data (2012)
Non-Potable Water Use Expansion Program

No.	Customer Name	Pumping Charge ($/AF)
1	Del Webb Sun City (P.D.) (WRP 7)	$54.60
2	Shadow Hills (Sun City) (WRP 7)	$52.76
3	Desert Wouldow	$57.36
4	Casa Blanca	$52.76
5	Marriot's Desert Springs	$52.76
6	Silver Sands HOA	$57.48
7	Vista Del Montanas HOA	$55.21
8	Santa Rosa C.C. Inc.	$48.79
9	Portola C.C.	$52.76
10	P.D.Greens Assoc.	$56.64
11	P.D.High School	$71.64
12	Indian Ridge C.C.	$50.40
13	Golf Center	$52.76
14	Toscana C.C.	$52.76
15	Mt. View Falls HOA	$50.23
16	CVWD PDO & PDA	$40.23
17	Palm Desert Country Club	$43.21
18	Classic Club	$54.60
19	Indian Wells Golf Resort	$52.76
Average		$53.08

It is assumed that recycled water would be phased according to project construction, and therefore 2,311 AF would be provided in 2016, 7,281 would be provided in 2017, and 8,050 AF would be provided from 2018 through 2077. It is assumed that groundwater pumping would cease in a similar fashion. Table 7-6 provides an overview of the phasing assumptions and associated groundwater pumping offsets for the project.

Table 7-6: Physical Benefits for B-Avoid Groundwater Pumping
Non-Potable Water Use Expansion Program

(a)	(b)	(c)	(d)	(e)
Year	**Type of Benefit**	**Without Program (AFY)**	**With Program (AFY)**	**Change Resulting from Project (AFY)**
2016	Avoid Groundwater Pumping	2,311	0	2,311
2017	Avoid Groundwater Pumping	7,281	0	7,281
2018 - 2077	Avoid Groundwater Pumping	8,050	0	8,050

C-Avoid Groundwater Replenishment

To accommodate the increased groundwater recharge that would be necessary if the program were not implemented, CVWD may need to construct additional groundwater injection wells to manage local groundwater overdraft that may occur within the area covered by the golf courses. A report conducted by the United States Geological Survey (USGS) indicates that there is localized land subsidence in the Palm Desert, Indian Wells, and La Quinta areas of the Coachella Valley.[19] With respect to this issue, the USGS report states that, "although the localized character of the subsidence signals is typical of the type of subsidence characteristically caused by localized ground-water pumping, the subsidence may also be related to tectonic activity in the valley."[20] Therefore, while it is not confirmed, local groundwater pumping in the aforementioned areas of the Coachella Valley (which would be served by the *Non-Potable Water Use Expansion Program*) may have resulted in groundwater overdraft and localized land subsidence.

The *Coachella Valley Water Management Plan Update* notes that surface recharge facilities are only effective in areas where the geology is suitable.[21] Significant portions of the East Valley are underlain by relatively thick clay and silt which impedes the vertical percolation of water into the deep aquifers from which most groundwater is produced. Consequently, most surface recharge facilities are located in the West Valley and on the fringes of the East Valley where these clay and silt layers are not present. As an alternative, the groundwater basin can be recharged by injection through either dedicated recharge wells or aquifer storage and recovery (ASR) wells which can be used for both recharge and groundwater production.[22] Injection has the benefit of placing replenishment water at the same location where pumping has occurred, which means that groundwater injection could be employed to address areas of acute overdraft that are experiencing localized land subsidence.

As described below, localized groundwater replenishment in the Mid-Valley would require both capital and O&M components. Capital components are those that would be required to construct necessary groundwater recharge facilities (injection wells). O&M components are those that would be necessary to fund groundwater replenishment conducted by CVWD. CVWD recuperates costs associated with groundwater replenishment via leverage of a replenishment assessment charge (RAC) that is assessed per basin.

Capital Components

In 2012, the Indio Water Authority (a CVRWMG agency and partner in the *Non-Potable Water Use Expansion Program*) investigated the costs associated with constructing an injection well as part of the planned Aquifer Storage and Recovery (ASR) program at Posse Park and Municipal Golf Course.[23] A preliminary injection well budget was provided which assumes a hydraulic conductivity estimate of 10 ft/day which constrains injection to about 1,000 gpm injection rate per well.

[19] United States Geological Survey (USGS). 2007. *Detection and Measurement of Land Subsidence Using Global Positioning System Surveying and Interferometric Synthetic Aperture Radar, Coachella Valley, California, 1996-2005.* Page 22, InSAR Results.

[20] United States Geological Survey (USGS). 2007. *Detection and Measurement of Land Subsidence Using Global Positioning System Surveying and Interferometric Synthetic Aperture Radar, Coachella Valley, California, 1996-2005.* Page 1, Abstract.

[21] CVWD. 2010. *Coachella Valley Water Management Plan Update*. Section 6.2.2 East Valley Recharge Facilities, page 6-35.

[22] CVWD. 2010. *Coachella Valley Water Management Plan Update*. Section 6.2.2 East Valley Recharge Facilities, page 6-35.

[23] Daniel B. Stephens & Associates. 2012. *Memorandum re: IWA Aquifer Storage and Recovery Program, Preliminary Hydrogeologic Scope Cost Estimate*.

Replenishment of 8,050 AFY would require an injection rate of 5,000 gpm, assuming that groundwater is being pumped on a continuous basis. As such, if the *Non-Potable Water Use Expansion Program* were not implemented, CVWD would need to install five (5) injection wells of a capacity of 1,000 gpm each in order to provide for onsite local groundwater replenishment of the same magnitude provided by the program.

Operations and Maintenance Components (Replenishment Assessment Charge)

CVWD currently levies a Replenishment Assessment Charge, which is used to partially fund groundwater replenishment activities. CVWD has three separate RACs, which vary based upon geography.[24] Mapping information for this project (refer to Attachment 3) demonstrates that the Desert Horizons and Lakes Country Club golf courses would be located within the Upper Whitewater River Subbasin (Upper), while the remaining five golf courses would be located within the Lower Whitewater River Subbasin (Lower). Therefore, in order to assess the RACs that would be avoided as a result of the program, this analysis relied upon a weighted average RAC that was calculated based upon the RAC per basin (Upper vs. Lower) and the estimated annual usage for each golf course (refer to Table 7-2). Table 7-7 provides an overview regarding how the weighted average RAC for all 8,050 AFY ($66.50/AF) avoided by the program was calculated.

Table 7-7: Average Replenishment Assessment Charges
Non-Potable Water Use Expansion Program

Golf Course Name	Location	RAC ($/AF)	Annual Usage (AFY)	Annual RAC Charge ($/Year)
Desert Horizons	Upper	$110.26	867	$95,595
Lakes Country Club	Upper	$110.26	2,308	$254,480
Indian Springs	Lower	$38.00	975	$37,050
La Quinta Country Club	Lower	$38.00	975	$37,050
La Quinta Resort Mountain Course	Lower	$38.00	975	$37,050
LA Quinta Resort Dunes Course	Lower	$38.00	975	$37,050
Indian Palms	Lower	$38.00	975	$37,050
Total Across all Seven Golf Courses			**8,050**	**$535,325**
Average 2012 RAC ($/AF)				**$66.50**
Average Avoided Costs ($/year)				**$535,325**

Assuming that the O&M costs associated with groundwater replenishment (RAC) would phase in according to how groundwater replenishment would phase in, the total average avoided RAC ($535,325 per year) would not start accruing until 2035 when all five injection would be installed. As such, the RAC charges would phase in such that one-fifth (1/5) of the total RAC ($107,065) would be avoided from 2015-2019, 2/5 of the total RAC ($214,130) would be avoided from 2020-2024, 3/5 of the total RAC ($321,195) would be avoided from 2025-2029, 4/5 of the total RAC ($428,260) would be avoided from 2030-2034. Table 7-8 provides an overview of the phasing of avoided O&M costs associated with groundwater replenishment.

[24] Coachella Valley Water District (CVWD). 2012. *Replenishment Assessment Charge.* Available: http://www.cvwd.org/news/rac.php

Table 7-8: Physical Benefits for C-Avoid Groundwater Replenishment
Non-Potable Water Use Expansion Program

(a)	(b)	(c)	(d)	(e)
Year	**Type of Benefit**	**Without Program**	**With Program**	**Change Resulting from Project**
2015 - 2019	Avoid Groundwater Replenishment	1 well	0 wells	-1 well
2020 - 2024	Avoid Groundwater Replenishment	2 wells	0 wells	-2 wells
2025 - 2029	Avoid Groundwater Replenishment	3 wells	0 wells	-3 wells
2030 - 2034	Avoid Groundwater Replenishment	4 wells	0 wells	-4 wells
2035 - 2077	Avoid Groundwater Replenishment	5 wells	0 wells	-5 wells

D-Reduce Social Costs Associated with CO_2 Emissions

The *Non-Potable Water Use Expansion Program* would provide non-potable water to seven golf courses within the Coachella Valley. The provision and use of non-potable water would offset the use of local groundwater by these golf courses, as well as the conveyance of additional SWP exchange water for groundwater recharge purposes. As a result, this program would avoid energy requirements associated with groundwater pumping, as well as the energy requirements associated with transporting SWP exchange water to the Region. This in turn would result in avoided greenhouse gases (GHGs) – namely carbon dioxide (CO_2) emissions – associated with reduced energy consumption.

For this analysis, it is assumed that energy requirements associated with delivering and using Colorado River water (including Canal water) are 2.0 mega-watt hours per acre-foot (MWh/AF), energy requirements associated with delivering and using both recycled water and local groundwater are 0.8 MWh/AF.[25] As demonstrated in Table 7-9, both the use of recycled water and the use of Canal water would reduce energy consumption and result in GHG emissions reductions. The energy savings were determined by calculating the amount of energy saved by offsetting both exchanged (imported) water and groundwater pumping, and subtracting the amount of energy that would be required to implement the program. As described previously, this project will provide 2,152 AFY of recycled water, which would be blended with 1,998 AFY of Canal water, through the MVP. An additional 3,900 AFY of Canal water will be supplied directly from the Coachella Canal. From 2015 through 2034, the project will also avoid increasing levels of imported SWP exchange water associated with groundwater recharge. Beginning in 2034 (following completion of the fifth injection well under the "without project" scenario), the program will result in a net energy savings of 9,030 MWh per year. Cumulative energy savings will amount to 407,940 MWh over the 60-year life of the program.

To calculate avoided CO_2 emissions associated with the program, the amount of energy that would be saved due to implementation of the program (column e) was multiplied by the average carbon emissions rate associated with energy production in California (0.354 megatons of CO_2 per megawatt-hour of energy (MT/MWh)).

[25] Energy use estimates for alternative water supply sources are based on estimates provided in CEC 2005, Navigant 2006, and Equinox 2010. The estimates used for this analysis are as follows: Imported Colorado River Water 2.0 MWh/AF (used for both water supplied via CRA and Coachella Canal), groundwater pumping 0.80 MWh/AF; recycled water treatment and distribution 0.80 MWh/AF.

By avoiding 8,050 AFY of groundwater pumping and imported SWP exchange water, the program would result in a net reduction in CO_2 emissions of 3,196 MT per year beginning in 2018. Given the schedule for program construction (with non-potable water delivery beginning in 2017), total net CO_2 emissions reductions amount to 188,957 MT over the 60-year program life (2016-2077).

Table 7-9: Energy and Emissions Savings Estimates

Non-Potable Water Use Expansion Program

Year	Program Components	Amount Supplied (AFY) a.	Energy Requirements (MWh/yr) b.	Imported Energy Offsets* (MWh/yr) c.	Groundwater Pumping Offsets** (MWh/yr) d.	Cumulative Energy Savings (MWh/yr) c.+d. – b.	Cumulative CO_2 Savings (MT/yr)
2016	Recycled Water	230	184	460	184	460	163
	Canal Water	2,081	4,162	4,162	1,665	1,665	589
						Subtotal	**752**
2017	Recycled Water	1,758	1,406	3,516	1,406	3,516	1,245
	Canal Water	5,523	11,046	11,046	4,418	4,418	1,564
						Subtotal	**2,809**
2018 - 2077	Recycled Water	2,158	1,726	4,316	1,726	4,316	1,528
	Canal Water	5,892	11,784	11,784	4,714	4,714	1,669
						Subtotal per Year (2018-2077)	**3,196**
						Program Total (60-year lifetime)	**188,957**

* Imported Energy Offsets were calculated based on an assumption of 2.0 MWh/AF
** Groundwater Pumping Offsets were calculated based on an assumption of 0.8 MWh/AF

Table 7-10: Physical Benefits for D-Reduce Social Costs Associated with CO_2 Emissions

Non-Potable Water Use Expansion Program

(a)	(b)	(c)	(d)	(e)
Year	**Type of Benefit**	**Without Program (MT)**	**With Program (MT)**	**Change Resulting from Project (MT)**
2016	Avoid CO_2 Emissions	2,291	1,538	752
2017	Avoid CO_2 Emissions	7,217	4,408	2,809
2018 - 2077	Avoid CO_2 Emissions	7,979	4,783	3,196

E-Provide Social Recreation or Access Benefits

The golf course industry is an important part of the local and regional economy in the Coachella Valley. The hotel and amusement industry, which includes golf courses, hotels, resorts, Indian gaming, and other entertainment venues, is the second largest employer in the Region.[26] The *Non-Potable Water Use Expansion Program* would design and construct infrastructure to provide an additional 8,050 AFY of non-potable water to seven golf courses that currently rely on local groundwater pumping for irrigation purposes.

[26] Coachella Valley Economic Partnership (CVEP). 2011. *Compete and Prosper: Coachella Valley 2011 Economic Report.* Page 74, Appendix – Employment and Payroll Details. Available: http://cvep.com/LiteratureRetrieve.aspx?ID=107804

Non-potable water for landscape irrigation provided by CVWD is provided at 85% of the cost of groundwater pumping as a financial incentive to promote non-potable water use and offset groundwater pumping.[27] Therefore, the program would help to reduce water costs at the seven golf courses served by the program, which could help the local golf course industry from a financial point of view, preventing increased golf course charges or golf course closures that could result from escalating groundwater pumping costs. Such impacts (increased fees or closures) would potentially restrict social recreation access within the Region, which directly infers that the *Non-Potable Water Use Expansion Program* would benefit the Region's recreation industry by maintaining an affordable source of reliable local water (non-potable water) for golf courses.

Further, non-potable water supplies are not considered to be highly impacted by climatic variations (drought). Recycled water is not substantially impacted in times of drought as wastewater generation would continue to occur during drought conditions.[28] Canal water is also not substantially impacted in times of drought as the Region currently lacks infrastructure to deliver Canal water to customers, and therefore does not utilize the full amount of Canal water allocated to the Region (refer to Recent/Historical Conditions).[29] Thus, golf courses served by this program could continue to irrigate landscape/turf areas regardless of drought condition, which would allow them to remain green during dry periods. This would improve the aesthetics and enjoyment of the courses and, in extreme cases, may avoid closures that would otherwise be necessary to prevent further turf damage.

Data was not available to accurately quantify the cost savings that would be associated with providing the social recreation and access benefits describe above. Therefore, this benefit has not been economically or physically quantified.

F-Help Avoid, Reduce, or Resolve Various Public Water Resources Conflicts

The *Non-Potable Water Use Expansion Program* would help to meet goals set forth in the Recycled Water Policy to increase use of recycled wastewater by at least 1 million AFY by 2020 and by at least 2 million AFY by 2030.[30]

Compliance with statewide statutes and mandates has the potential to generate conflicts associated with incompatible interests or resource availability. Therefore, because the program would facilitate implementation of activities to help meet mandates and goals of a statewide statute, it would help to resolve potential public water resources conflicts related to recycled water use.

G-Reduce Demand for Net Diversions from the Delta

This program involves implementation of source substitution with non-potable water, which would directly reduce local groundwater pumping and groundwater extractions. Reduced groundwater pumping in turn reduces aquifer drawdown and thus lessens the amount of imported water that is needed for groundwater recharge. CVWD and DWA have contracts for imported water supplies from the SWP, which is exchanged with MWD for Colorado River water delivered at turnouts from MWD's Colorado River Aqueduct. Because the Region already receives its entire imported water entitlements (as they are

[27] Coachella Valley Water District (CVWD). 2011b. *Coachella Valley Water District 2010 Urban Water Management Plan Final Report.* Page 4-29, Section 4.5.3, Recycled Water Customer Incentives.

[28] Coachella Valley Water District (CVWD). 2011. *Coachella Valley Water District 2010 Urban Water Management Plan Final Report.* Page 5-21, Section 5.5 Drought Planning.

[29] Coachella Valley Water District (CVWD). 2011. *Coachella Valley Water District 2010 Urban Water Management Plan Final Report.* Page 3-13, Section 3.3.2.3 Non-Potable Water Demand Programs.

[30] State Water Resources Control Board (SWRCB). 2009. *Recycled Water Policy.* Available: http://www.waterboards.ca.gov/water_issues/programs/water_recycling_policy

available) and also purchases additional SWP Table A water from other agencies[31], any additional imported water needed to balance groundwater extraction would be purchased and transferred from the SWP. Transfers or leases from north of or within the Sacramento-San Joaquin Bay-Delta (Delta) could potentially affect the water quantity or quality of the Delta.

As the program would reduce demand for additional imported water that would ultimately be delivered from the Delta, the program could impart water quantity and water quality benefits to the Delta associated with reduced net diversions. In addition, due to the current vulnerability of the Delta, reducing future demands on this water resource would directly benefit the Region by reducing reliability issues that would occur if a catastrophic event such as a levee collapse or an earthquake were to substantially damage Delta-related infrastructure.

H-Provide a Long-Term Solution

By increasing use of locally-available resources rather than increasing imported water demands for groundwater recharge, this program helps to provide a long-term solution to the Region's groundwater overdraft. SWP supplies vary annually due to weather and runoff variations and are also impacted by regulatory limitations on exports from the Delta. Under current conditions, the SWP can only provide about 60% of CVWD's Table A contract allocation.[32] In the absence of state and federal actions in the Delta to increase SWP supplies, it is anticipated that CVWD's long-term SWP reliability (deliveries) could decrease to 50% of current Table A allocations. [33]

Local groundwater is also limited in the Coachella Valley, which is apparent due to storage (capacity) loss that the basin has experienced. In their *2010 Urban Water Management Plan*, CVWD provides estimates for the change in storage in the aquifer, noting that in 2009, loss of storage in the groundwater basin was estimated to be 74,812 AFY.[34]

Reduced reliability of SWP supplies and overdraft conditions in the groundwater basin highlight the need for additional (reliable) sources of water to meet current and future demands under all hydrologic conditions. The *Non-Potable Water Use Expansion Program* would provide infrastructure for the distribution and use of two sources of supply that are currently underutilized – recycled water and Canal water. Increasing the distribution and use of these non-potable sources is considered a long-term solution to issues associated with SWP reliability and groundwater overdraft, and is a long-term means to sustainably meet Regional water demands.

I-Improve Water Supply Reliability

The reliability of a water supply refers to its ability to meet water demands on a consistent basis, even in times of drought or other constraints on source water availability. The *Non-Potable Water Use Expansion Program* would help address reliability issues for the Region by facilitating the additional distribution and use of a drought-resistant and underutilized source of local supply (non-potable water). This would reduce reliance on local groundwater, offsetting the need for SWP exchange water for groundwater recharge purposes.

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[31] Coachella Valley Water District (CVWD). 2011. *Coachella Valley Water District 2010 Urban Water Management Plan Final Report.* Page 4-19, Section 4.2.3.2 Other SWP Transfers.

[32] Coachella Valley Water District (CVWD). 2011. C*oachella Valley Water District 2010 Urban Water Management Plan Final Report*. Page 4-33, Section 4.6.2.2 Additional SWP Exchange Water.

[33] Coachella Valley Water District (CVWD). 2011. C*oachella Valley Water District 2010 Urban Water Management Plan Final Report*. Page 5-5, Section 5.2.3 State Water Program.

[34] Coachella Valley Water District (CVWD). 2011. C*oachella Valley Water District 2010 Urban Water Management Plan Final Report*. Page 4-10, Section 4.2.1.3 Overdraft.

Although interest in water supply reliability is increasing due to increasing water demands and concerns over climate-related events, only a few studies have directly attempted to quantify its value.[35] The challenge in applying these values to determine a value of increased reliability as a result of the *Non-Potable Water Use Expansion Program* is recognizing how to reasonably interpret these survey-based household monetary values. The values reflect a willingness to pay per household to ensure complete reliability (zero drought-related use restrictions in the future), whereas the *Non-Potable Water Use Expansion Program* only enhances overall reliability and does not guarantee 100% reliability. Thus, if applied directly to the number of households within the CVWD service area, the dollar values from the studies would overstate the reliability value provided by the program.

A simple way to roughly adjust for this "whole versus part" problem is to attribute a portion of the total value of reliability to the portion of the problem that is solved by the program. To adjust for the partial improvement in reliability from the *Non-Potable Water Use Expansion Program*, it is assumed that household willingness to pay for improved reliability is directly proportional to the amount of non-potable water that would offset imported water, as a percentage of the total non-potable water demand. This represents the percentage of total supply that has been improved in terms of overall reliability (i.e., by offsetting imported water demand with non-potable sources).

For example, the program would offset approximately 8,050 AFY of imported SWP water at full implementation. In 2020, total potable water demand within the CVWD service area would be about 319,400 AFY.[36] Thus, about 2.5% of total non-potable water demand would be met by non-potable water provisions provided by the program.

Due to the uncertainty involved in applying quantified economic numbers to the water supply reliability benefits that the Region would accrue as a result of the *Non-Potable Water Use Expansion Program*, this benefit estimate has been provided here to give an idea of the potential magnitude of this benefit but has not been monetized within the overall cost-benefit ratio for this program.

Physical Benefit 2: Manage Groundwater Quality

Methods Used to Estimate the Physical Benefits

J-Reduce Fertilizer Application

Fertilizing compounds commonly present in recycled water (e.g., nitrogen, phosphorus, potassium) are typically not found in potable water at levels of significance. Thus, the use of recycled water for irrigation could reduce fertilizer costs for the golf courses serviced by the MVP portion of the program (i.e., The Lake Country Club, Desert Horizons, and Indian Springs).

[35] Carson, R.T.; Mitchell, R.C. *Economic Value of Reliable Water Supplies for Residential Water Users in the State Water Program Service Area*; SWC Exhibit Number 54;

The Metropolitan Water District of Southern California, Los Angeles, 1987.

CUWA. *The Value of Water Supply Reliability: Results of a Contingent Valuation Survey of Residential Customers*, California Urban Water Agencies, Sacramento, CA. [Online] 1994, http://www.cuwa.org/library/TheValueofWaterSupplyReliabilityAug94.pdf (accessed October 1, 2009).

Griffin, R.C.; Mjelde, J.W. Valuing Water Supply Reliability. *American Journal of Agricultural Economics* 2000, *82*, 414–426

Raucher, R., J. Clements, and others. 2013. *The Value of Water Supply Reliability in the Residential Sector.* WateReuse Research Foundation. Program WRF-08-09.

Wolff, G. 2007. Calculating constant-reliability water supply unit costs. *Water Policy*. International Water Association, London, UK

[36] Coachella Valley Water District (CVWD). 2011. C*oachella Valley Water District 2010 Urban Water Management Plan Final Report*. Page 3-14, Table 3-17 Projected Non-Potable Water Demand.

The exact offset of fertilizer use from using recycled water is difficult to predict due to daily and seasonal nutrient variations in the recycled water, and because the recycled water provided by the MVP will be blended with Canal water that does not have the same level of nutrients. In addition, the water supplied via the MVP could have a higher or lower concentration of recycled water, depending on the time of year. Thus, this benefit is not monetized.

K-Improve Water Quality

The 2010 *Coachella Valley Water Management Plan Update* indicates that groundwater pumping in some areas can cause water quality issues associated with constituents such as nitrates, as pumping may cause nitrate to leach into higher quality groundwater due to pressure changes in the basin.[37] Without the project, the golf courses will continue to contribute to overdraft problems in the basin through 2034, when enough infiltration capacity is brought online to be able to fully offset the full 8,050 AFY of groundwater pumping with imported water. This will result in further water quality degradation in the aquifer.

Beginning in 2034, the overall balance of the groundwater basin will be restored on an annual basis, with or without the program, as groundwater recharge would either occur due to importation of additional SWP exchange water or via the source substitution with non-potable water. While the *Non-Potable Water Use Expansion Program* would not change the overall water balance of the basin, it would abate localized groundwater pumping and therefore could prevent pumping activities from causing nitrate-contaminated water from coming into contact with the basin's high-quality deep aquifer.

Currently, there is no available information regarding local groundwater in the program area and how water pressure in this area may impact water quality. As such, benefits that would accrue to water quality have not been physically or economically quantified.

[37] Coachella Valley Water District (CVWD) 2010. *Coachella Valley Water Management Plan 2010 Update.* Page 5-13, Section 5.1.3.5 Nitrate.

Project 2: Coachella Valley Salt & Nutrient Management Program

Background

Abstract

The *Coachella Valley Salt & Nutrient Management Program* will implement the analytical and planning tasks needed to develop a SNMP for the Coachella Valley Groundwater Basin that is compliant with the State's Recycled Water Policy. Key tasks to be undertaken by the CVRWMG include:

1. *Establish a collaborative process* of Valley stakeholders interested in groundwater management, which will entail setting up working groups, conducting technical review meetings and conference calls, conducting stakeholder workshops, and program management.
2. *Characterize the groundwater basins*, including identifying the groundwater basins to be evaluated, collecting and reviewing existing groundwater data, documenting beneficial uses, characterizing groundwater quality and occurrences, identifying constituents of concern, and establishing baseline conditions.
3. *Identify salt/nutrient loading and trends* by first identifying salt/nutrient sources, and then quantifying salt/nutrient source loads and developing a plan for data gaps.
4. *Identify water management goals and potential strategies*, which would entail developing a list of potential management strategies, evaluating the feasibility of those potential management strategies, and then conducting an assimilative capacity analysis.
5. *Conduct anti-degradation process*, which includes assessing load reduction and water quality improvements, and identifying preferred management strategies.
6. *Finalize the SNMP*, which includes developing an implementation plan, identifying metrics and developing a monitoring plan, developing data management, reporting, and audit processes, determining CEQA/NEPA compliance needs, and producing the SNMP document.

Successful completion of the SNMP is necessary to ensure compliance with the Recycled Water Policy. Compliance with this policy is necessary for continued Colorado River RWQCB approval of recycled water permits in the Basin. Therefore, developing the SNMP will enable continued use and expansion of the Valley's water recycling efforts, which are an important component of the Region's groundwater management strategy.

Development of the Coachella Valley SNMP would be a collaborative process driven by stakeholders that have already been identified during Phase I activities. This program allows the Region's water and wastewater agencies to better manage salts and nutrients in the groundwater basin to preserve the high quality groundwater supply used for potable purposes.

Description and Relationship to Other Projects in the Proposal

This program is connected with other projects in this proposal, because this program will allow the Coachella Valley IRWM Region to maintain compliance with the state's Recycled Water Policy. Therefore, this program will allow the Region to continue existing and future planned use of recycled water. This program is therefore connected to Project 1, the *Non-Potable Water Use Expansion Program*, as implementation of recycled water projects would not be possible without implementation of the *Coachella Valley Salt & Nutrient Management Program*.

Without Project Baseline

Without the *Coachella Valley Salt & Nutrient Management Program*, the Region would not be in compliance with the State's Recycled Water Policy and therefore would not be able to use recycled water as currently permitted by the Colorado River RWQCB.

Potential Adverse Physical Effects of the Project

This program would facilitate existing and continued use of recycled water, and would not directly result in the provision of additional recycled water. As such, any impacts associated with the program would be accounted for in environmental documentation created for individual recycled water projects. Therefore, it is not anticipated that any significant, long-term adverse physical effects would result from implementation of this program.

Recent/ Historical Conditions

In order to be compliant with the State's Recycled Water Policy, a Salt and Management Plan must be developed on a watershed- or basin-wide basis.[38] The purpose of the Recycled Water Policy is to "provide direction to the Regional Water Boards, proponents of recycled water projects, and the public regarding the appropriate criteria to be used by the State Water Board and the Regional Water Boards in issuing permits for recycled water projects".[39] As such, it can be inferred that without development of a SNMP, the Regional Board may not continue to permit the Region's recycled water projects, and the Region would therefore not be able to distribute its current permitted volume of recycled water.

Information from the 2010 *Coachella Valley Water Management Plan Update* demonstrates that the Region already uses its full Colorado River and State Water Project (SWP) allocations, and purchases additional SWP transfers and purchases for additional recharge water.[40] As such, it is reasonable to assume that losing a substantial existing water source (recycled water) would require CVWD and/or DWA to purchase additional imported water supplies.

Data collected in the Region has shown that nitrate levels and salt levels are increasing in the Region's groundwater basins. Specifically, since 2007, CVWD has inactivated four groundwater wells due to increasing nitrate levels.[41] A number of other wells are being monitored on a monthly basis, with some approaching triggers for removing them from service. Without this SNMP and the implementation of strategies to reduce nutrient levels, additional wells may need to be taken out of service due to nitrate contamination.

New Facilities, Policies, and Actions Required to Obtain Physical Benefits

The Region's 2010 recycled water use, which is the basis of this estimate, is the result of existing recycled water projects that are already constructed and permitted. As such, no other new facilities, policies, or actions would be required to obtain the physical benefits described herein. The only additional action that would be required in order for the Region to continue its existing recycled water use is the development of a SNMP in compliance with the Recycled Water Policy. Development of that planning document is included in the scope of work for this program (refer to Attachment 3) and no additional facilities,

[38] State Water Resources Control Board (SWRCB). 2009. *Recycled Water Policy.* Available: http://www.waterboards.ca.gov/water_issues/programs/water_recycling_policy

[39] State Water Resources Control Board (SWRCB). 2009. *Recycled Water Policy.* Available: http://www.waterboards.ca.gov/water_issues/programs/water_recycling_policy

[40] Coachella Valley Water District (CVWD). 2010. *Coachella Valley Water Management Plan Update.* Page 4-15, Section 4.3, State Water Project.

[41] Coachella Valley Water District (CVWD). 2011. *Coachella Valley Water District Water Quality Section Memorandum: Annual Nitrate Report for CVWD Domestic Wells.*

policies, or actions would be required to obtain the physical benefits associated with the *Coachella Valley Salt & Nutrient Management Program.*

Uncertainties in the Physical Benefits

Compliance with the salt and nutrient management plan provisions of the Recycled Water Policy is required by 2014. As the deadline for compliance has not yet occurred, no precedent has been set for the consequences associated with non-compliance (i.e. not completing a SNMP). However, it is realistic to assume that non-compliance with the Recycled Water Policy would, at a minimum, jeopardize the Region's existing use of recycled water, and would likely also jeopardize the Region's future use of recycled water. As recycled water use in the Region is expected to increase to 42,800 AFY by 2030 (almost 200% compared to 2010 values)[42], the physical benefits calculated herein are notably conservative, as they only consider the loss of existing recycled water sources and do not consider long-term costs associated with non-compliance.

Physical Benefits Overview

Table 7-11 provides a summary of the physical benefits of the *Coachella Valley Salt & Nutrient Management Program*, including quantification of the physical benefit where possible.

Table 7-11: Physical Benefits

Coachella Valley Salt and Nutrient Management Program

Physical Benefit	Result of Physical Benefit	Quantification of Physical Benefit
Maintain ability to use recycled water	A-Maintain use of recycled water and avoid additional imports	14,268 AFY
	B-Reduce social costs associated with CO2 emissions	10,356 megatons per year
	C-Prevent stranded assets	$45-$90 million
	D-Provide social recreation or access benefits	Qualitative
	E-Help avoid, reduce, or resolve various public water resources conflicts	Qualitative
	F-Improve the overall, long-term management of California groundwater resources	Qualitative
	G-Reduce demand for net diversions for the regions from the Delta	Qualitative
	H-Provide a long-term solution in place of a short-term one	Qualitative
	I-Improve water supply reliability	Qualitative
Manage groundwater quality to protect existing infrastructure	J-Avoid cost of drilling new municipal wells	1 new well
	K-Promote social health and safety	Qualitative
	L-Improve groundwater quality	Qualitative

[42] Coachella Valley Water District (CVWD). 2011. *Coachella Valley Water District 2010 Urban Water Management Plan Final Report.* Page 4-26, Table 4-13, Historical and Future Recycled Water Production.

Physical Benefit 1: Maintain Ability to Use Recycled Water

Amount/Volume and Unit: 14,268 AFY of recycled water

Technical Justification of Physical Benefit

Implementation of the *Coachella Valley Salt & Nutrient Management Program* would maintain the Region's current ability to distribute recycled water for non-potable uses. The 2010 recycled water usage figures are derived from each of the five water purveyors' *2010 Urban Water Management Plans*. According to these planning documents, only CVWD and DWA provided recycled water for irrigation purposes in 2010. CVWD and DWA provided 9,768 AFY[43] and 4,500 AFY[44] of recycled water, respectively.

Methods Used to Estimate the Physical Benefits

A-Maintain Use of Recycled Water and Avoid Additional Imports

Information from the 2010 *Coachella Valley Water Management Plan Update* demonstrates that the Region already uses its full Colorado River and SWP allocations, and purchases additional SWP transfers for additional recharge water.[45] As such, it is reasonable to assume that losing a substantial existing water source (recycled water) would require regional water purveyors to purchase additional imported water.

Specifically, in order to account for the loss of recycled water that would occur without implementation of this program, 14,268 AFY of additional water would need to be imported from outside the Region. The Region already uses its full imported water allocations, so additional recharge water needs to be acquired from other external sources such as the Colorado River or the State Water Project (SWP). It is assumed that water demands would remain consistent, and that recycled water use would be directly offset by additional imported water.

This analysis assumes that if non-compliance with the Recycled Water Policy resulted in temporary revoking of recycled water permits by the Colorado River RWQCB, the Region's water and wastewater agencies would expedite preparation a Policy-compliance SNMP. As such, a maximum of five years of potential recycled water loss (and associated imported water purchase) would result without implementation of the *Coachella Valley Salt & Nutrient Management Program* and before the Region's water purveyors took other steps to restore recycled water use.

[43] Coachella Valley Water District (CVWD). 2011. *Coachella Valley Water District 2010 Urban Water Management Plan Final Report.* Page 4-26, Table 4-13, Historical and Future Recycled Water Production.

[44] Desert Water Agency (DWA). 2011. *Desert Water Agency 2010 Urban Water Management Plan.* Page VII-6, Table 35, Recycled Water Uses.

[45] Coachella Valley Water District (CVWD). 2010a. *Coachella Valley Water Management Plan Update.* Page 4-15, Section 4.3, State Water Project.

Table 7-12: Physical Benefits for A-Maintain Use of Recycled Water and Avoid Additional Imports
Coachella Valley Salt and Nutrient Management Program

(a)	(b)	(c)	(d)	(e)
Year	**Type of Benefit**	**Without Project (AFY)**	**With Project (AFY)**	**Change Resulting from Project (AFY)**
2015	Maintain Use of Recycled Water and Avoid Additional Imports	0	14,268	14,268
2016	Maintain Use of Recycled Water and Avoid Additional Imports	0	14,268	14,268
2017	Maintain Use of Recycled Water and Avoid Additional Imports	0	14,268	14,268
2018	Maintain Use of Recycled Water and Avoid Additional Imports	0	14,268	14,268
2019	Maintain Use of Recycled Water and Avoid Additional Imports	0	14,268	14,268

B-Reduce Social Costs Associated with CO_2 Emissions

The *Coachella Valley Salt and Nutrient Management Program* would ensure current and future use of recycled water within the Region through development of a SNMP compliant with the State's Recycled Water Policy. Without this project, golf courses and other irrigation-related recycled water customers would shift to private groundwater wells or use municipally-supplied potable water. Recycled water is currently used as a means of managing the Region's groundwater overdraft, as recycled water use directly offsets both groundwater pumping from private wells and groundwater pumping associated with municipal potable water supplies. Additional groundwater pumping that would be required to replace recycled water would also require the Region to import additional water supplies to the Region. Cumulatively, these actions would increase net emissions, because they would directly increase pumping and associated energy requirements, and would also require energy associated with transporting additional imported water supplies to the Region. This project would also avoid the importation of additional SWP exchange water for groundwater recharge purposes. As a result, this program would avoid energy requirements associated with groundwater pumping, as well as the energy requirements associated with transporting SWP exchange water to the Region. This in turn would result in avoided carbon dioxide (CO_2) emissions (a greenhouse gas (GHG)) associated with the without-project water sources (groundwater pumping and additional SWP exchange water).

For this analysis, it is assumed that energy requirements associated with delivering and using Colorado River water (the source of SWP exchange water) are 2.0 mega-watt hours per acre-foot (MWh/AF), energy requirements associated with delivering and using both recycled water and local groundwater are 0.8 MWh/AF.[46] The following table provides an overview of the cumulative energy and carbon dioxide savings that would result from the program.

To calculate avoided CO_2 emissions associated with the program, the amount of energy that would be saved due to implementation of the program (29,256 MWh per year) was multiplied by the average carbon emissions rate associated with energy production in California (0.354 megatons of CO_2 per

[46] As described in Attachment 7, energy use estimates for alternative water supply sources are based on estimates provided in CEC 2005, Navigant 2006, and Equinox 2010. The estimates used for this analysis are as follows: Imported Colorado River Water 2.0 MWh/AF (used for both water supplied via CRA and Coachella Canal), groundwater pumping 0.80 MWh/AF; recycled water treatment and distribution 0.80 MWh/AF.

megawatt-hour of energy (MT/MWh)). By avoiding 14,628 AFY of groundwater pumping and imported SWP exchange water, the program would result in a net reduction in CO_2 emissions of 10,356 MT/year.

Table 7-13: Energy and Emissions Savings Estimates
Coachella Valley Salt and Nutrient Management Program

Program Components	Amount Supplied (AFY) a.	Energy Requirements* (MWh/year) b.	Imported Energy Offsets** (MWh/year) c.	Groundwater Pumping Offsets*** (MWh/year) d.	Cumulative Energy Savings (MWh/year) c.+d. – b.	Cumulative CO_2 Savings (MT/year)
Recycled Water Produced and Used	14,628	11,702	29,256	11,702	29,256	10,356
					Program Total (per year)	**10,356**
					Program Total (5-year lifetime)	**51,780**

*Energy requirements were calculated based on an assumption of 0.8 MWh/AF for pumping associated with use of reclaimed water
** Imported Energy Offsets were calculated based on an assumption of 2.0 MWh/AF for importation of Colorado River Water
*** Groundwater Pumping Offsets were calculated based on an assumption of 0.8 MWh/AF for well pumping that would occur without this project.

Table 7-14: Physical Benefits for D-Reduce Social Costs Associated with CO_2 Emissions
Coachella Valley Salt and Nutrient Management Program

(a)	(b)	(c)	(d)	(e)
Year	**Type of Benefit**	**Without Program (MT)**	**With Program (MT)**	**Change Resulting from Project (MT)**
2015 - 2019	Avoid CO_2 Emissions	14,500	4,143	10,356

C-Prevent Stranded Assets

CVWD has invested $42 million in the Mid-Valley Pipeline to date, and this recycled water pipeline asset would be stranded (i.e., would not be used) if water recycling was discontinued for any extended period of time (refer to Project 1, *Non-Potable Water Use Expansion Program*, for more information). Further, in addition to facilities such as the Mid-Valley Pipeline, the Region has considerable recycled water infrastructure consisting of pump stations, storage tanks, distribution pipelines, and other necessary appurtenances that would be stranded if recycled water could not be used within the Region. The 2012 *CVWD Comprehensive Annual Financial Report* demonstrates that CVWD's total sanitation assets were valued at $451 million in 2012.[47] Verbal estimations from CVWD indicate that recycled water infrastructure and facilities account for approximately 10-20% of CVWD's total sanitation assets.[48] Estimates from DWA indicate that they have invested approximately $26 million (unadjusted for depreciation) in their tertiary treatment facilities and associated distribution system.[49]

[47] Coachella Valley Water District (CVWD). 2012a. *Coachella Valley Water District Comprehensive Annual Financial Report – for the Fiscal Year Ended June 30, 2012.* Page 14, Statement of Net Assets.
[48] Patti Reyes, CVWD Director of Planning and Special Programs, email dated February 15, 2013
[49] Katie Ruark, Public Information Officer, Desert Water Agency, email dated February 13, 2013.

D-Provide Social Recreation or Access Benefits

The golf course industry is an important part of the local and regional economy in the Coachella Valley. The hotel and entertainment industry, which includes golf courses, hotels, resorts, Indian gaming, and other entertainment venues, is the second largest employer in the Region[50] Recycled water is used by golf courses, particularly in the mid-valley portion of the Region, to offset local (private) groundwater pumping.[51]Without the availability of recycled water, golf courses would likely revert to private groundwater pumping and would incur costs associated with increased energy needed for pumping. Additional pumping would also contribute to further overdraft of the Region's groundwater aquifer, thereby exacerbating pumping issues as groundwater elevation lowers as a result.

Non-potable water (including recycled water) for landscape irrigation provided by CVWD is provided at 85% of the cost of groundwater pumping as a financial incentive to promote non-potable water use and offset groundwater pumping.[52] The current price DWA's customers pay for recycled water is one half the potable water rate ($0.645/100 CF).[53] Additional costs borne by golf courses that would be required to convert back to groundwater pumping could potentially harm the golf course industry from a financial point of view, causing increased golf course charges or putting golf courses out of business entirely. Such impacts would potentially restrict social recreation access within the Region, which directly infers that the Salt and Nutrient Management Program will benefit the Region's recreation industry by maintaining an affordable source of reliable local water (recycled water) for golf courses.

Data was not available to accurately quantify the number of golf courses that would increase costs or go out of business as a result of recycled water reductions possible without implementation of the *Coachella Valley Salt & Nutrient Management Program*. Therefore, this benefit has not been physically or economically quantified. However, given that the economic importance of the golf course industry in the Coachella Valley, it is likely that golf course closures would have a substantial impact on the Region's economy.

E-Help Avoid, Reduce, or Resolve Various Public Water Resources Conflicts

This program would ensure compliance with the State of California's Recycled Water Policy, which requires that salt and nutrient management plans be developed to manage salts, nutrients, and other significant chemical compounds on a watershed- or basin-wide basis.[54] These plans are intended to help streamline permitting of new recycled water projects while ensuring compliance with water quality objectives and protection of beneficial uses. For each groundwater basin, a SNMP is to be provided to the relevant Regional Water Quality Control Board (RWQCB) no later than May 2014. An extension of up to 2 years may be granted by the RWQCB if the Region demonstrates substantial progress by the May 2014 deadline.[55]

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[50]Coachella Valley Economic Partnership (CVEP). 2011. *Compete and Prosper: Coachella Valley 2011 Economic Report.* Page 74, Appendix – Employment and Payroll Details. Available: http://cvep.com/LiteratureRetrieve.aspx?ID=107804

[51]Coachella Valley Water District (CVWD). 2005. *Final Concept Paper: Mid-Valley Pipeline, Coachella Valley, California.* Page ii, Executive Summary.

[52]Coachella Valley Water District (CVWD). 2011b. *Coachella Valley Water District 2010 Urban Water Management Plan Final Report.* Page 4-29, Section 4.5.3, Recycled Water Customer Incentives.

[53] Katie Ruark, Public Information Officer, Desert Water Agency, email dated February 13, 2013.

[54]State Water Resources Control Board (SWRCB). 2009. *Recycled Water Policy.* Available: http://www.waterboards.ca.gov/water_issues/programs/water_recycling_policy

[55]State Water Resources Control Board (SWRCB). 2009. *Recycled Water Policy.* Available: http://www.waterboards.ca.gov/water_issues/programs/water_recycling_policy

Stakeholder involvement is a key component of the SNMP. Stakeholders will include those whose activities and operations may impact salt and nutrient loading to the Region's groundwater, including the water purveyors, wastewater and agricultural interests, private well owners, environmental groups, regulatory staff, and the general public. Stakeholder involvement in the program will increase awareness and collaboration among these parties in addressing the Region's water quality and water supply issues.

Data was not available to accurately quantify the benefits associated with resolving public water resources conflicts associated with preparing a compliant SNMP. Therefore, this benefit has not been physically or economically quantified.

F-Improve the Overall, Long-Term Management of California Groundwater Resources

The SNMPs are intended to help streamline permitting of new recycled water projects while ensuring compliance with water quality objectives and protecting beneficial uses. The SNMP included in this scope of work will identify and rank overall management goals and strategies to be achieved within the Coachella Valley Groundwater Basin. Desired goals may focus on source load reduction, treatment, providing other forms of water quality protection, or increased recycled water use. As such, this program will complete actions that will work to improve management of the Region's primary groundwater basin, which will assist in improving the long-term management of California's groundwater resources.

As the Region has not yet identified or evaluated the groundwater management activities that will be included in the SNMP, accurate data regarding the potential benefits that this program may have on California's groundwater resources is not known at this time.

G-Reduce Demand for Net Diversions from the Bay-Delta

This program is required for the continued use of recycled water for golf and other irrigation applications, thus offsetting the need for groundwater extraction. Reduced groundwater pumping in turn reduces aquifer drawdown and thus lessens the amount of imported water that is needed for groundwater recharge. CVWD and DWA have contracts for imported water supplies from the SWP, which is exchanged with MWD for Colorado River water delivered at turnouts from MWD's Colorado River Aqueduct. Because the Region already receives its entire imported water entitlements (as they are available) and also purchases additional SWP Table A water from other agencies[56], any additional imported water needed to balance groundwater extraction would be purchased and transferred from the SWP. Transfers or leases from north of or within the Bay-Delta could potentially affect Bay-Delta water quantity or quality. The SNMP, however, will enable continued use of the local recycled water supply and reduce the demand for additional imported water, which would ultimately be delivered from the Bay-Delta via a SWP water exchange. Therefore, the program will reduce net diversions from the Bay-Delta.

Data was not available to accurately quantify the benefits associated with reducing net diversion from the Bay-Delta as a result of the *Coachella Valley Salt & Nutrient Management Program*. Therefore, this benefit has not been physically or economically quantified.

H-Provide a Long-Term Solution in Place of a Short-Term Solution

The 2010 *Coachella Valley Water Management Plan Update* reports that TDS concentrations in groundwater throughout the Coachella Valley averaged less than 250 mg/L in the 1930s and have increased in recent years to about 834 mg/L in the upper aquifer and 355 mg/L in the lower

[56] Coachella Valley Water District (CVWD). 2011. *Coachella Valley Water District 2010 Urban Water Management Plan Final Report.* Page 4-19, Section 4.2.3.2 Other SWP Transfers.

aquifer.[57] The 2010 *Coachella Valley Water Management Plan Update* recommends that the local water and wastewater entities, together with local salt/nutrient contributing stakeholders, prepare a SNMP in compliance with the Recycled Water Policy to address basin salinity.[58] SNMP that will be completed as part of this program is intended to be long-term planning document to manage salts, nutrients, and other significant chemical compounds throughout the groundwater basin. A collaborative process will be executed to establish the goals and objectives, gather input on technical analysis tasks, and develop implementation and basin management measures. This collaborative process will help to ensure that long-term solutions are identified and implemented to manage salts, nutrients, and other relevant water quality constituents in the Region's most important water-related asset, the Coachella Valley Groundwater Basin.

This benefit has not been physically or economically quantified.

I-Improve Water Supply Reliability

The availability of imported water is becoming increasingly unreliable as a long-term permanent water supply solution. *The 2010 Coachella Valley Water Management Plan Update* states that the reliability of imported water supply from the SWP has declined due to a combination of extended drought, climate change, legal and environmental restrictions and risk of levee failure in the Bay-Delta.[59] Local recycled water use, which would be supported by this project, would reduce the need for additional imported water deliveries. The program would also reduce supply uncertainty and variability because recycled water yields are not impacted by weather factors such as drought and snowpack levels. Therefore, this program would considerably enhance local water supply reliability by facilitating current and future use of recycled water use within the Region, and reducing future additional dependence on unreliable imported water sources.

Data was not available to accurately quantify the benefits associated with improving water supply reliability as a result of the SNMP. This benefit has not been physically or economically quantified.

Physical Benefit 2: Manage Salt and Nutrients in the Region's Primary Groundwater Basin

Amount/Volume and Unit: Protection of one (1) existing groundwater well

Technical Justification of Physical Benefit:

Data collected in the Region has shown that nitrate levels are increasing. The *Coachella Valley Water District Water Quality Section Memorandum: Annual Nitrate Report for CVWD Domestic Wells* shows that since 2007, CVWD has inactivated four wells due to increasing nitrate levels.[60] A number of other groundwater wells within CVWD's service area are being monitored on a monthly basis, with some approaching nitrate concentration levels (triggers) that would require removing them from service. Without implementation of this program and associated management strategies to reduce nutrient levels, additional wells may need to be taken out of service.

[57] Coachella Valley Water District (CVWD). 2010. *Coachella Valley Water Management Plan Update.* Page5-5, Section 5.1.2.1 Impacts of Colorado River Water Recharge.

[58] Coachella Valley Water District (CVWD). 2010. *Coachella Valley Water Management Plan Update.* Page5-5, Section 5.1.2 Salinity Management. Page 5-23, Table 5-4, Summary of Emerging Issues.

[59] Coachella Valley Water District (CVWD). 2010. *Coachella Valley Water Management Plan Update.* Page6-1, Section 6-1 Need for Flexibility.

[60] Coachella Valley Water District (CVWD). 2011. *Coachella Valley Water District Water Quality Section Memorandum: Annual Nitrate Report for CVWD Domestic Wells.*

Methods Used to Estimate the Physical Benefits

J-Avoid Cost of Drilling New Municipal Wells

Information from the CVRWMG agencies demonstrates that wellhead treatment for nitrates requires advanced water treatment that is prohibitively expensive on an individual well-by-well basis.[61] As such, when wells become contaminated (generally with nitrates), the agencies will tend to drill a new well in non-contaminated areas rather than invest in additional treatment at the contaminated site. Four wells are of particular concern within CVWD's service area, and without this program may need to be replaced in the next 20 years.[62] Therefore, over the assumed five year course of this project, it is estimated that one new well would need to be drilled.

Table 7-15: Physical Benefits for K-Avoid Cost of Drilling New Municipal Wells
Coachella Valley Salt and Nutrient Management Program

(a)	(b)	(c)	(d)	(e)
Year	**Type of Benefit**	**Without Project**	**With Project**	**Change Resulting from Project**
2018	Avoid Cost of Drilling New Municipal Wells	1 well	0 wells	-1 well

K-Promote Social Health and Safety

The purpose of the salt and nutrient management plan provision of the Recycled Water Policy is to cumulatively manage salts and nutrients across groundwater basins.[63]The 2010 *Coachella Valley Water Management Plan Update* reports data on nutrients and salts (total dissolved solids [TDS]) that shows these constituents are increasing in the Region.[64] Without the *Coachella Valley Salt & Nutrient Management Program*, the Region would not undertake the regional planning process to address salts and nutrients in groundwater and, therefore, water quality degradation could continue to occur, and potentially create social health and safety issues within the Region.

Data was not available to accurately quantify the benefits associated with promoting social health and safety benefits associated with preparing a compliant SNMP. Therefore, this benefit has not been physically or economically quantified.

L-Improve Groundwater Quality

The purpose of the salt and nutrient management plan provision of the Recycled Water Policy is to cumulatively manage salts and nutrients across groundwater basins.[65] The 2010 *Coachella Valley Water Management Plan Update* reports data on nutrients and salts (total dissolved solids [TDS]) showing that

[61]Coachella Valley Water District (CVWD). 2010a. *Coachella Valley Water Management Plan Update.* Page 8-12 and 8-13, Section 8.1.4.3 Nitrate Remediation/Treatment.

[62] Coachella Valley Water District (CVWD). 2011. *Coachella Valley Water District Water Quality Section Memorandum: Annual Nitrate Report for CVWD Domestic Wells.*

[63]State Water Resources Control Board (SWRCB). 2009. *Recycled Water Policy.* Available: http://www.waterboards.ca.gov/water_issues/programs/water_recycling_policy

[64]Coachella Valley Water District (CVWD). 2010a. *Coachella Valley Water Management Plan Update.* Page5-5, Section 5.1.2.1 Impacts of Colorado River Water Recharge.

[65] State Water Resources Control Board (SWRCB). 2009. *Recycled Water Policy.* Available: http://www.waterboards.ca.gov/water_issues/programs/water_recycling_policy

loading of these constituents is increasing in the Region.[66] Without the program, the Region would not undertake a regional planning process to address salt and nutrient loading in groundwater and, therefore, water quality degradation would likely continue to occur without exportation of these constituents. Without this program, additional water would be needed to balance inflow and outflow in the groundwater basin. This would most likely come from the Colorado River, which has higher total dissolved solids (TDS) than recycled water. CVWD's *Coachella Canal at Avenue 52 East – Water Quality Data* shows that TDS in the Colorado River water delivered via the Coachella Canal has a TDS ranging from 625-975 milligrams per liter (mg/L).[67] In contrast, recycled water has an average TDS of 450-500 mg/L.[68] Therefore, the use of recycled water instead of Colorado River water would be beneficial in terms of loading as the *Coachella Valley Salt and Nutrient Management Program* would reduce the need for additional recharge activities by facilitating source substitution with recycled water.

As the Region has not yet completed a cumulative anti-degradation analysis, accurate data regarding the potential water quality benefits that recycled water may have on water quality is not known at this time. Therefore, this benefit has not been physically or economically quantified.

[66] Coachella Valley Water District (CVWD). 2010a. *Coachella Valley Water Management Plan Update.* Page5-5, Section 5.1.2.1 Impacts of Colorado River Water Recharge.

[67] Coachella Valley Water District (CVWD). 2012b. *Coachella Canal at Avenue 52 East – Water Quality Data.*

[68] Coachella Valley Water District (CVWD). 2010b. *Coachella Valley 2010 WMP Update Draft Subsequent Program EIR.* Page 6-58, Section 6.4.4.6, Impact of Recycled Water Use.

Project 3: Groundwater Quality Protection Program – Subarea D2

Background

Abstract

The City of Desert Hot Springs is classified as an economically disadvantaged community (DAC), located within the Mission Springs Water District (MSWD) service area, which is located within the Colorado River Basin. This community overlays the Desert Hot Springs groundwater aquifer, a hot-water groundwater basin containing hot mineral water with temperatures exceeding 100 degrees Fahrenheit. This water serves as the economic basis of the City of Desert Hot Springs, because it draws visitors to the City's numerous spa resorts and hotels.

The Colorado River Basin Regional Water Quality Control Board's (RWQCB) *Water Quality Control Plan for the Colorado River Basin* (Basin Plan) notes septic system impacts to groundwater as a critical regional issue, and specifically states that septic systems within the Colorado River Basin have the potential to negatively impact groundwater. [69] Portions of the City of Desert Hot Springs have septic tank densities that are 2.3 to 2.8 times higher than the density recommended by the RWQCB. As such, the high density of the septic systems potentially threatens the water quality of the local groundwater supply, and therefore the local economy, which is highly dependent on hot mineral water to support the spa and hotel industry.

As a response to local issues associated with high-density septic systems, Assessment District 12 was approved by voters in 2004, providing approximately $28 million of matching funds that expires in 2014. This money was used to fund engineering design of a wastewater collection system that will abate approximately 6,000 on-site septic systems. Design of 10 sub-areas that make up the Assessment District is complete, and funds are now needed for construction. Environmental compliance documentation was completed in 1998 and re-certified in 2007.

The project area, Subarea D2, consists of 582 parcels and 382 existing on-site septic systems that will be converted to sewers by connecting to the existing MSWD sewer system. Wastewater collected by the MSWD sewer system would be sent to the existing Horton Wastewater Treatment Plant (HWWTP), where it would be beneficially reused via percolation. Project construction includes installing 18,555 linear feet of 8-inch vitrified clay pipe (VCP) sewer, 15,281 lineal feet of 4-inch VCP sewer laterals, 70 manholes, and all appurtenances. Final design work for Subarea D2 was completed in 2010, and construction is currently ready to bid.

Description and Relationship to Other Projects in the Proposal

This program will involve replacing high-density septic systems with sewers in a DAC. Several of the other projects – *Torres-Martinez Avenue 64 Water Supply Connection Project* and *San Antonio del Desierto DAC Sewer Extension Project* – both also serve the Region's DACs by providing healthy and sanitary municipal water and wastewater services. The Coachella Valley IRWM Plan identifies the critical need to serve the Region's DACs (IRWM Plan Objective L) and this funding application helps the Region to accomplish that goal.

[69] Colorado River RWQCB. 2006. *Water Quality Control Plan for the Colorado River Basin (Region 7).* Includes Amendments through June 2006. Section III: Regional Board Issues, A: Septic System Impacts to Groundwater Basins, page 5-2. Section II. Point Source Controls, H: Septic Systems, page 4-5.

This project also links to the *Coachella Valley Salt & Nutrient Management Program* in that it will be removing a source of nutrient and salt loading in the subbasin. Reducing this loading will help the Coachella Valley Groundwater Basin to meet overall Basin Plan objectives.

Without Project Baseline

This project will eliminate septic tanks that threaten contamination of groundwater supplies, by connecting properties located in Subarea D2 to the existing MSWD collection system and wastewater treatment plant. Cumulatively, the project will connect 564 parcels to the MSWD wastewater collection system and abate 382 on-site septic systems. The Without Project Baseline would include continued use (and potential leaking and/or failure) of existing individual septic systems within Subarea D2.

Without the project, wastewater from Subarea D2 would continue to be disposed of via septic systems, and would not be sent to the HWWTP. Effluent from septic tanks is known to contain relatively high concentrations of nitrite, nitrate, and nitrogen as ammonia, which can leach into the local groundwater, thereby causing increased nitrate concentrations in groundwater. Further, leaking or failing septic tanks could potentially leach raw sewage into the local groundwater, which would pose further water quality issues associated with fecal matter contamination and associated pathogens. Without the project, leaking or failing septic systems in Subarea D2 would continue to pose a potential contamination threat to the Desert Hot Springs and Mission Creek subbasins.

While not used as potable water, the Desert Hot Springs subbasin is important to the local economy, because it contains naturally hot mineral water that supports the local hotel and spa industry. Contamination of this aquifer, especially from pathogens, would be highly detrimental to the local hotel and spa industry, an important component of the Desert Hot Springs economy. Further, any contamination of the groundwater with pathogens could potentially pose a human health threat as the hot mineral water within the Desert Hot Springs subbasin is not treated prior to use.

Without the project, wastewater flows from Subarea D2 would infiltrate into the non-potable Desert Hot Springs subbasin and not be beneficially reused at HWWTP. Beneficial reuse of wastewater supplies is an important component of the Region's overall groundwater management strategy, and without the project, the Region would continue to rely upon imported water for groundwater recharge.

Without the project, residents would continue to pay to operate and maintain their individual septic systems. Septic systems need to be maintained (pumped) approximately every 5 years. Without the project, residents would also continue to need to replace septic systems approximately every 25 years.

Potential Adverse Physical Effects of the Project

This project would include construction of 18,555 linear feet of 8-inch vitrified clay pipe (VCP) sewer, 15,281 lineal feet of 4-inch VCP sewer laterals, 70 manholes, and all appurtenances. An environmental analysis for the project was completed in 1998 and re-certified in 2007, and demonstrated that the project would have no significant and unavoidable impacts. It is not anticipated that the project would result in any significant, long-term physical effects.

Recent/ Historical Conditions

The Coachella Valley IRWM region lies within Region 7 (Colorado River Basin) of the California Regional Water Quality Control Board (RWQCB). In 2006, the RWQCB last adopted the *Water Quality Control Plan for the Colorado River Basin* (Basin Plan), outlining water quality objectives for the region and putting forth an Implementation Program that would assist in achieving those objectives. The Basin Plan notes Septic System Impacts to Groundwater Basins as a critical regional issue and that unsewered

communities within Region 7 have the potential to negatively impact groundwater.[70] The Basin Plan specifically prohibits individual disposal systems on parcels (less than one-half acre) that overlie the Mission Creek and Desert Hot Springs groundwater aquifers and mandates connection to the municipal sewer system.[71]

Water quality in the Mission Creek Subbasin is being impacted by a on-site wastewater disposal systems (septic systems) within the Mission Creek Subbasin and potentially from the neighboring Desert Hot Springs subbasin, which contributes a small amount of inflow (approximately 1,800 AFY) to the unconfined Mission Creek aquifer.[72] On-site disposal systems are increasing nitrate contamination levels in local water supply wells. The *Groundwater Quality Protection Program – Subarea D2* will capture and treat wastewater flows, and then recharge them in the Mission Creek Subbasin. The project will result in groundwater quality protection by treating wastewater and preventing wastewater effluent from entering the high-quality Mission Creek subbasin.

MSWD's 2010 *Urban Water Management Plan* notes that the Desert Hot Springs Subbasin is a hot-water basin, containing hot mineral water with temperatures exceeding 100 degrees Fahrenheit.[73] This water serves as the economic basis of Desert Hot Springs because it draws visitors to the City's numerous spa resorts and hotels. Therefore, protecting the groundwater quality within the Desert Hot Springs aquifer will not only protect the local water supply but will also protect hot mineral water that is the economic basis of the community's spa industry.

Water quality both in the water supply (Mission Creek) and hot water (Desert Hot Springs) subbasins are vital to the area's economic vitality. In addition, because Desert Hot Springs qualifies as a disadvantaged community (DAC), this project will also protect residents of a DAC from significant costs that would result if treatment of the potable groundwater supply were necessary due to contamination of groundwater supplies.

New Facilities, Policies, and Actions Required to Obtain Physical Benefits

The project has completed 100% design and is ready for construction. Further, the assessment district created to fund the remaining project components was already formed by voters. While MSWD will be constructing the sewer main and laterals to provide connections for Desert Hot Springs residents, there are additional decommissioning and costs totaling approximately $2.4 million (undiscounted) associated with the on-site septic systems (refer to Attachment 8).

Uncertainties in the Physical Benefits

The volume of wastewater collected and treated by the proposed *Groundwater Quality Protection Project – Subarea D2* project is uncertain because it cannot be guaranteed that all 382 existing septic systems will connect to the municipal sewer system. Although the Colorado River RWQCB and MSWD require that customers connect to wastewater collection systems once they are available to their property, some may not do so within the timeframe assumed in this economic analysis.

[70] Colorado River RWQCB. 2006. *Water Quality Control Plan for the Colorado River Basin (Region 7).* Includes Amendments through June 2006. Section III: Regional Board Issues, A: Septic System Impacts to Groundwater Basins, page 5-2. Section II. Point Source Controls, H: Septic Systems, page 4-5.

[71] Colorado River RWQCB. 2006. *Water Quality Control Plan for the Colorado River Basin (Region 7).* Includes Amendments through June 2006. Section II. Point Source Controls, H: Septic Systems, page 4-5.

[72] MSWD. 2011. *2010 Urban Water Management Plan.* Page 2-7, Table 2.1-1, Mission Creek Subbasin Inflows/Outflows.

[73] MSWD. 2011. 2010 *Urban Water Management Plan*. June 2011. Section 2.1.1 Groundwater, page 2-1.

Physical Benefits Overview

Table 7-16 provides a summary of the physical benefits of the *Groundwater Quality Protection Project – Subarea D2*, including quantification of the physical benefit where possible.

Table 7-16: Physical Benefits
Groundwater Quality Protection Project – Subarea D2

Physical Benefit	Result of Physical Benefit	Quantification of Physical Benefit
Facilitate Beneficial Reuse of Wastewater Flows	A-Avoid Cost of Imported Water for Recharge	158 AFY
	B-Reduce Demand for Net Diversions from the Bay-Delta	Qualitative
	C- Improve Water Supply Reliability	Qualitative
Prevent Wastewater Flows from Entering the Local Groundwater Basin	D-Avoid Loss of Hotel Revenue and Transient Occupancy Tax	$5,466,164
	E-Avoid O&M Costs to Septic Tank Owners	$2,222,099
	F-Avoid Groundwater Treatment	Qualitative
	G-Provide Social Recreation Benefits	Qualitative
	H-Promote Social Health and Safety	Qualitative
	I-Avoid Losses in Spa Economy	Qualitative
	J-Benefit Wildlife or Habitat Through Recharge	Qualitative
	K-Improve Groundwater Quality and Protect Beneficial Uses	Qualitative
	L-Improve the Overall, Long-Term Management of California's Groundwater Resources	Qualitative
	M-Provide a Long-Term Solution	Qualitative

Physical Benefit 1: Facilitate Beneficial Reuse of Wastewater Flows

Amount/Volume and Unit: 158 AFY of wastewater diverted to the HWWTP

Technical Justification of Physical Benefit

Implementation of the *Groundwater Quality Protection Project – Subarea D2* would prevent all wastewater flows that are currently disposed of via septic systems from entering the underlying Desert Hot Springs groundwater aquifer. As described above, a non-potable mineral hot springs aquifer that provides the economic basis for the spa and resort economy of the economically disadvantaged community of Desert Hot Springs.[74] The wastewater flows from Subarea D2 were calculated based on engineering and design studies that have been completed for the project (see Figure 3-12).[75] Once the project is constructed, these additional wastewater flows would be sent to the HWWTP, where they would flow via percolation beds to the Mission Creek groundwater aquifer.[76]

[74] MSWD. 2011. 2010 *Urban Water Management Plan*. June 2011. Section 2.1.1 Groundwater, page 2-1.
[75] MSWD. 2013. *Groundwater Protection Program Sewer Exhibit.*
[76] MSWD. 2011. *Mission Springs Water District 2010 Urban Water Management Plan.* Page 8-2, Section 8.2.3 Projected use of Recycled Water.

Methods Used to Estimate the Physical Benefits

A-Avoid Cost of Imported Water for Recharge

The MSWD groundwater protection program involves septic-to-sewer conversions that will increase wastewater flows to the HWWTP. MSWD's 2010 *Urban Water Management Plan* shows that wastewater produced at the HWWTP is currently placed in percolation ponds that are located over the Mission Creek groundwater aquifer.[77] Therefore, flows are currently used for recharge and are beneficially reused, as MSWD primarily uses water from the Mission Creek aquifer.[78] Without the project, wastewater flows from Subarea D2 would infiltrate into the non-potable Desert Hot Springs groundwater aquifer, which is not used as a water supply source. Therefore, the water would not be beneficially reused.

The 2010 *Urban Water Management Plan* shows that MSWD is pursuing Title XVI funding for upgrades to the HWWTP to generate tertiary-treated recycled water for irrigation purposes. [79] According to the *Urban Water Management Plan*, these upgrades should be completed and the HWWTP should be producing tertiary-treated recycled water by 2020.[80] For the purposes of the *Urban Water Management Plan*, MSWD assumed they would reclaim and reuse all of the wastewater generated within the service area for irrigation of golf courses and other suitable landscaping purposes, less 10% to account for treatment system losses.[81]

This project will connect 582 parcels and 382 septic systems to MSWD wastewater collection system. Information from the engineering and design work completed to date for the project shows that the total wastewater flows from Subarea D2 are 0.141 million gallons per day (mgd) or 158 acre-feet per year (AFY).[82] Applying MSWD's assumption that 10% would be lost during treatment, Subarea D2 will provide 142.2 AFY in future recycled water supply. It is assumed that approximately 25% of Subarea D2 customers would connect each year from 2018 – 2021, therefore staggering this supply contribution through those first four years.

As described above, MSWD currently percolates treated effluent into the Mission Creek subbasin. Though this does not reduce the demand for pumped groundwater (as would distribution of recycled water), it does provide recharge that benefits basin as a whole and lessens the impact of pumping.[83] Without this project, additional water may need to be imported from outside the basin to balance extraction. Regional water purveyors already use their full Colorado River water allocations, so additional groundwater recharge water would need to be acquired from other external sources.[84] This would be done by acquiring rights from State Water Project (SWP) water held by other entities, and exchanging these purchased rights with MWD for locally-available Colorado River water.

Table 7-17 provides a summary of the avoided imported water that may need to be purchased for recharging the Mission Creek basin in order to balance extractions and curb groundwater overdraft.

[77] MSWD. 2011. *2010 Urban Water Management Plan.* Section 2.2.4 Recycled Water, page 2-19.
[78] MSWD. 2011. *2010 Urban Water Management Plan.* Page 2-1, Section 2.1.1 Groundwater.
[79] MSWD. 2011. *2010 Urban Water Management Plan.* Section 2.2.4 Recycled Water, page 2-19.
[80] MSWD. 2011. *2010 Urban Water Management Plan.* Section 2.2.4 Recycled Water, page 2-19.
[81] MSWD. 2011. *2010 Urban Water Management Plan.* Section 2.2.4 Recycled Water, page 2-19.
[82] MSWD. 2013. *Groundwater Protection Program Sewer Exhibit.*
[83] MSWD. 2011. *2010 Urban Water Management Plan.* Section 2.2.4 Recycled Water, page 2-19.
[84] Coachella Valley Water District (CVWD). 2010a. *Coachella Valley Water Management Plan Update.* Page 4-15, Section 4.3, State Water Project.

Table 7-17: Physical Benefits for A- Avoid Cost of Imported Water for Recharge
Groundwater Quality Protection Project – Subarea D2

(a)	(b)	(c)	(d)	(e)
Year	**Type of Benefit**	**Without Project (AF)**	**With Project (AF)**	**Change Resulting from Project (AF)**
2018	Avoid Cost of Imported Water for Recharge	35.55 AF	0	-35.55 AF
2019	Avoid Cost of Imported Water for Recharge	71.1 AF	0	-71.1 AF
2020	Avoid Cost of Imported Water for Recharge	106.65 AF	0	-106.65 AF
2021-2078	Avoid Cost of Imported Water for Recharge	142.2 AF	0	-142.2 AF

B-Reduce Demand for Net Diversions from the Bay-Delta

The *Groundwater Quality Protection Project – Subarea D2* involves septic-to-sewer conversions that will allow for beneficial reuse (direct and indirect groundwater recharge) of wastewater flows that would otherwise be lost to the Desert Hot Springs subbasin. Beneficial reuse would occur in two ways: 1) from 2018 to 2020 wastewater flows would be sent to the HWWTP where they would recharge the Mission Creek subbasin through percolation ponds, or 2) after the HWWTP is upgraded to tertiary treatment and is able to produce recycled water (anticipated in 2020), wastewater flows would be used for irrigation purposes to offset groundwater pumping and would therefore be considered as in lieu groundwater recharge.[85] This additional recharge would amount to 158 AFY beginning in 2018, and would offset the need to import additional water for groundwater recharge purposes. CVWD and DWA have contracts for imported water supplies from the SWP, which is exchanged with MWD for Colorado River water delivered at turnouts from MWD's Colorado River Aqueduct. Because the Region already receives its entire imported water entitlements (as they are available) and also purchases additional SWP Table A water from other agencies[86], any additional imported water needed to balance groundwater extraction would be purchased and transferred from the SWP. Transfers or leases from north of or within the Delta could potentially affect Delta water quantity or quality.

By reducing the need to import additional water for groundwater recharge, the project would directly offset demands for additional SWP water to balance basin extraction. Therefore, this project would offset net diversions from the Bay-Delta and help preserve this vital resource.

C-Improve Water Supply Reliability

The reliability of a water supply refers to its ability to meet water demands on a consistent basis, even in times of drought or other constraints on source water availability. The project will help address reliability issues by offsetting the need for additional future use of imported water for groundwater recharge. The reliability of imported water is subject to a number of natural and human forces, ranging from increased population growth (and accompanying increased demands), to drought and earthquakes, to environmental regulations and water rights determinations.

[85] MSWD. 2011. *2010 Urban Water Management Plan.* Section 2.2.4 Recycled Water, page 2-19.

[86] Coachella Valley Water District (CVWD). 2011. *Coachella Valley Water District 2010 Urban Water Management Plan Final Report.* Page 4-19, Section 4.2.3.2 Other SWP Transfers.

Physical Benefit 2: Prevent Wastewater Flows from Entering the Local Groundwater Basin

Amount/Volume and Unit: 158 AFY of wastewater diverted to the HWWTP

Technical Justification of Physical Benefit

Implementation of the *Groundwater Quality Protection Project – Subarea D2* would prevent all wastewater flows that are currently disposed of via septic systems from entering the underlying Desert Hot Springs groundwater aquifer. As described above, this aquifer is a non-potable mineral hot springs aquifer that provides the economic basis for the spa and resort economy of the economically disadvantaged community of Desert Hot Springs.[87] The wastewater flows from Subarea D2 were calculated based on engineering and design studies that have been completed for the project (see Figure 3-12).[88] Once the project is constructed, these additional wastewater flows would be sent to the HWWTP, where they would flow via percolation beds to the Mission Creek groundwater aquifer.[89]

Methods Used to Estimate the Physical Benefits

D-Avoid Loss of Hotel Revenue and Transient Occupancy Tax

The Desert Hot Springs subbasin, over which Subarea D2 lies, contains natural mineral hot springs. The Desert Hot Springs community contains an estimated 24 businesses that are marketed for spa and other services associated with the natural mineral hot springs. If the Desert Hot Springs subbasin and the associated mineral hot springs were to become contaminated by contaminants from septic discharges, the tourism-related business of the Desert Hot Springs community would be substantially impacted.

The hotel industry in Desert Hot Springs for fiscal year (FY) 2011 brought in $9,066,667 in revenue to the region. The calculation for estimated lost revenue is based on the Transit Occupancy Tax (TOT) and sales tax revenues for the *City of Desert Hot Springs Annual Financial Report* from 2011. This report shows that hotel revenue in Desert Hot Springs included $1,088,000 for TOT revenue in 2011 from a 12% hotel tax, which represents tax collected on hotel revenue of $9,066,667 (12% of $9,066,667 = $1,088,000).[90] A 1% loss of this income would be $90,667/year. In addition to this loss in hotel revenue there also would be a loss in the TOT, which was 12% of the hotel revenue in 2011. For FY 2011, the TOT received from the hotel industry in Desert Hot Springs was $1,088,000, and 1% of this amount is $10,880.91 Therefore, given the assumed probability and extent of impact, the expected benefit received by preventing contamination of the Desert Hot Springs subbasin would be $101,547 per year.

For purposes of assessing the benefits of this project, it was assumed that there is 2% risk in any given year that 50% of the businesses would be impacted by septic-related contamination and forced to close without this project, starting in 2018 after project construction and spanning over the 60 year lifetime of this project. This is equivalent to 12 businesses being impacted over the course of this project, or 0.24 businesses per year. This would equivalent to a 1% loss in the mineral hot springs-related tourism industry revenue per year (0.24/24 X 100).

[87] MSWD. 2011. 2010 *Urban Water Management Plan*. June 2011. Section 2.1.1 Groundwater, page 2-1.

[88] MSWD. 2013. *Groundwater Protection Program Sewer Exhibit.*

[89] MSWD. 2011. *Mission Springs Water District 2010 Urban Water Management Plan.* Page 8-2, Section 8.2.3 Projected use of Recycled Water.

[90] City of Desert Hot Springs. 2011. *Financial Statements Year Ended June 30, 2011.* Page 4, Statement of Activities, Transient Occupancy Taxes.

[91] City of Desert Hot Springs. 2011. *Financial Statements Year Ended June 30, 2011.* Page 4, Statement of Activities, Transient Occupancy Taxes.

Once contaminated, it is assumed that each individual business would suffer a five- year reduction in business. This five-year period would be needed to provide time to explore and implement alternatives such as on-site treatment and then rebuild consumer confidence in the water quality and the local mineral hot springs spa industry. Therefore, the total risk of loss without this project would be 5% annually (5 years x 1% loss per year). However, taking a conservative approach and assuming that since the risk of contamination is first monetized starting in 2018, then the losses start at one percentage and increase by 1% per year until the 5 % maximum is reached (1% in 2018, 2% in 2019, etc.).

Table 7-18: Physical Benefits for B- Avoid Loss of Hotel Revenue and Transient Occupancy Tax
Groundwater Quality Protection Project – Subarea D2

(a)	(b)	(c)	(d)	(e)
Year	**Type of Benefit**	**Without Project**	**With Project**	**Change Resulting from Project**
2018	Avoid Loss of Hotel Revenue and Transient Occupancy Tax	1% loss in tourism and TOT revenue	0	Avoid 1% loss in tourism and TOT revenue
2019	Avoid Loss of Hotel Revenue and Transient Occupancy Tax	2% loss in tourism and TOT revenue	0	Avoid 2% loss in tourism and TOT revenue
2020	Avoid Loss of Hotel Revenue and Transient Occupancy Tax	3% loss in tourism and TOT revenue	0	Avoid 3% loss in tourism and TOT revenue
2021	Avoid Loss of Hotel Revenue and Transient Occupancy Tax	4% loss in tourism and TOT revenue	0	Avoid 4% loss in tourism and TOT revenue
2022-2078	Avoid Loss of Hotel Revenue and Transient Occupancy Tax	5% loss in tourism and TOT revenue	0	Avoid 5% loss in tourism and TOT revenue

E-Avoid O&M Costs to Septic Tank Owners

By replacing septic systems with sewer connections, the *Groundwater Quality Protection Program – Subarea D2* project would eliminate costs to septic tank owners associated with O&M and replacement costs of septic tanks. The proposed project area (Subarea D2) is included as part of a larger project area, Assessment District 12 (AD-12). Of the 6,000 septic tanks in AD-12, this project would replace 382 septic tanks associated with 582 parcels. It is assumed that approximately 25% of the individual septic systems would be replaced with municipal service connections each year from 2018 - 2021.

MSWD estimates that septic system replacement costs average $10,000 over a 25-year period, or approximately $400 per year.[92] This project would replace 382 septic tanks, therefore resulting in an annualized avoided cost of $152,800 per year ($400 x 382). It is assumed that approximately 25% of Subarea D2 customers would connect each year from 2018 – 2021, therefore staggering this avoided cost through those first four years.

MSWD also estimates that for 382 septic systems, the annualized O&M costs are estimated to be $500 for pumping every three to five years, indicating an average maintenance cost of $125 per year per septic

[92] Personal communication from John Soulliere, Admin Officer/Public Relations, Mission Springs Water District

tank.[93] Therefore the net benefit would be $525/year per septic tank avoided ($400 per year + $125 per year).

This project assumes that 25% (95.5) of septic systems will be connected per year to this project between 2018-2021, so net avoided cost benefits begin in 2018 and increase on an annual basis from 2018-2021.

Table 7-19: Physical Benefits for C- Avoid O&M Costs to Septic Tank Owners
Groundwater Quality Protection Project – Subarea D2

(a)	(b)	(c)	(d)	(e)
Year	**Type of Benefit**	**Without Project**	**With Project**	**Change Resulting from Project**
2018	Avoid O&M Costs to Septic Tank Owners	25% of septic O&M costs	0	25% of septic O&M costs
2019	Avoid O&M Costs to Septic Tank Owners	50% of septic O&M costs	0	50% of septic O&M costs
2020	Avoid O&M Costs to Septic Tank Owners	75% of septic O&M costs	0	75% of septic O&M costs
2021-2078	Avoid O&M Costs to Septic Tank Owners	100% of septic O&M costs	0	100% of septic O&M costs

F-Avoid Groundwater Treatment Costs

By eliminating wastewater from entering the groundwater aquifer within the project area, the *Groundwater Quality Protection Program – Subarea* D2 project would potentially reduce or eliminate the need to conduct groundwater treatment to remove nitrate, pathogens, and other constituents. The primary purpose of this project is to remove a source of contaminates (wastewater) from coming into contact with groundwater in the Desert Hot Springs aquifer. If the project were not implemented, it is possible that groundwater users such as local hotels and spas would install onsite treatment devices to remove contaminants such as nitrates, pathogens, and other constituents from the water. Although not economically monetized, such treatment activities would likely be expensive, potentially prohibitively expensive to the residents and business owners within Desert Hot Springs, an economically disadvantaged community.

At this time it is not know what type of treatment would be required, because the specific type of contaminants present in the groundwater are not known. Further, it is not known what the treatment capacity would need to be since this value is dependent upon the impacted well in question, which is hypothetical at this time. Due to the uncertainty involved in applying these numbers to this situation, this benefit has not been monetized.

G-Provide Social Recreation Benefits

The Desert Hot Springs subbasin, which underlies Subarea D2, contains natural mineral hot springs. The community of Desert Hot Springs contains an estimated 24 businesses that are marketed as a spa and other services associated with the natural mineral hot springs. If the Desert Hot Springs subbasin and the associated hot springs were to become contaminated from leaking or failing septic tanks in Subarea D2, the tourism-related business of the Desert Hot Springs community would be substantially impacted. The conversion of Subarea D2 to a municipal sewer system reduces the probability of contamination and associated loss of tourism and recreation. Direct monetized benefits associated with hotel revenue and

[93] Personal communication from John Soulliere, Admin Officer/Public Relations, Mission Springs Water District

transient occupancy tax revenue associated with tourism are provided in the preceding section. However, the mineral hot springs that would be protected by this project also provide other social benefits such as therapeutic recreation benefits that have not been monetized, because they are qualitative in nature.

H-Promote Social Health and Safety

If the Desert Hot Springs groundwater aquifer were contaminated with nitrates, pathogens, or other constituents from leaking or failing septic systems, those constituents could impact the public health of spa users that would come into direct contact with contaminated water.

I-Avoid Losses in Spa Economy

As shown in Figure 3-2 in Attachment 3, the City of Desert Hot Springs is a DAC whose households earn less on average than the Statewide median household income of $48,706. The City of Desert Hot Springs Financial Statements for FY 2011 also show that faced a $5.9 million deficit in 2011.[94] Because the city of Desert Hot Springs is a DAC, loss of revenue to this economy would be particularly burdensome and could cause catastrophic social and economic impacts. The project would help to avoid these impacts by protecting hotel revenues and transient occupancy tax revenue.

J-Benefit Wildlife or Habitat Through Recharge

A RWQCB staff report on the Salton Sea Transboundary Watershed shows that the Coachella Valley IRWM Region is located within the Salton Sea Transboundary Area, meaning that Subarea D2 is hydrologically connected to the Salton Sea.[95] This staff report also discusses water quality issues such as nutrient impairment and eutrophication within the Salton Sea, which are from constituents such as nitrates often found in septic effluent.[96] Without the project, water quality constituents from leaking or failing septic tanks in Subarea D2 would continue to infiltrate into the Desert Hot Springs groundwater aquifer, and could eventually enter the Salton Sea.

Groundwater extraction in the Region also has the potential to impact the continued viability of mesquite hummocks, which provide important habitat for locally-important species that include the Coachella Valley fringe-toed lizard, Palm Springs pocket mouse, and Coachella Valley round-tailed ground squirrel.[97] These mesquite hummocks often occur along fault zones where groundwater is forced to the surface, such as the mesquite hummocks along the Banning Fault in the Willow Hole Conservation Area. The vegetation structure of the mesquite traps sand that has been transported by wind from sand deposited or exposed by flood events in Mission Creek and Morongo Wash floodplains on the south side of the Banning Fault forming dunes and hummocks along the fault line. The mesquite associated with sand dunes enhances conditions that provide habitat for the aforementioned species.[98] The *Supplemental EIR/EIS for the Coachella Valley Multiple Species Habitat Conservation Plans/Natural Community*

[94] City of Desert Hot Springs. 2012. *City of Desert Hot Springs Financial Statements, Year Ending June 30, 2011.* Page 4, "Change in Net Assets"

[95] Regional Water Quality Control Board (RWQCB). 2000. *California Environmental Protection Agency Regional Water Quality Control Board Colorado River Basin Region – Staff Report: Water Quality Issues in the Salton Sea Transboundary Watershed.*

[96] Regional Water Quality Control Board (RWQCB). 2000. *California Environmental Protection Agency Regional Water Quality Control Board Colorado River Basin Region – Staff Report: Water Quality Issues in the Salton Sea Transboundary Watershed.*

[97] Coachella Valley Association of Governments. 2013. *Supplemental Environmental Impact Report/Supplemental Environmental Impact Statement for a Major Amendment to the Coachella Valley Multiple Species Habitat Conservation Plans/Natural Community Conservation Plan*. Page 4.2-10.

[98] Coachella Valley Association of Governments. 2013. *Supplemental Environmental Impact Report/Supplemental Environmental Impact Statement for a Major Amendment to the Coachella Valley Multiple Species Habitat Conservation Plans/Natural Community Conservation Plan*. Page 4.2-10.

Conservation Plan acknowledges that potential threats to the mesquite hummocks natural community in the Region include competition for subsurface water from non-native tamarisk and the drawdown of the groundwater table within the Mission Creek subbasin.

As described above, MSWD currently percolates treated effluent into the Mission Creek subbasin. Though this does not reduce the demand for pumped groundwater (as would distribution of recycled water), it does provide recharge that benefits basin as a whole and lessens the impact of pumping.[99] The proposed project would contribute wastewater flows to the HWWTP which would in turn either recycle it for beneficial reuse (planned to begin in 2020)[100] or continue to percolate it at the plant. These activities will contribute to the long-term health of the mesquite hummocks and other groundwater-dependant habitats within the Coachella Valley.

K-Improve Groundwater Quality and Protect Beneficial Uses

Effluent from septic tanks is known to contain relatively high concentrations of nitrite, nitrate, and nitrogen as ammonia, which can leach into the local groundwater, thereby causing increased nitrate concentrations in groundwater. Further, leaking or failing septic tanks could potentially leach raw sewage into the local groundwater, which would pose further water quality issues associated with fecal matter contamination and associated pathogens. By removing this potential source of nitrate, the project will help improve water quality within the Desert Hot Springs and Mission Creek groundwater aquifers.

Further, due to the project's location within the Salton Sea Transboundary Watershed, groundwater within the Desert Hot Springs groundwater aquifer is hydrologically connected to the Salton Sea, meaning that constituents from septic tanks could eventually enter the Salton Sea. The Salton Sea is already challenged with water quality issues such as nutrient impairment and eutrophication, which result in low dissolved oxygen, high ammonia levels, and foul odors.[101] Further inputs of nitrates into the sea could exacerbate these issues.

L-Improve the Overall, Long-Term Management of California's Groundwater Resources

The *Groundwater Quality Protection Project – Subarea D2* involves septic-to-sewer conversions that will increase the amount of treated wastewater that can be used for groundwater recharge and for recycled water when the HWWTP upgrades to tertiary treatment in the future.[102] Recharge from the HWWTP will supplement supplies in the Mission Creek groundwater aquifer that serves as the primary source of water for users within the MSWD service area. Further, future recycled water provided by the HWWTP will be used by irrigation customers to offset groundwater pumping, and will therefore also benefit water users within the MSWD service area and Valley-wide.

These benefits will help to manage California's groundwater resources (Mission Creek groundwater aquifer is Basin 7-21.02 as designated by DWR Bulletin 118[103]) on a long-term basis as they will help recharge the local groundwater basin or provide for source substitution due to recycled water provisions from HWWTP that would be used to offset localized groundwater pumping from the Mission Creek groundwater aquifer.

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[99] MSWD. 2011. *2010 Urban Water Management Plan.* Section 2.2.4 Recycled Water, page 2-19.

[100] MSWD. 2011. *2010 Urban Water Management Plan.* Section 2.2.4 Recycled Water, page 2-19.

[101] Regional Water Quality Control Board (RWQCB). 2000. *California Environmental Protection Agency Regional Water Quality Control Board Colorado River Basin Region – Staff Report: Water Quality Issues in the Salton Sea Transboundary Watershed.*

[102] MSWD. 2011. *2010 Urban Water Management Plan.* Section 2.2.4 Recycled Water, page 2-19.

[103] California Department of Water Resources. 2013. *Basins and Subbasins of the Colorado River Hydrologic Region*. Available: http://www.water.ca.gov/groundwater/bulletin118/colorado_river.cfm

M-Provide a Long-Term Solution

The *Groundwater Quality Protection Project – Subarea D2* involves septic-to-sewer conversions that will provide sustainable long-term management of local wastewater (in lieu of septic systems) and increases beneficial reuse of wastewater flows, thereby reducing dependence on imported water necessary for recharging the groundwater basin. As such, this project provides a long-term solution to local wastewater management in the Desert Hot Springs community and will provide infrastructure that will help the Region to manage its groundwater resources on a long-term basis.

Project 4: San Antonio del Desierto DAC Sewer Extension Project

Background

Abstract

The San Antonio del Desierto (St. Anthony) Mobile Home Park is located along Highway 111, south of Avenue 66 and north of Avenue 68 in the eastern Coachella Valley in an unincorporated portion of Riverside County known as Mecca. This mobile home park, which contains approximately 400 residents, is considered an economically disadvantaged community (DAC) per requirements established by DWR. The mobile home park is owned by the Pueblo Unido Community Development Corporation (PUCDC), which is in the process of acquiring legal permitting for the mobile home park in the form of a Conditional Use Permit (CUP) from the County of Riverside. One of the conditions of the CUP is that the mobile home park must convert to a sanitary wastewater system, as the mobile home park currently relies upon five (5) anaerobic wastewater treatment lagoons for wastewater treatment and disposal.

The existing wastewater lagoons are in extremely close proximity (within 150 feet) to the mobile home park residents. Inadequate design of the lagoons, including lack of proper lining, location, and unstable dikes, make contamination from the lagoons a serious public health threat, and urge the need to provide a sanitary and reliable wastewater disposal and treatment system for residents of the mobile home park. Inadequate design of the lagoons not only provides concerns relating to the health and safety of mobile home park residents, but also presents water quality concerns within and surrounding the project area. Due to the project's location within the eastern Coachella Valley, the project area is underlain by a shallow groundwater aquifer with a high water table. As such, inadequate lagoon conditions pose a potential threat to groundwater quality within the surrounding area as wastewater and associated contaminants from the lagoons could potentially contaminate the groundwater due to the lack of an adequate barrier lining the lagoons. Due to the proximity of the mobile home park to the Coachella Valley Water District's (CVWD's) sewer sanitary collection system, connecting to the CVWD municipal wastewater system is the best option for meeting project-related needs.

The project proposes the installation of a gravity sewer pipeline, lift station, and a sewer force main pipeline that would collect wastewater from the St. Anthony Mobile Home Park. The project would provide sewer service to the residents and convey the wastewater to CVWD's Water Reclamation Plant No. 4 (WRP-4).

Description and Relationship to Other Projects in the Proposal

Though not explicitly connected with other projects in this proposal, this project would provide necessary sanitary sewer service to a disadvantaged community. Several of the other projects – *Groundwater Quality Protection Program – Subarea D2* and *Torres-Martinez Avenue 64 Water Supply Connection Project* – both also serve the Region's DACs by providing healthy and sanitary municipal water and wastewater services. The Coachella Valley IRWM Plan identifies the critical need to serve the Region's DACs (IRWM Plan Objective L) and this funding application helps the Region to accomplish that goal.

Without Project Baseline

The *San Antonio del Desierto DAC Sewer Extension Project* would serve an economically disadvantaged mobile home park in the unincorporated community of Mecca within Riverside County. The main purpose of this project is to replace the existing onsite wastewater lagoon system at the St. Anthony Mobile Home Park with municipal sewer service. The existing conditions at the wastewater lagoon

system and the mobile home park are the baseline for the physical benefits described in this attachment and economic cost benefit analysis contained in Attachment 8.

Without the project, the most significant impact would most likely be that the St. Anthony Mobile Home Park would not be able to receive a CUP from the County of Riverside, and would therefore likely close. The current wastewater lagoons fail to meet regulatory requirements, pose a health and safety threat to residents, and therefore do not represent acceptable wastewater treatment infrastructure per the County of Riverside. The pending CUP from the County of Riverside (CUP#03645) indicates that one of the conditions of approval for the CUP is the assumption that the mobile home park would connect to the CVWD wastewater system.[104] Absent conversion of the on-site wastewater system to a sanitary sewer system, this mobile park would not be able to meet conditions of the CUP, would not be permitted, and therefore could be shut down by the County of Riverside.

The community of Mecca, and the majority of the eastern Coachella Valley is underlain by a shallow groundwater aquifer that has limited groundwater percolation due to silt and clay layers (an aquitard).[105] Due to the aquitard, surface water in this area percolates into the shallow groundwater aquifer and may eventually drain into the Salton Sea. Although there is no site-specific water quality data for the wastewater lagoons, it is suspected that wastewater from the lagoons percolates to and potentially contaminates the underlying shallow groundwater aquifer. Further, as there has been observed erosion on the banks of the lagoons, it is possible that the wastewater also drains off the surface of these ponds. The presence of high groundwater and poor percolation rates in the vicinity can negatively impact the operation of the onsite wastewater lagoons, and may result in the subsurface flow of water from the lagoons to adjacent agricultural drains. Agricultural drains in the south eastern Coachella Valley that do not drain to the Coachella Valley Stormwater Channel (CVSC) flow directly to the Salton Sea.[106] Further, there is an 85-acre freshwater-salt water habitat complex near the mouth of the CVSC, which was constructed and is still operated by the Torres-Martinez Desert Cahuilla Indians (the Torres-Martinez wetlands). These wetlands remove nutrients and pollutants from drain water from the CVSC, and could potentially be impacted from contaminants in the subsurface and surface water runoff from the existing wastewater lagoons at the St. Anthony Mobile Home Park.[107]

For purposes of this analysis, it is assumed that wastewater flows from the project would be treated to tertiary levels at WRP-4 and beneficially reused as recycled water. However, please note that currently WRP-4 is a secondary wastewater treatment plant and does not have the ability to produce recycled water. CVWD's 2010 *Urban Water Management Plan* shows that wastewater that is sent to WRP-4 is currently discharged to the CVSC after undergoing secondary treatment. CVWD intends to upgrade WRP-4 to tertiary treatment to produce recycled water for beneficial reuse. It is anticipated that WRP-4 would produce approximately 1,760 acre-feet per year (AFY) of tertiary-treated recycled water by 2015.[108]

[104] County of Riverside Planning Department. 2011. *CZ07738/CUP03645 – PC Staff Report: May 25, 2011.* Page 3 of 4, Finding No. 5.

[105] Coachella Valley Water District. 2010. *Coachella Valley Water Management Plan Update.* Page 4-3, Section 4.1 Local Groundwater, Section 4.1.1 Whitewater River Subbasin.

[106] Coachella Valley Water District. 2010. *Coachella Valley Water Management Plan Update.* Page 4-5, Section 4.1 Local Groundwater, Section 4.1.1.2 Thermal Subarea.

[107] Coachella Valley Water District. 2010. *Coachella Valley Water Management Plan Update.* Page 8-12, Section 8.1.3 Environmental Enhancement and Mitigation Projects.

[108] Coachella Valley Water District. 2011. *2010 Urban Water Management Plan.* Page 4-24 and Page 4-26, Section 4.5.1.5 WRP-4 and Table 4-13 Historical and Future Recycled Water Production.

Potential Adverse Physical Effects of the Project

This project would include installation of a gravity sewer pipeline, lift station, and a sewer force main pipeline that would collect wastewater from the St. Anthony Mobile Home Park and transport it to WRP-4. A mitigated negative declaration was completed for the project in 2011 in accordance with the California Environmental Quality Act, which demonstrated that the project would not result in any significant and unavoidable impacts.[109] Due to the size and nature of the project, is not anticipated that the project would result in any significant, long-term physical effects.

Recent/ Historical Conditions

In 2011, Pueblo Unido Community Development Corporation applied for a Conditional Use Permit with the County of Riverside to obtain proper permitting for the St. Anthony Mobile Home Park, an unpermitted mobile home park located within the unincorporated community of Mecca in the eastern Coachella Valley. Due to existing conditions within the St. Anthony Mobile Home Park, conditions of the CUP require that the park be connected to the CVWD sanitary sewer system before the CUP can be obtained. [110] The primary purpose of this project is to connect the St. Anthony Mobile Home Park to the CVWD sanitary sewer system, thereby facilitating future obtainment of a CUP for the park.

By facilitating successful obtainment of a CUP for the St. Anthony Mobile Home Park, the project would help to ensure safe and affordable housing for the some 400 economically disadvantaged residents of the park. Providing safe and affordable housing to existing residents is an important issue as the residents are economically disadvantaged, and therefore do not have many other readily-available housing options. The issue of securing safe and affordable housing is not just an issue specific to the St. Anthony Mobile Home Park, but is a pervasive issue in the eastern Coachella Valley. Regarding this issue, a comprehensive market study completed for the community of Mecca stated, "the proposed San Antonio del Desierto (St. Anthony Mobile Home Park) project is an innovative approach which effectively responds to the need of housing preservation and a compelling strategy to prevent potential displacement of families." [111]

New Facilities, Policies, and Actions Required to Obtain Physical Benefits

The project included in this scope of work (refer to Attachment 3) includes design, engineering, and construction for all facilities necessary to connect the St. Anthony Mobile Home Park to the CVWD municipal sewer system. Additional facilities necessary to treat and convey recycled from WRP-4 are not included in this project.

Uncertainties in the Physical Benefits

The volume of wastewater that would be collected and treated by the project is uncertain, because it is based on an average flow per dwelling unit estimation rather than on actual flows from the mobile home park. However, as described below, the average flow per dwelling unit used in this analysis is conservative as it is on the low end of the range reported by a local agency (the City of Coachella). Further, avoided cost estimates pertaining to replacing the existing wastewater lagoons were estimated as described in Attachment 8.

[109] County of Riverside Planning Department. 2011. *Environmental Assessment Form: Initial Study.* Page 3, Environmental Factors Potentially Affected.

[110] County of Riverside Planning Department. 2011. *CZ07738/CUP03645 – PC Staff Report: May 25, 2011.* Page 3 of 4, Finding No. 5.

[111] Gross, Elena Blank. N.D. *Market Study: the Unincorporated Community of Mecca.* Executive Summary and Conclusions.

Physical Benefits Overview

Table 7-20 provides a summary of the physical benefits of the *San Antonio del Desierto DAC Sewer Extension Project*, including quantification of the physical benefit where possible.

Table 7-20: Physical Benefits
San Antonio del Desierto DAC Sewer Extension Project

Physical Benefit	Result of Physical Benefit	Quantification of Physical Benefit
Facilitate Beneficial Reuse of Wastewater Flows	A-Avoid Cost of Imported Water for Recharge	38 AFY
	B-Reduce Demand for Net Diversions from the Bay-Delta	Qualitative
	C- Improve Water Supply Reliability	Qualitative
Capture, Treat, and Use Onsite Wastewater	D-Promote Social Health and Safety	Qualitative
	E- Other Social Benefits Associated with Displacing DACs	Qualitative
	F-Benefit Wildlife or Habitat at Torres-Martinez Wetlands	Qualitative
	G-Improve Groundwater Quality and Protect Beneficial Uses	Qualitative
	H- Provide a Long-Term Solution for DACs	Qualitative
Prevent More Costly Infrastructure	I-Avoid Cost of Rehabilitating Existing Lagoons	5 wastewater lagoons

Physical Benefit 1: Facilitate Beneficial Reuse of Wastewater Flows

Amount/Volume and Unit: 38 AFY

Technical Justification of Physical Benefit

Implementation of the *San Antonio del Desierto DAC Sewer Extension Project* would provide sanitary sewer service to the St. Anthony Mobile Home Park by connecting this residential area to the CVWD municipal wastewater system. Specifically, the project would provide sanitary sewer service to 136 units at the park.

The *City of Coachella General Plan Update 2012* states that the wastewater generation factor for other local agencies within the Coachella Valley ranges from 250 gallons per day (gpd) per equivalent dwelling unit (EDU) to 300 gpd/EDU.[112] For purposes of this analysis, it is assumed that wastewater generation from the St. Anthony Mobile Home Park would be 250 gallons per day or 38 AFY for the entire mobile home park. This is anticipated to begin in 2017, after project construction, and extend for the 60-year lifetime of the project.

Methods Used to Estimate the Physical Benefits

A-Avoided Cost of Imported Water for Recharge

The *San Antonio del Desierto DAC Sewer Extension Project* involves connecting the St. Anthony Mobile Home Park to the CVWD municipal wastewater treatment system, and therefore increasing wastewater flows to WRP-4. CVWD's 2010 *Urban Water Management Plan* shows that wastewater that is sent to

[112] City of Coachella. 2012. *City of Coachella General Plan Update Environmental Impact Report Existing Settings - Wastewater.* Page 2.14-1, Section 2.14 – Wastewater.

WRP-4 is currently discharged to the CVSC after undergoing secondary treatment. While these flows are not currently beneficially reused, CVWD intends to upgrade WRP-4 to tertiary treatment to produce recycled water for beneficial reuse. It is anticipated that WRP-4 would produce approximately 1,760 acre-feet per year (AFY) of tertiary-treated recycled water by 2015.[113] Given that the project would be complete in 2017, it is assumed that all of the flows from the project would be treated to a tertiary level and recycled.

The *City of Coachella General Plan Update 2012* states that the wastewater generation factor for other local agencies within the Coachella Valley ranges from 250 gallons per day (gpd) per equivalent dwelling unit (EDU) to 300 gpd/EDU.[114] For purposes of this analysis, it is assumed that wastewater generation from the St. Anthony Mobile Home Park would be 250 gallons per day or 38 AFY for the entire mobile home park. This is anticipated to begin in 2017, after project construction, and extend for the 60-year lifetime of the project.

Currently, recycled water is used within the Region for irrigation purposes in accordance with Title 22 of the California Code of Regulations. This recycled water use is considered as source substitution as its use directly avoids groundwater pumping. As such, recycled water use offsets the need for the Region to import additional water to replenish the groundwater aquifer.

Without this project, all wastewater flows (38 AFY) would be lost to the Salton Sea. Therefore, without the project, additional water may need to be imported from outside the basin to balance groundwater extraction, and would most likely come from exchanges of acquired rights for SWP water in order to obtain Colorado River water. Regional water purveyors already use their full Colorado River water allocations for groundwater recharge, so additional groundwater recharge water would need to be acquired from other external sources.[115] This would be done by acquiring rights from to SWP water held by other entities, and exchanging these purchased rights with MWD for locally-available Colorado River water.

Table 7-21 provides a summary of the avoided imported water that may need to be purchased for recharging to abate groundwater overdraft.

Table 7-21: Physical Benefits for Benefit A- Avoid Cost of Imported Water
San Antonio del Desierto DAC Sewer Extension Project

(a)	(b)	(c)	(d)	(e)
Year	**Type of Benefit**	**Without Project**	**With Project**	**Change Resulting from Project**
2017-2077	Avoid Cost of Imported Water for Recharge	38 AFY	0 AFY	-38 AFY

[113] Coachella Valley Water District. 2011. *2010 Urban Water Management Plan.* Page 4-24 and Page 4-26, Section 4.5.1.5 WRP-4 and Table 4-13 Historical and Future Recycled Water Production.

[114] City of Coachella. 2012. *City of Coachella General Plan Update Environmental Impact Report Existing Settings - Wastewater.* Page 2.14-1, Section 2.14 – Wastewater.

[115] Coachella Valley Water District (CVWD). 2010a. *Coachella Valley Water Management Plan Update.* Page 4-15, Section 4.3, State Water Project.

B-Reduce Demand for Net Diversions from the Bay-Delta

The *San Antonio del Desierto DAC Sewer Extension Project* involves sewer connections that will allow for beneficial reuse of wastewater flows, thereby reducing dependence on imported water necessary for recharging the groundwater basin. Beneficial reuse would after the WRP-4 is upgraded to tertiary treatment and is able to produce recycled water. It is anticipated that WRP-4 would produce approximately 1,760 acre-feet per year (AFY) of tertiary-treated recycled water, assuming that WRP-4 is upgraded to recycled water service beginning in 2015.[116] Additional recharge from the 38 AFY of wastewater flows from St Anthony's Mobile Home Park would begin in 2017 after construction of the sewer main and lift station are complete. CVWD and DWA have contracts for imported water supplies from the SWP, which is exchanged with MWD for Colorado River water delivered at turnouts from MWD's Colorado River Aqueduct. Because the Region already receives its entire imported water entitlements (as they are available) and also purchases additional SWP Table A water from other agencies[117], any additional imported water needed to balance groundwater extraction would be purchased and transferred from the SWP. Transfers or leases from north of or within the Bay-Delta could potentially affect Bay-Delta water quantity or quality.

By reducing the need to import additional water for groundwater recharge, the project would directly offset demands for additional SWP water to balance basin extraction. Therefore, this project would offset net diversions from the Bay-Delta and help preserve this vital resource.

C-Improve Water Supply Reliability

The reliability of a water supply refers to its ability to meet water demands on a consistent basis, even in times of drought or other constraints on source water availability. The project will help address reliability issues by offsetting the need for additional future use of imported water for groundwater recharge. The reliability of imported water is subject to a number of natural and human forces, ranging from increased population growth (and accompanying increased demands), to drought and earthquakes, to environmental regulations and water rights determinations.

Physical Benefit 2: Capture, Treat, and Use Onsite Wastewater

Amount/Volume and Unit: 38 AFY

Technical Justification of Physical Benefit

Implementation of the *San Antonio del Desierto DAC Sewer Extension Project* would provide sanitary sewer service to the St. Anthony Mobile Home Park by connecting this residential area to the CVWD municipal wastewater system. Specifically, the project would provide sanitary sewer service to 136 units at the park.

The *City of Coachella General Plan Update 2012* states that the wastewater generation factor for other local agencies within the Coachella Valley ranges from 250 gallons per day (gpd) per equivalent dwelling unit (EDU) to 300 gpd/EDU.[118] For purposes of this analysis, it is assumed that wastewater generation from the St. Anthony Mobile Home Park would be 250 gallons per day or 38 AFY for the entire mobile

[116] Coachella Valley Water District. 2011. *2010 Urban Water Management Plan.* Page 4-24 and Page 4-26, Section 4.5.1.5 WRP-4 and Table 4-13 Historical and Future Recycled Water Production.

[117] Coachella Valley Water District (CVWD). 2011. *Coachella Valley Water District 2010 Urban Water Management Plan Final Report.* Page 4-19, Section 4.2.3.2 Other SWP Transfers.

[118] City of Coachella. 2012. *City of Coachella General Plan Update Environmental Impact Report Existing Settings - Wastewater.* Page 2.14-1, Section 2.14 – Wastewater.

home park. This is anticipated to begin in 2017, after project construction, and extend for the 60-year lifetime of the project.

Methods Used to Estimate the Physical Benefits

D-Promote Social Health and Safety

The current wastewater lagoons provide a health and safety threat to the residents of the mobile home park and the surrounding community of Mecca. Contaminants located within the wastewater such as nitrates and pathogens could potentially become airborne as the lagoons dry up and sediment that has been in contact with wastewater becomes airborne. Such airborne contaminants have the potential to affect not only the residents within the St. Anthony Mobile Home Park, but also other nearby residents within the community of Mecca. In addition, contaminants located within the wastewater could potentially come into contact with community members due to spills from the lagoons. A recent large storm event eroded banks of lagoons, furthering potential for overflow.

By connecting the St. Anthony Mobile Home Park to the CVWD municipal sewer, all wastewater flows generated from the park would be captured and conveyed to WRP-4. Therefore, the project would directly remove this potential contaminant source from coming into contact with community members. Although this benefit has not been quantified or monetized, it is anticipated that this impact would be substantial as the proximity of the wastewater lagoons to St. Anthony Mobile Home Park residents and the poor physical condition of the lagoons pose a serious health risk to the community.

E-Have Other Social Benefits

Without the *San Antonio del Desierto DAC Sewer Extension Project*, the mobile home park would not meet permitting requirements established by the County of Riverside, and therefore may need to close down. The pending CUP from the County of Riverside (CUP#03645) indicates that one of the conditions of approval for the CUP is the assumption that the mobile home park would connect to the CVWD wastewater system.[119]

If the mobile home park were to shut down, approximately 400 economically disadvantaged residents would be displaced. As there is currently a shortage of affordable housing for low-income residents in the area (the eastern Coachella Valley), the 400 displaced residents would not have readily available access to other housing options.[120] Therefore, the project would provide other social benefits associated with facilitating proper permitting for the St. Anthony Mobile Home Park, which would help to provide housing security to mobile home park residents that do not have many other housing options.

Obtaining a compliant CUP from the County of Riverside via the infrastructure improvements associated with this project could provide extended affordable housing benefits beyond the St. Anthony Mobile Home Park. This is because infrastructure investments in the project area could potentially help to catalyze proper permitting for other similar mobile home parks in the eastern Coachella Valley, which could help to create new opportunities for affordable housing in the vicinity. Therefore, the project would not just help to provide reliable housing to residents within the existing St. Anthony Mobile Home Park, but could also spur other infrastructure and development upgrades necessary to obtain proper permitting, which could help meet affordable housing shortages throughout the eastern Coachella Valley.

[119] County of Riverside Planning Department. 2011. *CZ07738/CUP03645 – PC Staff Report: May 25, 2011.* Page 3 of 4, Finding No. 5.

[120] Gross, Elena Blank. N.D. *Market Study: the Unincorporated Community of Mecca.* Page 19, Section IV Market Area Economy, Section E. Available Affordable Housing.

The CUP that has been filed and is being processed by the County of Riverside involves infrastructure development within the existing 100-unit St. Anthony Mobile Home Park, and would include expansion to a 136-unit mobile home park along with a 6,200 square-foot community center with a child care center, community park, and recreation facilities. Therefore, the project would not just provide housing support to local residents, but would also facilitate development of infrastructure and facilities within the park that could help to contribute to improving the quality of life of residents within the area.

Lastly, the residents of the St. Anthony Mobile Home Park and other similar developments within the eastern Coachella Valley are largely low-income migratory agricultural workers, which are vital to the local economy. The agricultural industry contributed nearly $4.3 billion to the Riverside County economy and created nearly 30,000 jobs in 2011.[121] Without suitable infrastructure and housing, agricultural workers could potentially leave the area, which would potentially harm the local economy if there were not enough agricultural workers to support this large and labor-intensive industry.

While these benefits have not been monetized, for the reasons described above, they are substantial and would not be possible without completion of the project.

F-Benefit Wildlife or Habitat at Torres-Martinez Wetlands

Due to the project's location in the eastern Coachella Valley, flows from the wastewater lagoons currently flow to the Salton Sea via the Coachella Valley Stormwater Channel (CVSC) or flow directly to the Salton Sea via local agricultural drainages.[122] The flows that enter the Salton Sea via the CVSC also come into contact with the Torres-Martinez wetlands, an 85-acre freshwater-salt water habitat complex near the mouth of the CVSC, which was constructed and is still operated by the Torres-Martinez Desert Cahuilla Indians. These wetlands remove nutrients and pollutants from drain water from the CVSC.[123]

The project would benefit both the Salton Sea and the Torres-Martinez wetlands by capturing wastewater flows from the St. Anthony's Mobile Home Park and diverting them to WRP-4 where they would be treated and reused as recycled water, assuming that WRP-4 is upgraded to recycled water service beginning in 2015. Due to the hydrologic connectivity of the Region to the Salton Sea, it is likely that some of the recycled water applied as irrigation would still drain to the Salton Sea, although on a greatly reduced scale as compared to existing conditions. Further, as these flows would be treated to tertiary levels, the quality of these flows would be greatly improved as a result of the project.

The Salton Sea currently suffers from water quality issues such as nutrient impairment and eutrophication from constituents such as nitrates often found in wastewater effluent.[124] Therefore, without the project, water quality constituents from the sewage lagoons could flow, untreated, to the Salton Sea, where they could further exacerbate existing impairments such as eutrophication. In addition, any flows from the project that enter the CVSC could potentially contaminate the Torres-Martinez wetlands that are used to remove pollutants from drain water from the CVSC. The project would, therefore, provide benefits to wildlife and habitat within the Torres-Martinez wetlands and the Salton Sea by removing a potential source of nutrients and other contaminants that may negatively affect these wildlife areas.

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[121] Riverside County. 2011. *Agricultural Production Report* - 2011. Page 1, Agricultural Commissioner's Office Letter.

[122] Coachella Valley Water District. 2010. *Coachella Valley Water Management Plan Update.* Page 4-5, Section 4.1 Local Groundwater, Section 4.1.1.2 Thermal Subarea.

[123] Coachella Valley Water District. 2010. *Coachella Valley Water Management Plan Update.* Page 8-12, Section 8.1.3 Environmental Enhancement and Mitigation Projects.

[124] Regional Water Quality Control Board (RWQCB). 2000. *California Environmental Protection Agency Regional Water Quality Control Board Colorado River Basin Region – Staff Report: Water Quality Issues in the Salton Sea Transboundary Watershed.*

The benefits described above are not readily monetizable due to a lack of available data regarding the specific benefits that the project would impart to the Salton Sea and the Torres-Martinez wetlands. While these benefits have not been monetized, for the reasons described above, they are substantial and would not occur without completion of the project.

G-Improve Groundwater Quality and Protect Beneficial Uses

The community of Mecca and the majority of the eastern Coachella Valley is underlain by a shallow groundwater aquifer that has limited groundwater percolation due to silt and clay layers (an aquitard).[125] Due to the aquitard, surface water in this area percolates into the shallow groundwater aquifer and may eventually drain into the Salton Sea. Although there is no site-specific water quality data on the wastewater lagoons, it is suspected that wastewater from the lagoons percolates to and potentially contaminates the underlying shallow groundwater aquifer. Further, as there has been observed erosion on the banks of the lagoons, it is possible that the wastewater also drains off the surface of these ponds, potentially contaminating agricultural drains in the area.

The project would, therefore, improve both the quality of the shallow groundwater aquifer and local agricultural drains by diverting wastewater flows to WRP-4 where they would receive additional treatment before being beneficially reused as recycled water, assuming that WRP-4 is upgraded to recycled water service beginning in 2015.

H- Provide a Long-Term Solution for DACs

The *San Antonio del Desierto DAC Sewer Extension Project* involves conversion of a mobile residential community to sewer service that will provide sustainable long-term management of local wastewater (in lieu of lagoons) and increases beneficial reuse of wastewater flows, thereby reducing dependence on imported water necessary for recharging the groundwater basin. As such, this project provides a long-term solution to local wastewater management in the disadvantaged Mecca community and will provide infrastructure that will help the Region to manage its groundwater resources on a long-term basis.

Physical Benefit 3: Prevent More Costly Infrastructure

Amount/Volume and Unit: 5 wastewater lagoons

Technical Justification of Physical Benefit:

As explained previously, the need for the project is primarily based on the need to successfully permit the St. Anthony Mobile Home Park via a CUP with the County of Riverside. Although the pending CUP states that it is assumed the mobile home park would connect to the CVWD municipal wastewater system, it is possible that the mobile home park could be permitted via other means. Specifically, it is possible that the existing wastewater lagoons could be rehabilitated such that these lagoons are legally compliant with applicable regulations.

Implementation of the project would negate the need to implement other potential options for compliant on-site wastewater treatment at the St. Anthony Mobile Home Park. Therefore, the project would avoid potential costs associated with completing more costly infrastructure improvements associated with lagoon rehabilitation.

[125] Coachella Valley Water District. 2010. *Coachella Valley Water Management Plan Update.* Page 4-3, Section 4.1 Local Groundwater, Section 4.1.1 Whitewater River Subbasin.



Photo 1: Existing wastewater lagoons and their proximity to the mobile homes located within St. Anthony's Mobile Home Park.

Methods Used to Estimate the Physical Benefits

I-Avoid Cost of Rehabilitating Existing Lagoons

The existing lagoons are compromised in many aspects including inadequate lining, proximity to dwelling units, unstable dikes and potential for groundwater contamination due to a very high water table. One alternative to connecting to the CVWD sewer system involves rehabilitating the existing lagoons and re-applying for County authorization for continued service. Without a full assessment of the operating system, it is difficult to scope the rehabilitation needed. Thus, for the purpose of this study it is assumed that a new liner be installed with an anchoring system. The rehabilitation process involves four elements:

- ***Draining and evaporation***: The physical configuration of the lagoons provides roughly 28 million gallons (MG) of storage capacity. However, since they are rotated in and out of service all of the lagoons are never completely full. All of the lagoons could be placed into service to maximize the benefit of evaporation, which for this region averages 6 to 8 feet per year. Assuming the lagoons are two-thirds full, and a side water depth of 10 feet there is a with a total capacity of 17.3 MG with the top 5 + feet being evaporated (11 MG), leaving the remaining 4 + feet, less residual to be pumped (6 MG) and discharged to sewer. The residual sludge will be left behind to dry out before hauling to a landfill, there will be a maximum of 6 MG to pump to the sewer.

  Draining of each lagoon would involve drawing the water down to facilitate the installation of a small sump to allow the pump to be placed below the bottom of the lagoon and result in near complete dewatering. The pumping rate would be limited to a maximum of 100 gpm to prevent

any surcharging of the sewer system and would require a duration of 40 days. The water quality would be monitored for the quantity of discharge as well as to prevent discharging excessive amounts of solids or silt from within the lagoons. Other parameters could be monitored such as pH and conductivity.

- ***Solar drying of the sludge***: Because of the solids content in the water and the difficulty in removing all of the water, it is estimated that there will be approximately 3 inches of water left in the bottom of each lagoon after draining. After each lagoon is drained, the remaining volume is approximately 300,000 gallons and would be left in the lagoons to dry out to reduce the disposal costs at a landfill certified to accept the biosolids (sludge). Approximately 3 inches of water would dry out and leave behind about one-half of an inch of dried material that will crack similar to a dried mud flat and resemble a field of potato chips that can easily be scraped with conventional construction equipment.
- ***Removal of the dried residual and disposal:*** The dried sludge would be scraped and hauled to a landfill. With an estimate of 85% solids, the dry weight of the sludge totals approximately 13 tons. It is anticipated that some of the native material will be removed during the scraping operation. Thus as much as 26 tons should be anticipated to be removed and disposed.
- ***Construction of new liner and anchoring system:*** A concrete ring and anchors would be installed, along with a high-density polyethylene (HDPE) liner, to prevent contamination of the underlying groundwater aquifer.

Although the wastewater lagoons could potentially be rehabilitated, it should be noted that there are significant barriers to this alternative:

- the wastewater lagoons are outside of the St. Anthony's property boundaries;
- the owner of the lagoon property is allowing PUCDC time to connect to CVWD prior to decommissioning, but is not interested in selling the property so that they can continue use; and
- the approved CUP03645 mandates connection to CVWD.

Table 7-22: Physical Benefits for F-Avoid Cost of Rehabilitating Existing Lagoons
San Antonio del Desierto DAC Sewer Extension Project

(a)	(b)	(c)	(d)	(e)
Year	**Type of Benefit**	**Without Project**	**With Project**	**Change Resulting from Project**
2014	Avoid Cost of Rehabilitating Existing Lagoons	5 lagoons	0	-5 lagoons

Project 5: Torres-Martinez Avenue 64 Water Supply Connection Project

Background

Abstract

The *Torres-Martinez Avenue 64 Water Supply Connection Project* would provide funding to design and engineer the development of a new water supply for the Torres-Martinez Avenue 64 potable water system (PWS) located at the intersection of Avenue 64 and Monroe Street. This new supply source would be from the CVWD municipal water system through the construction of approximately 5,400 feet of 12" Ductile Iron (DI) water main along Monroe Street from an existing CVWD 24" DI water main at the intersection of Monroe Street and Avenue 62 to the Avenue 64 Subdivision. CVWD would own the 5,400-foot extension of 12" DI water main and the master water meter that would be connected at two points to the existing Avenue 64 PWS. The Torres-Martinez Desert Cahuilla Indians (DCI) would own and maintain the 4" polyvinyl chloride (PVC) distribution system from the CVWD meter throughout the Avenue 64 Subdivision.

This new water main would be connected at two points of the existing water distribution system that currently serves the Torres-Martinez subdivision, one for the domestic water supply and one for fire protection service. The subdivision includes 33 single occupancy homes with a population estimate of 100 people and a church that is owned and operated by the Torres-Martinez DCI.The subdivision is a tribal disadvantaged community (DAC) located on Torres-Martinez tribal lands in the eastern Coachella Valley.

The existing wells, pumping system, and storage tanks currently servicing the Avenue 64 PWS wereevaluated through several studies and reported to be suffering from a lack of maintenance and upkeep, which impart several health and safety benefits to residents within the Avenue 64 Subdivision. The conclusions in the Preliminary Engineering Report (PER) conducted by Indian Health Services (IHS) for the Avenue 64 PWSdetermined that "upgrades to the existing system would be prohibitively expensive, or would only solve some of the system's many existing issues. In addition, the existing water source for the Tribal system would be permanently disconnected from the (regional) distribution system"[126]As such, the PER concludes that the most effective long-term solution to providing safe and reliable drinking water to the Avenue 64 Subdivision would be to connect the subdivision to the CVWD municipal system, as proposed in this project.

CVWD would own the 5,400-foot extension of 12" DI water main and the master meter. The Tribe would own and maintain the 4" PVC distribution system from the meter throughout the subdivision.

Many planning and assessment tasks are complete or ongoing for the project, including biological and cultural/archaeological surveys, records searches, and aerial mapping of the project area. These tasks are being completed by funds from a United States Environmental Protection Agency (USEPA)Clean Water Act grant for a sewer project along the same proposed alignment (Monroe Street). The program will take place in two phases:

- Phase I-Planning and Design: Currently ongoing. This application is primarily for funds for this phase, which includes design and environmental compliance tasks.

[126] Indian Health Service (IHS). 2012a. *Preliminary Engineering Report for the Torres-Martinez Desert Cahuilla Indians: CVWD Water Main Extension to Avenue 64 Housing Subdivision.*Page 21, Section VIII Conclusions and Recommendations.

- Phase II-Construction: The plans and specifications generated by Phase I will provide the basis for Phase II construction.

Description and Relationship to Other Projects in the Proposal

Though not explicitly connected with other projects in this proposal, this program will provide high quality municipal water supply for a disadvantaged tribal community. Several of the other projects – *Groundwater Quality Protection Program – Subarea D2* and *San Antonio del Desierto DAC Sewer Extension Project* – both also serve the Region's DACs by providing healthy and sanitary municipal water and wastewater services. The Coachella Valley IRWM Plan identifies the critical need to serve the Region's tribes (IRWM Plan Objective K) and DACs (IRWM Plan Objective L) and this funding application helps the Region to accomplish that goal.

Without Project Baseline

Without this project, the following issues would continue to occur during operation of the existing tribal water supply system, all of which contribute to public health and safety hazards. Each of the without project conditions outlined below corresponds to the physical benefits that would occur as a result of this project, and are largely documented in the 2012 *Preliminary Engineering Report for the Torres-Martinez Desert Cahuilla Indians: CVWD Water Main Extension to Avenue 64 Housing Subdivision* that was conducted by IHS.

Water Outages

The Torres-Martinez DCIreports water outages several times per month, and there is no single cause for the water outages. Sometimes outages are related to power surges or loss of commercial power, and sometimes outages are due to failure of the existing onsite PWS (booster pumps or primary well pump). Water outages occur at random and inconvenient times, leaving the homes and other facilities within the Avenue 64 Subdivision with no access to water until service is restored, which may be a few hours.[127]

The 2012 *Preliminary Engineering Report* addressing water supply demonstrates that these recurring water outages are not only inconvenient to homeowners, but that they represent a real risk to human health. When a water system has an outage and loses positive pressure, groundwater, drainage water, or sewage collected near water pipes can infiltrate into the water distribution system.[128]A separate 2012 *Preliminary Engineering Report*addressing sewer service demonstrates that there are failing septic systems in the community, so it is possible that septic effluent, and potentially even raw sewage, couldcontaminate the water distribution system.[129] This contaminated water would then be used and consumed by homeowners once the water system is restored to service and pressure returns to normal.As such, the water outages associated with the existing PWS within the Avenue 64 Subdivision could cause substantial public health issues associated with consuming contaminated water, which could lead to numerous gastrointestinal diseases with significant and potentially fatal consequences.[130]

[127] IHS. 2012a. *Preliminary Engineering Report for the Torres-Martinez Desert Cahuilla Indians: CVWD Water Main Extension to Avenue 64 Housing Subdivision.*Page 9, Section IV.A.1. Need for Project: Water Outages.

[128] IHS. 2012a. *Preliminary Engineering Report for the Torres-Martinez Desert Cahuilla Indians: CVWD Water Main Extension to Avenue 64 Housing Subdivision.*Page 9, Section IV.A.1. Need for Project: Water Outages.

[129] IHS. 2012b. *Preliminary Engineering Report for the Torres-Martinez Desert Cahuilla Indians: CVWD Sewer Main Extension to Avenue 64 Housing Subdivision.* Page 5, Section III.Existing Facilities, Subsection C. Condition of Facilities.

[130] IHS. 2012a. *Preliminary Engineering Report for the Torres-Martinez Desert Cahuilla Indians: CVWD Water Main Extension to Avenue 64 Housing Subdivision.*Page 9, Section IV.A.1. Need for Project: Water Outages.

Insufficient Backup Water Supply Source

The 2012 *Preliminary Engineering Report*demonstrates that the backup well included within the Avenue 64 Subdivision PWS does not have sufficient capacity to meet community demands without severely stressing the well pump.[131] If the primary groundwater well were to run dry, collapse, or become inoperable for more than a few days, the backup well would likely not be able to meet the community's water demands, and water shortages and/or water outages would result.[132]

Inoperable Components

The2012 *Preliminary Engineering Report*demonstrates that there are a number of inoperable components in the existing Avenue 64 Subdivision PWS.[133]The most substantial inoperable component is the existing fire pump, which has not been operable since 2004. If there were a fire in the Avenue 64 Subdivision, there would not be capacity to effectively fight the fire, because there is no fire pump and the existing booster pumps cannot provide sufficient water flows for firefighting needs.[134] Without adequate fire suppression capacity, there is increased risk of property damage, serious injury, and death if a fire were to occur in the Avenue 64 Subdivision.

Safety and Security Risks

The 2012 *Preliminary Engineering Report* reports that there are numerous open electrical connections and junction boxes without lids throughout the pump house that is the primary component of the Avenue 64 PWS. In addition, there is extensive corrosion of many electrical components throughout the PWS. Each of these issues represents an electrical shock hazard for the water operator, who frequently conducts operations and maintenance activities to the PWS without an assistant. An electrical shock experienced by the operator while unaccompanied could result in hospitalization or could potentially be fatal.[135]

There are also substantial safety concerns regarding the patch on the hydropneumatic water tank, whichis currently leaking, and does not havea pressure relief value. This combination could result in an explosion in the large steel water tank, which could be lethal to anybody near, and would result in a massive and difficult to repair water system leak.[136]

[131] IHS. 2012a. *Preliminary Engineering Report for the Torres-Martinez Desert Cahuilla Indians: CVWD Water Main Extension to Avenue 64 Housing Subdivision.*Page 9 and Page 10, Section IV.A.1. Need for Project: Insufficient Backup Water Source.

[132] IHS. 2012a. *Preliminary Engineering Report for the Torres-Martinez Desert Cahuilla Indians: CVWD Water Main Extension to Avenue 64 Housing Subdivision.*Page 9 and Page 10, Section IV.A.1. Need for Project: Insufficient Backup Water Source.

[133] IHS. 2012a. *Preliminary Engineering Report for the Torres-Martinez Desert Cahuilla Indians: CVWD Water Main Extension to Avenue 64 Housing Subdivision.*Page 10, Section IV.A.1. Need for Project: Inoperable Components.

[134] IHS. 2012a. *Preliminary Engineering Report for the Torres-Martinez Desert Cahuilla Indians: CVWD Water Main Extension to Avenue 64 Housing Subdivision.*Page 10, Section IV.A.1. Need for Project: Inoperable Components.

[135] IHS. 2012a. *Preliminary Engineering Report for the Torres-Martinez Desert Cahuilla Indians: CVWD Water Main Extension to Avenue 64 Housing Subdivision.* Page 10 and Page 11, Section IV.A.1. Need for Project: Safety and Security Risks.

[136] IHS. 2012a. *Preliminary Engineering Report for the Torres-Martinez Desert Cahuilla Indians: CVWD Water Main Extension to Avenue 64 Housing Subdivision.* Page 10 and Page 11, Section IV.A.1. Need for Project: Safety and Security Risks.

Additionally, neither water storage tank is secured to prevent public access to climb the tank or to open the roof hatch; creating a concern for a fall risk to unauthorized individuals as well as a potential health risk to all users if vandalism or other potential contamination that could occur in the tank.[137]

Water Quality Potential Risks

The 2012 *Preliminary Engineering Report* states that the backup well for the Avenue 64 PWS is not chlorinated and cannot be easily reconfigured to do so.[138] If the primary well were to go offline and the backup well were used, disinfection would only be providedthrough mixing that would occur between the groundwater and the chlorinated water already in the system. If the backup well were used for more than a day or two, the chlorinated water in the system and therefore the chlorine residual would be exhausted, and the entire system would containdrinking water that was not disinfected. Providing disinfected groundwater would be a violation of the USEPA Groundwater Rule, and would represent a significant health threat to water system users.[139] Drinking water that has notbeen disinfected is associated with higher rates of gastrointestinal disease as well as skin and eye infections.

Perchlorate is also present in the groundwater at levels the Torres-Martinez DCI is concerned about; with levels reaching 6.9 parts per billion (ppb), which exceeds the State of California Maximum Contaminant Level (MCL) for this constituent, which is currently set at 6.0 ppb.[140] Ingestion of water with excessive levels of perchlorate is associated with inhibition of thyroid function, which can disrupt metabolic processes and damage fetuses' and infants' brain development.[141] In addition, chromium levels are consistently around 10 ppb in this water system. Chromium can cause allergic dermatitis and the Chromium-6 valence (hexavalent chromium) has been determined to be a likely carcinogen. USEPA is currently adjusting the regulatory limit for chromium and perchlorate, which could result in the Avenue 64 PWS being in violation of the Federal MCL standards for these constituents in the future.[142]

Operations and Maintenance Issues

Due to funding and staffing issues, the Torres-Martinez DCI has few resources available to conduct O&Mactivities. The lack of resources available for O&M of the Avenue 64 PWS is a significant contributing factor to many of the issues described in the preceding sections.[143]In a 2011 letter from the USEPA to the Torres-Martinez DCI, the USEPA noted that, "there currently is no Torres Martinez Water Department, Water Board, or Public Works governing structure to oversee and ensure that the water

[137] IHS. 2012a. *Preliminary Engineering Report for the Torres-Martinez Desert Cahuilla Indians: CVWD Water Main Extension to Avenue 64 Housing Subdivision.* Page 10 and Page 11, Section IV.A.1. Need for Project: Safety and Security Risks.

[138] IHS. 2012a. *Preliminary Engineering Report for the Torres-Martinez Desert Cahuilla Indians: CVWD Water Main Extension to Avenue 64 Housing Subdivision.*Page 11, Section IV.A.1. Need for Project: Water Quality Potential Risks.

[139] United States Environmental Protection Agency (EPA). 2006. Page 65602. *Ground Water Rule (GWR).*Page Available: http://water.epa.gov/lawsregs/rulesregs/sdwa/gwr/index.cfm

[140] IHS. 2012c. *Amendment 1 to Preliminary Engineering Report for the Torres-Martinez Desert Cahuilla Indians: CVWD Water Main Extension to Avenue 64 Housing Subdivision.* Page 1.

[141] IHS. 2012a. *Preliminary Engineering Report for the Torres-Martinez Desert Cahuilla Indians: CVWD Water Main Extension to Avenue 64 Housing Subdivision.*Page 11, Section IV.A.1. Need for Project: Water Quality Potential Risks.

[142] United States Environmental Protection Agency (EPA). 2011. *Guidance for Public Water Systems on Enhanced Monitoring for Chromium-6 (Hexavalent Chromium) in Drinking Water.* Available: http://water.epa.gov/drink/info/chromium/upload/memorandum_2011_petesilva_pws_chromium6guidance.pdf

[143] IHS. 2012a. *Preliminary Engineering Report for the Torres-Martinez Desert Cahuilla Indians: CVWD Water Main Extension to Avenue 64 Housing Subdivision.*Page 11 and Page 12, Section IV.A.1. Need for Project: System O&M.

systems remain reliable and safe."[144] The 2012 *Preliminary Engineering Report* further elaborates on this point, noting that there is a lack of structure in many elements of the Torres-Martinez DCI's operations and maintenance activities, which would make an operations and maintenance of a functioning on-site PWS difficult even if the existing failing system were replaced with new facilities.[145]

Potential Adverse Physical Effects of the Project

This project would complete design and engineering to facilitate future implementation of water supply facilities to the Torres-Martinez Avenue 64 Subdivision, and would not directly result in the provision of municipal water supplies to the subdivision. However, potential adverse physical effects associated with the overall *Torres-Martinez Avenue 64 Water Supply Connection Program* would be accounted for in environmental documentation that will be conducted as part of this project. In compliance with the applicable statutes such as CEQA and NEPA, any anticipated impacts would be reduced, avoided, or mitigated to the extent practical. Due to the size and scope of the overall program, it is anticipated that any impacts would be short-term in nature and related to project construction. It is not anticipated that the project would result in any significant, long-term physical effects.

Recent/ Historical Conditions

As explained above, there are several planning and assessment tasks either completed or ongoing for the Avenue 64 PWS.A specific planning task for the project (the 2012 *Preliminary Engineering Report*) indicates that this project is the best alternative to address existing issues outlined above in the Without Project Baseline. Further, documentation from EPA in 2011 indicates the need for solutions to be implemented to alleviate concerns with the existing onsite PWS. In addition, CVWD has indicated support and identified the need for this project both through a regional planning document and through a letter to the EPA indicating their willingness to provide water service to the Avenue 64 Subdivision.

In 2012, Indian Health Service was retained by Torres-Martinez DCI to complete a *Preliminary Engineering Report* for the Avenue 64 PWS. The *Preliminary Engineering Report* provides extensive details on the existing water system, issues with the system, and potential solutions to address these issues. The ultimate conclusion is that there is a need to find an alternative water supply for the Avenue 64 Subdivision due to health and safety issues and O&M issues associated with the existing system. Ultimately, the *Preliminary Engineering Report* concludes that the best option is for the subdivision to connect to a nearby municipal water system that is owned and operated by CVWD.[146]

In 2011, the USEPA issued a letter to Torres-Martinez DCI, which was a follow-up to Sanitary Survey Reports completed for the Avenue 64 PWS in 2006. This letter indicates that there were several system deficiencies documented by the USEPA in 2006, which as of 2011 had still not been corrected. Further, this letter indicates the following recommendation, "a thorough review of the PWS financial, technical, and managerial capacity and status needs to be completed. Adequate funding and personnel need to be

[144] United States Environmental Protection Agency (EPA). 2011. *Transmittal of January 27, 2011 Sanitary Survey Reports for Avenue 64 and Torres Martinez Clinic Water Systems (PWSs 0605116 and 0605130); Calling Special Attention to Operational Deficiencies which Place These Systems at Risk.*

[145] IHS. 2012a. *Preliminary Engineering Report for the Torres-Martinez Desert Cahuilla Indians: CVWD Water Main Extension to Avenue 64 Housing Subdivision.*Page 11 and Page 12, Section IV.A.1. Need for Project: System O&M.

[146] IHS. 2012. *Preliminary Engineering Report for the Torres-Martinez Desert Cahuilla Indians: CVWD Water Main Extension to Avenue 64 Housing Subdivision.* Page 13, Section V. Alternatives Considered.

provided to meet the requirements of the PWS. Improved maintenance of the equipment needs to be a priority of the PWS."[147]

In 2010,CVWD completed the *Coachella Valley Water Management Plan Update*. This document represents a long-term analysis of CVWD's water supplies that is used to assist CVWD in meeting its responsibilities for securing and protecting water supplies into the future. The 2010 *Coachella Valley Water Management Plan Update* notes that there are water quality concerns within private groundwater wells located in the eastern Coachella Valley, and specifically mentions that CVWD is working with the Torres-Martinez DCI on federal grants to expand the CVWD municipal water system to tribal lands.[148]CVWD has also explicitly indicated their support for a project that would involve connecting the Avenue 64 Subdivision to the CVWD municipal water system via a letter to the USEPA that was issued in January 2012. This letter provides an overview of the available options to connect the subdivision to CVWD facilities, and concludes with expressing CVWD's willingness to own, operate, and maintain the on-site domestic water system if so desired by Torres-Martinez DCI. Further, this letter indicates that the precise sizing of both the water and sewer systems is not known at this time, and that CVWD will perform hydraulic modeling to determine appropriate facility sizes.[149]

New Facilities, Policies, and Actions Required to Obtain Physical Benefits

As described in the project abstract, and in detail in the Work Plan (refer to Attachment 3), the work included in the *Torres-Martinez Avenue 64 Water Supply Connection Project* constitutes Phase I of a two-phased effort. Therefore, all construction activities included in Phase II will be required to obtain the physical benefits described herein. Please note, however, that the Torres-Martinez DCI anticipates using grant funding assistance from USDA or possibly USEPA to complete Phase II. As USDA does not provide grant funding for design and engineering purposes, the work included in this project is essential to facilitate procurement of future grant funding for project construction. Due to the economically disadvantaged nature of the tribe, it is not likely that construction of the overall water supply connection program to the subdivision would be possible without grant assistance.

Uncertainties in the Physical Benefits

The physical benefits described below are derived from issues documented by IHS in the 2012*Preliminary Engineering Report* and described in detail in the preceding sections. Given that the project would be engineered and designed to address existing issues, it is very likely that the project, when implemented as described in the PER, would result in the benefits explained below.

Physical Benefits Overview

Table 7-23 provides a summary of the physical benefits of the *Torres-Martinez Avenue 64 Water Supply Connection Project.* Please note that due to the completion of a cost-effectiveness analysis for this project (refer to Attachment 8), none of the benefits described below have been monetized.

[147] United States Environmental Protection Agency (EPA). 2011. *Transmittal of January 27, 2011 Sanitary Survey Reports for Avenue 64 and Torres Martinez Clinic Water Systems (PWSs 0605116 and 0605130); Calling Special Attention to Operational Deficiencies which Place These Systems at Risk.*

[148] Coachella Valley Water District. 2010. *Coachella Valley Water Management Plan Update Draft Report.*Pages 6-38 and 6-39, Section 6.7 Groundwater Quality and Treatment.

[149] Coachella Valley Water District.2012a. *Avenue 64 & Monroe Street – Domestic Water and Sewer Service.*

Table 7-23: Summary Table of Types of Physical Benefits being Claimed
Torres-Martinez Avenue 64 Water Supply Connection Project

Physical Benefit	Result of Physical Benefit	Quantification of Physical Benefit
Provision of municipal water supply to tribal areas	A. Increase in Drinking Water Health and Safety	Qualitative
	B. Increase in Water Supply Reliability	Qualitative
	C. Increase in Water Supply Adequacy	Qualitative
	D. ProvideLong-Term Water Management Solution	Qualitative
Abandonment of existing onsite potable water supply system	E. Decrease in Hazardous Physical Conditions	Qualitative
	F. Avoid Pump Station Rehabilitation and Deeper Drilling of Current Well	Qualitative
	G. Avoided Additional Treatment Necessary to Address Water Quality Concerns	Qualitative
	H. Avoided Ongoing Operations And Maintenance	Qualitative

Physical Benefit 1: Provision of Municipal Water Supply to Tribal Areas

As described in Attachment 3, this project only includes engineering and design tasks to serve municipal water supply to 33 single family homes and a church. As final engineering has not yet been completed for this project, it is unknown at this time how much water would be served by the project. As indicated in the project-related letter provided from CVWD to Torres-Martinez DCI, CVWD will conduct hydraulic modeling to determine the appropriate size of the water supply facilities to adequately serve the tribal residents.[150] Therefore, all of the project benefits pertaining to provision of municipal water supplies are qualitative in nature (not physically or economically quantified).

The primary purpose of the *Torres-Martinez Avenue 64 Water Supply Connection Project* is to provide safe and reliable long-term water supplies to the Avenue 64 Subdivision by connecting this subdivision to the CVWD municipal water system. The benefits described below are directly related to existing issues with the Avenue 64 PWS, which are described in detail in the Without Project Baseline.

Methods Used to Estimate the Physical Benefits

A - Increase in Drinking Water Health and Safety

The existing water system that serves the Avenue 64 Subdivision poses multiple health and safety hazards to the subdivision residents and to the operators who run the system. These health and safety risks are documented extensively in the USEPA Sanitary Survey Information[151] and correspondence from USEPA[152] to the Torres Martinez DCI. In the latter, USEPA notified the Torres-Martinez DCI that the

[150] Coachella Valley Water District. 2012a. *Avenue 64 & Monroe Street – Domestic Water and Sewer Service.*

[151] IHS. 2012a. *Preliminary Engineering Report for the Torres-Martinez Desert Cahuilla Indians: CVWD Water Main Extension to Avenue 64 Housing Subdivision.*Appendix A.

[152] United States Environmental Protection Agency (EPA). 2011. *Transmittal of January 27, 2011 Sanitary Survey Reports for Avenue 64 and Torres Martinez Clinic Water Systems (PWSs 0605116 and 0605130); Calling Special Attention to Operational Deficiencies which Place These Systems at Risk.*

deficiencies in the water system and its management pose a critical risk to human health.[153]The Tribe was given 120 days to respond with concrete actions to address the many deficiencies in the system or face a formal enforcement action from USEPA.

The 2012 *Preliminary Engineering Report*f urther explains the specific drinking water health and safety issues that are posed by the existing Avenue 64 PWS. Those issues are described in detail in the Without Project Baseline. All of the existing drinking water health and safety concerns associated with the Avenue 64 PWS would be resolved by the project, as described below.

- *Water Outages that Potentially Allow Contaminated Water to Enter the Avenue 64 PWS*: the Avenue 64 Subdivision would connect to the CVWD municipal water system, and would therefore no longer have a local water system that would be exposed to on-site contaminants such as raw sewage that may be present due to leaking or failing septic systems. Further, the CVWD municipal water system would not be susceptible to the same water outages that currently occur, since water outages within the Avenue 64 PWS are due to onsite electrical issues (power surges or loss of commercial power) or onsite issues with the PWS (failure of the booster pumps or primary well pump).[154]
- *Lack of Chlorination for Back-Up Water Supply*: domestic water provided by CVWD meets all applicable state and federal drinking water standards, including applicable disinfection standards.[155] As such, by connecting to the CVWD municipal water system, water provided to the Avenue 64 Subdivision would no longer have potential disinfection issues associated with a lack of chlorination.
- *Chromium and Perchlorate Levels in the Well*: Torres-Martinez DCI has expressed concerns with perchlorate and chromium levels in their existing PWS, but do not have the necessary means to treat the existing groundwater to address such concerns. In contrast, domestic water provided by CVWD meets all applicable state and federal drinking water standards, including those established for chromium, perchlorate, and other constituents of concern in the eastern Coachella Valley such as arsenic.[156] Therefore, connecting to the CVWD municipal water system would alleviate current and future water quality concerns expressed by the Torres-Martinez DCI.

B - Increase in Water Supply Reliability

As described in the Without Project Baseline, the existing PWS for the Avenue 64 Subdivision experiences frequent water outages that occur several times per month. These outages have been difficult to resolve to date as they are not from a single cause, but rather are due to ongoing operational failures of the PWS or onsite electrical issues. These water supply reliability issues directly impact Avenue 64 Subdivision residents, who may be without water for several hours several times per month.[157] Connecting to the CVWD municipal water system as part of this project would resolve existing water supply reliability issues, as CVWD has conducted extensive water supply reliability and water storage

[153] United States Environmental Protection Agency (EPA). 2011. *Transmittal of January 27, 2011 Sanitary Survey Reports for Avenue 64 and Torres Martinez Clinic Water Systems (PWSs 0605116 and 0605130); Calling Special Attention to Operational Deficiencies which Place These Systems at Risk.*

[154] IHS. 2012a. *Preliminary Engineering Report for the Torres-Martinez Desert Cahuilla Indians: CVWD Water Main Extension to Avenue 64 Housing Subdivision.*Page 9, Section IV.A.1. Need for Project: Water Outages.

[155] Coachella Valley Water District (CVWD). 2012b. *Coachella Valley Water District 2011-12 Annual Review.*Page 6, 2012 Domestic Water Quality Report.

[156] Coachella Valley Water District (CVWD). 2012b. *Coachella Valley Water District 2011-12 Annual Review.*Page 6, 2012 Domestic Water Quality Report.

[157] IHS. 2012a. *Preliminary Engineering Report for the Torres-Martinez Desert Cahuilla Indians: CVWD Water Main Extension to Avenue 64 Housing Subdivision.*Page 9, Section IV.A.1. Need for Project: Water Outages.

contingency planning consistent with requirements of the California Water Code to ensure thatsuch water outages would not occur.[158]

C - Increase in Water Supply Adequacy

As described in the Without Project Baseline, the existing PWS for the Avenue 64 Subdivision does not constitute an adequate long-term water supply as there is not an adequate back-up system in place in the event that the primary groundwater well and pumping station were to run dry, collapse, or become inoperable for more than a few days.[159]Connecting to the CVWD municipal water system as part of this project would resolve existing water supply reliability issues, as CVWD has expressed their willingness to serve water to the Avenue 64 Subdivision.[160]Given the robust and extensive nature of the CVWD municipal water system, water supplies provided by CVWD are considered adequate and reliable on a long-term basis.

D - Provide Long-Term Water Management Solution

Connecting to the CVWD municipal water system will address not only the current infrastructure deficiencies associated with the existing Avenue 64 PWS, but will provide a long-term reliable water supply to the Avenue 64 Subdivision, which is an economically disadvantaged tribal community. During development of the 2010 *Coachella Valley IRWM Plan*, stakeholders, particularly those representing DACs in the eastern Coachella Valley, stated that connecting to a municipal water system was a long-term goal, as this would resolve water supply and water quality issues experienced in the eastern Coachella Valley on a long-term basis.[161] Therefore, this project, which will involve connecting to the CVWD municipal water system, provides a sustainable long-term water supply solution for a tribal DAC.

Physical Benefit 2: Abandonment of Existing Onsite Potable Water Supply System

In addition to providing municipal water supplies to the Avenue 64 Subdivision, this project will also involve abandonment of the existing onsite potable water system. The 2012 *Preliminary Engineering Report* indicated that abandonment of the PWS and connection to the CVWD municipal water supply system was the best option for the Avenue 64 Subdivision, as it would resolve the entire suite of issues currently presented by the existing PWS.[162]The following sections provide information regarding the specific physical benefits that would result from abandonment of the existing PWS. Please note that due to the cost-effectiveness analysis completed for this project and the fact that engineering and design work has not been completed, the benefits provided below have not been physically or economically quantified.

[158] CVWD. 2011. *Coachella Valley Water District 2010 Urban Water Management Plan.*Page 5-1, Section 5, Water Supply Reliability and Water Storage Contingency Planning.

[159] IHS. 2012a. *Preliminary Engineering Report for the Torres-Martinez Desert Cahuilla Indians: CVWD Water Main Extension to Avenue 64 Housing Subdivision.*Page 9 and Page 10, Section IV.A.1. Need for Project: Insufficient Backup Water Source.

[160] Coachella Valley Water District. 2012a. *Avenue 64 & Monroe Street – Domestic Water and Sewer Service.*

[161] Coachella Valley Regional Water Management Group (CVRWMG). 2010. *Coachella Valley Integrated Regional Water Management Plan.* Page 3-18, Section 3.1.8 Issues Groups, Disadvantaged Communities.

[162] IHS. 2012a. *Preliminary Engineering Report for the Torres-Martinez Desert Cahuilla Indians: CVWD Water Main Extension to Avenue 64 Housing Subdivision.*Page 21, Section VIII Conclusions and Recommendations.

Methods Used to Estimate the Physical Benefits

E - Decrease in Hazardous Physical Conditions

There are numerous open electrical connections and junction boxes without lids throughout the existing PWS, as well as extensive corrosion of many electrical components throughout the system. Each of these issues represents an electrical shock hazard for the water operator who frequently conducts operations and maintenance activities without an assistant. An electrical shock experienced by the operator while unaccompanied could result in hospitalization or could potentially be fatal.[163] One of the primary purposes of the project is to connect the Avenue 64 Subdivision to the existing CVWD municipal system, thereby abandoning the existing PWS and eliminating the need for onsite O&M. Therefore, the project would directly and permanently resolve issues associated with O&M hazards, as the existing PWS would be properly abandoned, and an onsite operator would no longer be required to conduct work under existing hazardous conditions.

In addition, the current system is inadequate for providing fire protection to the Avenue 64 Subdivision as the fire pump has not been operable since 2004, and the existing booster pumps do not have the capacity (required flow) to provide water for firefighting needs.[164]With the project, the Avenue 64 Subdivision would receive water from CVWD. CVWD water systems are required to be installed in accordance with the American Water Works Manual such that they provide sufficient flows for fire protection and firefighting needs.[165] As such, the existing physical hazards associated with inadequate fire protection would be effectively resolved with implementation of the project.

The 2012 *Preliminary Engineering Report*indicates that there are substantial safety concerns regarding thehydropneumatic water tank, which could potentially explode as it is leaking and does not have a pressure relief valve. IHS has concluded that together the leaking tank without a pressure relief valve could potentially result in an explosion in the existing water tank, which could be lethal to anybody near, and would result in a massive and difficult to repair water system leak.[166] By abandoning this existing system and connecting to the CVWD municipal water system, the project would directly alleviate potential health and safety risks associated with the existing steel water tank, as abandonment activities would involve ceasing of existing pumping activities, thereby alleviating pressure in the system that could potentially cause an explosion within the steel tank.

The 2012 *Preliminary Engineering Report*also indicates that there is a lack of security within the existing water storage tank, making this facility potentially open to public access via climbing the tank or opening the roof hatch. This lack of security creates direct health and safety concerns associated with a fall risk to unauthorized individuals or a potential health risk to all users if vandalism or other potential

[163] Indian Health Service (IHS). 2012a. *Preliminary Engineering Report for the Torres-Martinez Desert Cahuilla Indians: CVWD Water Main Extension to Avenue 64 Housing Subdivision.* Page 10 and Page 11, Section IV.A.1. Need for Project: Safety and Security Risks.

[164] Indian Health Service (IHS). 2012a. *Preliminary Engineering Report for the Torres-Martinez Desert Cahuilla Indians: CVWD Water Main Extension to Avenue 64 Housing Subdivision.*Page 10, Section IV.A.1. Need for Project: Inoperable Components.

[165] Coachella Valley Water District (CVWD). 2012c. *Coachella Valley Water District Regulations Governing Domestic Water Service.* Page 10-1, Part 10 private Fire Protection Service Connection and Residential Fire Sprinkler System.

[166] Indian Health Service (IHS). 2012a. *Preliminary Engineering Report for the Torres-Martinez Desert Cahuilla Indians: CVWD Water Main Extension to Avenue 64 Housing Subdivision.* Page 10 and Page 11, Section IV.A.1. Need for Project: Safety and Security Risks.

contamination were to occur in the tank.[167] Abandonment activities associated with the project would involve restricting public access to the existing PWS, which would eliminate a potential fall risk to unauthorized individuals. Further, the CVWD system is a secure system that is not considered at risk to vandalism or contamination as it undergoes regular monitoring and is protected to the maximum extent feasible.

F - Avoid Pump Station Rehabilitation and Deeper Drilling of Current Well

One of the potential methods identified by IHS in the PER to address concerns with the existing Avenue 64 PWS is to rebuild the existing infrastructure, including drilling a new (deeper) well, provide a suitable backup water supply (pump station), and make other necessary onsite infrastructure improvements.[168] Implementation of the project would avoid the need to complete the aforementioned onsite improvements, as the existing PWS would be abandoned and the Avenue 64 Subdivision would be connected to the existing CVWD municipal system. This would be considered a direct benefit associated with avoided construction and operational costs to replace the existing onsite PWS.

G - Avoid Additional Treatment Necessary to Address Water Quality Concerns

As mentioned above, one of the potential methods identified by IHS in the 2012 *Preliminary Engineering Report* to address concerns with the existing Avenue 64 PWS is to rebuild the existing infrastructure, including making infrastructure improvements to address potential water quality issues concerning the Torres-Martinez DCI (perchlorate and chromium).[169]The *Preliminary Engineering Report*indicates that such system improvements would be very costly and difficult to operate and maintain. As the project would connect the Avenue 64 Subdivision to the CVWD municipal water system, the project would provide CVWD domestic water supplies to the subdivision. Domestic water provided by CVWD meets all applicable state and federal drinking water standards, including those established for chromium, perchlorate, and other constituents of concern in the eastern Coachella Valley such as arsenic.[170]Therefore, the project would effectively avoid the need to construct and operate additional infrastructure necessary to treat groundwater for applicable water quality concerns. This would be considered a direct benefit associated with avoided construction and operational costs to upgrade the existing onsite PWS for water treatment purposes.

H - Avoid Ongoing O&M of Tribal Water System

In the *Preliminary Engineering Report*, IHS noted that rebuilding the existing PWS infrastructure was not considered in-depth, in part due to the fact that this alternative would not alleviate O&M issues faced by the tribe due to their lack of resources available to conduct such activities. IHS did, however, note that connection to the CVWD system would, "address not only the infrastructure deficiencies, but also the O&M problems facing the Tribe."[171]This would be considered a direct benefit associated with avoided O&M needs that would be required if the tribe were to upgrade the existing onsite PWS.

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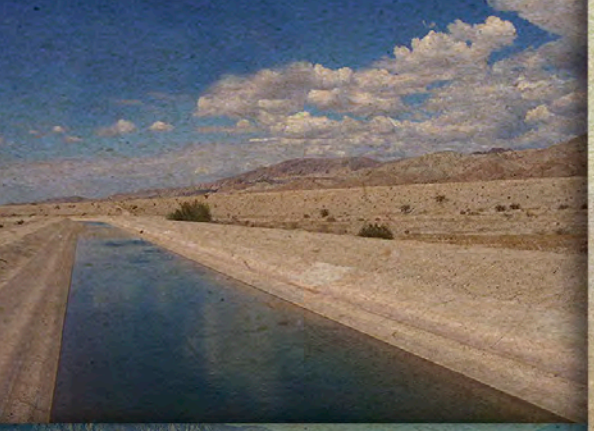
[167] IHS. 2012a. *Preliminary Engineering Report for the Torres-Martinez Desert Cahuilla Indians: CVWD Water Main Extension to Avenue 64 Housing Subdivision.* Page 10 and Page 11, Section IV.A.1. Need for Project: Safety and Security Risks.

[168] IHS. 2012a. *Preliminary Engineering Report for the Torres-Martinez Desert Cahuilla Indians: CVWD Water Main Extension to Avenue 64 Housing Subdivision.* Page 13, Section V. Alternatives Considered.

[169] IHS. 2012a. *Preliminary Engineering Report for the Torres-Martinez Desert Cahuilla Indians: CVWD Water Main Extension to Avenue 64 Housing Subdivision.* Page 13, Section V. Alternatives Considered.

[170] Coachella Valley Water District (CVWD). 2012b. *Coachella Valley Water District 2011-12 Annual Review.*Page 6, 2012 Domestic Water Quality Report.

[171] IHS. 2012a. *Preliminary Engineering Report for the Torres-Martinez Desert Cahuilla Indians: CVWD Water Main Extension to Avenue 64 Housing Subdivision.* Page 13, Section V. Alternatives Considered.







Attachment 8

Benefits and Cost Analysis

Implementation Grant, Round 2

Coachella Valley IRWM
Implementation Grant Proposal

Attachment

8

Coachella Valley Integrated Regional Water Management Implementation Grant Proposal – Round 2

Benefits and Cost Analysis

Attachment 8 consists of the following items:

- ✓ **Project Costs and Benefits**

The body of this attachment provides an overview of the costs and benefits of this proposed funding package, as well as the benefits associated with each individual project.

- ✓ **Appendix 8-1**

Appendix 8-1 includes a detailed discussion of the estimated avoided future imported water costs that would accrue from developing local supplies in the Coachella Valley IRWM Region.

- ✓ **Appendix 8-2**

Appendix 8-2 includes detailed tables that provide information regarding how all of the costs and benefits included in this attachment were calculated.

This attachment contains estimations of the costs and benefits of each project contained within this *Coachella Valley IRWM Implementation Grant Proposal – Round 2*. The following section provides an overview of the costs and benefits associated with the entire proposal; the subsequent sections provide specific information regarding the benefits and costs associated with each individual project included in this proposal.

Proposal Benefits and Costs Summary

Because several projects are being proposed with multiple benefits, Table 8-1 below contains a summary of the costs and benefits for all projects included in this proposal.

Table 8-1: Proposal Benefits and Costs Summary (PSP Table 20)

Proposal: Coachella Valley IRWM Implementation Grant, Round 2 **Agency: Coachella Valley Water District**							
Project	**Project Proponent**	**Total Present Value Project Costs [1]**	**Total Present Value Project Benefits**			**Section D2 Briefly Describe Main Non-monetized Benefits**	**Benefit-Cost Ratio***
			Section D3 Monetized [2]	**Section D4 Flood Damage Reduction [3]**	**Total**		
(a)	**(b)**	**(c)**	**(d)**	**(e)**	**(f) = (d) + (e)**	**(h)**	**(i)**
Non-Potable Water Use Expansion Program	Coachella Valley Water District	$24,626,275	$119,098,794	N/A	$119,098,794	*E. Provide Social Recreation or Access Benefits* – Program will provide non-potable water to golf course users, reducing costs and increasing aesthetics. *F. Help Avoid, Reduce, or Resolve Various Public Water Resources Conflicts*- Program will help meet Recycled Water Policy mandates. *G. Reduce Demand for Net Diversions from the Delta*- Program will help reduce future imported water demands and will therefore reduce net diversions from the Bay-Delta *H. Provide a Long-Term Solution*- Program will facilitate source substitution, a method of long-term groundwater management *I. Improve Water Supply Reliability* –Program will provide local water (non-potable water and offset the use of less reliable imported water. *J. Avoid Fertilizer Application*- Program will provide recycled water, which has nutrients and can reduce fertilizer application *K. Improve Water Quality*- Program will reduce groundwater pumping and overdraft, which can cause water quality issues.	5:1
Coachella Valley Salt & Nutrient Management Program	Coachella Valley Water District on behalf of the CVRWMG	$707,985	$52,024,312	N/A	$52,024,312	*D Provide Social Recreation or Access Benefits* – Program will provide recycled water to golf course users, reducing costs and increasing aesthetics. *E. Help Avoid, Reduce, or Resolve Various Public Water Resources Conflicts*- Program will help meet Recycled Water Policy mandates. *F. Improve the Overall, Long-term Management of California Groundwater Resources* – Program will	73:1

Proposal: Coachella Valley IRWM Implementation Grant, Round 2 Agency: Coachella Valley Water District							
Project	**Project Proponent**	**Total Present Value Project Costs [1]**	**Total Present Value Project Benefits**			**Section D2 Briefly Describe Main Non-monetized Benefits**	**Benefit-Cost Ratio***
			Section D3 Monetized [2]	**Section D4 Flood Damage Reduction [3]**	**Total**		
(a)	**(b)**	**(c)**	**(d)**	**(e)**	**(f) = (d) + (e)**	**(h)**	**(i)**
						provide recycled water to golf course users, reducing costs and increasing aesthetics. *G. Reduce Demand for Net Diversions from the Delta*- Program will help reduce future imported water demands and will therefore reduce net diversions from the Bay-Delta *H. Provide a Long-Term Solution*- Program will create a standards-compliant Salt and Nutrient Management Program, which will facilitate long-term use of recycled water. *I. Improve Water Supply Reliability* –Program will provide local water (recycled water) and offset the use of less reliable imported water. *K. Promote Social Health and Safety*- Program will provide recycled water, which has nutrients and can reduce fertilizer application *L. Improve Groundwater Quality*- Program will address nutrient and salt loading, and will therefore improve groundwater quality.	
Groundwater Quality Protection Program – Subarea D2	Mission Springs Water District	$3,715,196	$9,467,779	N/A	$9,467,779	*B. Reduce Demand for Net Diversions from the Delta*- Program will help reduce future imported water demands and will therefore reduce net diversions from the Bay-Delta *C. Improve Water Supply Reliability* –Program will provide local water (wastewater for future recycling) and offset the use of less reliable imported water. *F. Avoid Groundwater Treatment*- Program will remove a source of contaminants (septic tanks) and prevent future groundwater treatment to address such contaminants. *G. Provide Social Recreation Benefits* – Program will facilitate the long-term use of the Desert Hot Springs spa	3:1

Proposal: Coachella Valley IRWM Implementation Grant, Round 2 Agency: Coachella Valley Water District							
Project	**Project Proponent**	**Total Present Value Project Costs [1]**	**Total Present Value Project Benefits**			**Section D2 Briefly Describe Main Non-monetized Benefits**	**Benefit-Cost Ratio***
			Section D3 Monetized [2]	**Section D4 Flood Damage Reduction [3]**	**Total**		
(a)	**(b)**	**(c)**	**(d)**	**(e)**	**(f) = (d) + (e)**	**(h)**	**(i)**
						industry. *H. Promote Social Health and Safety*- Program will remove septic systems and potential contamination that could potentially come into contact with people using untreated hot aquifer water. *I. Avoided Losses in Spa Economy*- Program will protect the spa economy of Desert Hot Springs *J. Benefit Wildlife or Habitat* – Program will remove a source of contaminants from the Region, including the Salton Sea Transboundary Watershed. *K. Improve Groundwater Quality and Protect Beneficial Uses*- Program will protect the quality of groundwater and associated beneficial uses in the Desert Hot Springs and Mission Creek aquifers. *L. Improve the Overall, Long-term Management of California Groundwater Resources* – Program will provide future wastewater flows for source substitution. *M. Provide a Long-Term Solution*- Program will permanently remove a source of water quality contamination.	
San Antonio del Desierto DAC Sewer Extension Project	Pueblo Unido Community Services Corporation	$1,676,119	$1,683,927	N/A	$1,683,927	*B. Reduce Demand for Net Diversions from the Delta*- Program will help reduce future imported water demands and will therefore reduce net diversions from the Bay-Delta *C. Improve Water Supply Reliability* –Program will provide local water (wastewater for future recycling) and offset the use of less reliable imported water. *D. Promote Social Health and Safety*- Program will remove wastewater lagoons that are in close proximity to residents of a mobile home park. *E. Other Social Benefits Associated with Displacing*	1:1

Proposal: Coachella Valley IRWM Implementation Grant, Round 2 Agency: Coachella Valley Water District							
Project	**Project Proponent**	**Total Present Value Project Costs [1]**	**Total Present Value Project Benefits**			**Section D2 Briefly Describe Main Non-monetized Benefits**	**Benefit-Cost Ratio***
			Section D3 Monetized [2]	**Section D4 Flood Damage Reduction [3]**	**Total**		
(a)	**(b)**	**(c)**	**(d)**	**(e)**	**(f) = (d) + (e)**	**(h)**	**(i)**
						DACs- Program will help facilitate obtainment of a permit for a mobile home park that serves a DAC. This program will help avoid displacement of mobile home park residents. *F. Benefit Wildlife or Habitat* – Program will remove a source of pollutants from entering the Torres-Martinez Wetlands and the Salton Sea. *G. Improve Groundwater Quality and Protect Beneficial Uses*- Program will protect the quality of groundwater and associated beneficial uses in the eastern Coachella Valley. *H. Provide a Long-Term Solution for DACs*- Program will provide a permanent connection to a municipal wastewater system for a DAC.	
Torres-Martinez Avenue 64 Water Supply Connection Project	Torres-Martinez Desert Cahuilla Indians	$220,280	N/A	N/A	N/A	*A. Increase in Drinking Water Health and Safety*-This project will provide connection to a municipal water system to a tribal DAC, which will provide a safe and reliable drinking water source to the tribe. *B. Improve Water Supply Reliability* –Project will provide a reliable water supply to a tribal DAC, and replace the tribe's existing unreliable water supply system. *C. Increase in Water Supply Adequacy*- Project will provide an adequate municipal water supply in place of the tribe's existing water system, which has been deemed inadequate by the USEPA. *D. Provide a Long-Term Solution*- Project will provide a permanent connection to a municipal wastewater system for a DAC, which will resolve the tribe's drinking water supply and O&M issues on a long-term basis. *E. Decrease in Hazardous Physical Conditions*-Project will provide long-term O&M for the water supply project through CVWD, and will decrease existing hazardous	N/A

Proposal: Coachella Valley IRWM Implementation Grant, Round 2 **Agency: Coachella Valley Water District**							
Project	**Project Proponent**	**Total Present Value Project Costs [1]**	**Total Present Value Project Benefits**			**Section D2** **Briefly Describe Main Non-monetized Benefits**	**Benefit-Cost Ratio***
			Section D3 Monetized [2]	**Section D4 Flood Damage Reduction [3]**	**Total**		
(a)	**(b)**	**(c)**	**(d)**	**(e)**	**(f) = (d) + (e)**	**(h)**	**(i)**
						physical conditions for the tribal operator. *F. Avoid Pump Station Rehabilitation and Deeper Drilling of Current Well*-This project will avoid an alternative project, which would involve potentially drilling a deeper well or rehabilitating the onsite water system. These alternatives would not resolve long-term O&M issues. *G. Avoid Additional Treatment Necessary to Address Water Quality Concerns*-This project will avoid an alternative project, which would involve onsite treatment to address perchlorate, arsenic, and other constituents such as chromium. This alternative project would not resolve water supply inadequacy, reliability, or O&M issues. *H. Avoid Ongoing O&M of Tribal Water System*- This project will replace the current onsite potable water system with a long-term connection to the CVWD municipal water system. Therefore, the project will avoid current O&M required for the existing onsite system.	
TOTAL		**$30,945,855**	**$182,274,812**	**N/A**	**$182,274,812**	See above	**6:1**
TOTAL Without Project #5		**$30,725,575**	**$182,274,812**	**N/A**	**$182,274,812**	See above	**6:1**
** A benefit-cost ratio greater than 1 indicates that benefits are greater than costs.*							

Project 1: Non-potable Water Use Expansion Program

Introduction

This attachment presents the economic analysis for the *Non-Potable Water Use Expansion Program*. The following sections provide a brief description of the program and a summary table of the program costs and benefits. Sections outlined in the PSP are then presented, including: Non-Monetized Benefits Analysis (Section D2 in the Proposal Solicitation Package), Monetized Benefit Analysis (Section D3 in the Proposal Solicitation Package), and Project Benefits and Costs Summary (Section D5 in the Proposal Solicitation Package).This program does not serve a disadvantaged community and does not provide flood protection benefits. Therefore, Proposal Solicitation Package Sections D1 and D4 are not included in this Attachment.

Abstract

The proposed *Non-Potable Water Use Expansion Program* is a form of source substitution - the delivery of an alternate source of water to users who currently depend on groundwater pumping. The substitution of an alternate non-potable water source will reduce groundwater extraction, allowing groundwater to remain in storage, thus reducing the need to import additional water for groundwater recharge purposes. It also matches source to use by providing untreated Colorado River water (Canal water) and recycled water for outdoor irrigation in lieu of higher quality groundwater.

Canal water and recycled water are significant existing local resources that are underutilized for agricultural and golf course irrigation. Backbone distribution systems exist to deliver non-potable water, but funding is needed to connect potential customers to existing non-potable water distribution systems.

In the eastern portion of the Coachella Valley (generally east of Washington Street), the Coachella Canal (Canal) and its adjacent irrigation distribution system have delivered Canal water to the agricultural community since 1950. However, this system has not been fully utilized. In the western portion of the Coachella Valley, the backbone of the area's non-potable water system, the Mid-Valley Pipeline (MVP), was completed in 2008. It has the capacity to serve approximately 50 golf courses.

There are over 110 golf courses in the Coachella Valley that could potentially access non-potable water through the existing distribution system. CVWD has entered a standardized non-potable water use agreement with 43 of these golf courses that requires them to meet at least 80% of their demand with non-potable water. Of these 43 courses, 14 receive water from the MVP system and 29 receive water from the Canal distribution system.

This project would fund three west Valley golf course connections (connections to the MVP), one improvement to the L4 Pump station, and four east Valley golf course connections (to the Canal system) that are more or less shovel ready. Specific project components include:

Mid Valley Pipeline

1. *Desert Horizons Country Club* – this project extends the 24" distribution pipeline from the existing stub-out at the Coachella Valley Stormwater Channel to Fred Waring Drive and constructs a new pipeline and meter to the Desert Horizons Country Club.
2. *Indian Springs Country Club* – this project extends the 24" distribution pipeline from the existing stub-out at the Coachella Valley Stormwater Channel to Fiesta Drive and constructs a new pipeline and meter to the Indian Springs Country Club.
3. *The Lakes Country Club* – this project constructs two new sections of 12" pipeline and meters from the 24" high pressure pipeline and one new 12" pipeline and meter from the low pressure pipeline to the Lakes Country Club.

Canal System

4. *L4 Pump Station Improvements* – this project replaces the broken meter at Citrus Country Club and installs Variable Frequency Drives (VFDs) at the L4 Pump Station.
5. *L4 La Quinta Extensions* – this project extends Irrigation Lateral 120.8 from the relocated L4 Pump Station to Avenue 52 and includes three new meters for Canal water delivery to the La Quinta Country Club, the La Quinta Resort Mountain Course, and the La Quinta Resort Dunes Course.
6. *Indian Palms Golf Course* – this project extends the 12" Irrigation Lateral 117.8 from Monroe Street to the Indian Palms Golf Course.

Table 8-2 shows the breakdown of water use by golf course for the proposed MVP and Coachella Canal connections. Non-potable water provided via the MVP includes a mix of recycled water and Canal water (approximately 52% recycled water and 48% Canal water), and the water supply provided by the Coachella Canal is only Canal water.[1]

Table 8-2: Amount of Non-Potable Water Supplied by Conveyance Facility
Non-Potable Water Use Expansion Program

Facility and User	Amount Supplied (AFY)
Mid-Valley Pipeline	
Indian Springs	975
Desert Horizons	867
Lakes Country Club	2,308
Total	**4,150**
Coachella Canal	
La Quinta Country Club	975
La Quinta Resort Mountain Course	975
LA Quinta Resort Dunes Course	975
Indian Palms	975
Total	**3,900**

Summary Project Benefits and Costs

A summary of all benefits and costs of the program are provided in Table 8-3. Monetized benefits and non-monetized benefits are presented in this attachment, while physically quantified benefits are described in Attachment 7. As shown in the table, this program would yield monetizable present value (PV) benefits that greatly exceed the PV costs, and would also provide important additional benefits that could not be reliably quantified and/or monetized.

Please note that the numbering associated with each benefit has been completed in accordance with the numbering presented in Attachment 7; therefore benefits described below may not be presented in numeric order.

[1] Coachella Valley Water District (CVWD). 2005. *Final Concept Paper: Mid-Valley Pipeline.* Page 10, Chart 4-2: Expanded Recycled Water Distribution System using a blend of Recycled and Canal Water.

Table 8-3: Benefit-Cost Analysis Overview

Non-Potable Water Use Expansion Program

	Present Value
Costs – Total Capital and O&M	**$24,626,275**
Monetizable Benefits	
A. Avoid Costs of Imported Water Purchases	$104,011,739
B. Avoid Groundwater Pumping	$5,546,288
C. Avoid Groundwater Replenishment	$7,966,326
D. Reduce Social Costs Associated with CO_2 Emissions	$1,574,441
Total Monetizable Benefits	**$119,098,794**
Qualitative Benefit or Cost	**Qualitative Indicator***
E. Provide Social Recreation or Access Benefits	+
F. Help Avoid, Reduce, or Resolve Various Public Water Resources Conflicts	+
G. Reduce Demand for Net Diversions from the Delta	+
H. Provide a Long-Term Solution	+
I. Improve Water Supply Reliability	++
J. Avoid Fertilizer Application	+
K. Improve Water Quality	+

* Direction and magnitude of effect on net benefits:
+ = Likely to increase net benefits relative to quantified estimates.
++ = Likely to increase net benefits significantly.
– = Likely to decrease net benefits.
— = Likely to decrease net benefits significantly.
U = Uncertain, could be + or –.

Non-Monetized Benefits Analysis

Narrative Description of Qualitative Benefits

E-Provide Social Recreation or Access Benefits

By switching to non-potable water, the seven golf courses served by the program would no longer be subject to watering restrictions during times of drought. This is because non-potable water consists of recycled water and Canal water, which are not considered to be highly impacted by climatic variations (drought). Thus, golf courses served by this program could continue to irrigate landscape/turf areas regardless of drought conditions (thus remaining green during dry periods). This would improve the aesthetics and enjoyment of the courses and, in extreme cases, may avoid closures that would otherwise be necessary to prevent further turf damage.

In addition, with the program, the golf courses would receive non-potable water at 85% of the cost they currently pay to pump groundwater.[2] This would result in cost savings for the golf courses, allowing them to spend additional funds on golf course improvements and maintenance. This would increase the enjoyment of the golf course for visitors, may attract additional golfers, and may also help to ensure that the golf courses can continue to operate by lowering costs associated with irrigation.

[2] Coachella Valley Water District (CVWD). 2011. *Coachella Valley Water District 2010 Urban Water Management Plan Final Report.* Page 4-29, Section 4.5.3, Recycled Water Customer Incentives.

F-Help Avoid, Reduce or Resolve Various Public Water Resources Conflicts

By providing 8,050 AFY of non-potable water, which includes 2,152 AFY of recycled water, this program helps to meet requirements set forth in the Recycled Water Policy to increase use of recycled wastewater by at least 1 million AFY by 2020 and by at least 2 million AFY by 2030.[3] Because the program would facilitate implementation of activities to help meet mandates and goals of a statewide statute, it would help to resolve potential public water resources conflicts related to urban water demands and recycled water use.

G-Reduce Demand for Net Diversions from the Delta

By reducing the need to import additional water into the Coachella Valley for groundwater recharge, the *Non-Potable Water Use Expansion Program* would reduce dependence on imported water from the State Water Project (SWP), which is exchanged with MSWD for Colorado River water. Reducing the need for additional SWP water would potentially augment in-stream flows in the Sacramento-San Joaquin Bay-Delta (Delta) or could offset other diversions that may otherwise reduce flows.

The Delta is considered to be in a state of crisis. Fish populations, including salmon and Delta-smelt, have declined dramatically in recent years. The levee system is aging, and vulnerability of the Delta to flooding, sea level rise, or a major earthquake has contributed to concerns about possible levee collapse. In addition, water quality problems continue, and there is little consensus on how to manage water resources through storage.[4] Reducing future additional demands and subsequent diversions of water from the Delta would help to address some of the aforementioned issues by making the Delta water available for other interests and needs. In addition, due to the current vulnerability of the Delta, reducing future demands on this water resource would directly benefit the Region by reducing reliability issues that could occur if a catastrophic event such as a levee collapse or an earthquake were to substantially damage Delta-related infrastructure.

H-Provide a Long-Term Solution

By increasing use of locally-available resources rather than increasing imported water demands for groundwater recharge, this program helps provide a long-term solution to the Region's groundwater overdraft. SWP supplies vary annually due to weather and runoff variations, and are also impacted by regulatory limitations on exports from the Delta. Under current conditions, the SWP can only provide about 60% of CVWD's Table A contract allocation.[5] In the absence of state and federal actions in the Delta to increase SWP supplies, it is anticipated that CVWD's long-term SWP reliability (deliveries) could decrease to 50% of current allocations.[6]

Local groundwater is also limited in the Coachella Valley, which is apparent due to storage (capacity) loss that the basin has experienced. Bulletin 108 (1964) and Bulletin 118 (2003) are the most recent DWR bulletins that characterize the condition of the Coachella Valley aquifer. In Bulletin 108, DWR noted that the amount of usable supply in the overdrafted aquifer was decreasing, while Bulletin 118 stated that overdraft remains a "primary challenge" in the aquifer. In their *2010 Urban Water Management Plan*, CVWD provides estimates for the change in storage in the aquifer, noting that in 2009, loss of storage in the groundwater basin was estimated to be 74,812 AFY.[7]

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[3] State Water Resources Control Board (SWRCB). 2009. *Recycled Water Policy.* Available: http://www.waterboards.ca.gov/water_issues/programs/water_recycling_policy

[4] Delta Stewardship Council. 2010. *The Delta.* Available: http://deltacouncil.ca.gov/delta

[5] Coachella Valley Water District (CVWD). 2011. C*oachella Valley Water District 2010 Urban Water Management Plan Final Report*. Page 4-33, Section 4.6.2.2 Additional SWP Exchange Water.

[6] Coachella Valley Water District (CVWD). 2011. C*oachella Valley Water District 2010 Urban Water Management Plan Final Report*. Page 5-5, Section 5.2.3 State Water Project.

[7] Coachella Valley Water District (CVWD). 2011. C*oachella Valley Water District 2010 Urban Water Management Plan Final Report*. Page 4-10, Section 4.2.1.3 Overdraft.

Reduced reliability of SWP supplies and overdraft conditions in the groundwater basin highlight the need for additional (reliable) sources of water to meet current and future demands under all hydrologic conditions. The *Non-Potable Water Use Expansion Program* would provide infrastructure for the distribution and use of two sources of supply that are currently underutilized – recycled water and Canal water. Increasing the distribution and use of these non-potable sources is considered a long-term solution to issues associated with SWP reliability and groundwater overdraft, and is a long-term means to sustainably meet regional water demands.

I-Improve Water Supply Reliability

The reliability of a water supply refers to its ability to meet water demands on a consistent basis, even in times of drought or other constraints on source water availability. The *Non-Potable Water Use Expansion Program* would help address reliability issues for the Region by facilitating the additional distribution and use of a drought-resistant and underutilized source of local supply (non-potable water). This would reduce reliance on local groundwater, offsetting the need for SWP exchange water for groundwater recharge purposes.

Although interest in water supply reliability is increasing due to increasing water demands and concerns over climate-related events, only a few studies have directly attempted to quantify its value. The results from these studies indicate that residential and industrial (i.e., urban) customers seem to value supply reliability quite highly. Stated preference studies find that water customers are willing to pay $100 to more than $500 per household per year for total reliability (i.e., a 0% probability of their water supply being interrupted in times of drought).[8]

The challenge in applying these values to determine a value of increased reliability as a result of the *Non-Potable Water Use Expansion Program* is recognizing how to reasonably interpret these survey-based household monetary values. The values noted above reflect a willingness to pay per household to ensure complete reliability (zero drought-related use restrictions in the future), whereas the *Non-Potable Water Use Expansion Program* only enhances overall reliability and does not guarantee 100% reliability. Thus, if applied directly to the number of households within the CVWD service area, the dollar values from the studies would overstate the reliability value provided by the program.

A simple way to roughly adjust for this "whole versus part" problem is to attribute a portion of the total value of reliability to the portion of the problem that is solved by the program. To adjust for the partial improvement in reliability from the *Non-Potable Water Use Expansion Program*, it is assumed that household willingness to pay for improved reliability is directly proportional to the amount of non-potable water that would be provided by the program as a percentage of the total non-potable water demand. This represents the percentage of total supply that has been improved in terms of overall reliability.

For example, the program would provide 8,050 AFY of non-potable water at full implementation (by 2017). In 2020, total non-potable water demand within the CVWD service area will be about 319,400

[8] Carson, R.T.; Mitchell, R.C. *Economic Value of Reliable Water Supplies for Residential Water Users in the State Water Project Service Area*; SWC Exhibit Number 54;

The Metropolitan Water District of Southern California, Los Angeles, 1987.

CUWA. *The Value of Water Supply Reliability: Results of a Contingent Valuation Survey of Residential Customers*, California Urban Water Agencies, Sacramento, CA. [Online] 1994, http://www.cuwa.org/library/TheValueofWaterSupplyReliabilityAug94.pdf (accessed October 1, 2009).

Griffin, R.C.; Mjelde, J.W. Valuing Water Supply Reliability. *American Journal of Agricultural Economics* 2000, *82*, 414–426

Raucher, R., J. Clements, and others. 2013. *The Value of Water Supply Reliability in the Residential Sector.* WateReuse Research Foundation. Project WRF-08-09.

Wolff, G. 2007. Calculating constant-reliability water supply unit costs. *Water Policy*. International Water Association, London, UK

AFY.[9] Thus, about 2.5% of total non-potable water demand would be met by non-potable water provisions provided by the program. To obtain a lower bound estimate for the value of improved reliability associated with this water, it is assumed that households within the CVWD service area are willing to pay about $2.50 per year for improved reliability of supplies ($100 multiplied by 2.5%). Applying this willingness to pay per household dollar value to the approximately 99,700 households within the service area in 2020[10] would result in $$249,250 of annual benefits.

Due to the uncertainty involved in applying quantified economic numbers to the water supply reliability benefits that the Region would accrue as a result of the *Non-Potable Water Use Expansion Program*, this benefit estimate has been provided here to give an idea of the potential magnitude of this benefit, but has not been economically monetized within the overall cost-benefit ratio for this program.

J-Avoid Fertilizer Application

Fertilizing compounds commonly present in recycled water (e.g., nitrogen, phosphorus, potassium) are typically not found in potable water at levels of significance. Thus, the use of recycled water for irrigation could reduce fertilizer costs for the golf courses serviced by the MVP portion of the program (i.e., The Lake Country Club, Desert Horizons, and Indian Springs).

The exact offset of fertilizer use from using recycled water is difficult to predict due to daily and seasonal nutrient variations in the recycled water, and because the recycled water provided by the MVP will be blended with Canal water that does not have the same level of nutrients. In addition, the water supplied via the MVP could have a higher or lower concentration of recycled water, depending on the time of year. Thus, this benefit is not monetized or included as part of the overall benefit-cost ratio.

K-Improve Water Quality

The 2010 *Coachella Valley Water Management Plan Update* indicates that groundwater pumping in some areas can cause water quality issues associated with constituents such as nitrates, as pumping may cause nitrates to leach into higher quality groundwater due to pressure changes in the basin.[11] Without the project, the golf courses will continue to contribute to overdraft problems in the basin through 2034, when enough infiltration capacity is brought online to be able to fully offset the full 8,050 AFY of groundwater pumping with imported water. This will result in further water quality degradation in the aquifer.

Beginning in 2034, the overall balance of the groundwater basin will be restored on an annual basis, with or without the program, as groundwater recharge would either occur due to importation of additional SWP exchange water or via the source substitution with non-potable water. While the *Non-Potable Water Use Expansion Program* would not change the overall water balance of the basin, it would abate localized groundwater pumping and therefore, could prevent pumping activities from causing nitrate-contaminated water from coming into contact with the basin's high-quality deep aquifer.

Currently, there is no available information regarding local groundwater in the program area and how water pressure in this area may impact water quality. As such, benefits that would accrue to water quality have not been physically or economically quantified.

[9] Coachella Valley Water District (CVWD). 2011. C*oachella Valley Water District 2010 Urban Water Management Plan Final Report*. Page 3-14, Table 3-17 Projected Non-Potable Water Demand.

[10] Coachella Valley Water District (CVWD). 2011. C*oachella Valley Water District 2010 Urban Water Management Plan Final Report*. Page 2-8, Table 2-4, Current and Projected Population. Estimate calculated based on the projected 2020 population documented in CVWD's 2010 UWMP. Population was divided by 3.15 persons per household (based on Census data for Riverside County) to obtain household estimate.

[11] Coachella Valley Water District (CVWD) 2010. *Coachella Valley Water Management Plan 2010 Update.* Page 5-13, Section 5.1.3.5 Nitrate.

Monetized Benefit Analysis

Several monetized benefits are expected to accrue over the expected 60-year life of the program, including:

- Avoided costs of purchasing additional imported water
- Avoided costs associated with construction of groundwater replenishment wells
- Reduced social costs associated with CO_2 emissions

A-Avoid Costs of Imported Water Purchases

The *Non-Potable Water Use Expansion Program* would provide an alternative source of non-potable water supply to seven golf courses that currently depend on local groundwater for irrigation purposes. By facilitating the distribution and use of non-potable water, this program would offset the purchase of imported water that would be required to recharge the Coachella Valley Groundwater Basin. SWP exchange water is CVWD's most expensive source of imported water (i.e., the marginal source) and will therefore be the source of imported water that is offset by this project.

As discussed in the subsequent section, without this project, CVWD will need to construct five groundwater injection wells in order to accommodate infiltration of 8,050 AFY of water into the groundwater aquifer to offset the golf course extractions from the basin. These wells will be built over a 20-year period (with one well being constructed every 5 years). Each well would provide about 1,610 AFY of infiltration capacity. Thus, the first well, which will be constructed in 2014 will allow for 1,610 AFY of groundwater recharge beginning in 2016. When the second well is completed in 2019, total infiltration capacity will amount to 3,220 AFY (beginning in 2020). This will continue through 2034, when the fifth well is completed. Together, the wells would provide a cumulative infiltration capacity of 8,050 AFY, which would offset the full amount of water used by the golf courses.

To calculate the avoided costs of imported water over time, the amount of imported water avoided each year was multiplied by the projected cost of imported water in that year. In 2013, the cost of SWP exchange water from MWD amounted to $915.93 (2012 USD) per AF of water delivered to CVWD. This rate includes a base water cost of $308.85 and a conveyance cost of $607.08 (Appendix 8-1 provides details).

Given the construction schedule for the infiltration wells, the program would avoid a total of 425,040 AF of SWP exchange water over its expected 60-year project life. Based on the rate assumptions described above and applying a discount rate of 6% (per DWR's PSP Guidelines), total present value benefits associated with the avoided purchase of this water amount to $104,011,739 over the 60-year program life.

Table 8-4: Imported Water Offsets and Costs by Year

Non-Potable Water Use Expansion Program

Year	Amount of Imported Water Offset	Discounted Price of Imported Water	Total Economic Benefit Resulting from Program
2016	1,610	$1,015.51	$1,634,971
2017	1,610	$1,051.05	$1,692,191
2018	1,610	$1,087.84	$1,751,422
2019	1,610	$1,125.91	$1,812,715
2020	3,220	$1,165.32	$3,752,330
2021	3,220	$1,182.80	$3,808,616
2022	3,220	$1,200.54	$3,865,739
2023	3,220	$1,218.55	$3,923,731
2024	3,220	$1,236.83	$3,982,593
2025	4,830	$1,255.38	$6,063,485
2026	4,830	$1,274.21	$6,154,434
2027	4,830	$1,293.32	$6,246,736
2028	4,830	$1,312.72	$6,340,438
2029	4,830	$1,332.41	$6,435,540
2030	6,440	$1,352.40	$8,709,456
2031	6,440	$1,372.69	$8,840,124
2032	6,440	$1,393.28	$8,972,723
2033	6,440	$1,414.18	$9,107,319
2034	6,440	$1,435.39	$9,243,912
2035-2077	8,050	$2,025.86	$675,228,605

**Please note that the discounted imported water price provided for 2035-2077 is an average of the imported water cost, and the cost-benefit analysis took into consideration the annual discounted price of imported water. The value presented in this table is for illustrative purposes only.*

B-Avoid Groundwater Pumping

By offsetting the use of local groundwater at the seven golf courses participating in this program, the *Non-Potable Water Use Expansion Program* would result in avoided costs associated with groundwater pumping. With the project, the golf courses will obtain non-potable water from CVWD and will therefore, cease local groundwater pumping. Information from CVWD demonstrates that average groundwater pumping costs currently amount to $53.08 per acre-foot[12] This value is estimated based upon pumping costs provided to CVWD by Southern California Edison, and are an average of pumping costs for 19 golf courses within the CVWD service area (refer to Attachment 7).

It is assumed that recycled water would be phased in according to project construction, and therefore, 2,311 AF would be provided in 2016, 7,281 would be provided in 2017, and 8,050 AF would be provided from 2018 through 2077. It is assumed that groundwater pumping would cease in a similar fashion. Table 8-5 provides an overview of the phasing assumptions and associated groundwater pumping offsets for the project.

Over the 60-year program life, total present value benefits associated with avoided groundwater pumping costs would amount to $5,546,288.

[12] Coachella Valley Water District (CVWD). 2012. *Non-Potable Water Agreement Charges and Details.*

Table 8-5: Groundwater Pumping Offsets by Year

Non-Potable Water Use Expansion Program

Year	Amount of Non-Potable Water Produced and Use (AFY)	Amount of Groundwater Pumping Offset (AFY)	Pumping Costs ($/AFY)	Total Economic Benefit Resulting from Program (Undiscounted)
2016	2,311	2,311	$53.08	$122,668
2017	7,281	7,281	$53.08	$386,475
2018-2077	483,000	483,000	$53.08	$25,637,640
TOTAL	492,592 (2016-2077)	492,592 (2016-2077)	$53.08	$26,146,783
**Please note that the discounted imported water price provided for 2017-2066 is an average of the imported water cost for that timeframe. The cost-benefit analysis took into consideration the annual discounted price of imported water, and the value provided in this table is for illustrative purposes only.*				

C-Avoid with Groundwater Replenishment

To accommodate the increased groundwater recharge that would be necessary if the program were not implemented, CVWD would need to construct additional groundwater injection wells to manage local groundwater overdraft that may occur within the area covered by the golf courses. The *Coachella Valley Water Management Plan Update* notes that the groundwater basin can be recharged by injection through either dedicated recharge wells or aquifer storage and recovery (ASR) wells which can be used for both recharge and groundwater production.[13] Injection has the benefit of placing replenishment water at the same location where pumping has occurred, which means that groundwater injection could be employed to address areas of acute overdraft that are experiencing localized land subsidence.

As described below, localized groundwater replenishment would require two types of costs: capital costs and O&M costs. Capital costs are those that would be required to construct necessary groundwater recharge facilities (injection wells). O&M costs are those that would be necessary to fund groundwater replenishment conducted by CVWD. CVWD recuperates costs associated with groundwater replenishment via leverage of a replenishment assessment charge (RAC) that is assessed per basin.

Capital Costs

In 2012, the Indio Water Authority (a CVRWMG agency and partner in the *Non-Potable Water Use Expansion Program*) investigated the costs associated with constructing an injection well as part of the planned Aquifer Storage and Recovery (ASR) program at Posse Park and Municipal Golf Course. The cost of one injection well at that site was estimated to be $1,239,930, assuming an injection rate of 1,000 gallons per minute (gpm).[14] The aforementioned cost does not include design and engineering costs associated with installing an injection well, and therefore represents a very conservative estimate for overall implementation of localized groundwater injection facilities.

Replenishment of 8,050 AFY would require an injection rate of 5,000 gpm, assuming that groundwater is being pumped on a continuous basis. As such, if the *Non-Potable Water Use Expansion Program* were not implemented, CVWD would need to install five (5) injection wells of a capacity of 1,000 gpm (or 1,610 AFY) each in order to provide for onsite local groundwater replenishment of the same magnitude provided by the program. Assuming the same capital cost of $1,239,930 per well, the total cost of

[13] CVWD. 2010. *Coachella Valley Water Management Plan Update*. Section 6.2.2 East Valley Recharge Facilities, page 6-35.

[14] Daniel B. Stephens & Associates, Inc. 2012. *IWA Aquifer Storage and Recovery Program, Preliminary Hydrogeologic Scope Cost Assessment.* Page 5, Table 2: Preliminary Cost Estimate for Drilling Subcontractor Costs, Injection Well Installation.

constructing five wells would amount to $6,199,650. It is assumed that construction of the wells would take one years each, and they would be constructed every five years beginning in 2014. The wells would all be brought online by 2034, at which point there would be cumulative capacity to recharge 8,050 AFY to the basin. Note that this timeline is much greater than the timeline of implementation for the *Non-Potable Water Use Expansion Program*. The proposed program is a more cost effective and reliable way to reduce groundwater overdraft and associated land subsidence in the near-term. Table 8-6 provides a brief overview of the cost and AFY assumptions for capital costs associated with groundwater replenishment.

Table 8-6: Average Capital Costs – Replenishment (Injection Wells)
Non-Potable Water Use Expansion Program

Year	Groundwater Replenishment (AFY)	Annual Capital Costs ($)*
2014	1,610	1,239,930
2019	1,610	1,239,930
2024	1,610	1,239,930
2029	1,610	1,239,930
2034	1,610	1,239,930
Total	8,050	$6,199,650
**Please note that these costs have not been discounted, and the values provided in this table is for illustrative purposes only.*		

Operations and Maintenance Costs (Replenishment Assessment Charge)

In 2012, CVWD's Replenishment Assessment Charge (RAC) for groundwater users in the Upper Whitewater River Subbasin (Upper) was $110.26 per AF for any water user pumping more than 25 AFY.[15] For groundwater users in the Lower Whitewater River Subbasin (Lower), RAC charges amounted to $38.00 per AF.[16] Based on the location of the seven golf courses – two are located within the Upper Whitewater River Subbasin and five are located within the Lower Whitewater River Subbasin – the weighted average 2012 RAC would be $66.50 per AF. Thus, average annual O&M costs of the replenishment wells would amount to $535,325 each year ($66.50 multiplied by 8,050 AFY).The methods used to calculate the aforementioned benefits are outlined in Table 8-7.

Table 8-7: Average Replenishment Assessment Charges
Non-Potable Water Use Expansion Program

Golf Course Name	Location	RAC ($/AF)	Annual Usage (AFY)	Annual RAC Charge ($/Year)
Desert Horizons	Upper	$110.26	867	$95,595
Lakes Country Club	Upper	$110.26	2,308	$254,480
Indian Springs	Lower	$38.00	975	$37,050
La Quinta Country Club	Lower	$38.00	975	$37,050
La Quinta Resort Mountain Course	Lower	$38.00	975	$37,050
LA Quinta Resort Dunes Course	Lower	$38.00	975	$37,050
Indian Palms	Lower	$38.00	975	$37,050
Total Across all Seven Golf Courses			**8,050**	**$535,325**
Average 2012 RAC ($/AF)				**$66.50**
Average Avoided Costs ($/year)				**$535,325**

[15] Coachella Valley Water District (CVWD). 2012. *Replenishment Assessment Charge: Upper Valley.* Available: http://www.cvwd.org/news/rac.php?area=uv

[16] Coachella Valley Water District (CVWD). 2012. *Replenishment Assessment Charge: Lower Valley.* Available: http://www.cvwd.org/news/rac.php?area=lv

Assuming that the O&M costs associated with groundwater replenishment (RAC) would phase in according to how groundwater replenishment would phase in, the total average avoided RAC ($535,325 per year) would not start accruing until 2035 when all five injection would be installed. As such, the RAC charges would phase in such that one-fifth (1/5) of the total RAC ($107,065) would be avoided from 2015-2019, 2/5 of the total RAC ($214,130) would be avoided from 2020-2024, 3/5 of the total RAC ($321,195) would be avoided from 2025-2029, 4/5 of the total RAC ($428,260) would be avoided from 2030-2034. Table 8-8 provides an overview of the phasing of avoided O&M costs associated with groundwater replenishment.

Table 8-8: Groundwater Pumping Offsets by Year

Non-Potable Water Use Expansion Program

Year	Total Average Avoided RAC ($/Year)	Percent of Groundwater Replenishment Wells Installed	Avoided RAC Costs ($)	Total Economic Benefit Resulting from Program (Undiscounted)*
2015-2019	$535,325	20% (1/5)	$107,065	$535,325
2020-2024	$535,325	40% (2/5)	$214,130	$1,070,650
2025-2029	$535,325	60% (3/5)	$321,195	$1,605,975
2030-2034	$535,325	80% (4/5)	$428,260	$2,141,300
2035-2077	$535,325	100% (5/5)	$535,325	$23,018,975
TOTAL				**$28,372,225**

**Please note that these costs have not been discounted, and the values provided in this table is for illustrative purposes only.*

Based on the estimated capital and O&M costs described above, the total present value benefit associated with avoided costs of groundwater replenishment would amount to $7,966,326 over the 60-year program life.

D. Reduce Social Costs Associated With CO_2 Emissions

The *Non-Potable Water Use Expansion Program* would provide non-potable water to seven golf courses within the Coachella Valley. The provision and use of non-potable water would offset the use of local groundwater by these golf courses, as well as the conveyance of additional SWP exchange water for groundwater recharge purposes. As a result, this program would avoid energy requirements associated with groundwater pumping, as well as the energy requirements associated with transporting SWP exchange water to the Region. This in turn would result in avoided carbon dioxide (CO_2) emissions (a greenhouse gas (GHG)) associated with the without-project water sources (groundwater pumping and additional SWP exchange water).

For this analysis, it is assumed that energy requirements associated with delivering and using Colorado River water (including Canal water) are 2.0 MWh/AF, energy requirements associated with delivering and using both recycled water and local groundwater are 0.8 MWh/AF. [17] As described in Attachment 7, this project will provide 2,152 AFY of recycled water, which would be blended with 1,998 AFY of Canal water, through the MVP. An additional 3,900 AFY of Canal water will be supplied directly from the Coachella Canal. From 2015 through 2034, the project will also avoid increasing levels of imported SWP

[17] As described in Attachment 7, energy use estimates for alternative water supply sources are based on estimates provided in CEC 2005, Navigant 2006, and Equinox 2010. The estimates used for this analysis are as follows: Imported Colorado River Water 2.0 MWh/AF (used for both water supplied via CRA and Coachella Canal), groundwater pumping 0.80 MWh/AF; recycled water treatment and distribution 0.80 MWh/AF.

exchange water associated with groundwater recharge. Beginning in 2034 (following completion of the fifth injection well under the "without project" scenario), the program will result in a net energy savings of 9,030 MWh per year. Cumulative energy savings will amount to 407,940 MWh over the 60-year life of the program.

Table 8-9: Energy and Emissions Savings Estimates

Non-Potable Water Use Expansion Program

Year	Program Components	Amount Supplied (AFY) a.	Energy Requirements (MWh/yr) b.	Imported Energy Offsets* (MWh/yr) c.	Groundwater Pumping Offsets** (MWh/yr) d.	Cumulative Energy Savings (MWh/yr) c.+d. – b.	Cumulative CO_2 Savings (MT/yr)
2016	Recycled Water	230	184	460	184	460	163
	Canal Water	2,081	4,162	4,162	1,665	1,665	589
						Subtotal	**752**
2017	Recycled Water	1,758	1,406	3,516	1,406	3,516	1,245
	Canal Water	5,523	11,046	11,046	4,418	4,418	1,564
						Subtotal	**2,809**
2018-2077	Recycled Water	2,158	1,726	4,316	1,726	4,316	1,528
	Canal Water	5,892	11,784	11,784	4,714	4,714	1,669
Subtotal per Year (2018-2077)							**3,196**
Program Total (60-year lifetime)							**188,957**

** Imported Energy Offsets were calculated based on an assumption of 2.0 MWh/AF*

*** Groundwater Pumping Offsets were calculated based on an assumption of 0.8 MWh/AF*

To calculate avoided CO_2 emissions associated with the program, the amount of energy that would be saved due to implementation of the program was multiplied by the average carbon emissions rate associated with energy production in California (0.354 megatons of CO_2 per megawatt-hour of energy (MT/MWh)). By avoiding 8,050 AFY of groundwater pumping and imported SWP exchange water, the program would result in a net reduction in CO_2 emissions of 3,196 MT per year beginning in 2018. Given the schedule for program construction and related project phasing, total net CO_2 emissions reductions amount to 188,957 MT over the 60-year program life (2016-2077).

To monetize this benefit, the dollar value assigned to GHG emissions, measured in carbon dioxide equivalent (CO2e), was applied. The social cost of carbon is estimated as the aggregate net economic value of damages from climate change across the globe, and is expressed in terms of future net benefits and costs that are discounted to the present.[18] In February 2010, the U.S. Government's Interagency Working Group on Social Cost of Carbon issued guidance on recommend values for the social cost of carbon for use in regulatory benefit-cost analysis. The recommended mean estimate of the social cost of

[18] Intergovernmental Panel on Climate Change (IPCC). 2007. Summary for policymakers. In *Climate Change 2007: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change,* M.L. Parry, O.F. Canziani, J.P. Palutikof, P.J. van der Linden, and C.E. Hanson (eds.). Cambridge University Press, Cambridge, UK. pp. 7–22.

reducing one metric ton of CO_2 in 2012 is $22.53/MT (updated from 2010 values using CPI), with a range of values from$4.95 to $68.33 per MT.[19]

For this analysis, the average value of $22.53/MT for 2012 was used when calculating social benefits and costs, which produces conservative estimates for the benefits and costs associated with GHG emissions. The United Kingdom has established an official estimate of the social cost of carbon for use in many of its program evaluations and models the growth rate of the cost at 2.4% per year in real terms. To determine total costs over the program period, the real social cost of carbon was escalated by 2.4% per year, which is above the general rate of inflation. The social cost of carbon would increase in future years because CO_2 would produce larger incremental damages as physical and economic systems become more stressed in responding to greater climate change.

Over the 60-year program life, total present value benefits associated with avoided social costs of carbon amount to $1,574,441.

Summary of Monetized Benefits

Tables 8-10 and 8-11 summarize the annual benefits from the program. Annual benefits include: avoided costs of purchasing imported water for groundwater replenishment, avoided groundwater pumping costs, and reduced social costs associated with CO_2 emissions. Annual benefits that are associated with avoided projects (constructing and operating five groundwater injection wells) are included in Table 8-11.

Table 8-10: Annual Benefits (PSP Table 15)

Non-Potable Water Use Expansion Program

Annual Project Benefits (2012 Dollars)									
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
Year	Type of Benefit	Measure of Benefit (Units)	Without Project	With Project	Change Resulting from Project (e) – (d)	Unit $ Value	Annual $ Value (f) x (g)	Discount Factor	Discounted Benefits (h) x (i)
2016	Imported water supply	AF	1,610	0	1,610	$1,015.51	$1,634,971	0.792	$1,295,050
	Groundwater pumping	AF	2,311	0	2,311	$53.08	$122,668	0.792	$97,164
	Social costs of CO_2 emissions	MT	1,795	1,539	752	$24.77	$18,629	0.792	$14,756
2017	Imported water supply	AF	1,610	0	1,610	$1,051.05	$1,692,191	0.747	$1,264,503
	Groundwater pumping	AF	7,281	0	7,281	$53.08	$386,475	0.747	$288,797
	Social costs of CO_2 emissions	MT	3,202	4,409	2,809	$25.37	$71,255	0.747	$53,246
2018	Imported water supply	AF	1,610	0	1,610	$1,087.84	$1,751,422	0.705	$1,234,684
	Groundwater pumping	AF	8,050	0	8,050	$53.08	$427,294	0.705	$301,225
	Social costs of CO_2 emissions	MT	3,420	4,783	3,196	$25.98	$83,017	0.705	$58,524

[19] Interagency Working Group. 2010. *Technical Support Document: Social Cost of Carbon for Regulatory Impact Analysis Under Executive Order 12866. Interagency Working Group on Social Cost of Carbon,* United States Government. February. Available: www.epa.gov/oms/climate/regulations/scc-tsd.pdf.

Annual Project Benefits (2012 Dollars)									
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
Year	Type of Benefit	Measure of Benefit (Units)	Without Project	With Project	Change Resulting from Project (e) – (d)	Unit $ Value	Annual $ Value (f) x (g)	Discount Factor	Discounted Benefits (h) x (i)
2019	Imported water supply	AF	1,610	0	1,610	$1,125.91	$1,812,715	0.665	$1,205,559
	Groundwater pumping	AF	8,050	0	8,050	$53.08	$427,294	0.665	$284,175
	Social costs of CO_2 emissions	MT	3,420	4,783	3,196	$26.60	$85,010	0.665	$56,536
2020	Imported water supply	AF	3,220	0	3,220	$1,165.32	$3,752,330	0.627	$2,354,259
	Groundwater pumping	AF	8,050	0	8,050	$53.08	$427,294	0.627	$268,090
	Social costs of CO_2 emissions	MT	4,560	4,783	3,196	$27.24	$87,050	0.627	$54,616
2021	Imported water supply	AF	3,220	0	3,220	$1,182.80	$3,808,616	0.592	$2,254,314
	Groundwater pumping	AF	8,050	0	8,050	$53.08	$427,294	0.592	$252,915
	Social costs of CO_2 emissions	MT	4,560	4,783	3,196	$27.89	$89,139	0.592	$52,761
2022	Imported water supply	AF	3,220	0	3,220	$1,200.54	$3,865,739	0.558	$2,158,608
	Groundwater pumping	AF	8,050	0	8,050	$53.08	$427,294	0.558	$238,599
	Social costs of CO_2 emissions	MT	4,560	4,783	3,196	$28.56	$91,278	0.558	$50,969
2023	Imported water supply	AF	3,220	0	3,220	$1,218.55	$3,923,731	0.527	$2,066,973
	Groundwater pumping	AF	8,050	0	8,050	$53.08	$427,294	0.527	$225,093
	Social costs of CO_2 emissions	MT	4,560	4,783	3,196	$29.25	$93,469	0.527	$49,238
2024	Imported water supply	AF	3,220	0	3,220	$1,236.83	$3,982,593	0.497	$1,979,227
	Groundwater pumping	AF	8,050	0	8,050	$53.08	$427,294	0.497	$212,352
	Social costs of CO_2 emissions	MT	4,560	4,783	3,196	$29.95	$95,712	0.497	$47,566
2025	Imported water supply	AF	4,830	0	4,830	$1,255.38	$6,063,485	0.469	$2,842,799
	Groundwater pumping	AF	8,050	0	8,050	$53.08	$427,294	0.469	$200,332
	Social costs of CO_2 emissions	MT	5,700	4,783	3,196	$30.67	$98,009	0.469	$45,951
2026	Imported water supply	AF	4,830	0	4,830	$1,274.21	$6,154,434	0.442	$2,722,112
	Groundwater pumping	AF	8,050	0	8,050	$53.08	$427,294	0.442	$188,993

Annual Project Benefits (2012 Dollars)									
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
Year	Type of Benefit	Measure of Benefit (Units)	Without Project	With Project	Change Resulting from Project (e) – (d)	Unit $ Value	Annual $ Value (f) x (g)	Discount Factor	Discounted Benefits (h) x (i)
	Social costs of CO_2 emissions	MT	5,700	4,783	3,196	$31.40	$100,362	0.442	$44,390
2027	Imported water supply	AF	4,830	0	4,830	$1,293.32	$6,246,736	0.417	$2,606,545
	Groundwater pumping	AF	8,050	0	8,050	$53.08	$427,294	0.417	$178,295
	Social costs of CO_2 emissions	MT	5,700	4,783	3,196	$32.16	$102,770	0.417	$42,882
2028	Imported water supply	AF	4,830	0	4,830	$1,312.72	$6,340,438	0.394	$2,495,890
	Groundwater pumping	AF	8,050	0	8,050	$53.08	$427,294	0.394	$168,203
	Social costs of CO_2 emissions	MT	5,700	4,783	3,196	$32.93	$105,237	0.394	$41,426
2029	Imported water supply	AF	4,830	0	4,830	$1,332.41	$6,435,540	0.371	$2,389,931
	Groundwater pumping	AF	8,050	0	8,050	$53.08	$427,294	0.371	$158,682
	Social costs of CO_2 emissions	MT	5,700	4,783	3,196	$33.72	$107,762	0.371	$40,019
2030	Imported water supply	AF	6,440	0	6,440	$1,352.40	$8,709,456	0.350	$3,051,304
	Groundwater pumping	AF	8,050	0	8,050	$53.08	$427,294	0.350	$149,700
	Social costs of CO_2 emissions	MT	6,840	4,783	3,196	$34.53	$110,349	0.350	$38,660
2031	Imported water supply	AF	6,440	0	6,440	$1,372.69	$8,840,124	0.331	$2,921,776
	Groundwater pumping	AF	8,050	0	8,050	$53.08	$427,294	0.331	$141,226
	Social costs of CO_2 emissions	MT	6,840	4,783	3,196	$35.36	$112,997	0.331	$37,347
2032	Imported water supply	AF	6,440	0	6,440	$1,393.28	$8,972,723	0.312	$2,797,738
	Groundwater pumping	AF	8,050	0	8,050	$53.08	$427,294	0.312	$133,232
	Social costs of CO_2 emissions	MT	6,840	4,783	3,196	$36.20	$115,709	0.312	$36,079
2033	Imported water supply	AF	6,440	0	6,440	$1,414.18	$9,107,319	0.294	$2,678,967
	Groundwater pumping	AF	8,050	0	8,050	$53.08	$427,294	0.294	$125,691
	Social costs of CO_2 emissions	MT	6,840	4,783	3,196	$37.07	$118,486	0.294	$34,853
2034	Imported water supply	AF	6,440	0	6,440	$1,435.39	$9,243,912	0.278	$2,565,233

Annual Project Benefits (2012 Dollars)									
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
Year	Type of Benefit	Measure of Benefit (Units)	Without Project	With Project	Change Resulting from Project (e) – (d)	Unit $ Value	Annual $ Value (f) x (g)	Discount Factor	Discounted Benefits (h) x (i)
	Groundwater pumping	AF	8,050	0	8,050	$53.08	$427,294	0.278	$118,576
	Social costs of CO_2 emissions	MT	6,840	4,783	3,196	$37.96	$121,330	0.278	$33,670
2035-2077	Imported water supply	AF	8,050	0	8,050	$1,456.92	$11,728,206	Variable	$61,126,271
	Groundwater pumping	AF	8,050	0	8,050	$53.08	$427,294	Variable	$1,814,949
	Social costs of CO_2 emissions	MT	7,980	4,783	3,196	$38.87	$124,242	Variable	$740,952
Total Present Value of Discounted Benefits for Avoided Imported Water Purchase Based on Unit Value (Sum of the values in Column (j) for all Benefits shown in table									**$104,011,739**
Total Present Value of Discounted Benefits for Avoided Groundwater Pumping Based on Unit Value (Sum of the values in Column (j) for all Benefits shown in table									**$5,546,288**
Total Present Value of Discounted Benefits for Social Costs of CO_2 Emissions Based on Unit Value (Sum of the values in Column (j) for all Benefits shown in table									**$1,574,441**
Total Present Value of Discounted Benefits Based on Unit Value (Sum of the values in Column (j) for all Benefits shown in table)									**$111,132,468**

Table 8-11: Annual Avoided Costs (PSP Table 16)

Non-Potable Water Use Expansion Program

Annual Costs of Avoided Projects (2012 Dollars)						
	Costs				Discounting Calculations	
(a)	(b)	(c)	(d)	(e)	(f)	(g)
Year	Construction and Operation of Five Groundwater Replenishment Wells					
	Avoided Capital Costs	Avoided Replacement Costs	Avoided Operations and Maintenance Costs	Total Costs Avoided for Individual Alternatives (b) + (C) + (d)	Discount Factor	Discounted Costs (e) x (f)
2014	$1,239,930		$0	$1,239,930	0.890	$1,103,533
2015			$107,065	$107,065	0.840	$89,894
2016			$107,065	$107,065	0.792	$84,806
2017			$107,065	$107,065	0.747	$80,005
2018			$107,065	$107,065	0.705	$75,477
2019	$1,239,930		$107,065	$1,346,995	0.665	$895,829
2020			$214,130	$214,130	0.627	$134,348
2021			$214,130	$214,130	0.592	$126,743

Annual Costs of Avoided Projects (2012 Dollars)						
	Costs				Discounting Calculations	
(a)	(b)	(c)	(d)	(e)	(f)	(g)
Year	Construction and Operation of Five Groundwater Replenishment Wells					
	Avoided Capital Costs	Avoided Replacement Costs	Avoided Operations and Maintenance Costs	Total Costs Avoided for Individual Alternatives (b) + (C) + (d)	Discount Factor	Discounted Costs (e) x (f)
2022			$214,130	$214,130	0.558	$119,569
2023			$214,130	$214,130	0.527	$112,801
2024	$1,239,930		$214,130	$1,454,060	0.497	$722,623
2025			$321,195	$321,195	0.469	$150,589
2026			$321,195	$321,195	0.442	$142,065
2027			$321,195	$321,195	0.417	$134,023
2028			$321,195	$321,195	0.394	$126,437
2029	$1,239,930		$321,195	$1,561,125	0.371	$579,746
2030			$428,260	$428,260	0.350	$150,038
2031			$428,260	$428,260	0.331	$141,546
2032			$428,260	$428,260	0.312	$133,533
2033			$428,260	$428,260	0.294	$125,975
2034	$1,239,930		$428,260	$1,668,190	0.278	$462,931
2035			$535,325	$535,325	0.262	$140,147
2036			$535,325	$535,325	0.247	$132,214
2037			$535,325	$535,325	0.233	$124,730
2038			$535,325	$535,325	0.220	$117,670
2039			$535,325	$535,325	0.207	$111,009
2040			$535,325	$535,325	0.196	$104,726
2041			$535,325	$535,325	0.185	$98,798
2042			$535,325	$535,325	0.174	$93,206
2043			$535,325	$535,325	0.164	$87,930
2044			$535,325	$535,325	0.155	$82,953
2045			$535,325	$535,325	0.146	$78,257
2046			$535,325	$535,325	0.138	$73,827
2047			$535,325	$535,325	0.130	$69,649
2048			$535,325	$535,325	0.123	$65,706
2049			$535,325	$535,325	0.116	$61,987
2050			$535,325	$535,325	0.109	$58,478
2051			$535,325	$535,325	0.103	$55,168
2052			$535,325	$535,325	0.097	$52,045
2053			$535,325	$535,325	0.092	$49,099

Annual Costs of Avoided Projects (2012 Dollars)						
	Costs				Discounting Calculations	
(a)	(b)	(c)	(d)	(e)	(f)	(g)
Year	Construction and Operation of Five Groundwater Replenishment Wells					
	Avoided Capital Costs	Avoided Replacement Costs	Avoided Operations and Maintenance Costs	Total Costs Avoided for Individual Alternatives (b) + (C) + (d)	Discount Factor	Discounted Costs (e) x (f)
2054			$535,325	$535,325	0.087	$46,320
2055			$535,325	$535,325	0.082	$43,698
2056			$535,325	$535,325	0.077	$41,225
2057			$535,325	$535,325	0.073	$38,891
2058			$535,325	$535,325	0.069	$36,690
2059			$535,325	$535,325	0.065	$34,613
2060			$535,325	$535,325	0.061	$32,654
2061			$535,325	$535,325	0.058	$30,806
2062			$535,325	$535,325	0.054	$29,062
2063			$535,325	$535,325	0.051	$27,417
2064			$535,325	$535,325	0.048	$25,865
2065			$535,325	$535,325	0.046	$24,401
2066			$535,325	$535,325	0.043	$23,020
2067			$535,325	$535,325	0.041	$21,717
2068			$535,325	$535,325	0.038	$20,488
2069			$535,325	$535,325	0.036	$19,328
2070			$535,325	$535,325	0.034	$18,234
2071			$535,325	$535,325	0.032	$17,202
2072			$535,325	$535,325	0.030	$16,228
2073			$535,325	$535,325	0.029	$15,309
2074			$535,325	$535,325	0.027	$14,443
2075			$535,325	$535,325	0.025	$13,625
2076			$535,325	$535,325	0.024	$12,854
2077			$535,325	$535,325	0.023	$12,127
Total Present Value of Discounted Costs (Sum of column (g))						**$7,966,326**
(%) Avoided Cost Claimed by Project						**100%**
Total Present Value Discounted Avoided Project Costs Claimed by Alternative Project (Total Present Value of Discounted Costs x % Avoided Cost Claimed by Project)						**$7,966,326**

Project Benefits and Costs Summary

Project Economic Costs

Capital costs for the program total $3,080,478 (undiscounted). Construction and implementation costs (including construction administration and contingency costs) account for $2,715,478 (about 88%) of total capital costs. Program administration, planning, design, environmental documentation and compliance, and mitigation costs account for the remainder of the capital budget.

O&M costs associated with the program would total about $27,155 per year and are based on an assumption of 1% of the capital costs. Because avoided groundwater pumping costs and avoided imported water purchases are claimed as a benefit in this analysis, the O&M costs associated with the program include the cost of purchasing and distributing 5,898 AFY of Canal water, as well as the cost of treating and distributing 2,152 AFY of recycled water via the MVP. This allows for a direct comparison of the program to the "without project" baseline (as described in Attachment 7).

In total, the present value capital and O&M costs associated with the project amount to $14,813,557 over the 60-year project life. Table 8-12 summarizes the economic project costs for the project.

Table 8-12: Annual Project Costs (PSP Table 19)

Non-Potable Water Use Expansion Program

Project Annual Costs (2012 Dollars)										
			Annual Costs						Discounting Calculations	
	Initial Costs Grand Total Cost from Table 6 (row (i), column (d))	Adjusted Grand Total Cost	Admin	Operation	Maintenance	Replace-ment	Other	Total Costs (a) +…+ (g)	Discount Factor (Capital) Present Value Coeff (O&M)	Discounted Project Costs (h) x (i)
Year	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
2012								$0.00	1.000	$0.00
2013	$154,024.00							$154,024.00	0.943	$145,305.66
2014	$462,072.00							$462,072.00	0.890	$411,242.44
2015	$924,143.00							$924,143.00	0.840	$775,928.28
2016	$1,232,191.00			$171,860.36				$1,404,051.36	0.792	$1,112,140.18
2017	$308,048.00			$832,817.16				$1,140,865.16	0.747	$852,520.82
2018				$981,271.80				$981,271.80	0.705	$691,757.90
2019				$981,271.80				$981,271.80	0.665	$652,601.79
2020				$981,271.80				$981,271.80	0.627	$615,662.07
2021				$981,271.80				$981,271.80	0.592	$580,813.27
2022				$981,271.80				$981,271.80	0.558	$547,937.05
2023				$981,271.80				$981,271.80	0.527	$516,921.74
2024				$981,271.80				$981,271.80	0.497	$487,662.02
2025				$981,271.80				$981,271.80	0.469	$460,058.51
2026				$981,271.80				$981,271.80	0.442	$434,017.46
2027				$981,271.80				$981,271.80	0.417	$409,450.44
2028				$981,271.80				$981,271.80	0.394	$386,274.00
2029				$981,271.80				$981,271.80	0.371	$364,409.43
2030				$981,271.80				$981,271.80	0.350	$343,782.48
2031				$981,271.80				$981,271.80	0.331	$324,323.10

Project Annual Costs (2012 Dollars)										
			Annual Costs						Discounting Calculations	
	Initial Costs Grand Total Cost from Table 6 (row (i), column (d))	Adjusted Grand Total Cost	Admin	Operation	Maintenance	Replace-ment	Other	Total Costs (a) +…+ (g)	Discount Factor (Capital) Present Value Coeff (O&M)	Discounted Project Costs (h) x (i)
Year	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
2032				$981,271.80				$981,271.80	0.312	$305,965.19
2033				$981,271.80				$981,271.80	0.294	$288,646.40
2034				$981,271.80				$981,271.80	0.278	$272,307.93
2035				$981,271.80				$981,271.80	0.262	$256,894.27
2036				$981,271.80				$981,271.80	0.247	$242,353.08
2037				$981,271.80				$981,271.80	0.233	$228,634.99
2038				$981,271.80				$981,271.80	0.220	$215,693.38
2039				$981,271.80				$981,271.80	0.207	$203,484.32
2040				$981,271.80				$981,271.80	0.196	$191,966.34
2041				$981,271.80				$981,271.80	0.185	$181,100.32
2042				$981,271.80				$981,271.80	0.174	$170,849.36
2043				$981,271.80				$981,271.80	0.164	$161,178.64
2044				$981,271.80				$981,271.80	0.155	$152,055.32
2045				$981,271.80				$981,271.80	0.146	$143,448.42
2046				$981,271.80				$981,271.80	0.138	$135,328.70
2047				$981,271.80				$981,271.80	0.130	$127,668.58
2048				$981,271.80				$981,271.80	0.123	$120,442.06
2049				$981,271.80				$981,271.80	0.116	$113,624.58
2050				$981,271.80				$981,271.80	0.109	$107,193.00
2051				$981,271.80				$981,271.80	0.103	$101,125.47
2052				$981,271.80				$981,271.80	1.000	$981,271.80
2053				$981,271.80				$981,271.80	1.000	$981,271.80

Project Annual Costs (2012 Dollars)										
			Annual Costs						Discounting Calculations	
	Initial Costs Grand Total Cost from Table 6 (row (i), column (d))	Adjusted Grand Total Cost	Admin	Operation	Maintenance	Replace-ment	Other	Total Costs (a) +…+ (g)	Discount Factor (Capital) Present Value Coeff (O&M)	Discounted Project Costs (h) x (i)
Year	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
2054				$981,271.80				$981,271.80	1.000	$981,271.80
2055				$981,271.80				$981,271.80	1.000	$981,271.80
2056				$981,271.80				$981,271.80	1.000	$981,271.80
2057				$981,271.80				$981,271.80	1.000	$981,271.80
2058				$981,271.80				$981,271.80	1.000	$981,271.80
2059				$981,271.80				$981,271.80	1.000	$981,271.80
2060				$981,271.80				$981,271.80	1.000	$981,271.80
2061				$981,271.80				$981,271.80	1.000	$981,271.80
2062				$981,271.80				$981,271.80	0.097	$95,401.39
2063				$981,271.80				$981,271.80	0.092	$90,001.31
2064				$981,271.80				$981,271.80	0.087	$84,906.90
2065				$981,271.80				$981,271.80	0.082	$80,100.85
2066				$981,271.80				$981,271.80	0.077	$75,566.84
2067				$981,271.80				$981,271.80	0.073	$71,289.47
2068				$981,271.80				$981,271.80	0.069	$67,254.22
2069				$981,271.80				$981,271.80	0.065	$63,447.37
2070				$981,271.80				$981,271.80	0.061	$59,856.01
2071				$981,271.80				$981,271.80	0.058	$56,467.94
2072				$981,271.80				$981,271.80	0.054	$53,271.64
2073				$981,271.80				$981,271.80	0.051	$50,256.26
2074				$981,271.80				$981,271.80	0.048	$47,411.57
2075				$981,271.80				$981,271.80	0.046	$44,727.89

Project Annual Costs (2012 Dollars)										
			Annual Costs						Discounting Calculations	
	Initial Costs Grand Total Cost from Table 6 (row (i), column (d))	Adjusted Grand Total Cost	Admin	Operation	Maintenance	Replace-ment	Other	Total Costs (a) +…+ (g)	Discount Factor (Capital) Present Value Coeff (O&M)	Discounted Project Costs (h) x (i)
Year	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
2076				$809,411.45				$809,411.45	0.043	$34,805.88
2077				$148,454.64				$148,454.64	0.041	$6,022.42
Total Present Value of Discounted Costs (Sum of Column (j)) Transfer to Table 17, column (c), Proposal Benefits and Costs Summaries										**$24,626,275**

Benefits and Costs Summary

As shown in the Tables 8.-10 and 8-11 above, the total present value benefits associated with the *Non-Potable Water Use Expansion Program* amount to $119,098,794 over the expected 60-year life. The total present value cost of the program (including capital and O&M costs) is $24,626,275. The *Non-Potable Water Use Expansion Program* would therefore result in a total cost benefit ratio of approximately 5:1.

Omissions, Biases, and Uncertainties

The monetized benefits of the program include: avoided costs of purchasing imported water for groundwater replenishment, avoided groundwater pumping costs, avoided costs associated with construction and operation of new groundwater injection wells, reduced social costs associated with CO_2 emissions, and avoided fertilizer costs.

In addition to monetized benefits and costs, the program would also result in the following physically quantifiable and non-monetized benefits:

- Social recreation/access benefits due to golf courses connected to the MVP being able to irrigate during times of drought and for a lower per acre-foot cost. Social/recreation access benefits associated with reduced water costs for golf courses may include increased spending on golf course improvements, avoided golf course rate increases, or potentially avoided golf closures.
- Help avoid, reduce, or resolve various public water resources conflicts by helping to meet state mandates associated with water recycling.
- Improve groundwater quality by reducing localized groundwater pumping that could result in contamination of the high-quality lower aquifer with contaminants.
- Reduce demand for net diversions from the Delta
- Provide a long-term solution in place of a short-term one due to the use of more sustainable water supply sources.
- Improve water supply reliability by offsetting the use of unsustainable groundwater (which is currently in a state of overdraft), as well as the use of unreliable imported water.

This analysis of costs and benefits is based on available data and some assumptions. As a result, there may be some omissions, uncertainties, and possible biases. In this analysis, the main uncertainties are associated with the cost of obtaining Table A water exchanges to replenish the groundwater basin in the without project baseline, and the social cost of carbon emissions. These issues are listed in Table 8-13.

Table 8-13: Omissions, Biases, and Uncertainties

Non-Potable Water Use Expansion Program

Benefit or Cost Category	Likely Impact on Net Benefits*	Comment
Avoided purchase of imported water for groundwater recharge	-	This analysis assumes that without the project, 8,050 AFY of SWP Exchange Water would be available each year for groundwater recharge. Due to the uncertainty of SWP supplies, the full amount of this water may not be available in each year. Insufficient groundwater recharge would then impose a range of short- and long-term costs.
Avoided purchase of imported water for groundwater recharge	U	The calculation of avoided imported water costs assumes that MWD water rates would increase annually (in real terms) by 3.5% through 2020. Beyond 2020, a 1.5% real increase in water rates is assumed. These projections are based on existing and planned MWD financial commitments and recent increases in MWD rates. It is uncertain whether actual future rate increases would be above or below these assumed rate increases.
Avoided construction of new injection wells	+	The cost estimate for the construction of additional injection wells does not include hydrologic analysis, design, planning, and engineering costs that would be incurred if the wells were constructed. This could significantly increase the unit cost of each well.
Reduced social costs of carbon	U	The social cost of carbon used in this analysis represents the mid-point of values presented in the literature. The true social cost of carbon may be higher or lower than the estimate used here.

*Direction and magnitude of effect on net benefits:
+ = Likely to increase net benefits relative to quantified estimates.
++ = Likely to increase net benefits significantly.
– = Likely to decrease benefits.
— = Likely to decrease net benefits significantly.
U = Uncertain, could be + or –.

Project 2: Coachella Valley Salt & Nutrient Management Program

Introduction

This attachment presents the economic analysis for the *Coachella Valley Salt & Nutrient Management Program*. A project abstract and project benefit summary table are followed by the following sections as outlined in the PSP: Non-Monetized Benefits Analysis (Section D2), Monetized Benefit Analysis (Section D3), and Project Benefits and Costs Summary (Section D5).

Abstract

The *Coachella Valley Salt & Nutrient Management Program* will implement the analytical and planning tasks needed to develop a SNMP for the Coachella Valley Groundwater Basin that is compliant with the State's Recycled Water Policy. Key tasks to be undertaken by the CVRWMG include:

1. Establish a collaborative process of Valley stakeholders interested in groundwater management, which will entail setting up working groups, conducting technical review meetings and conference calls, conducting stakeholder workshops, and program management.
2. *Characterize the groundwater basins*, including identifying the groundwater basins to be evaluated, collecting and reviewing existing groundwater data, documenting beneficial uses, characterizing groundwater quality and occurrences, identifying constituents of concern, and establishing baseline conditions.
3. *Identify salt/nutrient loading and trends* by first identifying salt/nutrient sources, and then quantifying salt/nutrient source loads and developing a plan for data gaps.
4. *Identify water management goals and potential strategies*, which would entail developing a list of potential management strategies, evaluating the feasibility of those potential management strategies, and then conducting an assimilative capacity analysis.
5. *Conduct anti-degradation process*, which includes assessing load reduction and water quality improvements, and identifying preferred management strategies.
6. *Finalize the SNMP*, which includes developing an implementation plan, identifying metrics and developing a monitoring plan, developing data management, reporting, and audit processes, determining CEQA/NEPA compliance needs, and producing the SNMP document.

Successful completion of the SNMP is necessary to ensure compliance with the Recycled Water Policy. Compliance with this policy is necessary for continued Colorado River RWQCB approval of recycled water permits in the Basin. Therefore, developing the SNMP will enable continued use and expansion of the Valley's water recycling efforts, which are an important component of the Region's groundwater management strategy.

Development of the Coachella Valley SNMP would be a collaborative process driven by stakeholders that have already been identified during Phase I activities. This program allows the Region's water and wastewater agencies to better manage salts and nutrients in the groundwater basin to preserve the high quality groundwater supply used for potable purposes.

Summary Project Benefits and Costs

A summary of all benefits and costs of the project are provided in Table 8-14. Monetized benefits and non-monetized benefits are presented in this attachment, while physically quantified (but not monetized) benefits are described in Attachment 7. As shown in the table, this project will yield monetizable present value (PV) benefits that greatly exceed the PV costs, and will also provide important additional benefits that could not be reliably quantified and/or monetized.

Please note that the numbering associated with each benefit has been completed in accordance with the numbering presented in Attachment 7. Therefore, benefits described below may not be presented in numeric order.

Table 8-14: Benefit-Cost Analysis Overview

Coachella Valley Salt & Nutrient Management Program

	Present Value
Costs – Total Capital and O&M	**$707,985**
Monetizable Benefits	
A-Maintain use of recycled water and avoid additional imports	$50,373,746
B-Reduce social costs associated with CO_2 emissions	$825,204
J-Avoided cost of drilling new municipal wells	$825,362
Total Monetizable Benefits	**$52,024,312**
Physically Quantified Benefit or Cost	**Project Life Total**
C-Prevent stranded assets	$45-90 million
Qualitative Benefit or Cost	**Qualitative Indicator***
D-Provide social recreation or access benefits	++
E-Help avoid, reduce or resolve various public water resources conflicts	+
K-Promote social health and safety	+
L-Improve groundwater quality	++
F-Improve the overall, long-term management of California groundwater resources	+
G-Reduce demand for net diversions for the regions from the Delta	+
H-Provide a long-term solution in place of a short-term one	+
I-Improve water supply reliability	+

* Direction and magnitude of effect on net benefits:
+ = Likely to increase net benefits relative to quantified estimates.
++ = Likely to increase net benefits significantly.
– = Likely to decrease net benefits.
– – = Likely to decrease net benefits significantly.
U = Uncertain, could be + or –.

Non-Monetized Benefits Analysis

Narrative Description of Qualitative Benefits

D-Provide Social Recreation or Access Benefits

The golf course industry is an important part of the local and regional economy. The hotel and entertainment industry is the second largest employer in the region. This category is made up of hotels, resorts, Indian gaming, golf courses and other entertainment venues.[20] Recycled water is essential for the golf industry. Recycled water rates are set by CVWD at 15% below the documented cost of groundwater extraction for the golf courses as a financial incentive for using recycled water.[21] The current price DWA's customers pay for recycled water is one half the potable water rate ($0.645/100 CF).[22] Without

[20]Coachella Valley Economic Partnership (CVEP). 2011. *Compete and Prosper: Coachella Valley 2011 Economic Report.* Page 74, Appendix – Employment and Payroll Details. Available: http://cvep.com/LiteratureRetrieve.aspx?ID=107804

[21]Coachella Valley Water District (CVWD). 2011b. *Coachella Valley Water District 2010 Urban Water Management Plan Final Report.* Page 4-29, Section 4.5.3, Recycled Water Customer Incentives.

[22] Katie Ruark, Public Information Officer, Desert Water Agency, email dated February 13, 2013.

the source of recycled water, golf courses would likely revert to private groundwater pumping with the associated increases in energy needed for pumping and increased overdraft of the aquifer system.

E-Help Avoid, Reduce or Resolve Various Public Water Resources Conflicts

This program would ensure compliance with the State of California's Recycled Water Policy, which requires that SNMPs be developed to manage salts, nutrients, and other significant chemical compounds on a watershed- or basin-wide basis. The SNMPs are intended to help streamline permitting of new recycled water projects while ensuring compliance with water quality objectives and protection of beneficial uses. For each groundwater basin, a SNMP is to be provided to the Regional Water Quality Control Board (RWQCB) no later than May 2014. An extension of up to 2 years may be granted by the RWQCB if the region demonstrates substantial progress by the May 2014 deadline.

Stakeholder involvement is a key component of the SNMP. Stakeholders will include those whose activities and operations may impact salt and nutrient loading in the Basin, including water purveyors, wastewater and agricultural interests, private well owners, environmental groups, regulatory staff, and the general public. Stakeholder involvement will increase awareness and collaboration among these parties in addressing the Region's water quality and water supply issues.

K-Promote Social Health and Safety

The purpose of the SNMP provision of the Recycled Water Policy is to cumulatively manage salts and nutrients across groundwater basins. The 2010 *Coachella Valley Water Management Plan Update* reports data on nutrients and TDS that shows that the total load of these constituents is increasing in the Region.[23]Without the project, the Region would not undertake a regional planning process to address salt and nutrient loading in groundwater and, therefore, water quality degradation would likely continue unchecked.

L-Improve Groundwater Quality

The purpose of the SNMP provision of the Recycled Water Policy is to cumulatively manage salts and nutrients across groundwater basins. Information on nutrients and TDS shows that the total load of these constituents is increasing in the Region.[24] Without the project, the Region would not undertake a regional planning process to address salts and nutrients in groundwater and, therefore, salt and nutrient loading would likely continue to occur. Without this program, additional water would be needed to balance inflow and outflow in the groundwater basin. This would most likely come from the Colorado River which has higher TDS (625-975 mg/L[25]) than recycled water (450-500 mg/L[26]). Therefore, without exportation of salts, an increase in usage of Colorado River water for recharge would potentially continue salt loading into the basin.

F- Improve the Overall, Long-Term Management of California Groundwater Resources

The SNMPs are intended to help streamline permitting of new recycled water projects while ensuring compliance with water quality objectives and protecting beneficial uses. The plan will identify and rank overall management goals and strategies to be achieved within the groundwater basin or sub-basin/management areas. Desired goals may focus on source load reduction, treatment, providing other forms of water quality protection, or increased recycled water use.

[23]Coachella Valley Water District (CVWD). 2010a. *Coachella Valley Water Management Plan Update.* Page5-5, Section 5.1.2.1 Impacts of Colorado River Water Recharge.

[24]Coachella Valley Water District (CVWD). 2010a. *Coachella Valley Water Management Plan Update.* Page5-5, Section 5.1.2.1 Impacts of Colorado River Water Recharge.

[25]Coachella Valley Water District (CVWD). 2012b. *Coachella Canal at Avenue 52 East – Water Quality Data.*

[26]Coachella Valley Water District (CVWD). 2010b. *Coachella Valley 2010 WMP Update Draft Subsequent Program EIR.* Page 6-58, Section 6.4.4.6, Impact of Recycled Water Use.

G-Reduce Demand for Net Diversions for the Regions from the Bay-Delta

This program is required for the continued use of recycled water for golf and other irrigation, thus reducing the need for groundwater extraction. This in turn reduces aquifer drawdown and thus lessens the amount of purchased/exchanged water that is needed for groundwater recharge. CVWD and DWA have contracts for imported water supplies from the State Water Project (SWP), which is managed by the California DWR. Because there is no direct delivery of SWP water to the Coachella Valley, CVWD's and DWA's SWP water is exchanged with MWD for Colorado River water delivered at turnouts from Metropolitan's Colorado River Aqueduct. Transfers or leases from north of or within the Bay-Delta could potentially affect Bay-Delta water quantity or quality. The SNMP, however, will enable continued recycled water use and reduce the demand for additional imported water, which would ultimately be delivered from the Bay-Delta via a SWP water exchange.

H- Provide a Long-Term Solution in Place of a Short-Term One

The SNMP is intended to be long-term planning document to manage salts, nutrients, and other significant chemical compounds on a watershed- or basin-wide basis. A collaborative process will be executed for establishing goals and objectives, gathering input on technical analysis tasks, and developing implementation and basin management measures. This collaborative process will help to ensure that long-term solutions are identified and implemented to manage salts, nutrients, and other relevant water quality constituents in the Region's most important water-related asset, the Coachella Valley Groundwater Basin.

I- Improve Water Supply Reliability

The reliability of a water supply refers to its ability to meet water demands on a consistent basis, even in times of drought or other constraints on source water availability. The *Coachella Valley Salt & Nutrient Management Program* would help address reliability issues for the Region by offsetting the use of imported water through compliance with the Recycled Water Policy.

Although interest in water supply reliability is increasing due to increasing water demands and concerns over climate-related events, only a few studies have directly attempted to quantify its value. The results from these studies indicate that residential and industrial (i.e., urban) customers seem to value supply reliability quite highly. Stated preference studies find that water customers are willing to pay $100 to more than $500 per household per year for total reliability (i.e., a 0% probability of their water supply being interrupted in times of drought).[27]

The challenge in applying these values to determine a value for increased reliability as a result of the *Coachella Valley Salt & Nutrient Management Program* is recognizing how to reasonably interpret these survey-based household monetary values. The values noted above reflect a willingness to pay per household to ensure complete reliability (zero drought-related use restrictions in the future), whereas the *Coachella Valley Salt & Nutrient Management Program* only enhances overall reliability and does not guarantee 100% reliability. Thus, if applied directly to the number of households within the Region, the dollar values from the studies would overstate the reliability value provided by the program.

[27] Carson, R.T.; Mitchell, R.C. *Economic Value of Reliable Water Supplies for Residential Water Users in the State Water Project Service Area*; SWC Exhibit Number 54;

The Metropolitan Water District of Southern California, Los Angeles, 1987.

CUWA. *The Value of Water Supply Reliability: Results of a Contingent Valuation Survey of Residential Customers*, California Urban Water Agencies, Sacramento, CA. [Online] 1994, http://www.cuwa.org/library/TheValueofWaterSupplyReliabilityAug94.pdf (accessed October 1, 2009).

Griffin, R.C.; Mjelde, J.W. Valuing Water Supply Reliability. *American Journal of Agricultural Economics* 2000, *82*, 414–426

Raucher, R., J. Clements, and others. 2013. *The Value of Water Supply Reliability in the Residential Sector.* WateReuse Research Foundation. Project WRF-08-09.

Wolff, G. 2007. Calculating constant-reliability water supply unit costs. *Water Policy*. International Water Association, London, UK

A simple way to roughly adjust for this "whole versus part" problem is to attribute a portion of the total value of reliability to the portion of the problem that is solved by the program. To adjust for the partial improvement in reliability from the *Coachella Valley Salt & Nutrient Management Program*, it is assumed that household willingness to pay for improved reliability is directly proportional to the amount of recycled water that will offset imported water, as a percentage of the total water supply. This represents the percentage of total supply that has been improved in terms of overall reliability.

Due to the uncertainty involved in applying quantified economic numbers to the water supply reliability benefits that the Region would accrue as a result of the *Coachella Valley Salt & Nutrient Management Program*, this benefit estimate has been provided here to give an idea of the potential magnitude of this benefit, but has not been quantified or economically monetized within the overall cost-benefit ratio for this program.

Quantified Benefits

C-Prevent Stranded Assets

CVWD has invested $42 million in the Mid-Valley Pipeline (MVP) to date, and this recycled water pipeline asset would be stranded (i.e., would not be used) if water recycling was discontinued for any extended period of time. Additionally, the 2012 CVWD Comprehensive Annual Financial Report demonstrates that CVWD's total sanitation assets were valued at $451 million in 2012.[28] Verbal estimations from CVWD indicate that recycled water facilities are estimated to be 10 to 20 % of the Valley's total sanitation assets.[29] Estimates from DWA indicate that they have invested approximately $26 million (unadjusted for depreciation) in their tertiary treatment facilities and associated distribution system.[30]

As such, it is estimated that assets (recycled water facilities) that would be stranded if recycled water could not be used in the Region, are valued between $75and $125 million. Please note that the aforementioned figure represents a minimum value of stranded assets.

Monetized Benefit Analysis

Several monetized benefits are expected to accrue over the expected five-year life of the project. The five year lifetime is based on the mandated need to update the plan every five years. These monetized benefits include: 1) maintaining the ability to use recycled water and 2) avoiding the cost for drilling at least one new municipal well to replace wells otherwise likely to become nitrate-impacted.

A-Maintain Use of Recycled Water and Avoid Additional Imports

The State of California's Recycled Water Policy requires that Salt and Nutrient Management Plans (SNMPs) be developed to manage salts, nutrients, and other significant chemical compounds on a watershed- or basin-wide basis. The SNMPs are intended to help streamline permitting of new recycled water projects while ensuring compliance with water quality objectives and protection of beneficial uses. For each groundwater basin, a SNMP is to be provided to the Regional Water Quality Control Board (RWQCB) no later than May 2014. An extension of up to 2 years may be granted by the RWQCB if the region demonstrates substantial progress by the May 2014 deadline.

Without the project, the Region would not be in compliance with the state's Recycled Water Policy, and therefore would not be able to continue distribution and use of recycled water as projected. The Region current uses 14,268 AFY (in 2010) and is expected to increase recycled water use to 44,280 AFY in 2035.

[28] Coachella Valley Water District (CVWD). 2012a. *Coachella Valley Water District Comprehensive Annual Financial Report – for the Fiscal Year Ended June 30, 2012.* Page 14, Statement of Net Assets.

[29] Patti Reyes, CVWD Director of Planning and Special Programs, email dated February 15, 2013

[30] Katie Ruark, Public Information Officer, Desert Water Agency, email dated February 13, 2013.

This benefit was calculated by determining the value of the current 14,268 AFY of recycled water that would be lost in 2016 if this project was not started. The year 2016 represents a conservative time frame, which assumes that from the time of violation it would take up to two years for current recycled water permits to be revoked. The amount of recycled water would not be available until a SNMP was ultimately completed, which we assume would occur five years after the current with project SNMP is expected to be completed. This five-year project lifetime was estimated, since state requirements call for the SNMP to be updated every five years. While this project would support the increase in the amount of recycled water, with a projected increase to 44,280 AFY by 2035, data is not currently available on when these increases will occur. Therefore the conservative current value of 14,268 AFY was applied for all fivey ears of the expected benefit for this project.

In order to account for the loss of recycled water, additional water would need to be imported from outside the basin and would most likely come from the Colorado River. The Valley already uses its full Colorado River water allocation, so additional recharge water would need to be acquired from other external sources. This would be done by acquiring rights to SWP water held by other entities, and exchanging these purchased rights with MWD for locally available Colorado River water. The cost per AF of these SWP acquisitions exchanged for Colorado River water has been estimated to be $928.50 in 2012 (see Appendix 8-1 for a detailed description of avoided imported water costs).

B-Reduce Social Costs Associated with CO_2 Emissions

Without this project, golf courses and other irrigation-related recycled water customers would shift to private groundwater wells or use potable municipally-supplied water. Recycled water is currently used as a means of managing the Region's groundwater overdraft, as recycled water use directly offsets both groundwater pumping from private wells and groundwater pumping associated with potable municipal water supplies. Additional groundwater pumping that would be required to replace recycled water would also require the Region to import additional water supplies to the Region. Cumulatively, these actions would increase net emissions, because they would directly increase pumping and associated energy requirements, and would also require energy associated with transporting additional imported water supplies to the Region. This project would also avoid the importation of additional SWP exchange water for groundwater recharge purposes. As a result, this program would avoid energy requirements associated with groundwater pumping, as well as the energy requirements associated with transporting SWP exchange water to the Region. This in turn would result in avoided carbon dioxide (CO_2) emissions (a greenhouse gas (GHG)) associated with the without-project water sources (groundwater pumping and additional SWP water).

For this analysis, it is assumed that energy requirements associated with delivering and using Colorado River water (the source of SWP exchange water) are 2.0 mega-watt hours per acre-foot (MWh/AF), energy requirements associated with delivering and using both recycled water and local groundwater are 0.8 MWh/AF.[31] The following table provides an overview of the cumulative energy and carbon dioxide savings that would result from the program.

[31] As described in Attachment 7, energy use estimates for alternative water supply sources are based on estimates provided in CEC 2005, Navigant 2006, and Equinox 2010. The estimates used for this analysis are as follows: Imported Colorado River Water 2.0 MWh/AF (used for both water supplied via CRA and Coachella Canal), groundwater pumping 0.80 MWh/AF; recycled water treatment and distribution 0.80 MWh/AF.

Table 8-15: Energy and Emissions Savings Estimates
Coachella Valley Salt & Nutrient Management Program

Program Components	Amount Supplied (AFY) a.	Energy Requirements* (MWh/year) b.	Imported Energy Offsets** (MWh/year) c.	Groundwater Pumping Offsets*** (MWh/year) d.	Cumulative Energy Savings (MWh/year) c.+d. – b.	Cumulative CO_2 Savings (MT/year)
Recycled Water Produced and Used	14,628	11,702	29,256	11,702	29,256	10,356
Program Total (per year)						**10,356**
Program Total (5-year lifetime)						**51,780**

**Energy requirements were calculated based on an assumption of 0.8 MWh/AF for pumping associated with use of reclaimed water*

*** Imported Energy Offsets were calculated based on an assumption of 2.0 MWh/AF for importation of Colorado River Water*

**** Groundwater Pumping Offsets were calculated based on an assumption of 0.8 MWh/AF for well pumping that would occur without this project.*

To calculate avoided CO_2 emissions associated with the program, the amount of energy that would be saved due to implementation of the program (29,256 MWh per year) was multiplied by the average carbon emissions rate associated with energy production in California (0.354 megatons of CO_2 per megawatt-hour of energy (MT/MWh)). By avoiding 14,628 AFY of groundwater pumping and imported SWP exchange water, the program would result in a net reduction in CO_2 emissions of 10,356 MT per year.

To monetize this benefit, the dollar value assigned to GHG emissions, measured in carbon dioxide equivalent (CO2e), was applied. The social cost of carbon is estimated as the aggregate net economic value of damages from climate change across the globe, and is expressed in terms of future net benefits and costs that are discounted to the present.[32] In February 2010, the U.S. Government's Interagency Working Group on Social Cost of Carbon issued guidance on recommend values for the social cost of carbon for use in regulatory benefit-cost analysis. The recommended mean estimate of the social cost of reducing one metric ton of CO_2 in 2012 is $22.53/MT (updated from 2010 values using CPI), with a range of values from$4.95 to $68.33 per MT.[33]

For this analysis, the average value of $22.53/MT for 2012 was used when calculating social benefits and costs, which produces conservative estimates for the benefits and costs associated with GHG emissions. The United Kingdom has established an official estimate of the social cost of carbon for use in many of its program evaluations and models the growth rate of the cost at 2.4% per year in real terms. To determine total costs over the program period, the real social cost of carbon was escalated by 2.4% per year, which is above the general rate of inflation. The social cost of carbon would increase in future years because CO_2 would produce larger incremental damages as physical and economic systems become more stressed in responding to greater climate change.

[32] Intergovernmental Panel on Climate Change (IPCC). 2007. Summary for policymakers. In *Climate Change 2007: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change,* M.L. Parry, O.F. Canziani, J.P. Palutikof, P.J. van der Linden, and C.E. Hanson (eds.). Cambridge University Press, Cambridge, UK. pp. 7–22.

[33] Interagency Working Group. 2010. *Technical Support Document: Social Cost of Carbon for Regulatory Impact Analysis Under Executive Order 12866. Interagency Working Group on Social Cost of Carbon,* United States Government. February. Available: www.epa.gov/oms/climate/regulations/scc-tsd.pdf.

Over the 5-year program life, total present value benefits associated with avoided social costs of carbon amount to $825,204.

J-Avoid Cost of Drilling New Municipal Wells

Data collected in the region has shown that nitrate levels are increasing in some areas. Since 2007, CVWD has inactivated four wells due to increasing nitrate levels (CVWD, 2011). A number of other wells are being monitored on a monthly basis, with some approaching triggers for removing them from service. Without this SNMP and the implementation of strategies to reduce nutrient levels, additional wells may need to be taken out of service.

Information from the CVRWMG agencies demonstrates that wellhead treatment for nitrates requires advanced water treatment that is prohibitively expensive on an individual well-by-well basis. [34] As such, when wells become contaminated (generally with nitrates), the agencies will tend to drill a new well in non-contaminated areas rather than invest in additional treatment at the contaminated site. Four wells are or particular concern and without this project may need to be replaced in the next 20 years. Therefore, over the assumed five year course of this project, it is estimated that one new well would need to be drilled.

According to estimates provided by DWA, the cost of drilling a new potable water well at Plant 41 was estimated to be $1,042,000.[35] The aforementioned numerical estimate was provided by DWA and represents the actual cost associated with construction potable water well Plant 41 in DWA's service area.

Table 8-16 summarizes the annual benefits from the project, and Table 8-17 summarizes the annual avoided costs from the project.

[34] Coachella Valley Water District (CVWD). 2010a. *Coachella Valley Water Management Plan Update.* Page 8-12 and 8-13, Section 8.1.4.3 Nitrate Remediation/Treatment.

[35] Katie Ruark, Public Information Officer, Desert Water Agency, email dated February 13, 2013.

Table 8-16: Annual Project Benefits (PSP Table 15

Coachella Valley Salt & Nutrient Management Program

Annual Project Benefits (2012 Dollars)									
(a)	**(b)**	**(c)**	**(d)**	**(e)**	**(f)**	**(g)**	**(h)**	**(i)**	**(j)**
Year	**Type of Benefit**	**Measure of Benefit (Units)**	**Without Project**	**With Project**	**Change Resulting from Project (e) – (d)**	**Unit $ Value**	**Annual $ Value (f) x (g)**	**Disco-unt Factor***	**Discounted Benefits (h) x (i)**
2016 - 2020	Maintain Use of Recycled Water and Avoid Additional Imports	AFY	0 AFY	14,268 AFY	14,268 AFY	$974/AF	$13,897,032	0.792	**$11,008,457**
2016 - 2020	Reduce Net Generation of GHGs	MT/Year	14,499 MT/Year	4,143 MT/Year	-10,356 MT/Year	$22.53/ MT	$233,321	0.792	**$184,812**
Total Present Value of Discounted Benefits for Maintaining Recycled Water Use Based on Unit Value (Sum of the values in Column (j) for all Benefits shown in table)									**$50,373,746**
Total Present Value of Discounted Benefits for Maintaining Recycled Water Use Based on Unit Value (Sum of the values in Column (j) for all Benefits shown in table)									**$825,204**
TOTAL Present Value of All Discounted Benefits Based on Unit Value (Sum of the values in Column (j) for all Benefits shown in table)									**$51,198,950**
***Note:** Discount factors provided in the table above are those for the year 2016. Discount rates from 2017-2020 have been applied to calculate the total present value of discounted benefits in accordance with DWR discount rates.*									

Table 8-17: Annual Costs of Avoided Projects (PSP Table 16)

Coachella Valley Salt & Nutrient Management Program

Annual Costs of Avoided Projects (2012 Dollars)						
	Costs				**Discounting Calculations**	
(a)	**(b)**	**(c)**	**(d)**	**(e)**	**(f)**	**(g)**
Year	**Avoid Cost of Drilling New Municipal Wells**					
	Avoided Capital Costs	**Avoided Replace-ment Costs**	**Avoided Operations and Maintenance Costs**	**Total Costs Avoided for Individual Alternatives (b) + (C) + (d)**	**Discount Factor**	**Discounted Costs (e) x (f)**
2016	$1,042,000			$1,042,000	0.792	$825,362
Total Present Value of Discounted Costs (Sum of column (g))						**$825,362**
(%) Avoided Cost Claimed by Project						**100**
Total Present Value Discounted Avoided Project Costs Claimed by Alternative Project (Total Present Value of Discounted Costs x % Avoided Cost Claimed by Project)						**$825,362**

Project Benefits and Costs Summary

Project Economic Costs

Table 8-18 summarizes the schedule of expenditures for the Coachella Valley Salt & Nutrient Management Program and Table 8-19 summarizes the economic project costs for the project. Costs are for labor associated with managing and developing the SNMP. The labor is spread over a four year period, with the majority of work being accomplished in 2013, 2014, and 2015.

It is important to note that this project is Phase II of a two-phase effort. Phase 1 had a total cost of $107,625 and was completed in 2013.Phase I costs are included in the total present value costs associated with this project. Phase II, or this project, is what is needed to be in compliance with the Recycled Water Policy. The SNMP would also require periodic updating. This is estimated to be every five years because the Recycled Water Policy requires that a Blue Ribbon Panel update their Constituents of Emerging Concern [CEC] Report every 5 years. Further, it is realistic to assume that the SNMP will require regular updating similar to other water planning efforts such as Urban Water Management Plans, which are updated every five years. The effort (scope) and potential costs associated with updating the SNMP are unknown at this time, as it is unknown what would be required to complete a SNMP update. Further, no costs are included in this analysis for updating the plan, as each 5-year renewal increment is not currently required for compliance with the Recycled Water Policy, and therefore should be considered independently.

Table 8-18: Total Project Cost Schedule

Coachella Valley Salt & Nutrient Management Program

Year	Phase I	Phase II (Work included in Grant Work Plan)
2012	$90,000	$0
2013	$17,625	$128,733
2014	$0	$379,422
2015	$0	$169,385
Total	**$107,625**	**$677,540**

Table 8-19: Project Annual Costs (PSP Table 19)

Coachella Valley Salt & Nutrient Management Program

Project Annual Costs (2012 Dollars)										
	Initial Costs Grand Total Cost from Table 6 (row (i), column (d))	Adjusted Grand Total Cost	Annual Costs						Discounting Calculations	
			Admin	Operation	Maintenance	Replace-ment	Other	Total Costs (a) +…+ (g)	Discount Factor (Capital) Present Value Coeff (O&M)	Discounted Project Costs (h) x (i)
Year	**(a)**	**(b)**	**(c)**	**(d)**	**(e)**	**(f)**	**(g)**	**(h)**	**(i)**	**(j)**
2012							$90,000	$90,000	1.000	$90,000
2013	$128,733						$17,625	$146,358	0.943	$138,016
2014	$379,422							$379,422	0.890	$337,686
2015	$169,385							$169,385	0.840	$142,283
Total Present Value of Discounted Costs (Sum of Column (j)) Transfer to Table 17, column (c), Proposal Benefits and Costs Summaries										**$707,985**

Benefits and Costs Summary

The estimated present value of the benefits of this projects are $52,024,312, which are comprised of: the value of maintaining the use of recycled water ($50,373,746 present value benefit), the value of reducing net generation of greenhouse gases ($825,204 present value benefit), and the avoided costs associated with not needed to drill an additional well during the project period ($825,362 present value cost). The present value cost of this project is $707,985. Therefore, the benefit to cost ratio for this project is 73:1.

Omissions, Uncertainties, and Biases

This analysis of costs and benefits is based on available data and some assumptions. As a result, there may be some omissions, uncertainties, and possible biases. In this analysis, the main uncertainties are associated with the benefit associated with maintaining the ability to use recycled water and avoid additional water imports. These issues are listed in Table 8-20.

Table 8-20: Omissions, Biases, and Uncertainties

Coachella Valley Salt & Nutrient Management Program

Benefit or Cost Category	Likely Impact on Net Benefits*	Omissions, Biases, and Uncertainties
Maintain Use of Recycled Water and Avoid Additional Imports	+	Does not account for any increase in recycled water volume for 2011 until end of without project impact
Maintain Use of Recycled Water and Avoid Additional Imports	U	Since the SNMP has not yet been developed, we do not know the specific outcomes for S&N management and their potential impacts on recycled water volumes
Maintain Use of Recycled Water and Avoid Additional Imports	U	Operations and maintenance savings from not operating the recycled water plant. May balance with new O+M needs associated with water imports.
Reduced social costs of carbon	U	The social cost of carbon used in this analysis represents the mid-point of values presented in the literature. The true social cost of carbon may be higher or lower than the estimate used here.

*Direction and magnitude of effect on net benefits:
+ = Likely to increase net benefits relative to quantified estimates.
++ = Likely to increase net benefits significantly.
– = Likely to decrease benefits.
— = Likely to decrease net benefits significantly.
U = Uncertain, could be + or –.

Project 3: Groundwater Quality Protection Program – Subarea D2

Introduction

This attachment presents the economic analysis for the Groundwater Quality Protection Program–Subarea D2 Project. A project abstract and project benefit summary table are followed by the following sections as outlined in the PSP: Non-Monetized Benefits Analysis (Section D2), Monetized Benefit Analysis (Section D3), and Project Benefits and Costs Summary (Section D5).

Project Abstract

The City of Desert Hot Springs is classified as an economically disadvantaged community (DAC), located within the Mission Springs Water District (MSWD) service area, which is located within the Colorado River Basin. This community overlays the Desert Hot Springs groundwater aquifer, a hot-water groundwater basin containing hot mineral water with temperatures exceeding 100 degrees Fahrenheit. This water serves as the economic basis of the City of Desert Hot Springs, because it draws visitors to the City's numerous spa resorts and hotels.

The Colorado River Basin Regional Water Quality Control Board's (RWQCB) *Water Quality Control Plan for the Colorado River Basin* (Basin Plan) notes septic system impacts to groundwater as a critical regional issue and specifically states that septic systems within the Colorado River Basin have the potential to negatively impact groundwater.[36] In addition, the RWQCB recommends a specific septic tank density that should be implemented to reduce groundwater quality impacts. Portions of the City of Desert Hot Springs have septic tank densities that are 2.3 to 2.8 times higher than the density recommended by the RWQCB. As such, the high density of the septic systems potentially threatens the water quality of the local groundwater supply, and therefore the local economy, which is highly dependent on hot mineral water to support the spa and hotel industry.

As a response to local issues associated with high-density septic systems, Assessment District 12 was approved by voters in 2004, providing approximately $28 million of matching funds that expires in 2014. This money was used to fund engineering design of a wastewater collection system that will abate approximately 6,000 on-site septic systems. Design of 10 sub-areas that make up the Assessment District is complete, and funds are now needed for construction. Environmental compliance documentation was completed in 1998 and re-certified in 2007.

The project area, Subarea D2, consists of 582 parcels and 382 existing on-site septic systems that will be converted to sewers by connecting to the existing MSWD sewer system. Wastewater collected by the MSWD sewer system would be sent to the existing Horton Wastewater Treatment Plant (WWTP), where it would be beneficially reused via percolation. Project construction includes installing 18,555 linear feet of 8-inch vitrified clay pipe (VCP) sewer, 15,281 lineal feet of 4-inch VCP sewer laterals, 70 manholes, and all appurtenances. Final design work for Subarea D2 was completed in 2010, and construction is currently ready to bid.

Summary Project Benefits and Costs

A summary of all benefits and costs of the project are provided in Table 8-21. Monetized benefits and non-monetized benefits are presented in this attachment, while physically quantified (but not monetized) benefits are described in Attachment 7.

[36] Colorado River RWQCB. 2006. *Water Quality Control Plan for the Colorado River Basin (Region 7).* Includes Amendments through June 2006. Section III: Regional Board Issues, A: Septic System Impacts to Groundwater Basins, page 5-2. Section II. Point Source Controls, H: Septic Systems, page 4-5.

Please note that the numbering associated with each benefit has been completed in accordance with the numbering presented in Attachment 7; therefore benefits described below may not be presented in numeric order.

Table 8-21: Benefit-Cost Analysis Overview

Groundwater Quality Protection Program – Subarea D2

	Present Value
Costs – Total Capital and O&M	**$3,715,196**
Monetizable Benefits	
A. Avoid Cost of Imported Water for Recharge	$1,779,515
D. Avoid Loss of Hotel Revenue and Transient Occupancy Tax	$5,466,164
E. Avoid O&M Costs to Septic Tank Owners	$2,222,099
Total Monetizable Benefits	**$9,467,779**
Qualitative Benefit or Cost	**Qualitative Indicator***
B. Reduce Demand for Net Diversions from the Bay-Delta	+
C. Improve Water Supply Reliability	+
F. Avoid Groundwater Treatment	++
G. Provide Social Recreation Benefits	++
H. Promote Social Health and Safety	+
I. Avoid Losses in Spa Economy	++
J. Benefit Wildlife or Habitat Through Recharge	U
K. Improve Groundwater Quality and Protect Beneficial Uses	+
L. Improve the Overall, Long-Term Management of California Groundwater Resources	+
M. Provide a Long-Term Solution	++

* Direction and magnitude of effect on net benefits:
+ = Likely to increase net benefits relative to quantified estimates.
++ = Likely to increase net benefits significantly.
– = Likely to decrease net benefits.
– – = Likely to decrease net benefits significantly.
U = Uncertain, could be + or –.

Non-Monetized Benefits Analysis

Narrative Description of Qualitative Benefits

B-Reduce Demand for Net Diversions from the Bay-Delta

The *Groundwater Quality Protection Program – Subarea D2* involves septic-to-sewer conversions that will allow for beneficial reuse (direct and indirect groundwater recharge) of wastewater flows that would otherwise be lost to the Desert Hot Springs subbasin. This additional recharge would amount to 158 AFY beginning in 2018, and would offset the need to import additional water for groundwater recharge purposes. CVWD and DWA have contracts for imported water supplies from the SWP, which is exchanged with MWD for Colorado River water delivered at turnouts from MWD's Colorado River Aqueduct. Because the Region already receives its entire imported water entitlements (as they are available) and also purchases additional SWP Table A water from other agencies[37], any additional imported water needed to balance groundwater extraction would be purchased and transferred from the

[37] Coachella Valley Water District (CVWD). 2011. *Coachella Valley Water District 2010 Urban Water Management Plan Final Report.* Page 4-19, Section 4.2.3.2 Other SWP Transfers.

SWP. Transfers or leases from north of or within the Bay-Delta could potentially affect Bay-Delta water quantity or quality.

By reducing the need to import additional water for groundwater recharge, the project would directly offset demands for additional State Water Project (SWP) water to balance basin extraction. Therefore, this project would offset net diversions from the Bay-Delta and help preserve this vital resource.

C- Improve Water Supply Reliability

The reliability of a water supply refers to its ability to meet water demands on a consistent basis, even in times of drought or other constraints on source water availability. The project will help address reliability issues by offsetting the need for additional future use of imported water for groundwater recharge. The reliability of imported water is subject to a number of natural and human forces, ranging from increased population growth (and accompanying increased demands), to drought and earthquakes, to environmental regulations and water rights determinations.

Although interest in water supply reliability is increasing, only a few studies have directly attempted to quantify its value. The results from these studies indicate that residential and industrial customers seem to value supply reliability quite highly. Stated preference studies find that water customers are willing to pay $100 to more than $500 per household per year for total reliability (i.e., a 0% probability of their water supply being interrupted in times of drought).[38]

The challenge in applying these values is to determine a value of increased reliability as a result of this project and recognizing how to reasonably interpret these survey-based household monetary values. The values noted above reflect a willingness to pay per household to ensure complete reliability (zero drought-related use restrictions in the future), whereas this project only enhances overall reliability and does not guarantee 100% reliability. Thus, if applied directly to the number of households within the MSWD service area, the dollar values from the studies would overstate the reliability value provided by the project.

A simple way to roughly adjust for this "whole versus part" problem is to attribute a portion of the total value of reliability to the portion of the problem that is solved by the project. To adjust for the partial improvement in reliability from this project, it is assumed that household willingness to pay for improved reliability is directly proportional to the amount of recycled water that will offset imported water, as a percentage of the total potable water supply. This represents the percentage of total supply that has been improved in terms of overall reliability (i.e., by offsetting imported water demand with local sources).

Due to the uncertainty involved in applying these numbers to this situation, this benefit estimate is not included in the tables. However, it is provided here to give an idea of the potential magnitude of this benefit.

[38] Carson, R.T.; Mitchell, R.C. *Economic Value of Reliable Water Supplies for Residential Water Users in the State Water Project Service Area*; SWC Exhibit Number 54; The Metropolitan Water District of Southern California, Los Angeles, 1987.

CUWA. *The Value of Water Supply Reliability: Results of a Contingent Valuation Survey of Residential Customers*, California Urban Water Agencies, Sacramento, CA. [Online] 1994, http://www.cuwa.org/library/TheValueofWaterSupplyReliabilityAug94.pdf (accessed October 1, 2009).

Griffin, R.C.; Mjelde, J.W. Valuing Water Supply Reliability. *American Journal of Agricultural Economics* 2000, *82*, 414–426

Howe, C.W.; Smith, M.G. The Value of Water Supply Reliability in Urban Water Systems. *Journal of Environmental Economics and Management* 1994, *26*, 19–30.

Raucher, R., J. Clements, and others. 2013. *The Value of Water Supply Reliability in the Residential Sector.* WateReuse Research Foundation. Project WRF-08-09.

Wolff, G. 2007. Calculating constant-reliability water supply unit costs. *Water Policy*. International Water Association, London, UKGriffen and Mjelde, 2000, Raucher et al., 2013

F-Avoid Groundwater Treatment

By eliminating wastewater from entering the groundwater aquifer within the project area, the *Groundwater Quality Protection Program – Subarea D2* project would potentially reduce or eliminate the need to conduct groundwater treatment to remove nitrate, pathogens, and other constituents. The primary purpose of this project is to remove a source of contaminates (wastewater) from coming into contact with groundwater in the Desert Hot Springs aquifer. If the project were not implemented, it is possible that groundwater users such as local hotels and spas would install onsite treatment devices to remove contaminants such as nitrates, pathogens, and other constituents from the water. Although not economically monetized, such treatment activities would likely be expensive, potentially prohibitively expensive to the residents and business owners within Desert Hot Springs, an economically disadvantaged community.

An independent consultant has calculated the potential costs required to remove nitrates from wells within the Desert Hot Springs aquifer. Initial capital costs of $857,000 would be needed to install wellhead treatment equipment on two hypothetical wells with a combined capacity of 3,500 gallons per minute.

At this time it is not know what type of treatment would be required, because the specific type of contaminants present in the groundwater are not known. Further, it is not known what the treatment capacity would need to be since this value is dependent upon the impacted well in question, which is hypothetical at this time. Due to the uncertainty involved in applying these numbers to this situation, this benefit estimate is not included in the tables. However, an approximate treatment cost for nitrates is provided here to give an idea of the potential magnitude of this benefit.

G-Provide Social Recreation Benefits

The Desert Hot Springs subbasin, which underlies Subarea D2, contains natural mineral hot springs. The community of Desert Hot Springs contains an estimated 24 businesses that are marketed as a spa and other services associated with the natural mineral hot springs. If the Desert Hot Springs subbasin and the associated hot springs were to become contaminated from leaking or failing septic tanks in Subarea D2, the tourism-related business of the Desert Hot Springs community would be substantially impacted. The conversion of Subarea D2 to a municipal sewer system reduces the probability of contamination and associated loss of tourism and recreation. Direct monetized benefits associated with hotel revenue and transient occupancy tax revenue associated with tourism are provided in the preceding section. However, the mineral hot springs that would be protected by this project also provide other social benefits such as therapeutic recreation benefits that have not been monetized, because they are qualitative in nature.

H-Promote Social Health and Safety

If the Desert Hot Springs groundwater aquifer were contaminated with nitrates, pathogens, or other constituents from leaking or failing septic systems, those constituents could impact the public health of spa users that would come into direct contact with contaminated water.

I-Avoid Losses in Spa Economy

As shown in Figure 3-2 in Attachment 3, the City of Desert Hot Springs is a DAC whose households earn less on average than the Statewide median household income of $48,706. The City of Desert Hot Springs Financial Statements for FY 2011 also show that faced a $5.9 million deficit in 2011.[39] Because the city of Desert Hot Springs is a DAC, loss of revenue to this economy would be particularly burdensome and could cause catastrophic social and economic impacts. The project would help to avoid these impacts by protecting hotel revenues and transient occupancy tax revenue.

[39] City of Desert Hot Springs. 2012. *City of Desert Hot Springs Financial Statements, Year Ending June 30, 2011.* Page 4, "Change in Net Assets"

J-Benefit Wildlife or Habitat Through Recharge

A RWQCB staff report on the Salton Sea Transboundary Watershed shows that the Coachella Valley IRWM Region is located within the Salton Sea Transboundary Area, meaning that Subarea D2 is hydrologically connected to the Salton Sea.[40] This staff report also discusses water quality issues such as nutrient impairment and eutrophication within the Salton Sea, which are from constituents such as nitrates often found in septic effluent.[41] Without the project, water quality constituents from leaking or failing septic tanks in Subarea D2 would continue to infiltrate into the Desert Hot Springs groundwater aquifer, and could eventually enter the Salton Sea.

Groundwater extraction in the Region also has the potential to impact the continued viability of mesquite hummocks, which provide important habitat for locally-important species that include the Coachella Valley fringe-toed lizard, Palm Springs pocket mouse, and Coachella Valley round-tailed ground squirrel.[42] These mesquite hummocks often occur along fault zones where groundwater is forced to the surface, such as the mesquite hummocks along the Banning Fault in the Willow Hole Conservation Area. The vegetation structure of the mesquite traps sand that has been transported by wind from sand deposited or exposed by flood events in Mission Creek and Morongo Wash floodplains on the south side of the Banning Fault forming dunes and hummocks along the fault line. The mesquite associated with sand dunes enhances conditions that provide habitat for the aforementioned species.[43] The *Supplemental EIR/EIS for the Coachella Valley Multiple Species Habitat Conservation Plans/Natural Community Conservation Plan* acknowledges that potential threats to the mesquite hummocks natural community in the Region include competition for subsurface water from non-native tamarisk and the drawdown of the groundwater table within the Mission Creek subbasin.

As described above, MSWD currently percolates treated effluent into the Mission Creek subbasin. Though this does not reduce the demand for pumped groundwater (as would distribution of recycled water), it does provide recharge that benefits basin as a whole and lessens the impact of pumping.[44] The proposed project would contribute wastewater flows to the HWWTP which would in turn either recycle it for beneficial reuse (planned to begin in 2020)[45] or continue to percolate it at the plant. These activities will contribute to the long-term health of the mesquite hummocks and other groundwater-dependant habitats within the Coachella Valley.

K-Improve Groundwater Quality and Protect Beneficial Uses

Effluent from septic tanks is known to contain relatively high concentrations of nitrite, nitrate, and nitrogen as ammonia, which can leach into the local groundwater, thereby causing increased nitrate concentrations in groundwater. Further, leaking or failing septic tanks could potentially leach raw sewage into the local groundwater, which would pose further water quality issues associated with fecal matter contamination and associated pathogens. By removing this potential source of nitrate, the project will help improve water quality within the Desert Hot Springs and Mission Creek groundwater aquifers.

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[40] Regional Water Quality Control Board (RWQCB). 2000. *California Environmental Protection Agency Regional Water Quality Control Board Colorado River Basin Region – Staff Report: Water Quality Issues in the Salton Sea Transboundary Watershed.*

[41] Regional Water Quality Control Board (RWQCB). 2000. *California Environmental Protection Agency Regional Water Quality Control Board Colorado River Basin Region – Staff Report: Water Quality Issues in the Salton Sea Transboundary Watershed.*

[42] Coachella Valley Association of Governments. 2007. *Supplemental Environmental Impact Report/Supplemental Environmental Impact Statement for a Major Amendment to the Coachella Valley Multiple Species Habitat Conservation Plans/Natural Community Conservation Plan*. Page 4.2-10.

[43] Coachella Valley Association of Governments. 2007. *Supplemental Environmental Impact Report/Supplemental Environmental Impact Statement for a Major Amendment to the Coachella Valley Multiple Species Habitat Conservation Plans/Natural Community Conservation Plan*. Page 4.2-10.

[44] MSWD. 2011. *2010 Urban Water Management Plan.* Section 2.2.4 Recycled Water, page 2-19.

[45] MSWD. 2011. *2010 Urban Water Management Plan.* Section 2.2.4 Recycled Water, page 2-19.

Further, due to the project's location within the Salton Sea Transboundary Watershed, groundwater within the Desert Hot Springs groundwater aquifer is hydrologically connected to the Salton Sea, meaning that constituents from septic tanks could eventually enter the Salton Sea. The Salton Sea is already challenged with water quality issues such as nutrient impairment and eutrophication, which result in low dissolved oxygen, high ammonia levels, and foul odors.[46] Further inputs of nitrates into the sea could exacerbate these issues.

L-Improve the Overall, Long-Term Management of California's Groundwater Resources

The *Groundwater Quality Protection Project – Subarea D2* involves septic-to-sewer conversions that will increase the amount of treated wastewater that can be used for groundwater recharge and for recycled water when the HWWTP upgrades to tertiary treatment in the future.[47] Recharge from the HWWTP will supplement supplies in the Mission Creek groundwater aquifer that serves as the primary source of water for users within the MSWD service area. Further, future recycled water provided by the HWWTP will be used by irrigation customers to offset groundwater pumping, and will therefore also benefit water users within the MSWD service area and Valley-wide.

These benefits will help to manage California's groundwater resources (Mission Creek groundwater aquifer is Basin 7-21.02 as designated by DWR Bulletin 118[48]) on a long-term basis as they will help recharge the local groundwater basin or provide for source substitution due to recycled water provisions from HWWTP that would be used to offset localized groundwater pumping from the Mission Creek groundwater aquifer.

M-Provide a Long-Term Solution

The *Groundwater Quality Protection Project – Subarea D2* involves septic-to-sewer conversions that will provide sustainable long-term management of local wastewater (in lieu of septic systems) and increases beneficial reuse of wastewater flows, thereby reducing dependence on imported water necessary for recharging the groundwater basin. As such, this project provides a long-term solution to local wastewater management in the Desert Hot Springs community and will provide infrastructure that will help the Region to manage its groundwater resources on a long-term basis.

Monetized Benefit Analysis

Several monetized benefits are expected to accrue over the expected 60-year life of the project. Those include the avoided purchase of imported water, avoided loss of hotel revenue and transient occupancy tax, avoided O&M costs to septic tank owners, and avoided wellhead treatment.

A-Avoid Cost of Imported Water for Recharge

The MSWD groundwater protection program involves septic-to-sewer conversions that will increase wastewater flows to the HWWTP. The 2010 *Urban Water Management Plan* shows that wastewater produced at the HWWTP is currently placed in percolation ponds that are located over the Mission Creek groundwater aquifer.[49] Therefore, flows are currently used for recharge and are beneficially reused, as MSWD primarily uses water from the Mission Creek aquifer.[50] Without the project, wastewater flows

[46] Regional Water Quality Control Board (RWQCB). 2000. *California Environmental Protection Agency Regional Water Quality Control Board Colorado River Basin Region – Staff Report: Water Quality Issues in the Salton Sea Transboundary Watershed.*

[47] MSWD. 2011. *2010 Urban Water Management Plan.* Section 2.2.4 Recycled Water, page 2-19.

[48] California Department of Water Resources. 2013. *Basins and Subbasins of the Colorado River Hydrologic Region*. Available: http://www.water.ca.gov/groundwater/bulletin118/colorado_river.cfm

[49] Mission Springs Water District (MSWD). 2011. *2010 Urban Water Management Plan.* Section 2.2.4 Recycled Water, page 2-19.

[50] Mission Springs Water District (MSWD). 2011. *2010 Urban Water Management Plan.* Page 2-1, Section 2.1.1 Groundwater.

from Subarea D2 would infiltrate into the non-potable Desert Hot Springs groundwater aquifer, which is not used as a water supply source. Therefore, the water would not be beneficially reused.

This project will connect 582 parcels and 382 septic systems to MSWD wastewater collection system. Information from the engineering and design work completed to date for the project shows that the total wastewater flows from Subarea D2 are 0.141 million gallons per day (mgd) or 158 acre-feet per year (AFY).[51] Applying MSWD's assumption that 10% would be losses in the treatment system, Subarea D2 will provide 142.2 AFY in future recycled water supply.

As described above, MSWD currently percolates treated effluent into the Mission Creek subbasin. Though this does not reduce the demand for pumped groundwater (as would distribution of recycled water), it does provide recharge that benefits basin as a whole and lessens the impact of pumping.[52] Without this project, additional water may need to be imported from outside the basin to balance extraction. Regional water purveyors already use their full Colorado River water allocations for groundwater recharge, so additional groundwater recharge water would need to be acquired from other external sources. [53] This would be done by acquiring rights from to State Water Project (SWP) water held by other entities, and exchanging these purchased rights with MWD for locally-available Colorado River water. The cost per acre-foot of these SWP acquisitions exchanged for Colorado River water has been estimated to be $928.50 in 2012 (see Appendix 8-1).

As demonstrated in Table 8-24, it is anticipated that avoided imported water benefits would begin accruing in 2018, with 25% of the properties connected each year for the first four years. As such, in 2018 approximately 25% of the total imported water costs will be offset by project-related groundwater recharge (35.55 AFY), and this value will increase to the total project flow value (142.2 AFY) by 2021 and extend through the 60-year project lifetime (through 2078). As indicated within Appendix 8-1, the offset imported water costs will increase annually based on a variety of factors.

D-Avoided Loss of Hotel Revenue and Transient Occupancy Tax

The Desert Hot Springs subbasin, over which Subarea D2 lies, contains natural mineral hot springs. The Desert Hot Springs community contains an estimated 24 businesses that are marketed for spa and other services associated with the natural mineral hot springs. If the Desert Hot Springs subbasin and the associated mineral hot springs were to become contaminated by contaminants from septic discharges, the tourism-related business of the Desert Hot Springs community would be substantially impacted.

The hotel industry in Desert Hot Springs for fiscal year (FY) 2011 brought in $9,066,667 in revenue to the region. The calculation for estimated lost revenue is based on the Transit Occupancy Tax (TOT) and sales tax revenues for the *City of Desert Hot Springs Annual Financial Report* from 2011. This report shows that hotel revenue in Desert Hot Springs included $1,088,000 for TOT revenue in 2011 from a 12% hotel tax, which represents tax collected on hotel revenue of $9,066,667 (12% of $9,066,667 = $1,088,000).[54] A 1% loss of this income would be $90,667/year. In addition to this loss in hotel revenue there also would be a loss in the TOT, which was 12% of the hotel revenue in 2011. For FY 2011, the TOT received from the hotel industry in Desert Hot Springs was $1,088,000, and 1% of this amount is $10,880.[55] Therefore, given the assumed probability and extent of impact, the expected benefit received by preventing contamination of the Desert Hot Springs subbasin would be $101,547 per year. This calculation assumes that it will take businesses five years to recover annual hotel and TOT revenues.

[51] Mission Springs Water District (MSWD). 2013. *Groundwater Protection Program Sewer Exhibit.*

[52] MSWD. 2011. *2010 Urban Water Management Plan.* Section 2.2.4 Recycled Water, page 2-19.

[53] Coachella Valley Water District (CVWD). 2010a. *Coachella Valley Water Management Plan Update.* Page 4-15, Section 4.3, State Water Project.

[54] City of Desert Hot Springs. 2011. *Financial Statements Year Ended June 30, 2011.* Page 4, Statement of Activities, Transient Occupancy Taxes.

[55] City of Desert Hot Springs. 2011. *Financial Statements Year Ended June 30, 2011.* Page 4, Statement of Activities, Transient Occupancy Taxes.

For purposes of assessing the benefits of this project, it was assumed that there is 2% risk in any given year that 50% of the businesses would be impacted by septic-related contamination and forced to close without this project, starting in 2018 after project construction and spanning over the 60 year lifetime of this project. This is equivalent to 24 businesses being impacted over the course of this project, or 0.24 businesses per year. This would equivalent to a 1% loss in the mineral hot springs-related tourism industry revenue per year (0.24/24 X 100).

Once contaminated, it is assumed that each individual business would suffer a five- year reduction in business. This five-year period would be needed to provide time to explore and implement alternatives such as on-site treatment and then rebuild consumer confidence in the water quality and the local mineral hot springs spa industry. Therefore, the total risk of loss without this project would be 5% annually (5 years X 1% loss per year). However, taking a conservative approach and assuming that since the risk of contamination is first monetized starting in 2018, then the losses start at one percentage and increase by 1% per year until the 5 % maximum is reached (1% in 2018, 2%in 2019, etc.).

This calculation conservatively assumes no treatment costs, which may significantly increase the avoided costs of this project. Further, this analysis is conservative in that contamination at one resort in the Region may have a spillover effect to other resorts, and may take more than five years to restore consumer confidence. The calculations also do not account for any increases in the amount of business, or price increases, which would increase the overall value of spa-related services put at risk without the project. Calculations considered in this analysis are provided in the following table.

Table 8-22: Summary of Avoided Hotel Revenue and TOT Losses (Undiscounted)
Groundwater Quality Protection Program – Subarea D2

Year	Annual Hotel Revenue (Avoided) a.	Annual TOT Revenue (Avoided) b.	Contamination Risk (Percent) c.	Total Annual Losses Avoided (a.+b.) x c.
2018	$90,667	$10,880	1	$101,547
2019	$90,667	$10,880	2	$203,094
2020	$90,667	$10,880	3	$304,641
2021	$90,667	$10,880	4	$406,188
2022-2078	$90,667	$10,880	5	$507,735

E-Avoid O&M Costs to Septic Tank Owners

By replacing septic systems with sewer connections, the *Groundwater Quality Protection Program – Subarea D2* project would eliminate costs to septic tank owners associated with operations, maintenance, and replacement costs of septic tanks. Of the 6,000 septic tanks in AD-12, this project would replace 382 septic tanks associated with 582 parcels. It is assumed that approximately 25% of the individual septic systems would be replaced with municipal service connections each year from 2018 - 2021.

MSWD estimates that septic system replacement costs average $10,000 over a 25-year period, or approximately $400 per year.[56] This project would replace 382 septic tanks, therefore resulting in an annualized avoided cost of $152,800 per year ($400 x 382). It is assumed that approximately 25% of Subarea D2 customers would connect each year from 2018 – 2021, therefore staggering this avoided cost through those first four years. This is reflected as an avoided replacement cost in Table 8-25.

MSWD also estimates that for 382 septic systems, the annualized O&M costs are estimated to be $500 for pumping every three to five years, indicating an average maintenance cost of $125 per year per septic

[56] Personal communication from John Soulliere, Admin Officer/Public Relations, Mission Springs Water District

tank.[57] Therefore the net benefit would be $525/year per septic tank avoided ($400 per year + $125 per year).

This project assumes that 25% (95.5) of septic systems will be connected per year to this project between 2018-2021, so net avoided cost benefits begin in 2018 and increase on an annual basis from 2018-2021.

Table 8-23: Summary of Avoided Costs to Septic Tank Owners
Groundwater Quality Protection Program – Subarea D2

Year	Number of Septic Systems Replaced	Septic System Replacement Costs (Avoided)	O&M Costs (Avoided)	Total Avoided Costs*
2018	95.5	$38,200	$11,938	$50,138
2019	191	$76,400	$23,875	$100,275
2020	286.5	$114,600	$35,813	$150,413
2021-2078	382	$152,800	$47,750	$200,550
**The avoided costs presented in this table are undiscounted for illustrative purposes only*				

Table 8-24: Annual Project Benefits (PSP Table 15)
Groundwater Quality Protection Program– Subarea D2

Annual Project Benefits (2012 Dollars)									
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
Year	Type of Benefit	Measure of Benefit (Units)	Without Project	With Project	Change Resulting from Project (e) – (d)	Unit $ Value	Annual $ Value (f) x (g)	Discount Factor	Discounted Benefits (h) x (i)
2018	Avoid Cost of Imported Water for Recharge	AFY	0 AFY	35.6 AFY	35.6 AFY	$999.31	$35,575	.705	$25,079
2018	Avoid Loss of Hotel Revenue and TOT	$/year	$0	$101,547	$101,547	1	$101,547	.705	$71,587
2019	Avoid Cost of Imported Water for Recharge	AFY	0 AFY	71.1 AFY	71.1 AFY	$1,012.59	$71,995	.665	$47,881
2019	Avoid Loss of Hotel Revenue and TOT	$/year	$0	$203,094	$203,094	1	$203,094	.665	$135,069
2020	Avoid Cost of Imported Water for Recharge	AFY	0 AFY	106.7 AFY	106.7 AFY	$1,026.35	$109,511	.627	$68,709
2020	Avoid Loss of Hotel Revenue and TOT	$/year	$0	$304,641	$304,641	1	$304,641	.627	$191,136

[57] Personal communication from John Soulliere, Admin Officer/Public Relations, Mission Springs Water District

Annual Project Benefits (2012 Dollars)									
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
Year	Type of Benefit	Measure of Benefit (Units)	Without Project	With Project	Change Resulting from Project (e) – (d)	Unit $ Value	Annual $ Value (f) x (g)	Discount Factor	Discounted Benefits (h) x (i)
2021-2078	Avoid Cost of Imported Water for Recharge	AFY	0 AFY	142.2 AFY	142.2 AFY	$1,032.45	Variable	Variable	$1,637,846
2021	Avoid Loss of Hotel Revenue and TOT	$/year	$0	$406,188	$406,188	1	$406,188	.592	$240,422
2022-2078	Avoid Loss of Hotel Revenue and TOT	$/year	$0	$507,735/yr	$507,735/yr	57 years	$28,940,895	Variable	$4,827,951
Total Present Value of Discounted Benefits from Avoided Cost of Imported Water Based on Unit Value (Sum of the values in Column (j) for all Benefits shown in table)									**$1,779,515**
Total Present Value of Discounted Benefits from Avoided Loss of Hotel Revenue and TOT Based on Unit Value (Sum of the values in Column (j) for all Benefits shown in table)									**$5,466,164**
Total Present Value of Discounted Benefits Based on Unit Value (Sum of the values in Column (j) for all Benefits shown in table)									**$7,245,679**

Table 8-25: Annual Costs of Avoided Projects
Groundwater Quality Protection Program – Subarea D2

Annual Costs of Avoided Projects (2012 Dollars)						
	Costs				Discounting Calculations	
(a)	(b)	(c)	(d)	(e)	(f)	(g)
Year	Avoided Costs to Septic Tank Owners					
	Avoided Capital Costs	Avoided Replacement Costs	Avoided Operations and Maintenance Costs	Total Costs Avoided for Individual Alternatives (b) + (c) + (d)	Discount Factor	Discounted Costs (e) x (f)
2018	$0	$38,200	$11,938	$50,138	.705	$35,345
2019	$0	$76,400	$23,875	$100,275	.665	$66,689
2020	$0	$114,600	$35,813	$150,413	.627	$94,371
2021-2078	$0	$152,800	$47,750	$200,550	Variable	$2,025,695
Total Present Value of Discounted Costs (Sum of column (g))						**$2,222,099**
(%) Avoided Cost Claimed by Project						**100%**
Total Present Value Discounted Avoided Project Costs Claimed by Alternative Project (Total Present Value of Discounted Costs x % Avoided Cost Claimed by Project)						**$2,222,099**

Project Benefits and Costs Summary

Project Economic Costs

Table 8-27 summarizes the economic costs for the project. The project costs include project management, construction management, and all permitting and approval required for project implementation. The large majority of costs are associated with installation of the sewer collection system, installation of sewer piping, laterals, and manholes, including costs for street repair.

There will be an additional cost to decommission the existing septic tanks. MSWD estimates that the costs would range from $1,200 - $1,500 per septic tank, with a conservative total cost of $573,000 ($1,500 X 382 septic tanks). A loan process has been established that will offer 10-year no interest loans. Therefore the costs for decommission septic tanks will be spread over a 10 year period. Also since it is assumed that 25% of the septic tanks will be replaced per year, the total payback period will be over a 13 year period. Table 8-26 below provides a summary of the decommissioning costs for the project.

MSWD estimates that O&M costs associated with ongoing maintenance of the sewer mains and laterals will equate to approximately 1% of capital costs annually ($30,509 per year) for 50 years starting in 2018. This analysis assumes that household-borne sewer charges (which are approximately $31.23 per month[58]) reflect the added treatment cost at the HWWTP.

Table 8-26: Summary of Septic Decommissioning Costs
Groundwater Quality Protection Program– Subarea D2

Year	Total Number of Septic Tanks Replaced	Total Costs with a 10-Year Payback
2018	95.5	$14,325
2019	191	$28,650
2020	286.5	$42,975
2021	382	$57,300
2022		$57,300
2023		$57,300
2024		$57,300
2025		$57,300
2026		$57,300
2027		$57,300
2028		$42,975
2029		$28,650
2030		$14,325
Total	**382**	**$573,000**

[58] State Water Resources Control Board. 2012. *Division of Financial Assistance, Facility Plan Approval, CWSRF Program, Mission Springs Water District AD-12 Area F and M-1 Sewer Construction Project, CWSRF No. C-06-4250-310*. page 8.

Table 8-27: Project Annual Costs (PSP Table 19)

Groundwater Quality Protection Program– Subarea D2

Project Annual Costs (2012 Dollars)										
			Annual Costs						Discounting Calculations	
	Initial Costs Grand Total Cost from Table 6 (row (i), column (d))	Adjusted Grand Total Cost	Admin	Operation	Maintenance	Replace-ment	Other	Total Costs (a) +…+ (g)	Discount Factor (Capital) Present Value Coeff (O&M)	Discounted Project Costs (h) x (i)
Year			(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
2013	$3,826							$3,826	0.943	$3,609
2014	$15,304							$15,304	0.890	$13,621
2015	$1,702,549							$1,702,549	0.840	$1,429,493
2016	$1,530,381							$1,530,381	0.792	$1,212,205
2017	$573,893							$573,893	0.747	$428,846
2018					$7,627		$14,325	$21,952	0.705	$15,475
2019					$15,255		$28,650	$43,905	0.665	$29,199
2020					$22,882		$42,975	$65,857	0.627	$41,319
2021					$30,509		$57,300	$87,809	0.592	$51,974
2022					$30,509		$57,300	$87,809	0.558	$49,032
2023					$30,509		$57,300	$87,809	0.527	$46,257
2024					$30,509		$57,300	$87,809	0.497	$43,638
2025					$30,509		$57,300	$87,809	0.469	$41,168
2026					$30,509		$57,300	$87,809	0.442	$38,838
2027					$30,509		$57,300	$87,809	0.417	$36,640
2028					$30,509		$57,300	$87,809	0.394	$28,927
2029					$30,509		$57,300	$87,809	0.371	$21,970
2030					$30,509		$14,325	$44,834	0.350	$15,707
2031-2078					$30,509			$30,509	Variable	$167,277
Total Present Value of Discounted Costs (Sum of Column (j)) Transfer to Table 17, column (c), Proposal Benefits and Costs Summaries										**$3,715,196**

Benefits and Costs Summary

The estimated present value benefits of this project are $9,467,779. Monetized benefits for the projects are associated with avoided costs of purchasing imported water for recharge, avoided loss of hotel revenue and transient occupancy tax, and avoided O&M costs to septic tank owners. The present value cost of this project is $3,715,196. Therefore the benefit to cost ratio for this project is approximately 3:1.

Omissions, Biases, and Uncertainties

This analysis of costs and benefits is based on available data and some assumptions. As a result, there may be some omissions, uncertainties, and possible biases. In this analysis, the main uncertainties are associated with benefits of avoided cost of imported water and avoided loss of hotel revenue and transient occupancy tax. These issues are listed in Table 8-28.

Table 8-28: Omissions, Biases, and Uncertainties
Groundwater Quality Protection Program– Subarea D2

Benefit or Cost Category	Likely Impact on Net Benefits*	Comment
Avoided cost of imported water	U	The quantity of inflow and the cost of imported water offset can vary
Avoided loss of hotel revenue and transient occupancy tax	U	There was an assumption that approximately 50% of spas would be impacted if contamination occurred, and a 2% probability of this occurring each year, with impact confined to 5 years.
Avoided loss of hotel revenue and transient occupancy tax	U	Assumed that contamination would cause the facilities to close for 5 years and not just a reduction in business. It also does not account for the possible installation of water treatment (an avoided cost that is omitted). The calculations do not account for any increases in the amount of business or price increases that increase the value of the sector at risk.
Avoided costs to septic tank owners	U	This analysis assumed costs to septic tank owners based on estimates provided by MSWD, and assumes a certain timeframe for replacement and O&M. As these are generalized estimates, the actual benefits provided by the project could vary.

*Direction and magnitude of effect on net benefits:
+ = Likely to increase net benefits relative to quantified estimates.
++ = Likely to increase net benefits significantly.
– = Likely to decrease benefits.
– – = Likely to decrease net benefits significantly.
U = Uncertain, could be + or –.

Project 4: San Antonio del Desierto DAC Sewer Extension Project

Introduction

This attachment presents the economic analysis for the *San Antonio del Desierto DAC Sewer Extension Project*. A project abstract and project benefit summary table are followed by the following sections as outlined in the PSP: Non-Monetized Benefits Analysis (Section D2), Monetized Benefit Analysis (Section D3), and Project Benefits and Costs Summary (Section D5).

Abstract

The San Antonio del Desierto (St. Anthony) Mobile Home Park is located along Highway 111, south of Avenue 66 and north of Avenue 68 in the Coachella Valley in an unincorporated portion of Riverside County known as Mecca. The mobile home park currently relies upon five (5) anaerobic wastewater treatment lagoons for wastewater treatment and disposal. The lagoons are in extremely close proximity (within 150 feet) to the mobile home park residents. Inadequate design of the lagoons, including lack of proper lining, location, and unstable dikes, urge the need to provide a sanitary and reliable wastewater disposal and treatment system for residents of the mobile home park. Inadequate design of the lagoons not only provides concerns relating to the health and safety of mobile home park residents, but also presents water quality concerns within and surrounding the project area. Due to the project's location within the eastern Coachella Valley, the project area is underlain by a shallow groundwater aquifer with a high water table. As such, inadequate lagoon conditions pose a potential threat to groundwater quality within the surrounding area as wastewater and associated contaminants from the lagoons could potentially contaminate the groundwater due to the lack of an adequate barrier lining the lagoons. Due to the proximity of the mobile home park to the Coachella Valley Water District's (CVWD's) sewer sanitary collection system, connecting to the CVWD municipal wastewater system is the best option for meeting project-related needs.

The project proposes the installation of a gravity sewer pipeline, lift station, and a sewer force main pipeline that would collect wastewater from the St. Anthony Mobile Home Park, which has an approximate population of 400 people. The project would provide sewer service to the residents and convey the wastewater to CVWD's Water Reclamation Plant No. 4 (WRP-4).

Summary Project Benefits and Costs

A summary of all benefits and costs of the project are provided in Table 8-29. Monetized benefits and non-monetized benefits are presented in this attachment, while physically quantified (but not monetized) benefits are described in Attachment 7. As shown in the table, this project will yield monetizable present value (PV) benefits that greatly exceed the PV costs, and will also provide important additional benefits that could not be reliably quantified and/or monetized.

Please note that the numbering associated with each benefit has been completed in accordance with the numbering presented in Attachment 7; therefore benefits described below may not be presented in numeric order.

Table 8-29: Benefit-Cost Analysis Overview

San Antonio del Desierto DAC Sewer Extension Project

	Present Value
Costs – Total Capital and O&M	**$ 1,676,119**
Monetizable Benefits	
A. Avoid Cost of Imported Water for Recharge	$ 541,365
I. Avoid Cost of Rehabilitating Existing Lagoons	$1,142,561
Total Monetizable Benefits	**$1,683,927**
Qualitative Benefits	**Qualitative Indicator***
B. Reduce Demand for Net Diversions from the Bay-Delta	+
C. Improve Water Supply Reliability	+
D. Promote Social Health And Safety	++
E. Other Social Benefits Associated with Displacing DACs	++
F. Benefit Wildlife or Habitat at Torres-Martinez Wetlands	+
G. Improve Groundwater Quality and Protect Beneficial Uses	+
H. Provide a Long-Term Solution for DACs	++

* Direction and magnitude of effect on net benefits:
+ = Likely to increase net benefits relative to quantified estimates.
++ = Likely to increase net benefits significantly.
– = Likely to decrease net benefits.
— = Likely to decrease net benefits significantly.
U = Uncertain, could be + or –.

Non-Monetized Benefits Analysis

Narrative Description of Qualitative Benefits

B-Reduce Demand for Net Diversions from the Bay-Delta

The *San Antonio del Desierto DAC Sewer Extension Project* involves sewer connections that will allow for beneficial reuse of wastewater flows, thereby reducing dependence on imported water necessary for recharging the groundwater basin. Beneficial reuse would after the WRP-4 is upgraded to tertiary treatment and is able to produce recycled water. It is anticipated that WRP-4 would produce approximately 1,760 acre-feet per year (AFY) of tertiary-treated recycled water, assuming that WRP-4 is upgraded to recycled water service beginning in 2015.[59] Additional recharge from the 38 AFY of wastewater flows from St Anthony's Mobile Home Park would begin in 2017 after construction of the sewer main and lift station are complete. CVWD and DWA have contracts for imported water supplies from the SWP, which is exchanged with MWD for Colorado River water delivered at turnouts from MWD's Colorado River Aqueduct. Because the Region already receives its entire imported water entitlements (as they are available) and also purchases additional SWP Table A water from other agencies[60], any additional imported water needed to balance groundwater extraction would be purchased and transferred from the SWP. Transfers or leases from north of or within the Bay-Delta could potentially affect Bay-Delta water quantity or quality.

[59] Coachella Valley Water District. 2011. *2010 Urban Water Management Plan.* Page 4-24 and Page 4-26, Section 4.5.1.5 WRP-4 and Table 4-13 Historical and Future Recycled Water Production.

[60] Coachella Valley Water District (CVWD). 2011. *Coachella Valley Water District 2010 Urban Water Management Plan Final Report.* Page 4-19, Section 4.2.3.2 Other SWP Transfers.

By reducing the need to import additional water for groundwater recharge, the project would directly offset demands for additional SWP water to balance basin extraction. Therefore, this project would offset net diversions from the Bay-Delta and help preserve this vital resource.

C-Improve Water Supply Reliability

The reliability of a water supply refers to its ability to meet water demands on a consistent basis, even in times of drought or other constraints on source water availability. The project will help address reliability issues by offsetting the need for additional future use of imported water for groundwater recharge. The reliability of imported water is subject to a number of natural and human forces, ranging from increased population growth (and accompanying increased demands), to drought and earthquakes, to environmental regulations and water rights determinations.

The reliability of a water supply refers to its ability to meet water demands on a consistent basis, even in times of drought or other constraints on source water availability. The *San Antonio del Desierto DAC Sewer Extension Project* would help address reliability issues for the Region by providing additional wastewater for purposes of beneficial reuse (recycled water).

Although interest in water supply reliability is increasing due to increasing water demands and concerns over climate-related events, only a few studies have directly attempted to quantify its value. The results from these studies indicate that residential and industrial (i.e., urban) customers seem to value supply reliability quite highly. Stated preference studies find that water customers are willing to pay $100 to more than $500 per household per year for total reliability (i.e., a 0% probability of their water supply being interrupted in times of drought).[61]

The challenge in applying these values to determine a value of increased reliability as a result of the *San Antonio del Desierto DAC Sewer Extension Project* is recognizing how to reasonably interpret these survey-based household monetary values. The values noted above reflect a willingness to pay per household to ensure complete reliability (zero drought-related use restrictions in the future), whereas the *San Antonio del Desierto DAC Sewer Extension Project* only enhances overall reliability and does not guarantee 100% reliability. Thus, if applied directly to the number of households within the Region, the dollar values from the studies would overstate the reliability value provided by the program.

A simple way to roughly adjust for this "whole versus part" problem is to attribute a portion of the total value of reliability to the portion of the problem that is solved by the program. To adjust for the partial improvement in reliability from the *San Antonio del Desierto DAC Sewer Extension Project*, it is assumed that household willingness to pay for improved reliability is directly proportional to the amount of recycled water that will offset imported water, as a percentage of the total water supply. This represents the percentage of total supply that has been improved in terms of overall reliability.

Due to the uncertainty involved in applying quantified economic numbers to the water supply reliability benefits that the Region would accrue as a result of the *San Antonio del Desierto DAC Sewer Extension Project*, this benefit estimate has been provided here to give an idea of the potential magnitude of this

[61] Carson, R.T.; Mitchell, R.C. *Economic Value of Reliable Water Supplies for Residential Water Users in the State Water Project Service Area*; SWC Exhibit Number 54;

The Metropolitan Water District of Southern California, Los Angeles, 1987.

CUWA. *The Value of Water Supply Reliability: Results of a Contingent Valuation Survey of Residential Customers*, California Urban Water Agencies, Sacramento, CA. [Online] 1994, http://www.cuwa.org/library/TheValueofWaterSupplyReliabilityAug94.pdf (accessed October 1, 2009).

Griffin, R.C.; Mjelde, J.W. Valuing Water Supply Reliability. *American Journal of Agricultural Economics* 2000, *82*, 414–426

Raucher, R., J. Clements, and others. 2013. *The Value of Water Supply Reliability in the Residential Sector.* WateReuse Research Foundation. Project WRF-08-09.

Wolff, G. 2007. Calculating constant-reliability water supply unit costs. *Water Policy*. International Water Association, London, UK

benefit, but has not been quantified or economically monetized within the overall cost-benefit ratio for this program.

D-Promote Social Health and Safety

The current wastewater lagoons provide a health and safety threat to the residents of the mobile home park and the surrounding community of Mecca. Airborne contaminants and the potential for sewage overflow continue to present a risk to community members. A recent large storm event eroded banks of lagoons, furthering potential for overflow and contamination. By connecting the community to the CVWD municipal sewer, there would be reduced exposure and risk to the local community as wastewater flows would be captured in closed pipelines and conveyed to a water reclamation plant (WRP-4). Therefore, the project would directly remove this potential contaminant source from coming into contact with community members. Although this benefit has not been quantified or monetized, it is anticipated that this impact would be substantial as the proximity of the wastewater lagoons to St. Anthony Mobile Home Park residents and the poor physical condition of the lagoons pose a serious health risk to the community.



Photo of the existing wastewater lagoon in warm months when the water has evaporated and underlying sediment is exposed to the air.

The case is similar to one involving a mobile home park, referred to as Duroville, or Desert Mobile Home Park, near Thermal, California. The Duroville mobile home park previously received national attention associated with onsite conditions, including suffering from inadequate wastewater facilities and other health and safety issues. Recently, the residents of Duroville were moved to the Mountain View Estates, a newly-created mobile home park that was connected to a CVWD sewer line to ensure that wastewater services were in place to provide adequate infrastructure for residents.[62]

E-Have Other Social Benefits Associated with Displacing DACs

Without the project, the mobile home park would not meet permitting requirements established by the County of Riverside, and therefore may need to close down. The pending conditional use permit (CUP)

[62] Supervisor Benoit. 2013. *News Release: Duroville Replacement Housing Project to be Celebrated Jan. 5.* Available: http://www.rivco4.org/web/news/articles/news_0226.html

from the County of Riverside (CUP#03645) indicates that one of the conditions of approval for the CUP is the assumption that the mobile home park would connect to the CVWD wastewater system.[63]

If the mobile home park were to shut down, approximately 400 economically disadvantaged residents would be displaced. As there is currently a shortage of affordable housing for low-income residents in the area (the eastern Coachella Valley), the 400 displaced residents would not have readily available access to other housing options.[64] Obtaining a compliant CUP from the County of Riverside via the infrastructure improvements associated with this project could potentially help to catalyze the development of further infrastructure in the eastern Coachella Valley, which could help to create new opportunities for affordable housing in the vicinity. Therefore, the project would not just help to provide reliable housing to residents within the existing St. Anthony Mobile Home Park, but could also spur other infrastructure and development projects that could help meet affordable housing shortages throughout the eastern Coachella Valley.



Photo of the St. Anthony's mobile home park, directly adjacent to wastewater lagoons in foreground.

The CUP that has been filed and is being processed by the County of Riverside involves infrastructure development within the existing 100-unit St. Anthony Mobile Home Park, and would include expansion to a 136-unit mobile home park along with a 6,200 square-foot community center with a child care center, community park, and recreation facilities. Therefore, the project would not just provide housing support to local residents, but would also facilitate development of infrastructure and facilities within the park that would help to contribute to improving the quality of life of residents within the area.

Lastly, the residents of the St. Anthony Mobile Home Park and other similar developments within the eastern Coachella Valley are largely low-income migratory agricultural workers, which are vital to the local economy. The agricultural industry contributed nearly $4.3 billion to the Riverside County economy and created nearly 30,000 jobs in 2011.[65] Without suitable infrastructure and housing, agricultural

[63] County of Riverside Planning Department. 2011. *CZ07738/CUP03645 – PC Staff Report: May 25, 2011.* Page 3 of 4, Finding No. 5.

[64] Gross, Elena Blank. N.D. *Market Study: the Unincorporated Community of Mecca.* Page 19, Section IV Market Area Economy, Section E. Available Affordable Housing.

[65] Riverside County. 2011. *Agricultural Production Report* - 2011. Page 1, Agricultural Commissioner's Office Letter.

workers could potentially leave the area, which would potentially harm the local economy if there were not enough agricultural workers to support this large and labor-intensive industry.

F-Benefit Wildlife or Habitat at Torres-Martinez Wetlands

Due to the project's location in the eastern Coachella Valley, possible drainage from the lagoons may flow to the Salton Sea via the Coachella Valley Stormwater Channel (CVSC) or flow directly to the Salton Sea via local agricultural drainages. [66] The flows that enter the Salton Sea via the CVSC also come into contact with the Torres-Martinez wetlands, an 85-acre freshwater-salt water habitat complex near the mouth of the CVSC, which was constructed and is still operated by the Torres-Martinez Desert Cahuilla Indians. These wetlands remove nutrients and pollutants from drain water from the CVSC. [67]

The project would benefit both the Salton Sea and the Torres-Martinez wetlands by capturing wastewater flows from the St. Anthony's Mobile Home Park and diverting them to WRP-4 where they would be treated and reused as recycled water beginning in 2017, assuming that WRP-4 is upgraded to recycled water in 2015. Due to the hydrologic connectivity of the Region to the Salton Sea, it is likely that some of the recycled water applied as irrigation would still drain to the Salton Sea, although on a greatly reduced scale as compared to existing conditions. Further, as these flows would be treated to tertiary levels, the quality of these flows would be greatly improved as a result of the project.

The Salton Sea currently suffers for water quality issues such as nutrient impairment and eutrophication from constituents such as nitrates often found in wastewater effluent.[68] Therefore, without the project, water quality constituents from the sewage lagoons could flow, untreated, to the Salton Sea, where they could further exacerbate existing impairments such as eutrophication. In addition, any flows from the project that enter the CVSC could potentially contaminate the Torres-Martinez wetlands that are used to remove pollutants from drain water from the CVSC. The project would, therefore, provide benefits to wildlife and habitat within the Torres-Martinez wetlands and the Salton Sea by removing a potential source of nutrients and other contaminants that may negatively affect these wildlife areas.

G-Improve Groundwater Quality and Protect Beneficial Uses

The community of Mecca, and the majority of the eastern Coachella Valley is underlain by a shallow groundwater aquifer that has limited groundwater percolation due to silt and clay layers (an aquitard).[69] Due to the aquitard, surface water in this area percolates into the shallow groundwater aquifer and may eventually drain into the Salton Sea. Although there is no site-specific water quality data on the water quality of water from the wastewater lagoons, it is suspected that wastewater from the lagoons percolates to and potentially contaminates the underlying shallow groundwater aquifer. Further, as there has been observed erosion on the banks of the lagoons, it is possible that the wastewater also drains off the surface of these ponds, potentially contaminating agricultural drains in the area.

The project would, therefore, improve both the quality of the shallow groundwater aquifer and local agricultural drains by diverting wastewater flows to WRP-4 where they would receive additional treatment before being beneficially reused as recycled water, assuming that WRP-4 is upgraded to recycled water service beginning in 2015.

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[66] Coachella Valley Water District. 2010. *Coachella Valley WMP 2010 Update.* Page 4-5, Section 4.1 Local Groundwater, Section 4.1.1.2 Thermal Subarea.

[67] Coachella Valley Water District. 2010. *Coachella Valley WMP 2010 Update.* Page 8-12, Section 8.1.3 Environmental Enhancement and Mitigation Projects.

[68] Regional Water Quality Control Board (RWQCB). 2000. *California Environmental Protection Agency Regional Water Quality Control Board Colorado River Basin Region – Staff Report: Water Quality Issues in the Salton Sea Transboundary Watershed.*

[69] Coachella Valley Water District. 2010. *Coachella Valley WMP 2010 Update.* Page 4-3, Section 4.1 Local Groundwater, Section 4.1.1 Whitewater River Subbasin.

H-Provide a Long-Term Solution for DACs

The *San Antonio del Desierto DAC Sewer Extension Project* involves conversion of a mobile residential community to sewer service that will provide sustainable long-term management of local wastewater (in lieu of lagoons) and increases beneficial reuse of wastewater flows, thereby reducing dependence on imported water necessary for recharging the groundwater basin. As such, this project provides a long-term solution to local wastewater management in the disadvantaged Mecca community and will provide infrastructure that will help the Region to manage its groundwater resources on a long-term basis.

Monetized Benefit Analysis

Several monetized benefits are expected to accrue over the expected 60-year life of the project. Those include: avoided cost of imported water and avoided cost of rehabilitating the existing lagoons.

A-Avoid Cost of Imported Water for Recharge

The project would provide sewer service to and therefore collect wastewater from the St. Anthony Mobile Home Park. The wastewater would be transferred to the CVWD WRP-4, where it would be recycled beginning in 2015, assuming that WRP-4 is upgraded to recycled water service beginning in 2015.[70] Given that the project would be complete in 2017, it is assumed that all of the flows from the project would be treated to a tertiary level and recycled.

The *City of Coachella General Plan Update 2012* states that the wastewater generation factor for other local agencies within the Coachella Valley ranges from 250 gallons per day (gpd) per equivalent dwelling unit (EDU) to 300 gpd/EDU.[71] This project would connect 136 units at St. Anthony Mobile Home Park to the CVWD WRP-4. Assuming an average wastewater production of 250 gallons/day per unit, this would be 0.28 AFY per unit. Therefore, cumulatively, the project would result in 38 AFY (0.28 AFY x 136 units) of total recycled water production throughout the project lifetime (through 2077).

Currently, recycled water is used within the Region for irrigation purposes in accordance with Title 22 of the California Code of Regulations. This recycled water use is considered as source substitution as its use directly avoids groundwater pumping. As such, recycled water use offsets the need for the Region to import additional water to replenish the groundwater aquifer.

Therefore, the project would avoid the need to import additional water from outside the basin for groundwater recharge. The Region already uses its full Colorado River water allocation for groundwater recharge, so additional recharge water would need to be acquired from other external sources. This is done by acquiring rights to State Water Project (SWP) water held by other entities, and exchanging these purchased rights with MWD for locally-available Colorado River water.[72]

The cost per AF of these SWP acquisitions exchanged for Colorado River water has been estimated to be $986 in 2017 (see Appendix 8-1). Table 8-30 provides an overview of the monetized benefits associated with recycled water use (imported water offsets) that would occur as a result of the project.

I-Avoid Cost of Rehabilitating Existing Lagoons

As explained previously, the need for the project is primarily based on the need to successfully permit the St. Anthony Mobile Home Park via a CUP with the County of Riverside. Although the pending CUP states that it is assumed the mobile home park would connect to the CVWD municipal wastewater system, it is possible that the mobile home park could be permitted via other means. Specifically, it is

[70] Coachella Valley Water District. 2011. *2010 Urban Water Management Plan.* Page 4-24 and Page 4-26, Section 4.5.1.5 WRP-4 and Table 4-13 Historical and Future Recycled Water Production.

[71] City of Coachella. 2012. *City of Coachella General Plan Update Environmental Impact Report Existing Settings - Wastewater.* Page 2.14-1, Section 2.14 – Wastewater.

[72] Coachella Valley Water District (CVWD). 2010a. *Coachella Valley Water Management Plan Update.* Page 4-15, Section 4.3, State Water Project.

possible that the existing wastewater lagoons could be rehabilitated such that these lagoons are legally compliant with applicable regulations.

The existing lagoons are compromised in many aspects including inadequate lining, proximity to dwelling units, unstable dikes and potential for groundwater contamination due to a very high water table. One alternative to connecting to the CVWD sewer system involves rehabilitating the existing lagoons and re-applying for County authorization for continued service. Without a full assessment of the operating system, it is difficult to scope the rehabilitation needed. Thus, for the purpose of this study it is assumed that a new liner be installed with an anchoring system. The rehabilitation process involves four elements:

- ***Draining and evaporation***: The physical configuration of the lagoons provides roughly 28 million gallons (MG) of storage capacity. However, since they are rotated in and out of service all of the lagoons are never completely full. All of the lagoons could be placed into service to maximize the benefit of evaporation, which for this region averages 6 to 8 feet per year. Draining of each lagoon would involve drawing the water down to facilitate the installation of a small sump to allow the pump to be placed below the bottom of the lagoon and result in near complete dewatering.
- ***Solar drying of the sludge***: Because of the solids content in the water and the difficulty in removing all of the water, it is estimated that there will be approximately 3 inches of water left in the bottom of each lagoon after draining. After each lagoon is drained, the remaining volume is approximately 300,000 gallons and would be left in the lagoons to dry out to reduce the disposal costs at a landfill certified to accept the biosolids (sludge).
- ***Removal of the dried residual and disposal:*** The dried sludge would be scraped and hauled to a landfill. With an estimate of 85% solids, the dry weight of the sludge totals approximately 13 tons. It is anticipated that some of the native material will be removed during the scraping operation. Thus as much as 26 tons should be anticipated to be removed and disposed at a rate of approximately $50 per ton.
- ***Construction of new liner and anchoring system:*** A concrete ring and anchors would be installed, along with a high-density polyethylene (HDPE) liner (estimated $600,000), to prevent contamination of the underlying groundwater aquifer.

Estimated costs to rehabilitate the wastewater lagoons would total $1,212,683 and could be implemented in 2014. However, it should be noted that there are significant barriers to this alternative:

- the wastewater lagoons are outside of the St. Anthony's property boundaries;
- the owner of the lagoon property is allowing PUCDC time to connect to CVWD prior to decommissioning, but is not interested in selling the property so that they can continue use; and
- the approved CUP03645 mandates connection to CVWD.

Ongoing O&M costs for the rehabilitated lagoons are estimated to be $24,800 every five years for sludge pumping that is necessary for a properly-functioning lagoon.

Table 8-30: Annual Project Benefits (PSP Table 15)

San Antonio del Desierto DAC Sewer Extension Project

Annual Project Benefits (2012 Dollars)									
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
Year	Type of Benefit	Measure of Benefit (Units)	Without Project	With Project	Change Resulting from Project (e) – (d)	Unit $ Value	Annual $ Value (f) x (g)	Discount Factor	Discounted Benefits (h) x (i)
2017	Avoided cost of imported water	AFY	0	38	38	$986	$37,486	0.747	$28,012
2018-2077	Avoided cost of imported water	AFY	0	38	38	Variable	Variable	Variable	$513,354
Total Present Value of Discounted Benefits Based on Unit Value (Sum of the values in Column (j) for all Benefits shown in table)									**$541,365**

Table 8-31: Annual Costs of Avoided Projects (PSP Table 16)

San Antonio del Desierto DAC Sewer Extension Project

Annual Costs of Avoided Projects (2012 Dollars)						
	Costs				Discounting Calculations	
(a)	(b)	(c)	(d)	(e)	(f)	(g)
Year	Avoided Rehabilitation and O&M of Existing Lagoons					
	Avoided Capital Costs	Avoided Replacement Costs	Avoided Operations and Maintenance Costs	Total Costs Avoided for Individual Alternatives (b) + (C) + (d)	Discount Factor	Discounted Costs (e) x (f)
2014	$1,212,683			$1,212,683	0.890	$1,079,284
2015						$0
2016						$0
2017						$0
2018						$0
2019-2077			$24,800 every 5 years	$297,600	Variable	$63,278
Total Present Value of Discounted Costs (Sum of column (g))						**$1,142,561**
(%) Avoided Cost Claimed by Project						**100**
Total Present Value Discounted Avoided Project Costs Claimed by Alternative Project (Total Present Value of Discounted Costs x % Avoided Cost Claimed by Project)						**$1,142,561**

Project Benefits and Costs Summary

Project Economic Costs

Table 8-32 summarizes the economic project costs for the project. The costs are for design, connection fees, and construction of gravity and forced sewer mains, and a lift station. The total present value cost of this project will be $1,676,119. Ongoing O&M costs for the new sewer are estimated to be 1% of construction costs of $1,334,326 or $13,343 annually, beginning in 2017 and extending through the 60-year lifetime of the project. Per stated policy from CVWD, treatment costs required to pay for additional wastewater treatment are encompassed by wastewater users within monthly bills.

The costs for *San Antonio del Desierto DAC Sewer Extension Project* must necessarily include decommissioning the existing wastewater lagoons. The decommissioning process would begin after the PUCDC San Antonio del Desierto DAC Sewer Extension Project is completed and the development is connected to the CVWD sanitary sewer. Decommissioning the lagoons involves a process similar to the rehabilitation process described above, except the lagoons would be restored to a natural environment after removal of dried residual. After the lagoon is cleaned, the soil in the lagoon should be disturbed to break-up the natural clay lining. Tilling or discing the bottom and side walls will laterally displace and invert the soil and destroy the natural clay lining which will increase the permeability of the soil and allow it to drain naturally. Estimated costs to decommission the lagoons would total $132,608 and would occur in year 2017 once the project has been constructed.

The total project cost of $1,676,119 would include project costs associated with design, connection fees, and construction (included in Attachment 4), operations and maintenance fees ($13,343 per year) associated with operating and maintaining the sewer system, and the one-time cost of $132,608 to decommission the existing wastewater lagoons.

Table 8-32: Annual Project Costs (PSP Table 19)

San Antonio del Desierto DAC Sewer Extension Project

Project Annual Costs (2012 Dollars)										
			Annual Costs						Discounting Calculations	
	Initial Costs Grand Total Cost from Table 6 (row (i), column (d))	Adjusted Grand Total Cost	Admin	Operation	Maintenance	Replace-ment	Other	Total Costs (a) +…+ (g)	Discount Factor (Capital) Present Value Coeff (O&M)	Discounted Project Costs (h) x (i)
Year			(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
2012										
2013	$8,592							$8,592	0.943	$8,106
2014	$60,145							$60,145	0.890	$53,529
2015	$790,480							$790,480	0.840	$663,702
2016	$859,218							$859,218	0.792	$680,581
2017					$13,343		$132,608	$132,608	0.747	$109,063
2018-2077					$13,343			$800,580	Variable	$161,138
Total Present Value of Discounted Costs (Sum of Column (j)) Transfer to Table 17, column (c), Proposal Benefits and Costs Summaries										**$1,676,119**

Benefits and Costs Summary

The estimated present value benefits of this project are $1,683,927. Monetized benefits for the projects are associated with avoided costs of purchasing imported water for recharge and avoided cost of rehabilitating the existing wastewater lagoons. The present value cost of this project is $1,676,119. Therefore the benefit to cost ratio for this project is 1:1.

Omissions, Biases, and Uncertainties

This analysis of costs and benefits is based on available data and some assumptions. As a result, there may be some omissions, uncertainties, and possible biases. In this analysis, the main uncertainties are associated with benefits of avoided cost of imported water and avoided cost of rehabilitating the existing wastewater lagoons. These issues are listed in Table 8-33.

Table 8-33: Omissions, Biases, and Uncertainties

San Antonio del Desierto DAC Sewer Extension Project

Benefit or Cost Category	Likely Impact on Net Benefits*	Comment
Avoided Cost of Imported Water	U	The quantity of inflow and the cost of imported water offset can vary
Avoided Cost of Rehabilitating Existing Lagoons	U	The approximate value of rehabilitating the existing lagoons was based on a conceptual engineering estimate completed for this analysis. As such, the actual on-site costs associated with rehabilitating the existing lagoons could vary.

*Direction and magnitude of effect on net benefits:
+ = Likely to increase net benefits relative to quantified estimates.
++ = Likely to increase net benefits significantly.
– = Likely to decrease benefits.
— = Likely to decrease net benefits significantly.
U = Uncertain, could be + or –.

Project 5: Torres-Martinez Avenue 64 Water Supply Connection Project

Introduction

This attachment presents the economic analysis for the *Torres-Martinez Avenue 64 Water Supply Connection Project*. A project abstract and project benefit summary table are followed by the following sections as outlined in the PSP: Cost Effectiveness Analysis (Section D1) and Project Benefits and Costs Summary (Section D5).

Abstract

This project will include engineering and design work necessary to ultimately connect the Torres-Martinez Avenue 64 potable water system (PWS) to the CVWD municipal water system to meet the critical water supply needs of the Avenue 64 Subdivision, an economically disadvantaged tribal community (DAC). The overall *Torres-Martinez Avenue 64 Water Supply Connection Project* includes two total phases, the first phase of which includes pre-engineering (completed) and design and engineering (included in this scope of work), and the second phase will include future construction activities. This project (Phase I) will provide the engineering and design documentation necessary for the Torres-Martinez Desert Cahuilla Indians (DCI)to seek additional funding through the United States Department of Agriculture(USDA) for Phase II (construction). As such, this project meets the DAC eligible project type as described by DWR as, "a specific project that may lead to a construction project to address DAC needs, such as engineering designs and specifications…"[73]

The design and engineering work included in this project will provide the necessary planning work for CVWD to construct a 5,400-foot extension of its existing water distribution system and provide a master meter that would connect to the existing Avenue 64 Subdivision potable water system. From that point, the Torres-Martinez DCI would continue to own and maintain the existing onsite distribution system. The new CVWD water main would be connected at two points to the existing water distribution system located in the Torres-Martinez Avenue 64 Housing Subdivision (Avenue 64 Subdivision). The existing wells, pumping system, and storage tanks currently servicing the subdivision would be permanently disconnected from the system; however, they would not be dismantled, in the event thatthe Torres-Martinez DCI desired to convert them into a non-potableirrigation system in the future. CVWD would own the short water main extension and the master meter; the Torres-Martinez DCI would own and maintain the subsequent water main and the existing water main within the Avenue 64 Subdivision.

Phase I of the overall program includes a preliminary evaluation of water supply system of the Avenue 64 Subdivision via a Preliminary Engineering Report (PER)that was conducted by Indian Health Services (IHS) in 2012. The PER demonstrates that the current water system that serves the Torres-Martinez Avenue 64 Subdivision poses multiple health and safety hazards to the community and to the operators who run the system.[74] These hazards are extensively documented in the United States Environmental Protection Agency (EPA) Sanitary Survey Information[75], as well as in correspondence from EPA to the Torres Martinez DCI.[76] In the correspondence letter from EPA[77], EPA notified the Torres-Martinez DCI

[73]California Department of Water Resources (DWR). 2012. *IRWM Grant Program – Proposal Solicitation Package for Round 2, Implementation Grants.*Page 8, Section II.C.Eligible Project Types.

[74] Indian Health Service (IHS). 2012. *Preliminary Engineering Report for the Torres-Martinez Desert Cahuilla Indians: CVWD Water Main Extension to Avenue 64 Housing Subdivision.*

[75]Indian Health Service (IHS). 2012a. *Preliminary Engineering Report for the Torres-Martinez Desert Cahuilla Indians: CVWD Water Main Extension to Avenue 64 Housing Subdivision.*Appendix A.

[76]Indian Health Service (IHS). 2012a. *Preliminary Engineering Report for the Torres-Martinez Desert Cahuilla Indians: CVWD Water Main Extension to Avenue 64 Housing Subdivision.*Appendix F.

that the deficiencies in the water system and its management pose a critical risk to human health. In this letter, the Torres-Martinez DCIwas given 120 days to respond with concrete actions to address the many deficiencies in the system or face a formal enforcement action.

The project included herein (refer to Attachment 3) is a critical component of the concrete actions that the Torres-Martinez DCI is taking to resolve water system deficiencies within the Avenue 64 Subdivision. Torres-Martinez DCI is actively pursuing USDA funding for construction activities (Phase II), but does not have the financial or technical means to complete engineering and design work that are required prior to construction in order to be eligible for funding from USDA. As such, this project would meet the critical water supply needs of a tribal DAC by including work necessary to lead to a construction project that would permanently resolve water supply and associated public health issues within the Avenue 64 Subdivision by connecting the subdivision to the CVWD municipal water supply system.

Summary Project Benefits and Costs

A summary of all benefits and costs for the funding requested for this project are provided in Table 8-34. It is important to note that the net present value of costs provided is for the project described in Attachment 3 (final engineering and design only), as these are the activities included within this grant application. Future construction activities associated with Phase II are not included below.

Table 8-34: Benefit-Cost Analysis Overview

Torres-Martinez Avenue 64 Water Supply Connection Project

	Present Value
Costs – Total Capital and O&M	**$220,280**
Benefits– Total Qualitative Benefits	**Qualitative Indicator***
A. Increase in Drinking Water Health and Safety	++
B. Increase in Water Supply Reliability	++
C. Increase in Water Supply Adequacy	++
D. Provide a Long-Term Solution	++
E. Decrease in Hazardous Physical Conditions	++
F. Avoid Pump Station Rehabilitation and Deeper Drilling of Current Well	++
G. Avoid Additional Treatment Necessary to Address Water Quality Concerns	++
H. Avoid Ongoing O&M of Tribal Water System	++

* Direction and magnitude of effect on net benefits:
+ = Likely to increase net benefits relative to quantified estimates.
++ = Likely to increase net benefits significantly.
– = Likely to decrease net benefits.
– – = Likely to decrease net benefits significantly.
U = Uncertain, could be + or –.

Cost-Effectiveness Analysis

A cost-effectiveness analysis was completed for this project, because it meets the DWR threshold of having a total project cost of less than $300,000. However, because this project also serves critical water supply needs of a DAC, according to DWR the project could have a total budget of up to $1,000,000 and still meet the requirements of completing a cost-effectiveness analysis.[78] The sections below explain the

[77]Indian Health Service (IHS). 2012a. *Preliminary Engineering Report for the Torres-Martinez Desert Cahuilla Indians: CVWD Water Main Extension to Avenue 64 Housing Subdivision.*Appendix F.

[78]California Department of Water Resources (DWR). 2012. *IRWM Grant Program – Proposal Solicitation Package for Round 2, Implementation Grants.*Page 44, Exhibit D, Section D1 – Cost-Effectiveness Analysis.

information necessary to complete Table 11 – Statement of Cost-Effectiveness as required by DWR. A summary of this information is presented below in Table 8-3.

Types of Benefits Provided

A. Increase in Drinking Water Health and Safety
B. Increase in Water Supply Reliability
C. Increase in Water Supply Adequacy
D. Improved Public Safety
E. Provide a Long-Term Solution vs. a Short-Term Solution
F. Avoid Pump Station Rehabilitation and Deeper Drilling of Current Well
G. Avoid Additional Treatment Necessary to Address Water Quality Concerns
H. Avoid Ongoing O&M of Tribal Water System

A-Increase in Drinking Water Health and Safety

The existing water system that serves the Avenue 64 Subdivision poses multiple health and safety hazards to the subdivision residents and to the operators who run the system. These health and safety risks are documented extensively in the USEPA Sanitary Survey Information[79]and correspondence from EPA[80] to the Torres Martinez DCI. In the latter; EPA notified the Torres-Martinez DCI that the deficiencies in the water system and its management pose a critical risk to human health.[81] In this letter, the Tribe was given 120 days to respond with concrete actions to address the many deficiencies in the system or face a formal enforcement action. Issues that need to be resolved include:

- Water outages several times per month. These outages pose water health and safety issues as they result in a temporary loss of water supply, and may potentially allow for contaminated water to enter the PWS.[82]
- Lack of chlorination for back-up water supply. If this back-up water supply is needed for more than one to two days, there would be no more chlorine residual in the PWS, and Avenue 64 Subdivision water users would receive water that has not been disinfected. Providing disinfected water is a violation of the EPA Groundwater Rule[83]and poses a significant health threat to water system users, because water that has not been disinfected is associated with higher rates of gastrointestinal disease, eye infections, and skin infections.[84]
- Chromium and perchlorate levels in the well. Torres-Martinez DCI has expressed concerns regarding perchlorate and chromium levels in the existing PWS, which may pose human health threats associated with ingestion of these constituents.

[79]Indian Health Service (IHS). 2012a. *Preliminary Engineering Report for the Torres-Martinez Desert Cahuilla Indians: CVWD Water Main Extension to Avenue 64 Housing Subdivision.*Appendix A.

[80]Indian Health Service (IHS). 2012a. *Preliminary Engineering Report for the Torres-Martinez Desert Cahuilla Indians: CVWD Water Main Extension to Avenue 64 Housing Subdivision.*Appendix F.

[81] United States Environmental Protection Agency (EPA). 2011. *Transmittal of January 27, 2011 Sanitary Survey Reports for Avenue 64 and Torres Martinez Clinic Water Systems (PWSs 0605116 and 0605130); Calling Special Attention to Operational Deficiencies which Place These Systems at Risk.*

[82]Indian Health Service (IHS). 2012a. *Preliminary Engineering Report for the Torres-Martinez Desert Cahuilla Indians: CVWD Water Main Extension to Avenue 64 Housing Subdivision.*Page 9, Section IV.A.1. Need for Project: Water Outages.

[83] United States Environmental Protection Agency (EPA). 2006. Page 65602. *Ground Water Rule (GWR).*Page Available: http://water.epa.gov/lawsregs/rulesregs/sdwa/gwr/index.cfm

[84]Indian Health Service (IHS). 2012a. *Preliminary Engineering Report for the Torres-Martinez Desert Cahuilla Indians: CVWD Water Main Extension to Avenue 64 Housing Subdivision.*Page 11, Section IV.A.1. Need for Project: Water Quality Potential Risks.

Allof the identified drinking water safety concerns associated with the existing Avenue 64 PWS would be resolved by connecting this system to the CVWD municipal water system, because the CVWD domestic drinking water supply is reliable and meets all applicable state and federal water quality standards.[85]

B-Increase in Water Supply Reliability

The Torres-Martinez DCI reports water outages several times per month, and there is no single cause for the water outages. Sometimes outages are related to power surges or loss of commercial power, and sometimes outages are due to failure of the existing onsite PWS (booster pumps or primary well pump). Water outages occur at random and inconvenient times, leaving the homes and other facilities within the Avenue 64 Subdivision with no access to water until service is restored, which may be a few hours.[86] These water supply unreliability issues associated with water outages would be resolved by connecting to the CVWD water system, which does not have similar water outage issues and includes an extensive backup system to prevent and avoid water outages from occurring.

C-Increase in Water Supply Adequacy

The back-up well does not currently have a production capacity to meet community demands without severely stressing the well pump. If the primary well were to run dry, collapse or become inoperable for more than a day or two, the backup well would not be able to meet demands and water shortages and/or water outages would result.[87]

This water supply inadequacy would be resolved by connecting to the CVWD water system, as CVWD has expressed their willingness to serve water to the Avenue 64 Subdivision and has substantial backup facilities to ensure water deliveries.[88]

D-Provision of Long-term Water Management Solution

Connecting to the CVWD water system will address not only the current infrastructure deficiencies, but will also address the ongoing O&M problems facing the Avenue 64 Subdivision. Connecting to the CVWD municipal water system provides a sustainable long-term solution to an economically disadvantaged tribal community.

E-Decrease in Hazardous Physical Conditions

There are numerous open electrical connections and junction boxes without lids throughout the pump house as well as extensive corrosion of many electrical components throughout the system. Each of these issues represents an electrical shock hazard for the water operator who frequently conducts operation and maintenance activities without an assistant. An electrical shock experienced by the operator while unaccompanied could result in hospitalization or could potentially be fatal.[89]

[85] Coachella Valley Water District (CVWD). 2012b. *Coachella Valley Water District 2011-12 Annual Review.*Page 6, 2012 Domestic Water Quality Report.

[86]Indian Health Service (IHS). 2012a. *Preliminary Engineering Report for the Torres-Martinez Desert Cahuilla Indians: CVWD Water Main Extension to Avenue 64 Housing Subdivision.*Page 9, Section IV.A.1. Need for Project: Water Outages.

[87]Indian Health Service (IHS). 2012a. *Preliminary Engineering Report for the Torres-Martinez Desert Cahuilla Indians: CVWD Water Main Extension to Avenue 64 Housing Subdivision.*Page 9 and Page 10, Section IV.A.1. Need for Project: Insufficient Backup Water Source.

[88]Coachella Valley Water District.2012a. *Avenue 64 & Monroe Street – Domestic Water and Sewer Service.*

[89]Indian Health Service (IHS). 2012a. *Preliminary Engineering Report for the Torres-Martinez Desert Cahuilla Indians: CVWD Water Main Extension to Avenue 64 Housing Subdivision.* Page 10 and Page 11, Section IV.A.1. Need for Project: Safety and Security Risks.

In addition, the current system is inadequate for providing fire protection to the community. The connection to CVWD would assure adequate and reliable water for firefighting purposes, thereby providing a major public safety improvement.[90]

There are also substantial safety concerns regarding the patch on the hydropneumatic water tank, which is currently leaking and does not have a pressure relief value. This combination could result in an explosion in the large steel water tank, which could be lethal to anybody near, and would result in a massive and difficult to repair water system leak.[91]Additionally, the water storage tank is not secured to prevent public access to climb the tank or to open the roof hatch; creating a concern for a fall risk to unauthorized individuals as well as a potential health risk to all users if vandalism or other potential contamination that could occur in the tank.[92]

These safety concerns would be resolved by connecting to the CVWD water system as onsite operations and maintenance would no longer be necessary, and the CVWD is a secure and reliable supply that includes flows necessary to provide fire protection and security and testing necessary to prevent vandalism and contamination.

F-Avoid Pump Station Rehabilitation and Deeper Drilling of Current Well

One of the potential methods identified in the *Preliminary Engineering Report* to address concerns with the existing Avenue 64 PWS is to rebuild the existing infrastructure, including drilling a new (deeper) well, provide a suitable backup water supply (pump station), and make other necessary onsite infrastructure improvements.[93]Implementation of the project would avoid the need to complete the aforementioned onsite improvements, as the existing PWS would be abandoned and the Avenue 64 Subdivision would be connected to the existing CVWD municipal system. This would be considered a direct benefit associated with avoided construction and operational costs to replace the existing onsite PWS.

G-Avoid Additional Treatment Necessary to Address Water Quality Concerns

As mentioned above, one of the potential methods identified in the *Preliminary Engineering Report* to address concerns with the existing Avenue 64 PWS is to rebuild the existing infrastructure, including making infrastructure improvements to address potential water quality issues concerning the Torres-Martinez DCI (perchlorate and chromium).[94] The *Preliminary Engineering Report* indicates that such system improvements would be very costly and difficult to operate and maintain. As the project would connect the Avenue 64 Subdivision to the CVWD municipal water system, the project would provide CVWD domestic water supplies to the subdivision. Domestic water provided by CVWD meets all applicable state and federal drinking water standards, including those established for chromium, perchlorate, and other constituents of concern in the eastern Coachella Valley such as arsenic.[95] Therefore, the project would effectively avoid the need to construct and operate additional infrastructure

[90]Indian Health Service (IHS). 2012a. *Preliminary Engineering Report for the Torres-Martinez Desert Cahuilla Indians: CVWD Water Main Extension to Avenue 64 Housing Subdivision.*Page 10, Section IV.A.1. Need for Project: Inoperable Components.

[91]Indian Health Service (IHS). 2012a. *Preliminary Engineering Report for the Torres-Martinez Desert Cahuilla Indians: CVWD Water Main Extension to Avenue 64 Housing Subdivision.* Page 10 and Page 11, Section IV.A.1. Need for Project: Safety and Security Risks.

[92]Indian Health Service (IHS). 2012a. *Preliminary Engineering Report for the Torres-Martinez Desert Cahuilla Indians: CVWD Water Main Extension to Avenue 64 Housing Subdivision.* Page 10 and Page 11, Section IV.A.1. Need for Project: Safety and Security Risks.

[93]Indian Health Service (IHS). 2012a. *Preliminary Engineering Report for the Torres-Martinez Desert Cahuilla Indians: CVWD Water Main Extension to Avenue 64 Housing Subdivision.* Page 13, Section V. Alternatives Considered.

[94]Indian Health Service (IHS). 2012a. *Preliminary Engineering Report for the Torres-Martinez Desert Cahuilla Indians: CVWD Water Main Extension to Avenue 64 Housing Subdivision.* Page 13, Section V. Alternatives Considered.

[95] Coachella Valley Water District (CVWD). 2012b. *Coachella Valley Water District 2011-12 Annual Review.*Page 6, 2012 Domestic Water Quality Report.

needed to treat groundwater for applicable water quality concerns. This would be considered a direct benefit associated with avoided construction and operational costs to upgrade the existing onsite PWS for water treatment purposes.

H-Avoid Ongoing O&M of Tribal Water System

Due to funding and staffing issues, the Torres-Martinez DCI has few resources available to conduct O&M activities. The lack of resources available for operations and maintenance of the Avenue 64 PWS is a significant contributing factor to many of the issues described in the preceding sections.[96] In a 2011 letter from the USEPA to the Torres-Martinez DCI, the USEPA noted that, "there currently is no Torres Martinez Water Department, Water Board, or Public Works governing structure to oversee and ensure that the water systems remain reliable and safe."[97] The *Preliminary Engineering Report* further elaborated on this, noting that there is a lack of structure in many elements of the Torres-Martinez DCI's O&M activities, which would make an operations and maintenance of a functioning on-site PWS difficult even if the existing failing system were replaced with new facilities.[98]Therefore, connecting to the CVWD municipal water system as proposed in this project would provide the direct benefit of avoided operations and maintenance needs associated with an onsite PWS at the Avenue 64 Subdivision.

Alternative Methods to Achieve the Same Benefits

A Preliminary Engineering Report for the Torres-Martinez Desert Cahuilla Indians was prepared by Indian Health Service in June 2012.The information provided in this section is taken from this report (Report). The *Preliminary Engineering Report* states:

> "an attempt to rebuild the existing infrastructure would likely yield the lowest capital cost, however it would not address three primary concerns. First, there is no certainty that improving the existing infrastructure could provide a suitable back-up water supply. Presumably a new well would need to be drilled, which could have water quality or quantity issues. Second, improvements to existing infrastructure that would address the potential water quality issues concerning the Tribe (perchlorate and chromium) would be costly and difficult to operate and maintain. Finally, capital improvements of any kind would not address the many ongoing O&M issues, which the Tribe would have a hard time resolving without additional financial and manpower resources that would be difficult to obtain.
>
> For these reasons, options involving some rebuilding of the existing infrastructure are not considered. Connecting to the nearby Coachella Valley Water District (CVWD) not only addresses infrastructure deficiencies, but also the O&M problems facing the Tribe. Therefore, the options considered in the Report are based on connecting to the CVWD water system."[99]

The *Preliminary EngineeringReport* analyzed two options for resolving current issues and providing the Torres-Martinez DCI and the Avenue 64 Subdivision residentswith the following benefits:

A. Increase in Drinking Water Health and Safety
B. Increase in Water Supply Reliability

[96]Indian Health Service (IHS). 2012a. *Preliminary Engineering Report for the Torres-Martinez Desert Cahuilla Indians: CVWD Water Main Extension to Avenue 64 Housing Subdivision.*Page 11 and Page 12, Section IV.A.1. Need for Project: System O&M.

[97] United States Environmental Protection Agency (EPA). 2011. *Transmittal of January 27, 2011 Sanitary Survey Reports for Avenue 64 and Torres Martinez Clinic Water Systems (PWSs 0605116 and 0605130); Calling Special Attention to Operational Deficiencies which Place These Systems at Risk.*

[98]Indian Health Service (IHS). 2012a. *Preliminary Engineering Report for the Torres-Martinez Desert Cahuilla Indians: CVWD Water Main Extension to Avenue 64 Housing Subdivision.*Page 11 and Page 12, Section IV.A.1. Need for Project: System O&M.

[99]Indian Health Service (IHS). 2012a. *Preliminary Engineering Report for the Torres-Martinez Desert Cahuilla Indians: CVWD Water Main Extension to Avenue 64 Housing Subdivision.* Page 13, Section V. Alternatives Considered.

C. Increase in Water Supply Adequacy
D. Provides a Long-Term Water Management Solution
E. Decrease in Hazardous Physical Conditions
F. Avoided Pump Station Rehabilitation and Deeper Drilling of Current Well
G. Avoided Additional Treatment Necessary to Address Water Quality Concerns
H. Avoided Ongoing O&M of Tribal Water System

The primary difference between Options 1 and 2 concerns design, ownership, and maintenance of the water main along Monroe Street. In Option 1, the proposed option, CVWD would own, build, maintain and ultimately replace a 12" DI water main and master meters. In Option 2, the Torres-Martinez DCI would own, maintain and ultimately be responsible for replacing the water main connection along Monroe Street. In Option 2 the water main would be 8"PVC (less expensive and the 12" DI is not required by the Torres-Martinez DCI).

Option 1 describes the proposed project. The total estimated costs are $1,610,000. O&M costs are $23,610 per year (or $58 per connection per month). Capital replacement costs of facilities owned by CVWD will be the water district's responsibility and are reflected in the water billing costs and are already included in the O&M calculation. CVWD is required to use ductile iron for the water main which increases both costs and life time for this option. Because this option includes having CVWD extend their system further, it allows for possible further expansions in other areas on the Torres-Martinez reservation.

Option 2 is similar to Option 1 with one significant difference, in Option 2 the Torres-Martinez DCI would own, maintain and eventually need to replace, when it exceeds its design life, almost a mile of new water main (in Option 1this mile is owned, maintained, and will eventually be replaced by CVWD). The cost of the project is estimated at $1,460,000. O&M costs are $25,610 annually (or $62 per connection per month). The need to budget for capital replacement of the infrastructure would increase monthly billing by about $70 dollars more per connection per month (for an increase in monthly fees of $62 plus $70, totaling $132). At the same time, this option would not allow for the further extension of the CVWD water system to areas where it would eventually serve other portions of the Torres-Martinez reservation. In addition, the ductile iron water main required by CVWD would have a longer design life.

Table 8-35: Comparison of Project Alternatives

Torres-Martinez Avenue 64 Water Supply Connection Project

	Increase in Drinking Water Safety	Increase in Water Supply Reliability	Increase in Adequacy of Water Supply	Decrease Safety Concerns	Capital Cost	O & M Cost	Replace-ment Cost	Contributes to Regionaliz-ation
Option 1*	X	X	X	X		X	X	X
Option 2	X	X	X	X	X			
* Option 1 is currently under consideration, and is the project included in Attachment 3								

Table 8-35 evaluates the advantages and disadvantages of both options. Both options provide significant benefits to the Torres-Martinez DCI, including: increases in drinking water safety, water supply reliability, water supply adequacy, and decreases in safety concerns. The option presented in this project is the recommended option (Option 1). Although this option is $150,000 more in initial capital costs, it is $2,000 less in annual O&M costs and almost $30,000 less per year when set-aside for capital replacement of Tribally-owned infrastructure is included. This option reduces the Tribe's O&M burden and contributes to the regionalization of the water system, which could serve other portions of the Torres-Martinez reservation in the future.

Both the Torres-Martinez DCI and CVWD selected Option 1 as their preferred option as it results in a better long-term solution for both entities.

Responses to questions posed in DWR's *Proposal Solicitation Package* for the cost-effectiveness analysis method are summarized in Table 8-36.

Table 8-36: Statement of Cost-Effectiveness (PSP Table 11)

Torres-Martinez Avenue 64 Water Supply Connection Project

Statement of Cost-Effectiveness	
Types of Benefits Provided	A. Increase in Drinking Water Health and Safety B. Increase in Water Supply Reliability C. Increase in Water Supply Adequacy D. Provides a Long-Term Water Management Solution E. Decrease in Hazardous Physical Conditions F. Avoided Pump Station Rehabilitation and Deeper Drilling of Current Well G. Avoided Additional Treatment Necessary to Address Water Quality Concerns H. Avoided Ongoing Operations and Maintenance A.
Have alternative methods been considered to achieve the same types and amounts of physical benefits as the proposed project been identified?	Yes
If no, why?	N/A
If yes, list the methods (including the proposed project) and estimated costs	In 2012 Indian Health Service was retained by Torres-Martinez DCI to complete a Preliminary Engineering Report (PER) for the Avenue 64 Subdivision. The PER provides extensive details on the existing onsite potable water system, issues with the system, and potential solutions to address these issues. The ultimate conclusion of the PER is that there is a need to find an alternative water supply for the Avenue 64 Subdivision due to health and safety issues and operations and maintenance issues associated with the existing system. Ultimately, the PER concludes that the best option is for the subdivision to connect to a nearby municipal water system that is owned and operated by the Coachella Valley Water District.[100] Within the PER, IHS conducted an assessment on two potential options that could be implemented to meet the aforementioned goals. The cost estimations for those options are described below. **Option 1 (The Proposed Option):** The total estimated costs are $1,610,000. O&M costs are $23,610 annually ($58 per connection per month). Capital replacement costs of facilities owned by CVWD will be the water district's responsibility and are reflected in the water billing costs and are already included in the O&M calculation. **Option 2:** The cost of the project is estimated at $1,460,000. O&M costs are $25,610 annually (or $62 per connection per month). The need to budget for capital replacement of the infrastructure would increase monthly billing by about $70 dollars more per connection per month (for an increase in monthly fees of $62 plus $70).
If the proposed project is not the least cost alternative, why is it the preferred alternative?	Both options provide significant benefits to the residents of the Avenue 64 Subdivision and the Torres-Martinez DCI, including increases in drinking water safety, water supply reliability, water supply adequacy and decreases in operator and

[100] Indian Health Service (IHS). 2012. *Preliminary Engineering Report for the Torres-Martinez Desert Cahuilla Indians: CVWD Water Main Extension to Avenue 64 Housing Subdivision.* Page 13, Section V. Alternatives Considered.

Statement of Cost-Effectiveness	
Provide an explanation of an accomplishment of the proposed project that is different from the alternative project or methods.	public safety concerns. The option presented in this project is the recommended option. Although this option is $150,000 more in capital costs, it is $2,000 less in annual O&M costs and almost $30,000 less per year when set-aside for capital replacement of Tribally-owned infrastructure is included. This option reduces Torres-Martinez DCI's O & M burden and contributes to the regionalization of the water system which could serve other portions of the Torres-Martinez reservation in the future. Both the Tribe and CVWD selected Option 1 as their preferred option as it results in a better long-term solution for both entities.
Comments: See further discussion provided above.	

Project Benefits and Costs Summary

Project Economic Costs

Table 8-38 summarizes the economic costs for the *Torres-Martinez Avenue 64 Water Supply Connection Project*. The project has a present value cost of $220,280. This project provides funding for design and engineering that can be used to apply for construction funding (approximately $1.5 million) from USDA or USEPA. A *Preliminary Engineering Report* and associated technical studies have been already been completed by IHS ($23,827) and is included as part of the tribe's funding match in Phase I.

Additional construction costs that are anticipated in Phase II of the overall program are anticipated to be $1,514,324 (undiscounted), while operations and maintenance (O&M) costs are anticipated to be $13,854 (undiscounted) over 50 years. Note that these costs are not included in the total project cost because additional engineering design must be completed by CVWD to confirm and solidify them.

Benefits and Costs Summary

The *Torres-Martinez Avenue 64 Water Supply Connection Project* has a present value cost of $220,280. This project provides funding for design and engineering work that can be used to apply for construction funding (approximately $1.5 million) from USDA. A preliminary engineering Report has been already been completed by IHS ($23,827) and is included as part of the tribe's funding match in Phase I.

Although no benefits are quantifiable or monetizable for this project, the project has extensive non-monetized benefits including:

- **A.** Increase in Drinking Water Health and Safety
- **B.** Increase in Water Supply Reliability
- **C.** Increase in Water Supply Adequacy
- **D.** Improved Public Safety
- **E.** Provide a Long-Term Solution vs. a Short-Term Solution
- **F.** Avoided Pump Station Rehabilitation and Deeper Drilling of Current Well
- **G.** Avoided Additional Treatment Necessary to Address Water Quality Concerns
- **H.** Avoided Ongoing Operations and Maintenance

Table 8-38: Annual Project Costs (PSP Table 19)

Torres-Martinez Avenue 64 Water Supply Connection Project

Project Annual Costs (2012 Dollars)										
			Annual Costs						Discounting Calculations	
	Initial Costs Grand Total Cost from Table 6 (row (i), column (d))	Adjusted Grand Total Cost	Admin	Operation	Maintenance	Replace-ment	Other	Total Costs (a) +…+ (g)	Discount Factor (Capital) Present Value Coeff (O&M)	Discounted Project Costs (h) x (i)
Year			(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
2012	$23,827							$23,827	1.000	$23,827
2013	$83,394							$83,394	0.943	$78,641
2014	$131,048							$131,048	0.899	$117,812
Total Present Value of Discounted Costs (Sum of Column (j)) Transfer to Table 17, column (c), Proposal Benefits and Costs Summaries										**$220,280**

Appendix 8-1:
Coachella Valley IRWM Avoided Imported Water Costs

Regional Water Supply Background

The Coachella Valley IRWM Region is chiefly the same boundary as the Whitewater River watershed boundary, also known as the Coachella Valley. The area is drained primarily by the Whitewater River that flows southward to the Salton Sea. The Coachella Valley is characterized by low precipitation and high summer daytime temperatures.

Water supply for the Coachella Valley is generally pumped from sub-basins of the Coachella Valley Groundwater Basin. Water is pumped from many wells around the region into each of the regional water purveyor's distribution systems. Each of the five water purveyors of the region – Coachella Valley Water District (CVWD), Coachella Water Authority (CWA), Desert Water Agency (DWA), Indio Water Authority (IWA), and Mission Springs Water District (MSWD) – operates its own water distribution system.

Groundwater is the largest source of water supply for the region. The Coachella Valley Groundwater Basin has an estimated storage capacity of 39 million acre-feet (AF) of water. Prior to 1949, groundwater levels steadily declined due to agricultural pumping. The Coachella branch of the All American Canal (Coachella Canal) was completed in 1949 and the first deliveries of Colorado River water to the Coachella Valley began in that year. As a result, groundwater pumping was significantly reduced from 1950 to the early 1980s, and water levels rose in the eastern Coachella Valley. However, since the 1980s, increased pumping has caused water levels in the eastern Coachella Valley to decline despite Colorado River imports. CVWD estimates the decrease in freshwater storage in the Coachella Valley Groundwater Basin for 1999 to be 137,000 AF, with a cumulative overdraft of nearly 4.8 million acre-feet between 1936 and 1999.[1] For the ten year period of 2000 to 2009, an average of 110,000 af was annually over-drafted from the Whitewater River Subbasin.[2]

Due to potentially significant consequences caused by groundwater overdraft, the region has developed imported water supplies to supplement and replenish groundwater supplies. CVWD and DWA obtain imported water supplies through two primary sources 1) State Water Project (SWP) supply via exchange with Metropolitan Water District of Southern California (MWD) for delivery through the Colorado River Aqueduct and 2) Colorado River supply via the Coachella Canal. These sources are used to recharge the Groundwater Basin and are used in lieu of groundwater for some irrigation demands. Currently, no infrastructure exists to deliver SWP water directly to the Coachella Valley. CVWD and DWA exchange their SWP entitlement, when available, with the Metropolitan Water District (MWD) for an equal amount of MWD's Colorado River water. CVWD and DWA currently have a combined entitlement of 194,000 ac-ft/year. See Table 8-1 which shows allotments for 2010 through 2012 which illustrates how entitlement allotment is achieved.

[1] CVWD. 2002. Coachella Valley Water Management Plan.
[2] CVWD. 2010. Coachella Valley Water Management Plan Update.

Table 8-1: Allotments (in AF for 2010-2012)

	Original SWP Table A	Tulare Lake Basin Transfer #1	Tulare Lake Basin Transfer #2	MWD Transfer	Berrenda Mesa Transfer	Total
CVWD	23,100	9,900	5,250	88,100	12,000	138,350
DWA	38,100		1,750	11,900	4,000	55,750
Total	61,200	9,900	7,000	100,000	16,000	194,100

SWP Contract Water Types

The SWP contracts define several classifications of water available for delivery to contractors under specific circumstances. All classifications are considered "project" water. Many contractors make frequent use of these additional water types to increase or decrease the amount available to them under Table A. CVWD and DWA aggressively pursue the purchase of additional water supplies as they come available.

Table A Water -Each contract's Table A is the amount in acre-feet that is used to determine the portion of available supply to be delivered to that contractor. Table A water is water delivered according to this apportionment methodology and is given first priority for delivery.

Article 21 Water - Article 21 of the contracts permits delivery of water excess to delivery of Table A and some other water types to those contractors requesting it. It is available under specific conditions. Article 21 water is apportioned to those contractors requesting it in the same proportion as their Table A and must be delivered in the same year as it is purchased. Individual contractors are responsible for coordinating the delivery of Article 21 water via their normal contracts.

Turnback Pool Water - Contractors may choose to offer their allocated Table A water excess to their needs to other contractors through two pools, A and B, in February and March. Contributing contractors receive a reduction in charges, and taking contractors pay extra.

Carryover Water – SWP contractors can carry over a portion of their allocated water approved for delivery in the current year for delivery during the next year. Contractors can carry over water with advanced notice when they submit their initial request for Table A water, or within the last three months of the delivery year, under Article 12E for various reasons, including local wet conditions and exchange and transfer arrangements. The carryover program was designed to encourage the most effective and beneficial use of water and to avoid obligating the contractors to use or lose the water by December 31 of each year. The water supply contracts state the criteria of carrying over Table A water from one year to the next. Normally, carryover water is water that has been exported during the year, has not been delivered to the contractor during that year, and has remained stored in the SWP share of San Luis Reservoir to be delivered during the following year. Storage for carryover water no longer becomes available to the contractors if it interferes with storage of SWP water for project needs.

Avoided Water Supply Costs

Water conservation anticipated as part of the program would reduce regional water demand, thereby reducing the Coachella Valley region's future dependence on imported water from the State Water Project (SWP). Reducing future dependence on imported water would potentially produce benefits associated with avoiding the costs of transporting, pumping, and recharging imported water into the groundwater basin.

In 1962 and 1963, respectively, DWA and CVWD entered into contracts with the State of California for 61,200 AFY of SWP water. To avoid the then-estimated $150 million cost of constructing an aqueduct to bring SWP water directly to the Valley, CVWD and DWA entered into an exchange agreement with

MWD to exchange SWP water for Colorado River water. The exchange agreement allows for delivery of Colorado River Water water to replenish groundwater in the Whitewater River Sub-basin of the Upper Coachella Valley Groundwater Basin.

By the 1980s, groundwater demand in the East Valley had again exceeded supplies, resulting in significant groundwater level decreases in some parts of the East Valley. Because groundwater recharge in the East Valley is complicated by relatively impervious clay layers in the Valley floor, CVWD began looking for sites sufficiently far away from the main clay layer to allow groundwater recharge.

CVWD, DWA, and MWD executed an Advance Delivery Agreement in 1983 (updated in 2003), which allows MWD to store up to 600,000 acre feet of water in the Whitewater River Sub-basin. MWD assigned 11,900 acre feet of its annual Table A allocation to DWA and 88,100 acre feet of its annual Table A allocation to CVWD for a total of 100,000 acre feet (Table A is an entitlement schedule set forth by the SWP on an annual basis). CVWD and DWA executed the Mission Creek Groundwater Replenishment Agreement in April 2003, which also allows for storage of advanced deliveries from MWD.

CVWD and DWA now operate four recharge areas in the Coachella Valley IRWM region:

- *Whitewater Spreading Area* recharges Colorado River water and captures stormwater, with historical peak recharge of 288,000 acre-feet in 1986,
- *Mission Creek Spreading Facility* recharges Colorado River water and has a recharge capacity of 30,000 to 40,000 AFY,
- *Thomas E. Levy Recharge Facility* recharges water obtained from the Coachella Canal and has a recharge capacity of approximately 30,000 to 40,000 AFY, and
- *Martinez Canyon Pilot Recharge Project* recharges Coachella Canal water and currently has capacity of about 2,000 AFY.

SWP supplies vary annually due to weather and runoff variations, as well as regulatory limitations on exports from the Delta. Under current conditions, the SWP can only provide about 60 percent of the Table A allocation indicated in CVWD's and DWA's contracts. In the absence of state and federal actions in the Bay Delta to increase SWP supplies, it is anticipated that long-term SWP reliability (deliveries) could decrease to 50 percent of the Table A allocations.[3]

Because current water supplies imported into the Valley are from purchased entitlements via the SWP, these costs were used to estimate the avoided costs of water supply purchases that would result from the proposed projects. These costs can vary and are currently estimated to be around $4,000 per AFY based on CVWD's 2010 Coachella Valley Water Management Plan (CVWMP) Update. With an estimated long-term reliability of only 50 percent, this means the actual unit cost of imported water supply is closer to $8,000 per AFY. When exchanged for MWD's Colorado River water, additional costs for conveying the water are also incurred and are estimated to be around $600 per AFY. The total discounted future value of avoided water supply costs are based on a unit value derived from the cost of importing, transporting, and recharging of imported water and was estimated at $1,166/AF (in 2009 dollars).

Unit Cost for Supplemental Water Supplies

The District can purchase and import water from either the SWP or the Colorado River which is subject to a one-time entitlement cost plus the cost to transport the water which varies from year to year. It is assumed that costs associated with recent purchases of SWP entitlements are, representative of permanent transfers of all types. The Consumer Price Index adjusted weighted average unit cost to purchase water

[3] CVWD. 2010. *Coachella Valley Water Management Plan Update – Draft Report*. Available at: http://www.cvwd.org/news/publicinfo/2010_12_02_CVWMP_Update_Draft.pdf

rights for imported water is $3,025 per acre-foot. Table 8-2 below lists recent District transfers of SWP Table A water entitlements. In addition to the one-time entitlement cost which could be amortized, there is also a delivery cost. The derivation of these costs is described below.

Table 8-2: SWP Entitlements of Table A Water ($2009)

From	To	Year	Amount (ac-ft/yr)	Cost ($/ac-ft)	CPI Factor	Adjusted Unit Cost	Total Adjusted Cost
Tulare Lake Basin Water Storage District	CVWD and DWA	May-07	7,000	$3,000	1.27%	$3,000	$21,266,700
Berrenda Mesa Water District	CVWD and DWA	Nov-07	16,000	$3,000	0.65%	$3,000	$48,312,000
Totals			23,000				$69,578,700
Weighted Average/Acre Foot = $3,025							
Source: CVWD, Patti Reyes, pers.comm.							

The costs shown above may not be representative of the current and future situations due to the State's water crisis. The opportunity to purchase water rights is limited and the rights available for purchase are at a much higher price than shown in the above table. Historically, the SWP can deliver only a portion of their entitlements; therefore, the reliability of the SWP is factored into the unit cost for imported sources. The current reliability of SWP ranges between 71% and 78%as reported in "The State Water Project Delivery Reliability Report, 2011" by the California Department of Water Resources.[4] This projected reliability factor takes into account recent water ligation, including the 2007 Wanger Decision, as well as potential variability in the hydrologic cycle associated with climate change. Therefore, the District must purchase 59% more entitlement than it expects to receive in order to ensure adequate supplemental supplies. Therefore, the actual unit cost to purchase rights for imported water is $4,810 per acre-foot ($3,025 x 1.59) in $2009. Updated using the national Consumer Price Index (CPI), this amounts to $5,148/AF in $2012.

The delivery costs are developed on a fiscal year basis and are developed through the consideration of the fixed costs, the variable costs, and the demand for water. The delivery costs change from year to year with FYs 2012 and 2013 presented below in Table 8-3.

Table 8-3: Delivery Costs for FY2012 and FY2013

Item	FY 2012	FY 2013
Total Variable Before Refunds	$11,513,388.26	$9,117,890.00
Total Fixed	$41,736,746.52	$28,860,287.77
Subtotal	$53,520,134.78	$37,978,177.77
Total Acre-feet	102,127	61,290
Cost per acre-foot	$521.41	$619.65
Source: CVWD, Patti Reyes, pers.comm. The water costs included in this table were estimated by CVWD finance staff based on fiscal year 2012 billing, and include all annual variable and fixed State Water Project O&M and Transportation costs.		

As shown above, the delivery costs amount to $619.65/AF for 2013. Adjusting this 2013 value into $2012, using the 2012 CPI, the delivery cost comes to $607.08/AF (in $2012), as shown in Table 8-4.

[4] California Department of Water Resources (DWR). 202. *The State Water Project: Final Delivery Reliability Report – 2011.* Available: http://baydeltaoffice.water.ca.gov/swpreliability/FINAL2011DRR_DWR_Review_File-clean-6-25-12.pdf

Table 8-4: CVWD and DWA Water Rates Effective January 1, 2013 ($2012)

	Entitlement ($/AF)	Delivery ($/AF)
Volumetric Charges	$5,148	$607.08

For the purpose of the economic analyses, the cost for an AF of entitlement needs to be converted to the equivalent cost per AF per year (AFY). To do this, the entitlement to a stream of AF over all future years needs to be converted into its present value equivalent, using the 6.0% rate of discount mandated by DWR in the *Proposition 84-Round 2 Proposal Solicitation Package*. Discounting one AF of water in each year, through an infinite number of future years at 6.0%, yields a present value equivalent of 16.667 AF (1/0.06 = 16.667). That is, a permanent entitlement to 1 AF per year is equivalent to 16.6667 AF today. Dividing the entitlement cost of $5,148 by 16.667 provides an effective cost of $308.85/AFY. Adding to this the $607.08 cost per AF of delivery, and a total cost is derived of $915.93 per AFY ($2012). This is the effective cost per AF delivered of "imported" water to Coachella Valley.

Real Price Escalation for Imported Water

Several proposed projects enhance local water supplies and, thus, reduce the region's reliance on waters imported from the Bay-Delta via the SWP. The avoided cost of imported SWP water is thus an important monetized benefit for projects that enhance local supplies.

An important aspect in monetizing the value of avoided imports entails predicting the future cost of imported SWP water. The economic analyses in these grant applications are developed in real terms (based on 2012 dollars), meaning that the future stream of benefits and costs typically are not adjusted for general inflation. This is because most outcomes are expected to see price changes that generally align with broader measures of inflation, such as the Consumer Price Index (CPI), which is measured and reported by the federal Bureau of Labor Statistics (ftp://ftp.bls.gov/pub/special.requests/cpi/cpiai.txt).

The price of imported SWP water is an important exception, because various factors have led to rate increases that have considerably outpaced general inflation over the past two decades (as detailed below). This trend of real price increases for imported water (i.e., above the projected CPI) is likely to continue in the future as well, because the same factors that have driven these prices upward will remain relevant for several years to come. These factors principally include limitations on overall supply, due to a variety of factors primarily linked to the declining health of the Bay-Delta system from which these waters are extracted.

The supply-constraining factors for the Bay-Delta include Court rulings and environmental regulations related to the severe adverse impacts that declining water levels and the associated alterations in water quality (e.g., salinity) have imposed on this important ecosystem. Fish populations have declined dramatically in recent decades (including threatened and endangered species such as salmon and the delta smelt, for which the Bay Delta provides critical habitat). The levee system is aging, and vulnerability of the Delta to flooding, sea level rise, or a major earthquake has contributed to concerns about possible levee collapse which could have devastating and far-reaching consequences. In addition, water quality problems continue, with impacts not only on fisheries and natural systems, but also on water treatment needs to meet drinking water standards for protecting human health and aesthetics.

These factors – and the associated investments the Metropolitan Water District of Southern California (MWD) and other water agencies have needed to make in infrastructure and potable water treatment – have resulted in dramatic increases in the cost of water that MWD wholesales or exchanges throughout southern California. Large investments in new infrastructure made over the past ten to twenty years include the Diamond Valley Lake and Inland Feeder. In the coming years, additional large-scale costs are likely to be incurred for the Delta Conveyance, which may cost around $20 billion in its current formulation, with MWD likely to bear a large portion (e.g., one-third to one-half) of the cost.

Tables 8-5 and 8-6 reveal the extent to which MWD water rates have increased over the past 10 to 20 years, relative to general inflation as reflected by the federal CPI. Table 8-5 shows the change in MWD "Tier 1 treated" supply rates, and Table 8-6 provides the same information for MWD's "Tier 2 treated" water rates.[5] In both instances, it is evident that over both the recent short-term (5-year period) and longer-term periods (10-year and 20-year), imported water costs have increased at rates well above inflation. For example, Tier 1 rates in the 2008 through 2012 period increased by over 56%, which is 8.5 times greater than the CPI over the same period. A very similar result is evident for Tier 2 rates. This indicates that the real rate of price increase (above general inflation) for MWD water has been between 9.4% and 10.2% over the past five years (as shown in the right-most column in Tables 8-5 and 8-6).

Over a longer timeframe, similar escalations are evident as well. Over the last decade, the 10-year average annual cost increase for MWD water has been from 4.8% to 5.2% per year above inflation, for Tier 2 and Tier 1, respectively. The 20-year price trend indicates a real annual increase in imported water costs of nearly 2% above inflation.

Table 8-5 MWD Tier 1 Treated Rates compared to CPI

		cumulative change			average annual change		
time interval	# years	Tier 1	CPI	ratio	Tier 1	CPI	Real Tier 1
2008 - 2012	5 years	56.3%	6.6%	8.5	11.8%	1.6%	10.2%
2003 - 2012	10 years	94.6%	24.8%	3.8	7.7%	2.5%	5.2%

Table 8-6: MWD Tier 2 Treated Rates compared to CPI

		cumulative change			average annual change		
time interval	# years	Tier 2	CPI	ratio	Tier 2	CPI	Real Tier 2
2008 - 2012	5 years	51.8%	6.6%	7.8	11.0%	1.6%	9.4%
2003 - 2012	10 years	88.1%	24.8%	3.6	7.3%	2.5%	4.8%
1993 - 2012	20 years	123.3%	58.9%	2.1	4.3%	2.5%	1.9%

Based on these data, it is appropriate for the economic analyses to reflect how imported water costs in Southern California are likely to continue to increase at rates considerable above general inflation. To reflect real prices of imported water in the future, we have adopted the following conservative assumptions:

1. For water imported between 2013 and 2020 (inclusive), we derive a real cost by escalating the prior year's cost by 3.5%. Thus, for example, the 2013 imported water cost (in 2012) is estimated as the 2012 cost multiplied by 1.035. This escalation of 3.5% above CPI is fairly conservative (i.e., low end), given the documented trends over the past 5 to 10 years (for which real increases have ranged from 4.8% to 10.2% per year).
2. For water imported in 2021 and years thereafter, we escalate at a rate of 1.5% per year to obtain real prices. This is also a conservative, given that observed 10 to 20 year escalation rates have been in the 1.9% to 5.2% range).

Another benchmark for considering these real price adjustments is provided by the long-term forecast for CPI for the upcoming 10-year period, 2013 through 2022. The Federal Reserve Bank of Philadelphia indicates an anticipated annual average CPI of 2.3% over the next ten years.[6]

[5] MWD rates derived from http://www.mwdh2o.com/mwdh2o/pages/finance/finance_03.html

[6] Survey of Professional Forecasters, http://www.phil.frb.org/research-and-data/real-time-center/survey-of-professional-forecasters/2013/survq113.cfm, accessed February 28, 2013

Combining the CPI forecast with the real escalation rates we propose above for MWD imports suggests an average nominal increase in imported water costs of only 5.8% per year through 2020 (2.3% + 3.5%), and 3.8% from 2021 onwards (2.3% + 1.5%). Both of these nominal price increases are well below the average nominal price increases observed for MWD over the relevant comparable time periods:

The MWD 5- and 10-year average nominal rate increase has ranged from 7.3% to 11.8% (as shown in Tables 1 and 2), compared to our use of 5.8% over the 6-year period 2015 – 2020; and The 10- and 20-year MWD history shows nominal increases of 4.3% to 7.7%, contrasted to our use of a 3.8% nominal increase starting in 2012, eight years in the future.

Future Projected Prices

For this study, changes in imported water costs pertinent for CVWD and DWA are based on the above estimated cost of $928.50 per AF for 2012. As described above, for future years, we escalate the real cost of imported water by 3.5% above general inflation through 2020, and 1.5% real for 2021 onwards. Table 8-6 assumes that both water rates and delivery costs increase faster than CPI.

Table 8-6: CVWD and DWA Projected Water Rates, 2012-2060 ($/AF, in real prices, $2012)

Year	Water Cost	Transportation Cost	Total Cost
2013	$ 308.85	$ 607.08	$ 915.93
2014	$ 319.66	$ 628.33	$ 947.99
2015	$ 330.85	$ 650.32	$ 981.17
2016	$ 342.43	$ 673.08	$ 1,015.51
2017	$ 354.41	$ 696.64	$ 1,051.05
2018	$ 366.82	$ 721.02	$ 1,087.84
2019	$ 379.66	$ 746.26	$ 1,125.91
2020	$ 392.94	$ 772.38	$ 1,165.32
2021	$ 398.84	$ 783.96	$ 1,182.80
2022	$ 404.82	$ 795.72	$ 1,200.54
2023	$ 410.89	$ 807.66	$ 1,218.55
2024	$ 417.06	$ 819.77	$ 1,236.83
2025	$ 423.31	$ 832.07	$ 1,255.38
2026	$ 429.66	$ 844.55	$ 1,274.21
2027	$ 436.11	$ 857.22	$ 1,293.32
2028	$ 442.65	$ 870.08	$ 1,312.72
2029	$ 449.29	$ 883.13	$ 1,332.41
2030	$ 456.03	$ 896.37	$ 1,352.40
2031	$ 462.87	$ 909.82	$ 1,372.69
2032	$ 469.81	$ 923.47	$ 1,393.28
2033	$ 476.86	$ 937.32	$ 1,414.18
2034	$ 484.01	$ 951.38	$ 1,435.39
2035	$ 491.27	$ 965.65	$ 1,456.92
2036	$ 498.64	$ 980.13	$ 1,478.77
2037	$ 506.12	$ 994.84	$ 1,500.95
2038	$ 513.71	$ 1,009.76	$ 1,523.47
2039	$ 521.42	$ 1,024.90	$ 1,546.32
2040	$ 529.24	$ 1,040.28	$ 1,569.52
2041	$ 537.18	$ 1,055.88	$ 1,593.06
2042	$ 545.23	$ 1,071.72	$ 1,616.95
2043	$ 553.41	$ 1,087.80	$ 1,641.21
2044	$ 561.71	$ 1,104.11	$ 1,665.83
2045	$ 570.14	$ 1,120.67	$ 1,690.81
2046	$ 578.69	$ 1,137.48	$ 1,716.18
2047	$ 587.37	$ 1,154.55	$ 1,741.92
2048	$ 596.18	$ 1,171.86	$ 1,768.05
2049	$ 605.13	$ 1,189.44	$ 1,794.57
2050	$ 614.20	$ 1,207.28	$ 1,821.49
2051	$ 623.42	$ 1,225.39	$ 1,848.81
2052	$ 632.77	$ 1,243.77	$ 1,876.54
2053	$ 642.26	$ 1,262.43	$ 1,904.69
2054	$ 651.89	$ 1,281.37	$ 1,933.26
2055	$ 661.67	$ 1,300.59	$ 1,962.26
2056	$ 671.60	$ 1,320.10	$ 1,991.69
2057	$ 681.67	$ 1,339.90	$ 2,021.57
2058	$ 691.89	$ 1,360.00	$ 2,051.89
2059	$ 702.27	$ 1,380.40	$ 2,082.67

Year	Water Cost	Transportation Cost	Total Cost
2060	$ 712.81	$ 1,401.10	$ 2,113.91
2061	$ 723.50	$ 1,422.12	$ 2,145.62
2062	$ 734.35	$ 1,443.45	$ 2,177.80
2063	$ 745.37	$ 1,465.10	$ 2,210.47
2064	$ 756.55	$ 1,487.08	$ 2,243.63
2065	$ 767.90	$ 1,509.39	$ 2,277.28
2066	$ 779.41	$ 1,532.03	$ 2,311.44
2067	$ 791.10	$ 1,555.01	$ 2,346.11
2068	$ 802.97	$ 1,578.33	$ 2,381.30
2069	$ 815.02	$ 1,602.01	$ 2,417.02
2070	$ 827.24	$ 1,626.04	$ 2,453.28
2071	$ 839.65	$ 1,650.43	$ 2,490.08
2072	$ 852.24	$ 1,675.18	$ 2,527.43

Conclusions

The fundamental source of the Coachella Valley's domestic water is the Coachella Valley Groundwater Basin. All water used for domestic water purposes is extracted from this basin through wells that are located throughout the Valley. Currently, the water extracted from the basin exceeds the natural recharge. In other words, the Coachella Valley Groundwater Basin is in a state of overdraft. Without imported water, the Coachella Valley Groundwater Basin would eventually be depleted and, in the interim, would impose significant costs as the groundwater levels decline and pumping costs and subsidence impacts increase. Further, new development within the Valley increases the demand on the existing water supply. These increased demands, as well as existing non-sustainable rates of groundwater extraction, have required CVWD and DWA to seek new additional water supply sources to keep pace with the Valley's growth. Each AF of water the region can save through conservation, or develop from local sources such as recycled or non-potable water, will offset the need for an AF of imported water to help recharge the local groundwater basin. Given the high cost of imported water, there is a high value that can be attributed to each local AF of groundwater saved or supplemented with local sources.

Appendix 8-2: Cost-Benefit Tables

Table 15 – Annual Benefit

Project: _____Non-Potable Water Use Expansion PRogram_____

(a) Year	(b) Type of Benefit	(c) Measure of Benefit (Units)	(d) Without Project	(e) With Project	(f) Change Resulting from Project (e) – (d)	(g) Unit $ Value [1]	(h) Annual $ Value [1] (f) x (g)	(i) Discount Factor [1]	(j) Discounted Benefits [1] (h) x (i)
2012									
2013									
2014									
2015									
2016	Imported water supply	AF	1,610	0	1,610	$1,015.51	$1,634,971	0.792	**$1,295,050**
	Groundwater pumping	AF	2,311	0	2,311	$53.08	$122,668	0.792	**$97,164**
	Social costs of CO_2 emissions	MT	1,795	1,539	752	$24.77	$18,629	0.792	**$14,756**
2017	Imported water supply	AF	1,610	0	1,610	$1,051.05	$1,692,191	0.747	**$1,264,503**
	Groundwater pumping	AF	7,281	0	7,281	$53.08	$386,475	0.747	**$288,797**
	Social costs of CO_2 emissions	MT	3,202	4,409	2,809	$25.37	$71,255	0.747	**$53,246**
2018	Imported water supply	AF	1,610	0	1,610	$1,087.84	$1,751,422	0.705	**$1,234,684**
	Groundwater pumping	AF	8,050	0	8,050	$53.08	$427,294	0.705	**$301,225**
	Social costs of CO_2 emissions	MT	3,420	4,783	3,196	$25.98	$83,017	0.705	**$58,524**
2019	Imported water supply	AF	1,610	0	1,610	$1,125.91	$1,812,715	0.665	**$1,205,559**
	Groundwater pumping	AF	8,050	0	8,050	$53.08	$427,294	0.665	**$284,175**
	Social costs of CO_2 emissions	MT	3,420	4,783	3,196	$26.60	$85,010	0.665	**$56,536**
2020	Imported water supply	AF	3,220	0	3,220	$1,165.32	$3,752,330	0.627	**$2,354,259**
	Groundwater pumping	AF	8,050	0	8,050	$53.08	$427,294	0.627	**$268,090**
	Social costs of CO_2 emissions	MT	4,560	4,783	3,196	$27.24	$87,050	0.627	**$54,616**
2021	Imported water supply	AF	3,220	0	3,220	$1,182.80	$3,808,616	0.592	**$2,254,314**
	Groundwater pumping	AF	8,050	0	8,050	$53.08	$427,294	0.592	**$252,915**
	Social costs of CO_2 emissions	MT	4,560	4,783	3,196	$27.89	$89,139	0.592	**$52,761**
2022	Imported water supply	AF	3,220	0	3,220	$1,200.54	$3,865,739	0.558	**$2,158,608**
	Groundwater pumping	AF	8,050	0	8,050	$53.08	$427,294	0.558	**$238,599**
	Social costs of CO_2 emissions	MT	4,560	4,783	3,196	$28.56	$91,278	0.558	**$50,969**
2023	Imported water supply	AF	3,220	0	3,220	$1,218.55	$3,923,731	0.527	**$2,066,973**
	Groundwater pumping	AF	8,050	0	8,050	$53.08	$427,294	0.527	**$225,093**
	Social costs of CO_2 emissions	MT	4,560	4,783	3,196	$29.25	$93,469	0.527	**$49,238**
2024	Imported water supply	AF	3,220	0	3,220	$1,236.83	$3,982,593	0.497	**$1,979,227**
	Groundwater pumping	AF	8,050	0	8,050	$53.08	$427,294	0.497	**$212,352**
	Social costs of CO_2 emissions	MT	4,560	4,783	3,196	$29.95	$95,712	0.497	**$47,566**
2025	Imported water supply	AF	4,830	0	4,830	$1,255.38	$6,063,485	0.469	**$2,842,799**
	Groundwater pumping	AF	8,050	0	8,050	$53.08	$427,294	0.469	**$200,332**
	Social costs of CO_2 emissions	MT	5,700	4,783	3,196	$30.67	$98,009	0.469	**$45,951**
2026	Imported water supply	AF	4,830	0	4,830	$1,274.21	$6,154,434	0.442	**$2,722,112**
	Groundwater pumping	AF	8,050	0	8,050	$53.08	$427,294	0.442	**$188,993**

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	Social costs of CO_2 emissions	MT	5,700	4,783	3,196	$31.40	$100,362	0.442	**$44,390**
2027	Imported water supply	AF	4,830	0	4,830	$1,293.32	$6,246,736	0.417	**$2,606,545**
	Groundwater pumping	AF	8,050	0	8,050	$53.08	$427,294	0.417	**$178,295**
	Social costs of CO_2 emissions	MT	5,700	4,783	3,196	$32.16	$102,770	0.417	**$42,882**
2028	Imported water supply	AF	4,830	0	4,830	$1,312.72	$6,340,438	0.394	**$2,495,890**
	Groundwater pumping	AF	8,050	0	8,050	$53.08	$427,294	0.394	**$168,203**
	Social costs of CO_2 emissions	MT	5,700	4,783	3,196	$32.93	$105,237	0.394	**$41,426**
2029	Imported water supply	AF	4,830	0	4,830	$1,332.41	$6,435,540	0.371	**$2,389,931**
	Groundwater pumping	AF	8,050	0	8,050	$53.08	$427,294	0.371	**$158,682**
	Social costs of CO_2 emissions	MT	5,700	4,783	3,196	$33.72	$107,762	0.371	**$40,019**
2030	Imported water supply	AF	6,440	0	6,440	$1,352.40	$8,709,456	0.350	**$3,051,304**
	Groundwater pumping	AF	8,050	0	8,050	$53.08	$427,294	0.350	**$149,700**
	Social costs of CO_2 emissions	MT	6,840	4,783	3,196	$34.53	$110,349	0.350	**$38,660**
2031	Imported water supply	AF	6,440	0	6,440	$1,372.69	$8,840,124	0.331	**$2,921,776**
	Groundwater pumping	AF	8,050	0	8,050	$53.08	$427,294	0.331	**$141,226**
	Social costs of CO_2 emissions	MT	6,840	4,783	3,196	$35.36	$112,997	0.331	**$37,347**
2032	Imported water supply	AF	6,440	0	6,440	$1,393.28	$8,972,723	0.312	**$2,797,738**
	Groundwater pumping	AF	8,050	0	8,050	$53.08	$427,294	0.312	**$133,232**
	Social costs of CO_2 emissions	MT	6,840	4,783	3,196	$36.20	$115,709	0.312	**$36,079**
2033	Imported water supply	AF	6,440	0	6,440	$1,414.18	$9,107,319	0.294	**$2,678,967**
	Groundwater pumping	AF	8,050	0	8,050	$53.08	$427,294	0.294	**$125,691**
	Social costs of CO_2 emissions	MT	6,840	4,783	3,196	$37.07	$118,486	0.294	**$34,853**
2034	Imported water supply	AF	6,440	0	6,440	$1,435.39	$9,243,912	0.278	**$2,565,233**
	Groundwater pumping	AF	8,050	0	8,050	$53.08	$427,294	0.278	**$118,576**
	Social costs of CO_2 emissions	MT	6,840	4,783	3,196	$37.96	$121,330	0.278	**$33,670**
2035	Imported water supply	AF	8,050	0	8,050	$1,456.92	$11,728,206	0.262	**$3,070,412**
	Groundwater pumping	AF	8,050	0	8,050	$53.08	$427,294	0.262	**$111,864**
	Social costs of CO_2 emissions	MT	7,980	4,783	3,196	$38.87	$124,242	0.262	**$32,526**
2036	Imported water supply	AF	8,050	0	8,050	$1,478.77	$11,904,099	0.247	**$2,940,057**
	Groundwater pumping	AF	8,050	0	8,050	$53.08	$427,294	0.247	**$105,532**
	Social costs of CO_2 emissions	MT	7,980	4,783	3,196	$39.81	$127,223	0.247	**$31,421**
2037	Imported water supply	AF	8,050	0	8,050	$1,500.95	$12,082,648	0.233	**$2,815,240**
	Groundwater pumping	AF	8,050	0	8,050	$53.08	$427,294	0.233	**$99,559**
	Social costs of CO_2 emissions	MT	7,980	4,783	3,196	$40.76	$130,277	0.233	**$30,354**
2038	Imported water supply	AF	8,050	0	8,050	$1,523.47	$12,263,934	0.220	**$2,695,736**
	Groundwater pumping	AF	8,050	0	8,050	$53.08	$427,294	0.220	**$93,924**
	Social costs of CO_2 emissions	MT	7,980	4,783	3,196	$41.74	$133,403	0.220	**$29,323**
2039	Imported water supply	AF	8,050	0	8,050	$1,546.32	$12,447,876	0.207	**$2,581,291**
	Groundwater pumping	AF	8,050	0	8,050	$53.08	$427,294	0.207	**$88,607**
	Social costs of CO_2 emissions	MT	7,980	4,783	3,196	$42.74	$136,605	0.207	**$28,328**

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2040	Imported water supply	AF	8,050	0	8,050	$1,569.52	$12,634,636	0.196	**$2,471,716**
	Groundwater pumping	AF	8,050	0	8,050	$53.08	$427,294	0.196	**$83,592**
	Social costs of CO_2 emissions	MT	7,980	4,783	3,196	$43.77	$139,884	0.196	**$27,365**
2041	Imported water supply	AF	8,050	0	8,050	$1,593.06	$12,824,133	0.185	**$2,366,780**
	Groundwater pumping	AF	8,050	0	8,050	$53.08	$427,294	0.185	**$78,860**
	Social costs of CO_2 emissions	MT	7,980	4,783	3,196	$44.82	$143,241	0.185	**$26,436**
2042	Imported water supply	AF	8,050	0	8,050	$1,616.95	$13,016,448	0.174	**$2,266,295**
	Groundwater pumping	AF	8,050	0	8,050	$53.08	$427,294	0.174	**$74,396**
	Social costs of CO_2 emissions	MT	7,980	4,783	3,196	$45.89	$146,679	0.174	**$25,538**
2043	Imported water supply	AF	8,050	0	8,050	$1,641.21	$13,211,741	0.164	**$2,170,092**
	Groundwater pumping	AF	8,050	0	8,050	$53.08	$427,294	0.164	**$70,185**
	Social costs of CO_2 emissions	MT	7,980	4,783	3,196	$47.00	$150,199	0.164	**$24,671**
2044	Imported water supply	AF	8,050	0	8,050	$1,665.83	$13,409,932	0.155	**$2,077,968**
	Groundwater pumping	AF	8,050	0	8,050	$53.08	$427,294	0.155	**$66,212**
	Social costs of CO_2 emissions	MT	7,980	4,783	3,196	$48.12	$153,804	0.155	**$23,833**
2045	Imported water supply	AF	8,050	0	8,050	$1,690.81	$13,611,021	0.146	**$1,989,744**
	Groundwater pumping	AF	8,050	0	8,050	$53.08	$427,294	0.146	**$62,464**
	Social costs of CO_2 emissions	MT	7,980	4,783	3,196	$49.28	$157,495	0.146	**$23,024**
2046	Imported water supply	AF	8,050	0	8,050	$1,716.18	$13,815,249	0.138	**$1,905,282**
	Groundwater pumping	AF	8,050	0	8,050	$53.08	$427,294	0.138	**$58,929**
	Social costs of CO_2 emissions	MT	7,980	4,783	3,196	$50.46	$161,275	0.138	**$22,242**
2047	Imported water supply	AF	8,050	0	8,050	$1,741.92	$14,022,456	0.130	**$1,824,395**
	Groundwater pumping	AF	8,050	0	8,050	$53.08	$427,294	0.130	**$55,593**
	Social costs of CO_2 emissions	MT	7,980	4,783	3,196	$51.67	$165,145	0.130	**$21,486**
2048	Imported water supply	AF	8,050	0	8,050	$1,768.05	$14,232,803	0.123	**$1,746,945**
	Groundwater pumping	AF	8,050	0	8,050	$53.08	$427,294	0.123	**$52,446**
	Social costs of CO_2 emissions	MT	7,980	4,783	3,196	$52.91	$169,109	0.123	**$20,757**
2049	Imported water supply	AF	8,050	0	8,050	$1,794.57	$14,446,289	0.116	**$1,672,782**
	Groundwater pumping	AF	8,050	0	8,050	$53.08	$427,294	0.116	**$49,478**
	Social costs of CO_2 emissions	MT	7,980	4,783	3,196	$54.18	$173,167	0.116	**$20,052**
2050	Imported water supply	AF	8,050	0	8,050	$1,821.49	$14,662,995	0.109	**$1,601,769**
	Groundwater pumping	AF	8,050	0	8,050	$53.08	$427,294	0.109	**$46,677**
	Social costs of CO_2 emissions	MT	7,980	4,783	3,196	$55.48	$177,324	0.109	**$19,371**
2051	Imported water supply	AF	8,050	0	8,050	$1,848.81	$14,882,921	0.103	**$1,533,767**
	Groundwater pumping	AF	8,050	0	8,050	$53.08	$427,294	0.103	**$44,035**
	Social costs of CO_2 emissions	MT	7,980	4,783	3,196	$56.81	$181,579	0.103	**$18,713**
2052	Imported water supply	AF	8,050	0	8,050	$1,876.54	$15,106,147	0.097	**$1,468,653**
	Groundwater pumping	AF	8,050	0	8,050	$53.08	$427,294	0.097	**$41,542**
	Social costs of CO_2 emissions	MT	7,980	4,783	3,196	$58.18	$185,937	0.097	**$18,077**
2053	Imported water supply	AF	8,050	0	8,050	$1,904.69	$15,332,755	0.092	**$1,406,306**

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	Groundwater pumping	AF	8,050	0	8,050	$53.08	$427,294	0.092	**$39,191**
	Social costs of CO_2 emissions	MT	7,980	4,783	3,196	$59.57	$190,400	0.092	**$17,463**
2054	Imported water supply	AF	8,050	0	8,050	$1,933.26	$15,562,743	0.087	**$1,346,604**
	Groundwater pumping	AF	8,050	0	8,050	$53.08	$427,294	0.087	**$36,973**
	Social costs of CO_2 emissions	MT	7,980	4,783	3,196	$61.00	$194,969	0.087	**$16,870**
2055	Imported water supply	AF	8,050	0	8,050	$1,962.26	$15,796,193	0.082	**$1,289,437**
	Groundwater pumping	AF	8,050	0	8,050	$53.08	$427,294	0.082	**$34,880**
	Social costs of CO_2 emissions	MT	7,980	4,783	3,196	$62.47	$199,649	0.082	**$16,297**
2056	Imported water supply	AF	8,050	0	8,050	$1,991.69	$16,033,105	0.077	**$1,234,695**
	Groundwater pumping	AF	8,050	0	8,050	$53.08	$427,294	0.077	**$32,906**
	Social costs of CO_2 emissions	MT	7,980	4,783	3,196	$63.97	$204,440	0.077	**$15,744**
2057	Imported water supply	AF	8,050	0	8,050	$2,021.57	$16,273,639	0.073	**$1,182,281**
	Groundwater pumping	AF	8,050	0	8,050	$53.08	$427,294	0.073	**$31,043**
	Social costs of CO_2 emissions	MT	7,980	4,783	3,196	$65.50	$209,347	0.073	**$15,209**
2058	Imported water supply	AF	8,050	0	8,050	$2,051.89	$16,517,715	0.069	**$1,132,088**
	Groundwater pumping	AF	8,050	0	8,050	$53.08	$427,294	0.069	**$29,286**
	Social costs of CO_2 emissions	MT	7,980	4,783	3,196	$67.07	$214,371	0.069	**$14,693**
2059	Imported water supply	AF	8,050	0	8,050	$2,082.67	$16,765,494	0.065	**$1,084,028**
	Groundwater pumping	AF	8,050	0	8,050	$53.08	$427,294	0.065	**$27,628**
	Social costs of CO_2 emissions	MT	7,980	4,783	3,196	$68.68	$219,516	0.065	**$14,194**
2060	Imported water supply	AF	8,050	0	8,050	$2,113.91	$17,016,976	0.061	**$1,038,008**
	Groundwater pumping	AF	8,050	0	8,050	$53.08	$427,294	0.061	**$26,064**
	Social costs of CO_2 emissions	MT	7,980	4,783	3,196	$70.33	$224,784	0.061	**$13,711**
2061	Imported water supply	AF	8,050	0	8,050	$2,145.62	$17,272,241	0.058	**$993,943**
	Groundwater pumping	AF	8,050	0	8,050	$53.08	$427,294	0.058	**$24,589**
	Social costs of CO_2 emissions	MT	7,980	4,783	3,196	$72.02	$230,179	0.058	**$13,246**
2062	Imported water supply	AF	8,050	0	8,050	$2,177.80	$17,531,290	0.054	**$951,745**
	Groundwater pumping	AF	8,050	0	8,050	$53.08	$427,294	0.054	**$23,197**
	Social costs of CO_2 emissions	MT	7,980	4,783	3,196	$73.75	$235,703	0.054	**$12,796**
2063	Imported water supply	AF	8,050	0	8,050	$2,210.47	$17,794,284	0.051	**$911,342**
	Groundwater pumping	AF	8,050	0	8,050	$53.08	$427,294	0.051	**$21,884**
	Social costs of CO_2 emissions	MT	7,980	4,783	3,196	$75.52	$241,360	0.051	**$12,361**
2064	Imported water supply	AF	8,050	0	8,050	$2,243.63	$18,061,222	0.048	**$872,654**
	Groundwater pumping	AF	8,050	0	8,050	$53.08	$427,294	0.048	**$20,645**
	Social costs of CO_2 emissions	MT	7,980	4,783	3,196	$77.33	$247,153	0.048	**$11,942**
2065	Imported water supply	AF	8,050	0	8,050	$2,277.28	$18,332,104	0.046	**$835,606**
	Groundwater pumping	AF	8,050	0	8,050	$53.08	$427,294	0.046	**$19,477**
	Social costs of CO_2 emissions	MT	7,980	4,783	3,196	$79.19	$253,085	0.046	**$11,536**
2066	Imported water supply	AF	8,050	0	8,050	$2,311.44	$18,607,092	0.043	**$800,132**
	Groundwater pumping	AF	8,050	0	8,050	$53.08	$427,294	0.043	**$18,374**

Appendix 8-2: Cost-Benefit Tables

	Social costs of CO_2 emissions	MT	7,980	4,783	3,196	$81.09	$259,159	0.043	**$11,144**
2067	Imported water supply	AF	8,050	0	8,050	$2,346.11	$18,886,186	0.041	**$766,164**
	Groundwater pumping	AF	8,050	0	8,050	$53.08	$427,294	0.041	**$17,334**
	Social costs of CO_2 emissions	MT	7,980	4,783	3,196	$83.03	$265,378	0.041	**$10,766**
2068	Imported water supply	AF	8,050	0	8,050	$2,381.30	$19,169,465	0.038	**$733,638**
	Groundwater pumping	AF	8,050	0	8,050	$53.08	$427,294	0.038	**$16,353**
	Social costs of CO_2 emissions	MT	7,980	4,783	3,196	$85.03	$271,747	0.038	**$10,400**
2069	Imported water supply	AF	8,050	0	8,050	$2,417.02	$19,457,011	0.036	**$702,493**
	Groundwater pumping	AF	8,050	0	8,050	$53.08	$427,294	0.036	**$15,427**
	Social costs of CO_2 emissions	MT	7,980	4,783	3,196	$87.07	$278,269	0.036	**$10,047**
2070	Imported water supply	AF	8,050	0	8,050	$2,453.28	$19,748,904	0.034	**$672,671**
	Groundwater pumping	AF	8,050	0	8,050	$53.08	$427,294	0.034	**$14,554**
	Social costs of CO_2 emissions	MT	7,980	4,783	3,196	$89.16	$284,948	0.034	**$9,706**
2071	Imported water supply	AF	8,050	0	8,050	$2,490.08	$20,045,144	0.032	**$644,115**
	Groundwater pumping	AF	8,050	0	8,050	$53.08	$427,294	0.032	**$13,730**
	Social costs of CO_2 emissions	MT	7,980	4,783	3,196	$91.30	$291,787	0.032	**$9,376**
2072	Imported water supply	AF	8,050	0	8,050	$2,527.43	$20,345,812	0.030	**$616,770**
	Groundwater pumping	AF	8,050	0	8,050	$53.08	$427,294	0.030	**$12,953**
	Social costs of CO_2 emissions	MT	7,980	4,783	3,196	$93.49	$298,790	0.030	**$9,058**
2073	Imported water supply	AF	8,050	0	8,050	$2,565.34	$20,650,987	0.029	**$590,586**
	Groundwater pumping	AF	8,050	0	8,050	$53.08	$427,294	0.029	**$12,220**
	Social costs of CO_2 emissions	MT	7,980	4,783	3,196	$95.73	$305,960	0.029	**$8,750**
2074	Imported water supply	AF	8,050	0	8,050	$2,603.82	$20,960,751	0.027	**$565,514**
	Groundwater pumping	AF	8,050	0	8,050	$53.08	$427,294	0.027	**$11,528**
	Social costs of CO_2 emissions	MT	7,980	4,783	3,196	$98.03	$313,304	0.027	**$8,453**
2075	Imported water supply	AF	8,050	0	8,050	$2,642.88	$21,275,184	0.025	**$541,507**
	Groundwater pumping	AF	8,050	0	8,050	$53.08	$427,294	0.025	**$10,876**
	Social costs of CO_2 emissions	MT	7,980	4,783	3,196	$100.38	$320,823	0.025	**$8,166**
2076	Imported water supply	AF	8,050	0	8,050	$2,682.52	$21,594,286	0.024	**$518,518**
	Groundwater pumping	AF	8,050	0	8,050	$53.08	$427,294	0.024	**$10,260**
	Social costs of CO_2 emissions	MT	7,980	2,796	3,196	$102.79	$328,523	0.024	**$7,888**
2077	Imported water supply	AF	8,050	0	8,050	$2,722.76	$21,918,218	0.023	**$496,505**
	Groundwater pumping	AF	8,050	0	8,050	$53.08	$427,294	0.023	**$9,679**
	Social costs of CO_2 emissions	MT	7,980	375	3,196	$105.26	$336,407	0.023	**$7,621**
								TOTAL	**$111,132,468**

Appendix 8-2: Cost-Benefit Tables

Table 16 – Annual Costs of Avoided Projects (All avoided costs should be in 2012 dollars) Project: _____Non-Potable Water Use Expansion Program_____						
	Costs				Discounting Calculations	
(a)	(b)	(c)	(d)	(e)	(f)	(g)
Year	Alternative (Avoided Project Name): _____ Avoided Project Description: Avoided Capital Costs	Avoided Replacement Costs	Avoided Operations and Maintenance Costs	Total Cost Avoided for Individual Alternatives (b) + (c) + (d)	Discount Factor	Discounted Costs (e) x (f)
2012					1.000	
2013					0.943	
2014	$1,239,930			$1,239,930	0.890	**$1,103,533**
2015			$107,065	$107,065	0.840	**$89,894**
2016			$107,065	$107,065	0.792	**$84,806**
2017			$107,065	$107,065	0.747	**$80,005**
2018			$107,065	$107,065	0.705	**$75,477**
2019	$1,239,930		$107,065	$1,346,995	0.665	**$895,829**
2020			$214,130	$214,130	0.627	**$134,348**
2021			$214,130	$214,130	0.592	**$126,743**
2022			$214,130	$214,130	0.558	**$119,569**
2023			$214,130	$214,130	0.527	**$112,801**
2024	$1,239,930		$214,130	$1,454,060	0.497	**$722,623**
2025			$321,195	$321,195	0.469	**$150,589**
2026			$321,195	$321,195	0.442	**$142,065**
2027			$321,195	$321,195	0.417	**$134,023**
2028			$321,195	$321,195	0.394	**$126,437**
2029	$1,239,930		$321,195	$1,561,125	0.371	**$579,746**
2030			$428,260	$428,260	0.350	**$150,038**
2031			$428,260	$428,260	0.331	**$141,546**
2032			$428,260	$428,260	0.312	**$133,533**
2033			$428,260	$428,260	0.294	**$125,975**
2034	$1,239,930		$428,260	$1,668,190	0.278	**$462,931**
2035			$535,325	$535,325	0.262	**$140,147**
2036			$535,325	$535,325	0.247	**$132,214**
2037			$535,325	$535,325	0.233	**$124,730**
2038			$535,325	$535,325	0.220	**$117,670**
2039			$535,325	$535,325	0.207	**$111,009**
2040			$535,325	$535,325	0.196	**$104,726**
2041			$535,325	$535,325	0.185	**$98,798**
2042			$535,325	$535,325	0.174	**$93,206**
2043			$535,325	$535,325	0.164	**$87,930**
2044			$535,325	$535,325	0.155	**$82,953**
2045			$535,325	$535,325	0.146	**$78,257**
2046			$535,325	$535,325	0.138	**$73,827**
2047			$535,325	$535,325	0.130	**$69,649**
2048			$535,325	$535,325	0.123	**$65,706**
2049			$535,325	$535,325	0.116	**$61,987**
2050			$535,325	$535,325	0.109	**$58,478**
2051			$535,325	$535,325	0.103	**$55,168**
2052			$535,325	$535,325	0.097	**$52,045**
2053			$535,325	$535,325	0.092	**$49,099**
2054			$535,325	$535,325	0.087	**$46,320**
2055			$535,325	$535,325	0.082	**$43,698**
2056			$535,325	$535,325	0.077	**$41,225**
2057			$535,325	$535,325	0.073	**$38,891**

Appendix 8-2: Cost-Benefit Tables

2058			$535,325	$535,325	0.069	**$36,690**
2059			$535,325	$535,325	0.065	**$34,613**
2060			$535,325	$535,325	0.061	**$32,654**
2061			$535,325	$535,325	0.058	**$30,806**
2062			$535,325	$535,325	0.054	**$29,062**
2063			$535,325	$535,325	0.051	**$27,417**
2064			$535,325	$535,325	0.048	**$25,865**
2065			$535,325	$535,325	0.046	**$24,401**
2066			$535,325	$535,325	0.043	**$23,020**
2067			$535,325	$535,325	0.041	**$21,717**
2068			$535,325	$535,325	0.038	**$20,488**
2069			$535,325	$535,325	0.036	**$19,328**
2070			$535,325	$535,325	0.034	**$18,234**
2071			$535,325	$535,325	0.032	**$17,202**
2072			$535,325	$535,325	0.030	**$16,228**
2073			$535,325	$535,325	0.029	**$15,309**
2074			$535,325	$535,325	0.027	**$14,443**
2075			$535,325	$535,325	0.025	**$13,625**
2076			$535,325	$535,325	0.024	**$12,854**
2077			$535,325	$535,325	0.023	**$12,127**
					Total Present Value of Discounted Costs (Sum of Column (g))	**$ 7,966,326.31**
					(%) Avoided Cost Claimed by Project	**100%**
					Total Present Value of Discounted Avoided Project Costs Claimed by Alternative Project (Total Present Value of Discounted Costs x % Avoided Cost Claimed by Project)	**$ 7,966,326.31**

Appendix 8-2: Cost-Benefit Tables

Table 19 – Annual Costs of Project
(All costs should be in 2012 Dollars)

Project: _____Non-Potable Water Use Expansion Program_____

	Initial Costs Grand Total Cost from Table 7 (row (i), column (d))	Adjusted Grant Total Cost[1]	Annual Costs [2]						Discounting Calculations	
			Admin	Operation	Maintenance	Replacement	Other	Total Costs (a) +...+ (g)	Discount Factor	Discounted Project Costs (h) x (i)
Year	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
2012								$0.00	1.000	$0.00
2013	$154,024.00							$154,024.00	0.943	$145,305.66
2014	$462,072.00							$462,072.00	0.890	$411,242.44
2015	$924,143.00							$924,143.00	0.840	$775,928.28
2016	$1,232,191.00			$171,860.36				$1,404,051.36	0.792	$1,112,140.18
2017	$308,048.00			$832,817.16				$1,140,865.16	0.747	$852,520.82
2018				$981,271.80				$981,271.80	0.705	$691,757.90
2019				$981,271.80				$981,271.80	0.665	$652,601.79
2020				$981,271.80				$981,271.80	0.627	$615,662.07
2021				$981,271.80				$981,271.80	0.592	$580,813.27
2022				$981,271.80				$981,271.80	0.558	$547,937.05
2023				$981,271.80				$981,271.80	0.527	$516,921.74
2024				$981,271.80				$981,271.80	0.497	$487,662.02
2025				$981,271.80				$981,271.80	0.469	$460,058.51
2026				$981,271.80				$981,271.80	0.442	$434,017.46
2027				$981,271.80				$981,271.80	0.417	$409,450.44
2028				$981,271.80				$981,271.80	0.394	$386,274.00
2029				$981,271.80				$981,271.80	0.371	$364,409.43
2030				$981,271.80				$981,271.80	0.350	$343,782.48
2031				$981,271.80				$981,271.80	0.331	$324,323.10
2032				$981,271.80				$981,271.80	0.312	$305,965.19
2033				$981,271.80				$981,271.80	0.294	$288,646.40
2034				$981,271.80				$981,271.80	0.278	$272,307.93
2035				$981,271.80				$981,271.80	0.262	$256,894.27
2036				$981,271.80				$981,271.80	0.247	$242,353.08
2037				$981,271.80				$981,271.80	0.233	$228,634.99
2038				$981,271.80				$981,271.80	0.220	$215,693.38
2039				$981,271.80				$981,271.80	0.207	$203,484.32
2040				$981,271.80				$981,271.80	0.196	$191,966.34
2041				$981,271.80				$981,271.80	0.185	$181,100.32
2042				$981,271.80				$981,271.80	0.174	$170,849.36
2043				$981,271.80				$981,271.80	0.164	$161,178.64
2044				$981,271.80				$981,271.80	0.155	$152,055.32
2045				$981,271.80				$981,271.80	0.146	$143,448.42
2046				$981,271.80				$981,271.80	0.138	$135,328.70
2047				$981,271.80				$981,271.80	0.130	$127,668.58
2048				$981,271.80				$981,271.80	0.123	$120,442.06
2049				$981,271.80				$981,271.80	0.116	$113,624.58
2050				$981,271.80				$981,271.80	0.109	$107,193.00
2051				$981,271.80				$981,271.80	0.103	$101,125.47
2052				$981,271.80				$981,271.80	1.000	$981,271.80
2053				$981,271.80				$981,271.80	1.000	$981,271.80
2054				$981,271.80				$981,271.80	1.000	$981,271.80
2055				$981,271.80				$981,271.80	1.000	$981,271.80
2056				$981,271.80				$981,271.80	1.000	$981,271.80
2057				$981,271.80				$981,271.80	1.000	$981,271.80
2058				$981,271.80				$981,271.80	1.000	$981,271.80
2059				$981,271.80				$981,271.80	1.000	$981,271.80
2060				$981,271.80				$981,271.80	1.000	$981,271.80
2061				$981,271.80				$981,271.80	1.000	$981,271.80
2062				$981,271.80				$981,271.80	0.097	$95,401.39
2063				$981,271.80				$981,271.80	0.092	$90,001.31
2064				$981,271.80				$981,271.80	0.087	$84,906.90
2065				$981,271.80				$981,271.80	0.082	$80,100.85
2066				$981,271.80				$981,271.80	0.077	$75,566.84
2067				$981,271.80				$981,271.80	0.073	$71,289.47
2068				$981,271.80				$981,271.80	0.069	$67,254.22
2069				$981,271.80				$981,271.80	0.065	$63,447.37
2070				$981,271.80				$981,271.80	0.061	$59,856.01
2071				$981,271.80				$981,271.80	0.058	$56,467.94
2072				$981,271.80				$981,271.80	0.054	$53,271.64
2073				$981,271.80				$981,271.80	0.051	$50,256.26
2074				$981,271.80				$981,271.80	0.048	$47,411.57
2075				$981,271.80				$981,271.80	0.046	$44,727.89
2076				$809,411.45				$809,411.45	0.043	$34,805.88
2077				$148,454.64				$148,454.64	0.041	$6,022.42
column totals	$3,080,478.00	$0.00	$0.00	$58,876,308.00	$0.00	$0.00	$0.00	$61,956,786.00		$24,626,274.97
Total Present Value of Discounted Costs (Sum of Column (j)) Transfer to Table 17, column (c), Proposal Benefits and Costs Summaries										**$24,626,274.97**

Appendix 8-2: Cost-Benefit Tables

Table 15 – Annual Benefit (All benefits should be in 2012 dollars) Project: _____Coachella Valley Salt and Nutrient Management Program_____									
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
Year	Type of Benefit	Measure of Benefit (Units)	Without Project	With Project	Change Resulting from Project (e) – (d)	Unit $ Value [1]	Annual $ Value [1] (f) x (g)	Discount Factor [1]	Discounted Benefits [1] (h) x (i)
2014									
2015									
2016	Maintain ability to use recycled water	14268 AFY	0	14268 AFY	14268	$ 974	$ 13,897,923	0.792	**$ 11,008,457**
2017	Maintain ability to use recycled water	14268 AFY	0	14268 AFY	14268	$ 986	$ 14,074,910	0.747	**$ 10,517,591**
2018	Maintain ability to use recycled water	14268 AFY	0	14268 AFY	14268	$ 999	$ 14,258,091	0.705	**$ 10,051,392**
2019	Maintain ability to use recycled water	14268 AFY	0	14268 AFY	14268	$ 1,013	$ 14,447,683	0.665	**$ 9,608,535**
2020	Maintain ability to use recycled water	14268 AFY	0	14268 AFY	14268	$ 1,026	$ 14,643,911	0.627	**$ 9,187,771**
Last Year of Project Life								...	
							Total Present Value of Discounted Benefits Based on Unit Value (Sum of the values in Column (j) for all Benefits shown in table)		**$ 50,373,746**

Appendix 8-2: Cost-Benefit Tables

Table 15 – Annual Benefit (All benefits should be in 2012 dollars) Project: _____Coachella Valley Salt and Nutrient Management Program_____									
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
Year	Type of Benefit	Measure of Benefit (Units)	Without Project	With Project	Change Resulting from Project (e) – (d)	Unit $ Value [(1)]	Annual $ Value [(1)] (f) x (g)	Discount Factor [(1)]	Discounted Benefits [(1)] (h) x (i)
2014									
2015									
2016	Avoid Energy Use	MT/Year	4143	14499	10356	$ 22.53	$ 233,321	0.792	**$ 184,812**
2017	Avoid Energy Use	MT/Year	4143	14499	10356	$ 22.53	$ 233,321	0.747	**$ 174,351**
2018	Avoid Energy Use	MT/Year	4143	14499	10356	$ 22.53	$ 233,321	0.705	**$ 164,482**
2019	Avoid Energy Use	MT/Year	4143	14499	10356	$ 22.53	$ 233,321	0.665	**$ 155,172**
2020	Avoid Energy Use	MT/Year	4143	14499	10356	$ 22.53	$ 233,321	0.627	**$ 146,388**
Last Year of Project								…	
Total Present Value of Discounted Benefits Based on Unit Value (Sum of the values in Column (j) for all Benefits shown in table)									**$ 825,204**

Appendix 8-2: Cost-Benefit Tables

Table 16 – Annual Costs of Avoided Projects (All avoided costs should be in 2012 dollars) Project: _____Coachella Valley Salt and Nutrient Management Program_____						
	Costs				Discounting Calculations	
(a)	(b)	(c)	(d)	(e)	(f)	(g)
Year	Alternative (Avoided Project Name): _____ Avoided Project Description: Avoided Capital Costs	Avoided Replacement Costs	Avoided Operations and Maintenance Costs	Total Cost Avoided for Individual Alternatives (b) + (c) + (d)	Discount Factor	Discounted Costs (e) x (f)
2012					1.000	
2013					0.943	
2014					0.899	
2015					0.839	
2016	$1,042,000				0.792	**$825,362**
2017					0.747	
2018					0.705	
2019					0.665	
2020					0.627	**$0**
2021					0.592	
2022					0.558	
2023					0.527	
2024					0.497	
					...	
Last Year of Project Life					...	
					Total Present Value of Discounted Costs (Sum of Column (g))	**$0**
					(%) Avoided Cost Claimed by Project	**100**
					Total Present Value of Discounted Avoided Project Costs Claimed by Alternative Project (Total Present Value of Discounted Costs x % Avoided Cost Claimed by Project)	**$ 825,362**

Appendix 8-2: Cost-Benefit Tables

Table 19 – Annual Costs of Project (All costs should be in 2012 Dollars) Project: Coachella Valley Salt and Nutrient Management Program_____										
	Initial Costs Grand Total Cost from Table 7 (row (i), column (d))	Adjusted Grant Total Cost[1]	Annual Costs[2]						Discounting Calculations	
			Admin	Operation	Maintenance	Replacement	Other	Total Costs (a) +…+ (g)	Discount Factor	Discounted Project Costs (h) x (i)
Year	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
2012							$90,000	$ 90,000	1.000	**$ 90,000**
2013	$ 128,733						$17,625	$ 146,358	0.943	**$ 138,016**
2014	$ 379,422							$ 379,422	0.890	**$ 337,686**
2015	$ 169,385							$ 169,385	0.840	**$ 142,283**
…									…	
2019									…	
Last Year of Project Life									…	
Total Present Value of Discounted Costs (Sum of column (j)) Transfer to Table 20, column (c), Proposal Benefits and Costs Summaries										**$ 707,985**

Appendix 8-2: Cost-Benefit Tables

Table 15 – Annual Benefit

(All benefits should be in 2012 dollars)

Project 3: Groundwater Quality Protection Project – Subarea D2 - Benefit - : Increased groundwater recharge

(a) Year	(b) Type of Benefit	(c) Measure of Benefit (Units)	(d) Without Project	(e) With Project	(f) Change Resulting from Project (e) – (d)	(g) Unit $ Value [1]	(h) Annual $ Value [1] (f) x (g)	(i) Discount Factor [1]	(j) Discounted Benefits [1] (h) x (i)
2012	a					$ 928.50		1.000	
2013	b					$ 939.31		0.943	
2014	c					$ 950.50		0.890	
2015	Increased	AFY				$ 962.08	$ -	0.840	**$ -**
2016	Increased	AFY				$ 974.06	$ -	0.792	**$ -**
2017	Increased	AFY				$ 986.47	$ -	0.747	**$ -**
2018	Increased	AFY		35.6	35.6	$ 999.31	$ 35,575	0.705	**$ 25,079**
2019	Increased	AFY		71.1	71.1	$ 1,012.59	$ 71,995	0.665	**$ 47,881**
2020	Increased	AFY		106.7	106.7	$ 1,026.35	$ 109,511	0.627	**$ 68,709**
2021	Increased	AFY		142.2	142.2	$ 1,032.45	$ 146,814	0.592	**$ 86,899**
2022	Increased	AFY		142.2	142.2	$ 1,038.64	$ 147,694	0.558	**$ 82,472**
2023	Increased	AFY		142.2	142.2	$ 1,044.92	$ 148,588	0.527	**$ 78,274**
2024	Increased	AFY		142.2	142.2	$ 1,051.30	$ 149,495	0.497	**$ 74,295**
2025	Increased	AFY		142.2	142.2	$ 1,057.78	$ 150,416	0.469	**$ 70,521**
2026	Increased	AFY		142.2	142.2	$ 1,064.35	$ 151,351	0.442	**$ 66,942**
2027	Increased	AFY		142.2	142.2	$ 1,071.02	$ 152,299	0.417	**$ 63,549**
2028	Increased	AFY		142.2	142.2	$ 1,077.79	$ 153,262	0.394	**$ 60,331**
2029	Increased	AFY		142.2	142.2	$ 1,084.66	$ 154,239	0.371	**$ 57,279**
2030	Increased	AFY		142.2	142.2	$ 1,091.64	$ 155,231	0.350	**$ 54,384**
2031	Increased	AFY		142.2	142.2	$ 1,098.72	$ 156,238	0.331	**$ 51,639**
2032	Increased	AFY		142.2	142.2	$ 1,105.90	$ 157,260	0.312	**$ 49,034**
2033	Increased	AFY		142.2	142.2	$ 1,113.20	$ 158,297	0.294	**$ 46,564**
2034	Increased	AFY		142.2	142.2	$ 1,120.60	$ 159,349	0.278	**$ 44,220**
2035	Increased	AFY		142.2	142.2	$ 1,128.11	$ 160,418	0.262	**$ 41,997**
2036	Increased	AFY		142.2	142.2	$ 1,135.74	$ 161,503	0.247	**$ 39,888**
2037	Increased	AFY		142.2	142.2	$ 1,143.48	$ 162,603	0.233	**$ 37,886**
2038	Increased	AFY		142.2	142.2	$ 1,151.34	$ 163,721	0.220	**$ 35,987**
2039	Increased	AFY		142.2	142.2	$ 1,159.32	$ 164,855	0.207	**$ 34,186**
2040	Increased	AFY		142.2	142.2	$ 1,167.41	$ 166,006	0.196	**$ 32,476**
2041	Increased	AFY		142.2	142.2	$ 1,175.63	$ 167,174	0.185	**$ 30,853**
2042	Increased	AFY		142.2	142.2	$ 1,183.97	$ 168,360	0.174	**$ 29,313**
2043	Increased	AFY		142.2	142.2	$ 1,192.43	$ 169,564	0.164	**$ 27,852**
2044	Increased	AFY		142.2	142.2	$ 1,201.02	$ 170,786	0.155	**$ 26,464**
2045	Increased	AFY		142.2	142.2	$ 1,209.74	$ 172,026	0.146	**$ 25,148**
2046	Increased	AFY		142.2	142.2	$ 1,218.60	$ 173,284	0.138	**$ 23,898**
2047	Increased	AFY		142.2	142.2	$ 1,227.58	$ 174,562	0.130	**$ 22,711**
2048	Increased	AFY		142.2	142.2	$ 1,236.70	$ 175,859	0.123	**$ 21,585**
2049	Increased	AFY		142.2	142.2	$ 1,245.95	$ 177,175	0.116	**$ 20,516**
2050	Increased	AFY		142.2	142.2	$ 1,255.35	$ 178,511	0.109	**$ 19,500**
2051	Increased	AFY		142.2	142.2	$ 1,264.88	$ 179,867	0.103	**$ 18,536**
2052	Increased	AFY		142.2	142.2	$ 1,274.56	$ 181,243	0.097	**$ 17,621**
2053	Increased	AFY		142.2	142.2	$ 1,284.39	$ 182,640	0.092	**$ 16,752**
2054	Increased	AFY		142.2	142.2	$ 1,294.36	$ 184,058	0.087	**$ 15,926**
2055	Increased	AFY		142.2	142.2	$ 1,304.48	$ 185,497	0.082	**$ 15,142**
2056	Increased	AFY		142.2	142.2	$ 1,314.75	$ 186,958	0.077	**$ 14,397**
2057	Increased	AFY		142.2	142.2	$ 1,325.18	$ 188,440	0.073	**$ 13,690**
2058	Increased	AFY		142.2	142.2	$ 1,335.76	$ 189,945	0.069	**$ 13,018**
2059	Increased	AFY		142.2	142.2	$ 1,346.50	$ 191,473	0.065	**$ 12,380**
2060	Increased	AFY		142.2	142.2	$ 1,357.40	$ 193,023	0.061	**$ 11,774**
2061	Increased	AFY		142.2	142.2	$ 1,368.47	$ 194,597	0.058	**$ 11,198**
2062	Increased	AFY		142.2	142.2	$ 1,379.70	$ 196,194	0.054	**$ 10,651**
2063	Increased	AFY		142.2	142.2	$ 1,391.10	$ 197,815	0.051	**$ 10,131**
2064	Increased	AFY		142.2	142.2	$ 1,402.68	$ 199,461	0.048	**$ 9,637**
2065	Increased	AFY		142.2	142.2	$ 1,414.42	$ 201,131	0.046	**$ 9,168**
2066	Increased	AFY		142.2	142.2	$ 1,414.42	$ 201,131	0.043	**$ 8,649**
2067	Increased	AFY		142.2	142.2	$ 1,414.42	$ 201,131	0.041	**$ 8,159**
2068	Increased	AFY		142.2	142.2	$ 1,414.42	$ 201,131	0.038	**$ 7,698**
2069	Increased	AFY		142.2	142.2	$ 1,414.42	$ 201,131	0.036	**$ 7,262**
2070	Increased	AFY		142.2	142.2	$ 1,414.42	$ 201,131	0.034	**$ 6,851**
2071	Increased	AFY		142.2	142.2	$ 1,414.42	$ 201,131	0.032	**$ 6,463**
2072	Increased	AFY		142.2	142.2	$ 1,414.42	$ 201,131	0.030	**$ 6,097**
2073	Increased	AFY		142.2	142.2	$ 1,414.42	$ 201,131	0.029	**$ 5,752**
2074	Increased	AFY		142.2	142.2	$ 1,414.42	$ 201,131	0.027	**$ 5,426**
2075	Increased	AFY		142.2	142.2	$ 1,414.42	$ 201,131	0.025	**$ 5,119**
2076	Increased	AFY		142.2	142.2	$ 1,414.42	$ 201,131	0.024	**$ 4,830**
2077	Increased	AFY		142.2	142.2	$ 1,414.42	$ 201,131	0.023	**$ 4,556**
2078	Increased	AFY		142.2	142.2	$ 1,414.42	$ 201,131	0.021	**$ 4,298**
…	..							…	
Last Year of Project Life								…	
								Total Present Value of Discounted Benefits Based on Unit Value (Sum of the values in Column (j) for all Benefits shown in table)	**$ 1,779,515**

Appendix 8-2: Cost-Benefit Tables

Table 15 – Annual Benefit (All benefits should be in 2012 dollars) Project 3: Groundwater Quality Protection Project – Subarea D2 - Benefit - : Avoided Losst of Transient Occupancy Tax									
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
Year	Type of Benefit	Measure of Benefit (Units)	Without Project	With Project	Change Resulting from Project (e) – (d)	Unit $ Value [1]	Annual $ Value [1] (f) x (g)	Discount Factor [1]	Discounted Benefits [1] (h) x (i)
2012								1.000	
2013								0.943	
2014								0.890	
2015							$ -	0.840	**$ -**
2016							$ -	0.792	**$ -**
2017							$ -	0.747	**$ -**
2018	Avoided loss of	$	$ 10,053,120	$ 10,154,667	$ 101,547	1	$ 101,547.00	0.705	**$ 71,587**
2019	Avoided loss of	$	$ 10,053,120	$ 10,154,667	$ 101,547	2	$ 203,094.00	0.665	**$ 135,069**
2020	Avoided loss of	$	$ 10,053,120	$ 10,154,667	$ 101,547	3	$ 304,641.00	0.627	**$ 191,136**
2021	Avoided loss of	$	$ 10,053,120	$ 10,154,667	$ 101,547	4	$ 406,188.00	0.592	**$ 240,422**
2022	Avoided loss of	$	$ 10,053,120	$ 10,154,667	$ 101,547	5	$ 507,735.00	0.558	**$ 283,517**
2023	Avoided loss of	$	$ 10,053,120	$ 10,154,667	$ 101,547	5	$ 507,735.00	0.527	**$ 267,468**
2024	Avoided loss of	$	$ 10,053,120	$ 10,154,667	$ 101,547	5	$ 507,735.00	0.497	**$ 252,329**
2025	Avoided loss of	$	$ 10,053,120	$ 10,154,667	$ 101,547	5	$ 507,735.00	0.469	**$ 238,046**
2026	Avoided loss of	$	$ 10,053,120	$ 10,154,667	$ 101,547	5	$ 507,735.00	0.442	**$ 224,572**
2027	Avoided loss of	$	$ 10,053,120	$ 10,154,667	$ 101,547	5	$ 507,735.00	0.417	**$ 211,860**
2028	Avoided loss of	$	$ 10,053,120	$ 10,154,667	$ 101,547	5	$ 507,735.00	0.394	**$ 199,868**
2029	Avoided loss of	$	$ 10,053,120	$ 10,154,667	$ 101,547	5	$ 507,735.00	0.371	**$ 188,555**
2030	Avoided loss of	$	$ 10,053,120	$ 10,154,667	$ 101,547	5	$ 507,735.00	0.350	**$ 177,882**
2031	Avoided loss of	$	$ 10,053,120	$ 10,154,667	$ 101,547	5	$ 507,735.00	0.331	**$ 167,813**
2032	Avoided loss of	$	$ 10,053,120	$ 10,154,667	$ 101,547	5	$ 507,735.00	0.312	**$ 158,314**
2033	Avoided loss of	$	$ 10,053,120	$ 10,154,667	$ 101,547	5	$ 507,735.00	0.294	**$ 149,353**
2034	Avoided loss of	$	$ 10,053,120	$ 10,154,667	$ 101,547	5	$ 507,735.00	0.278	**$ 140,899**
2035	Avoided loss of	$	$ 10,053,120	$ 10,154,667	$ 101,547	5	$ 507,735.00	0.262	**$ 132,924**
2036	Avoided loss of	$	$ 10,053,120	$ 10,154,667	$ 101,547	5	$ 507,735.00	0.247	**$ 125,400**
2037	Avoided loss of	$	$ 10,053,120	$ 10,154,667	$ 101,547	5	$ 507,735.00	0.233	**$ 118,302**
2038	Avoided loss of	$	$ 10,053,120	$ 10,154,667	$ 101,547	5	$ 507,735.00	0.220	**$ 111,605**
2039	Avoided loss of	$	$ 10,053,120	$ 10,154,667	$ 101,547	5	$ 507,735.00	0.207	**$ 105,288**
2040	Avoided loss of	$	$ 10,053,120	$ 10,154,667	$ 101,547	5	$ 507,735.00	0.196	**$ 99,328**
2041	Avoided loss of	$	$ 10,053,120	$ 10,154,667	$ 101,547	5	$ 507,735.00	0.185	**$ 93,706**
2042	Avoided loss of	$	$ 10,053,120	$ 10,154,667	$ 101,547	5	$ 507,735.00	0.174	**$ 88,402**
2043	Avoided loss of	$	$ 10,053,120	$ 10,154,667	$ 101,547	5	$ 507,735.00	0.164	**$ 83,398**
2044	Avoided loss of	$	$ 10,053,120	$ 10,154,667	$ 101,547	5	$ 507,735.00	0.155	**$ 78,677**
2045	Avoided loss of	$	$ 10,053,120	$ 10,154,667	$ 101,547	5	$ 507,735.00	0.146	**$ 74,224**
2046	Avoided loss of	$	$ 10,053,120	$ 10,154,667	$ 101,547	5	$ 507,735.00	0.138	**$ 70,023**
2047	Avoided loss of	$	$ 10,053,120	$ 10,154,667	$ 101,547	5	$ 507,735.00	0.130	**$ 66,059**
2048	Avoided loss of	$	$ 10,053,120	$ 10,154,667	$ 101,547	5	$ 507,735.00	0.123	**$ 62,320**
2049	Avoided loss of	$	$ 10,053,120	$ 10,154,667	$ 101,547	5	$ 507,735.00	0.116	**$ 58,792**
2050	Avoided loss of	$	$ 10,053,120	$ 10,154,667	$ 101,547	5	$ 507,735.00	0.109	**$ 55,464**
2051	Avoided loss of	$	$ 10,053,120	$ 10,154,667	$ 101,547	5	$ 507,735.00	0.103	**$ 52,325**
2052	Avoided loss of	$	$ 10,053,120	$ 10,154,667	$ 101,547	5	$ 507,735.00	0.097	**$ 49,363**
2053	Avoided loss of	$	$ 10,053,120	$ 10,154,667	$ 101,547	5	$ 507,735.00	0.092	**$ 46,569**
2054	Avoided loss of	$	$ 10,053,120	$ 10,154,667	$ 101,547	5	$ 507,735.00	0.087	**$ 43,933**
2055	Avoided loss of	$	$ 10,053,120	$ 10,154,667	$ 101,547	5	$ 507,735.00	0.082	**$ 41,446**
2056	Avoided loss of	$	$ 10,053,120	$ 10,154,667	$ 101,547	5	$ 507,735.00	0.077	**$ 39,100**
2057	Avoided loss of	$	$ 10,053,120	$ 10,154,667	$ 101,547	5	$ 507,735.00	0.073	**$ 36,887**
2058	Avoided loss of	$	$ 10,053,120	$ 10,154,667	$ 101,547	5	$ 507,735.00	0.069	**$ 34,799**
2059	Avoided loss of	$	$ 10,053,120	$ 10,154,667	$ 101,547	5	$ 507,735.00	0.065	**$ 32,829**
2060	Avoided loss of	$	$ 10,053,120	$ 10,154,667	$ 101,547	5	$ 507,735.00	0.061	**$ 30,971**
2061	Avoided loss of	$	$ 10,053,120	$ 10,154,667	$ 101,547	5	$ 507,735.00	0.058	**$ 29,218**
2062	Avoided loss of	$	$ 10,053,120	$ 10,154,667	$ 101,547	5	$ 507,735.00	0.054	**$ 27,564**
2063	Avoided loss of	$	$ 10,053,120	$ 10,154,667	$ 101,547	5	$ 507,735.00	0.051	**$ 26,004**
2064	Avoided loss of	$	$ 10,053,120	$ 10,154,667	$ 101,547	5	$ 507,735.00	0.048	**$ 24,532**
2065	Avoided loss of	$	$ 10,053,120	$ 10,154,667	$ 101,547	5	$ 507,735.00	0.046	**$ 23,143**
2066	Avoided loss of	$	$ 10,053,120	$ 10,154,667	$ 101,547	5	$ 507,735.00	0.043	**$ 21,833**
2067	Avoided loss of	$	$ 10,053,120	$ 10,154,667	$ 101,547	5	$ 507,735.00	0.041	**$ 20,598**
2068	Avoided loss of	$	$ 10,053,120	$ 10,154,667	$ 101,547	5	$ 507,735.00	0.038	**$ 19,432**
2069	Avoided loss of	$	$ 10,053,120	$ 10,154,667	$ 101,547	5	$ 507,735.00	0.036	**$ 18,332**
2070	Avoided loss of	$	$ 10,053,120	$ 10,154,667	$ 101,547	5	$ 507,735.00	0.034	**$ 17,294**
2071	Avoided loss of	$	$ 10,053,120	$ 10,154,667	$ 101,547	5	$ 507,735.00	0.032	**$ 16,315**
2072	Avoided loss of	$	$ 10,053,120	$ 10,154,667	$ 101,547	5	$ 507,735.00	0.030	**$ 15,392**
2073	Avoided loss of	$	$ 10,053,120	$ 10,154,667	$ 101,547	5	$ 507,735.00	0.029	**$ 14,520**
2074	Avoided loss of	$	$ 10,053,120	$ 10,154,667	$ 101,547	5	$ 507,735.00	0.027	**$ 13,699**
2075	Avoided loss of	$	$ 10,053,120	$ 10,154,667	$ 101,547	5	$ 507,735.00	0.025	**$ 12,923**
2076	Avoided loss of	$	$ 10,053,120	$ 10,154,667	$ 101,547	5	$ 507,735.00	0.024	**$ 12,192**
2077	Avoided loss of	$	$ 10,053,120	$ 10,154,667	$ 101,547	5	$ 507,735.00	0.023	**$ 11,502**
2078	Avoided loss of	$	$ 10,053,120	$ 10,154,667	$ 101,547	5	$ 507,735.00	0.021	**$ 10,851**
…	..							…	
Last Year of Project Life								…	
							Total Present Value of Discounted Benefits Based on Unit Value (Sum of the values in Column (j) for all Benefits shown in table)		**$ 5,466,164**

Appendix 8-2: Cost-Benefit Tables

Table 16 – Annual Costs of Avoided Projects (All avoided costs should be in 2012 dollars)						
Project 3: Groundwater Quality Protection Project – Subarea D2						
	Costs				Discounting Calculations	
(a)	(b)	(c)	(d)	(e)	(f)	(g)
Year	Alternative (Avoided Project Name): Remain on Septic Systems Avoided Project Description: Coninued maintenance and periodic septic replacement				Discount Factor	Discounted Costs (e) x (f)
	Avoided Capital Costs	Avoided Replacement Costs	Avoided Operations and Maintenance Costs (net of annual sewer charge)	Total Cost Avoided for Individual Alternatives (b) + (c) + (d)		
2012					1.000	
2013					0.943	
2014					0.890	
2015				$ -	0.840	**$0.00**
2016				$ -	0.792	**$0.00**
2017				$ -	0.747	**$0.00**
2018		$38,200	$11,938	$ 50,138	0.705	**$35,345**
2019		$76,400	$23,875	$ 100,275	0.665	**$66,689**
2020		$114,600	$35,813	$ 150,413	0.627	**$94,371**
2021		$152,800	$47,750	$ 200,550	0.592	**$118,705**
2022		$152,800	$47,750	$ 200,550	0.558	**$111,986**
2023		$152,800	$47,750	$ 200,550	0.527	**$105,647**
2024		$152,800	$47,750	$ 200,550	0.497	**$99,667**
2025		$152,800	$47,750	$ 200,550	0.469	**$94,026**
2026		$152,800	$47,750	$ 200,550	0.442	**$88,703**
2027		$152,800	$47,750	$ 200,550	0.417	**$83,683**
2028		$152,800	$47,750	$ 200,550	0.394	**$78,946**
2029		$152,800	$47,750	$ 200,550	0.371	**$74,477**
2030		$152,800	$47,750	$ 200,550	0.350	**$70,261**
2031		$152,800	$47,750	$ 200,550	0.331	**$66,284**
2032		$152,800	$47,750	$ 200,550	0.312	**$62,532**
2033		$152,800	$47,750	$ 200,550	0.294	**$58,993**
2034		$152,800	$47,750	$ 200,550	0.278	**$55,654**
2035		$152,800	$47,750	$ 200,550	0.262	**$52,503**
2036		$152,800	$47,750	$ 200,550	0.247	**$49,532**
2037		$152,800	$47,750	$ 200,550	0.233	**$46,728**
2038		$152,800	$47,750	$ 200,550	0.220	**$44,083**
2039		$152,800	$47,750	$ 200,550	0.207	**$41,588**
2040		$152,800	$47,750	$ 200,550	0.196	**$39,234**
2041		$152,800	$47,750	$ 200,550	0.185	**$37,013**
2042		$152,800	$47,750	$ 200,550	0.174	**$34,918**
2043		$152,800	$47,750	$ 200,550	0.164	**$32,941**
2044		$152,800	$47,750	$ 200,550	0.155	**$31,077**
2045		$152,800	$47,750	$ 200,550	0.146	**$29,318**
2046		$152,800	$47,750	$ 200,550	0.138	**$27,658**
2047		$152,800	$47,750	$ 200,550	0.130	**$26,093**
2048		$152,800	$47,750	$ 200,550	0.123	**$24,616**
2049		$152,800	$47,750	$ 200,550	0.116	**$23,222**
2050		$152,800	$47,750	$ 200,550	0.109	**$21,908**
2051		$152,800	$47,750	$ 200,550	0.103	**$20,668**
2052		$152,800	$47,750	$ 200,550	0.097	**$19,498**
2053		$152,800	$47,750	$ 200,550	0.092	**$18,394**
2054		$152,800	$47,750	$ 200,550	0.087	**$17,353**
2055		$152,800	$47,750	$ 200,550	0.082	**$16,371**
2056		$152,800	$47,750	$ 200,550	0.077	**$15,444**
2057		$152,800	$47,750	$ 200,550	0.073	**$14,570**
2058		$152,800	$47,750	$ 200,550	0.069	**$13,745**
2059		$152,800	$47,750	$ 200,550	0.065	**$12,967**
2060		$152,800	$47,750	$ 200,550	0.061	**$12,233**
2061		$152,800	$47,750	$ 200,550	0.058	**$11,541**
2062		$152,800	$47,750	$ 200,550	0.054	**$10,888**
2063		$152,800	$47,750	$ 200,550	0.051	**$10,271**
2064		$152,800	$47,750	$ 200,550	0.048	**$9,690**
2065		$152,800	$47,750	$ 200,550	0.046	**$9,141**
2066		$152,800	$47,750	$ 200,550	0.043	**$8,624**
2067		$152,800	$47,750	$ 200,550	0.041	**$8,136**
2068		$152,800	$47,750	$ 200,550	0.038	**$7,675**
2069		$152,800	$47,750	$ 200,550	0.036	**$7,241**
2070		$152,800	$47,750	$ 200,550	0.034	**$6,831**
2071		$152,800	$47,750	$ 200,550	0.032	**$6,444**
2072		$152,800	$47,750	$ 200,550	0.030	**$6,080**
2073		$152,800	$47,750	$ 200,550	0.029	**$5,735**
2074		$152,800	$47,750	$ 200,550	0.027	**$5,411**
2075		$152,800	$47,750	$ 200,550	0.025	**$5,104**
2076		$152,800	$47,750	$ 200,550	0.024	**$4,816**
2077		$152,800	$47,750	$ 200,550	0.023	**$4,543**
2078		$152,800	$47,750	$ 200,550	0.021	**$4,286**
Last Year of Project Life					...	
					Total Present Value of Discounted Costs (Sum of Column (g))	**$2,222,099**
					(%) Avoided Cost Claimed by Project	
					Total Present Value of Discounted Avoided Project Costs Claimed by Alternative Project (Total Present Value of Discounted Costs x % Avoided Cost Claimed by Project)	**$ 2,222,099**

Appendix 8-2: Cost-Benefit Tables

Table 19 – Annual Costs of Project
(All costs should be in 2012 Dollars)

Project 3: Groundwater Quality Protection Project – Subarea D2

	Initial Costs Grand Total Cost from Table 7 (row (i), column (d))	Adjusted Grant Total Cost[1]	Annual Costs [2]						Discounting Calculations	
			Admin	Operation	Maintenance	Replacement	Other	Total Costs (a) +...+ (g)	Discount Factor	Discounted Project Costs (h) x (i)
Year	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
2012									1.000	
2013	3,826							3,826	0.943	$ 3,609
2014	15,304							15,304	0.890	$ 13,621
2015	1,702,549							1,702,549	0.840	$ 1,429,493
2016	1,530,381							1,530,381	0.792	$ 1,212,205
2017	573,893							573,893	0.747	$ 428,846
2018					$7,627		$ 14,325	$ 21,952	0.705	$ 15,475
2019					$15,255		$ 28,650	$ 43,905	0.665	$ 29,199
2020					$22,882		$ 42,975	$ 65,857	0.627	$ 41,319
2021					$30,509		$ 57,300	$ 87,809	0.592	$ 51,974
2022					$30,509		$ 57,300	$ 87,809	0.558	$ 49,032
2023					$30,509		$ 57,300	$ 87,809	0.527	$ 46,257
2024					$30,509		$ 57,300	$ 87,809	0.497	$ 43,638
2025					$30,509		$ 57,300	$ 87,809	0.469	$ 41,168
2026					$30,509		$ 57,300	$ 87,809	0.442	$ 38,838
2027					$30,509		$ 57,300	$ 87,809	0.417	$ 36,640
2028					$30,509		$ 42,975	$ 73,484	0.394	$ 28,927
2029					$30,509		$ 28,650	$ 59,159	0.371	$ 21,970
2030					$30,509		$ 14,325	$ 44,834	0.350	$ 15,707
2031					$30,509			$ 30,509	0.331	$ 10,084
2032					$30,509			$ 30,509	0.312	$ 9,513
2033					$30,509			$ 30,509	0.294	$ 8,974
2034					$30,509			$ 30,509	0.278	$ 8,466
2035					$30,509			$ 30,509	0.262	$ 7,987
2036					$30,509			$ 30,509	0.247	$ 7,535
2037					$30,509			$ 30,509	0.233	$ 7,109
2038					$30,509			$ 30,509	0.220	$ 6,706
2039					$30,509			$ 30,509	0.207	$ 6,327
2040					$30,509			$ 30,509	0.196	$ 5,968
2041					$30,509			$ 30,509	0.185	$ 5,631
2042					$30,509			$ 30,509	0.174	$ 5,312
2043					$30,509			$ 30,509	0.164	$ 5,011
2044					$30,509			$ 30,509	0.155	$ 4,728
2045					$30,509			$ 30,509	0.146	$ 4,460
2046					$30,509			$ 30,509	0.138	$ 4,208
2047					$30,509			$ 30,509	0.130	$ 3,969
2048					$30,509			$ 30,509	0.123	$ 3,745
2049					$30,509			$ 30,509	0.116	$ 3,533
2050					$30,509			$ 30,509	0.109	$ 3,333
2051					$30,509			$ 30,509	0.103	$ 3,144
2052					$30,509			$ 30,509	0.097	$ 2,966
2053					$30,509			$ 30,509	0.092	$ 2,798
2054					$30,509			$ 30,509	0.087	$ 2,640
2055					$30,509			$ 30,509	0.082	$ 2,490
2056					$30,509			$ 30,509	0.077	$ 2,349
2057					$30,509			$ 30,509	0.073	$ 2,216
2058					$30,509			$ 30,509	0.069	$ 2,091
2059					$30,509			$ 30,509	0.065	$ 1,973
2060					$30,509			$ 30,509	0.061	$ 1,861
2061					$30,509			$ 30,509	0.058	$ 1,756
2062					$30,509			$ 30,509	0.054	$ 1,656
2063					$30,509			$ 30,509	0.051	$ 1,563
2064					$30,509			$ 30,509	0.048	$ 1,474
2065					$30,509			$ 30,509	0.046	$ 1,391
2066					$30,509			$ 30,509	0.043	$ 1,312
2067					$30,509			$ 30,509	0.041	$ 1,238
2068					$30,509			$ 30,509	0.038	$ 1,168
2069					$30,509			$ 30,509	0.036	$ 1,102
2070					$30,509			$ 30,509	0.034	$ 1,039
2071					$30,509			$ 30,509	0.032	$ 980
2072					$30,509			$ 30,509	0.030	$ 925
2073					$30,509			$ 30,509	0.029	$ 873
2074					$30,509			$ 30,509	0.027	$ 823
2075					$30,509			$ 30,509	0.025	$ 777
2076					$30,509			$ 30,509	0.024	$ 733
2077					$30,509			$ 30,509	0.023	$ 691
Last Year of Project Life - 2078					$30,509			$ 30,509	0.021	$ 652
								Total Present Value of Discounted Costs (Sum of column (j))		$ 3,715,196
								Transfer to Table 20, column (c), Proposal Benefits and Costs Summaries		

Appendix 8-2: Cost-Benefit Tables

Table 15 – Annual Benefit (All benefits should be in 2012 dollars) Project 4: San Antonio del Desierto DAC Sewer Extension Project									
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
Year	Type of Benefit	Measure of Benefit (Units)	Without Project	With Project	Change Resulting from Project (e) – (d)	Unit $ Value [1]	Annual $ Value [1] (f) x (g)	Discount Factor [1]	Discounted Benefits [1] (h) x (i)
2012	a					$ 929		1.000	
2013	b					$ 939		0.943	
2014	c					$ 950		0.890	
2015	Avoided cost					$ 962	$ -	0.840	**$ -**
2016	Avoided cost					$ 974	$ -	0.792	**$ -**
2017	Avoided cost	AFY	0	38	38	$ 986	$ 37,486	0.747	**$ 28,012**
2018	Avoided cost	AFY	0	38	38	$ 999	$ 37,974	0.705	**$ 26,770**
2019	Avoided cost	AFY	0	38	38	$ 1,013	$ 38,479	0.665	**$ 25,590**
2020	Avoided cost	AFY	0	38	38	$ 1,026	$ 39,001	0.627	**$ 24,470**
2021	Avoided cost	AFY	0	38	38	$ 1,032	$ 39,233	0.592	**$ 23,222**
2022	Avoided cost	AFY	0	38	38	$ 1,039	$ 39,468	0.558	**$ 22,039**
2023	Avoided cost	AFY	0	38	38	$ 1,045	$ 39,707	0.527	**$ 20,917**
2024	Avoided cost of imported	AFY	0	38	38	$ 1,051	$ 39,950	0.497	**$ 19,854**
2025	Avoided cost of imported	AFY	0	38	38	$ 1,058	$ 40,196	0.469	**$ 18,845**
2026	Avoided cost of imported	AFY	0	38	38	$ 1,064	$ 40,445	0.442	**$ 17,889**
2027	Avoided cost of imported water	AFY	0	38	38	$ 1,071	$ 40,699	0.417	**$ 16,982**
2028	Avoided cost of imported water	AFY	0	38	38	$ 1,078	$ 40,956	0.394	**$ 16,122**
2029	Avoided cost of imported water	AFY	0	38	38	$ 1,085	$ 41,217	0.371	**$ 15,307**
2030	Avoided cost of imported water	AFY	0	38	38	$ 1,092	$ 41,482	0.350	**$ 14,533**
2031	Avoided cost of imported water	AFY	0	38	38	$ 1,099	$ 41,751	0.331	**$ 13,799**
2032	Avoided cost of imported water	AFY	0	38	38	$ 1,106	$ 42,024	0.312	**$ 13,103**
2033	Avoided cost of imported water	AFY	0	38	38	$ 1,113	$ 42,302	0.294	**$ 12,443**
2034	Avoided cost of imported water	AFY	0	38	38	$ 1,121	$ 42,583	0.278	**$ 11,817**
2035	Avoided cost of imported water	AFY	0	38	38	$ 1,128	$ 42,868	0.262	**$ 11,223**
2036	Avoided cost of imported water	AFY	0	38	38	$ 1,136	$ 43,158	0.247	**$ 10,659**
2037	Avoided cost of imported water	AFY	0	38	38	$ 1,143	$ 43,452	0.233	**$ 10,124**
2038	Avoided cost of imported water	AFY	0	38	38	$ 1,151	$ 43,751	0.220	**$ 9,617**
2039	Avoided cost of imported water	AFY	0	38	38	$ 1,159	$ 44,054	0.207	**$ 9,135**
2040	Avoided cost of imported water	AFY	0	38	38	$ 1,167	$ 44,362	0.196	**$ 8,678**

Appendix 8-2: Cost-Benefit Tables

Table 15 – Annual Benefit (All benefits should be in 2012 dollars) Project 4: San Antonio del Desierto DAC Sewer Extension Project									
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
Year	Type of Benefit	Measure of Benefit (Units)	Without Project	With Project	Change Resulting from Project (e) – (d)	Unit $ Value [1]	Annual $ Value [1] (f) x (g)	Discount Factor [1]	Discounted Benefits [1] (h) x (i)
2041	Avoided cost of imported water	AFY	0	38	38	$ 1,176	$ 44,674	0.185	**$ 8,245**
2042	Avoided cost of imported water	AFY	0	38	38	$ 1,184	$ 44,991	0.174	**$ 7,833**
2043	Avoided cost of imported water	AFY	0	38	38	$ 1,192	$ 45,312	0.164	**$ 7,443**
2044	Avoided cost of imported water	AFY	0	38	38	$ 1,201	$ 45,639	0.155	**$ 7,072**
2045	Avoided cost of imported water	AFY	0	38	38	$ 1,210	$ 45,970	0.146	**$ 6,720**
2046	Avoided cost of imported water	AFY	0	38	38	$ 1,219	$ 46,307	0.138	**$ 6,386**
2047	Avoided cost of imported water	AFY	0	38	38	$ 1,228	$ 46,648	0.130	**$ 6,069**
2048	Avoided cost of imported water	AFY	0	38	38	$ 1,237	$ 46,995	0.123	**$ 5,768**
2049	Avoided cost of imported water	AFY	0	38	38	$ 1,246	$ 47,346	0.116	**$ 5,482**
2050	Avoided cost of imported water	AFY	0	38	38	$ 1,255	$ 47,703	0.109	**$ 5,211**
2051	Avoided cost of imported water	AFY	0	38	38	$ 1,265	$ 48,066	0.103	**$ 4,953**
2052	Avoided cost of imported water	AFY	0	38	38	$ 1,275	$ 48,433	0.097	**$ 4,709**
2053	Avoided cost of imported water	AFY	0	38	38	$ 1,284	$ 48,807	0.092	**$ 4,477**
2054	Avoided cost of imported water	AFY	0	38	38	$ 1,294	$ 49,186	0.087	**$ 4,256**
2055	Avoided cost of imported water	AFY	0	38	38	$ 1,304	$ 49,570	0.082	**$ 4,046**
2056	Avoided cost of imported water	AFY	0	38	38	$ 1,315	$ 49,961	0.077	**$ 3,847**
2057	Avoided cost of imported water	AFY	0	38	38	$ 1,325	$ 50,357	0.073	**$ 3,658**
2058	Avoided cost of imported water	AFY	0	38	38	$ 1,336	$ 50,759	0.069	**$ 3,479**
2059	Avoided cost of imported water	AFY	0	38	38	$ 1,347	$ 51,167	0.065	**$ 3,308**
2060	Avoided cost of imported water	AFY	0	38	38	$ 1,357	$ 51,581	0.061	**$ 3,146**
2061	Avoided cost of imported water	AFY	0	38	38	$ 1,368	$ 52,002	0.058	**$ 2,992**

Appendix 8-2: Cost-Benefit Tables

Table 15 – Annual Benefit (All benefits should be in 2012 dollars) Project 4: San Antonio del Desierto DAC Sewer Extension Project									
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
Year	Type of Benefit	Measure of Benefit (Units)	Without Project	With Project	Change Resulting from Project (e) – (d)	Unit $ Value [1]	Annual $ Value [1] (f) x (g)	Discount Factor [1]	Discounted Benefits [1] (h) x (i)
2062	Avoided cost of imported water	AFY	0	38	38	$ 1,380	$ 52,429	0.054	**$ 2,846**
2063	Avoided cost of imported water	AFY	0	38	38	$ 1,391	$ 52,862	0.051	**$ 2,707**
2064	Avoided cost of imported water	AFY	0	38	38	$ 1,403	$ 53,302	0.048	**$ 2,575**
2065	Avoided cost of imported water	AFY	0	38	38	$ 1,414	$ 53,748	0.046	**$ 2,450**
2066	Avoided cost of imported water	AFY	0	38	38	$ 1,414	$ 53,748	0.043	**$ 2,311**
2067	Avoided cost of imported water	AFY	0	38	38	$ 1,414	$ 53,748	0.041	**$ 2,204**
2068	Avoided cost of imported water	AFY	0	38	38	$ 1,414	$ 53,748	0.038	**$ 2,042**
2069	Avoided cost of imported water	AFY	0	38	38	$ 1,414	$ 53,748	0.036	**$ 1,935**
2070	Avoided cost of imported water	AFY	0	38	38	$ 1,414	$ 53,748	0.034	**$ 1,827**
2071	Avoided cost of imported water	AFY	0	38	38	$ 1,414	$ 53,748	0.032	**$ 1,720**
2072	Avoided cost of imported water	AFY	0	38	38	$ 1,414	$ 53,748	0.030	**$ 1,612**
2073	Avoided cost of imported water	AFY	0	38	38	$ 1,414	$ 53,748	0.029	**$ 1,559**
2074	Avoided cost of imported water	AFY	0	38	38	$ 1,414	$ 53,748	0.027	**$ 1,451**
2075	Avoided cost of imported water	AFY	0	38	38	$ 1,414	$ 53,748	0.025	**$ 1,344**
2076	Avoided cost of imported water	AFY	0	38	38	$ 1,414	$ 53,748	0.024	**$ 1,290**
2077	Avoided cost of imported water	AFY	0	38	38	$ 1,414	$ 53,748	0.023	**$ 1,236**
							Total Present Value of Discounted Benefits Based on Unit Value		**$ 541,365**

Appendix 8-2: Cost-Benefit Tables

Table 16 – Annual Costs of Avoided Projects (All avoided costs should be in 2012 dollars)						
Project 4: San Antonio del Desierto DAC Sewer Extension Project						
	Costs				Discounting Calculations	
(a)	(b)	(c)	(d)	(e)	(f)	(g)
Year	Alternative (Avoided Project Name): Rehabilitation of On-site Lagoon System Avoided Project Description:				Discount Factor	Discounted Costs (e) x (f)
	Avoided Capital Costs	Avoided Replacement Costs	Avoided Operations and Maintenance Costs	Total Cost Avoided for Individual Alternatives (b) + (c) + (d)		
2012					1.000	
2013					0.943	
2014	$1,212,683			$ 1,212,683	0.890	**$ 1,079,283.55**
2015					0.840	**$ -**
2016					0.792	**$ -**
2017					0.747	**$ -**
2018					0.705	**$ -**
2019			$24,800	$ 24,800	0.665	**$ 16,493.42**
2020				$ -	0.627	**$ -**
2021				$ -	0.592	**$ -**
2022				$ -	0.558	**$ -**
2023				$ -	0.527	**$ -**
2024			$24,800	$ 24,800	0.497	**$ 12,324.84**
2025				$ -	0.469	**$ -**
2026				$ -	0.442	**$ -**
2027				$ -	0.417	**$ -**
2028				$ -	0.394	**$ -**
2029			$24,800	$ 24,800	0.371	**$ 9,209.84**
2030				$ -	0.350	**$ -**
2031				$ -	0.331	**$ -**
2032				$ -	0.312	**$ -**
2033				$ -	0.294	**$ -**
2034			$24,800	$ 24,800	0.278	**$ 6,882.13**
2035				$ -	0.262	**$ -**
2036				$ -	0.247	**$ -**
2037				$ -	0.233	**$ -**
2038				$ -	0.220	**$ -**
2039			$24,800	$ 24,800	0.207	**$ 5,142.73**
2040				$ -	0.196	**$ -**
2041				$ -	0.185	**$ -**
2042				$ -	0.174	**$ -**
2043				$ -	0.164	**$ -**
2044			$24,800	$ 24,800	0.155	**$ 3,842.94**
2045				$ -	0.146	**$ -**
2046				$ -	0.138	**$ -**
2047				$ -	0.130	**$ -**
2048				$ -	0.123	**$ -**
2049			$24,800	$ 24,800	0.116	**$ 2,871.67**
2050				$ -	0.109	**$ -**
2051				$ -	0.103	**$ -**
2052				$ -	0.097	**$ -**
2053				$ -	0.092	**$ -**
2054			$24,800	$ 24,800	0.087	**$ 2,145.88**
2055				$ -	0.082	**$ -**
2056				$ -	0.077	**$ -**
2057				$ -	0.073	**$ -**

Appendix 8-2: Cost-Benefit Tables

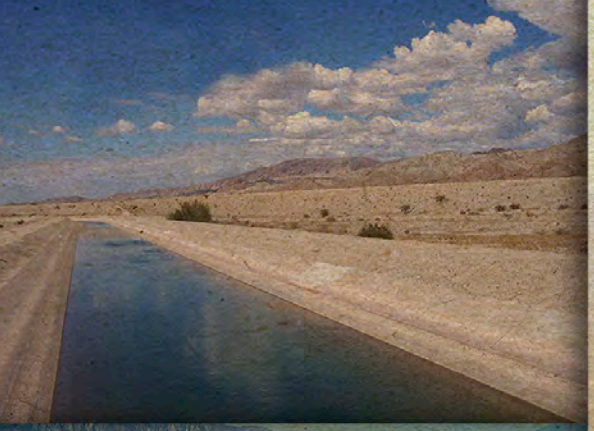
2058				$ -	0.069	**$ -**
2059			$24,800	$ 24,800	0.065	**$ 1,603.53**
2060				$ -	0.061	**$ -**
2061				$ -	0.058	**$ -**
2062				$ -	0.054	**$ -**
2063				$ -	0.051	**$ -**
2064			$24,800	$ 24,800	0.048	**$ 1,198.25**
2065				$ -	0.046	**$ -**
2066				$ -	0.043	**$ -**
2067				$ -	0.041	**$ -**
2068				$ -	0.038	**$ -**
2069			$24,800	$ 24,800	0.036	**$ 892.80**
2070				$ -	0.034	**$ -**
2071				$ -	0.032	**$ -**
2072				$ -	0.030	**$ -**
2073				$ -	0.029	**$ -**
2074			$24,800	$ 24,800	0.027	**$ 669.60**
2075				$ -	0.025	**$ -**
2076					0.024	**$ -**
2077					0.023	**$ -**
Last Year of Project Life					...	
Total Present Value of Discounted Costs (Sum of Column (g))						**$ 1,142,561.17**
(%) Avoided Cost Claimed by Project						
Total Present Value of Discounted Avoided Project Costs Claimed by Alternative Project (Total Present Value of Discounted Costs x % Avoided Cost Claimed by Project)						**$ 1,142,561.17**

Appendix 8-2: Cost-Benefit Tables

Table 19 – Annual Costs of Project (All costs should be in 2012 Dollars) Project 4: San Antonio del Desierto DAC Sewer Extension Project										
	Initial Costs Grand Total Cost from Table 7 (row (i), column (d))	Adjusted Grant Total Cost[1]	Annual Costs [2]						Discounting Calculations	
			Admin	Operation	Maintenance	Replacement	Other	Total Costs (a) +...+ (g)	Discount Factor	Discounted Project Costs (h) x (i)
Year	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
2012									1.000	
2013	$ 8,592							$ 8,592	0.943	$ 8,106
2014	$ 60,145							$ 60,145	0.890	$ 53,529
2015	$ 790,480							$ 790,480	0.840	$ 663,702
2016	$ 859,218							$ 859,218	0.792	$ 680,581
2017					$13,343		$ 132,608	$ 145,951	0.747	$ 109,063
2018					$13,343			$ 13,343	0.705	$ 9,406
2019					$13,343			$ 13,343	0.665	$ 8,874
2020					$13,343			$ 13,343	0.627	$ 8,372
2021					$13,343			$ 13,343	0.592	$ 7,898
2022					$13,343			$ 13,343	0.558	$ 7,451
2023					$13,343			$ 13,343	0.527	$ 7,029
2024					$13,343			$ 13,343	0.497	$ 6,631
2025					$13,343			$ 13,343	0.469	$ 6,256
2026					$13,343			$ 13,343	0.442	$ 5,902
2027					$13,343			$ 13,343	0.417	$ 5,568
2028					$13,343			$ 13,343	0.394	$ 5,252
2029					$13,343			$ 13,343	0.371	$ 4,955
2030					$13,343			$ 13,343	0.350	$ 4,675
2031					$13,343			$ 13,343	0.331	$ 4,410
2032					$13,343			$ 13,343	0.312	$ 4,160
2033					$13,343			$ 13,343	0.294	$ 3,925
2034					$13,343			$ 13,343	0.278	$ 3,703
2035					$13,343			$ 13,343	0.262	$ 3,493
2036					$13,343			$ 13,343	0.247	$ 3,295
2037					$13,343			$ 13,343	0.233	$ 3,109
2038					$13,343			$ 13,343	0.220	$ 2,933
2039					$13,343			$ 13,343	0.207	$ 2,767
2040					$13,343			$ 13,343	0.196	$ 2,610
2041					$13,343			$ 13,343	0.185	$ 2,463
2042					$13,343			$ 13,343	0.174	$ 2,323
2043					$13,343			$ 13,343	0.164	$ 2,192
2044					$13,343			$ 13,343	0.155	$ 2,068
2045					$13,343			$ 13,343	0.146	$ 1,951
2046					$13,343			$ 13,343	0.138	$ 1,840
2047					$13,343			$ 13,343	0.130	$ 1,736
2048					$13,343			$ 13,343	0.123	$ 1,638
2049					$13,343			$ 13,343	0.116	$ 1,545
2050					$13,343			$ 13,343	0.109	$ 1,458
2051					$13,343			$ 13,343	0.103	$ 1,375
2052					$13,343			$ 13,343	0.097	$ 1,297
2053					$13,343			$ 13,343	0.092	$ 1,224
2054					$13,343			$ 13,343	0.087	$ 1,155
2055					$13,343			$ 13,343	0.082	$ 1,089
2056					$13,343			$ 13,343	0.077	$ 1,028
2057					$13,343			$ 13,343	0.073	$ 969
2058					$13,343			$ 13,343	0.069	$ 914
2059					$13,343			$ 13,343	0.065	$ 863
2060					$13,343			$ 13,343	0.061	$ 814
2061					$13,343			$ 13,343	0.058	$ 768
2062					$13,343			$ 13,343	0.054	$ 724
2063					$13,343			$ 13,343	0.051	$ 683
2064					$13,343			$ 13,343	0.048	$ 645
2065					$13,343			$ 13,343	0.046	$ 608
2066					$13,343			$ 13,343	0.043	$ 574
2067					$13,343			$ 13,343	0.041	$ 547
2068					$13,343			$ 13,343	0.038	$ 507
2069					$13,343			$ 13,343	0.036	$ 480
2070					$13,343			$ 13,343	0.034	$ 454
2071					$13,343			$ 13,343	0.032	$ 427
2072					$13,343			$ 13,343	0.030	$ 400
2073					$13,343			$ 13,343	0.029	$ 387

Appendix 8-2: Cost-Benefit Tables

2074					$13,343			$	13,343	0.027	$ 360
2075					$13,343			$	13,343	0.025	$ 334
2076					$13,343			$	13,343	0.024	$ 320
2077					$13,343			$	13,343	0.023	$ 307
										Total Present Value of Discounted Costs (Sum of column (j))	**$ 1,676,119**
										Transfer to Table 20, column (c), Proposal Benefits and Costs Summaries	
Comments: 2017 cost for decommissioning the existing lagoons											







Attachment 9

Program Preferences

Implementation Grant, Round 2

Coachella Valley IRWM
Implementation Grant Proposal

Attachment 9

Coachella Valley Integrated Regional Water Management Implementation Grant Proposal – Round 2

Program Preferences

Attachment 9 consists of the following item:

- ✓ **Program Preferences**

  This attachment contains information regarding how this *Coachella Valley IRWM Implementation Grant Proposal - Round 2* assists the Coachella Valley region in meeting the Program Preferences set by PRC §75026.(b) and CWC §10544.

This attachment identifies the specific Program Preferences that the proposal will meet; describes the certainty that the Proposal will meet the Program Preferences; and details the breadth and magnitude to which the Program Preferences will be met.

Program Preferences, Certainty, and Breadth/Magnitude

The Program Preferences described in Section II.F of the 2012 Guidelines are those set forth in PRC §75026.(b) and CWC §10544. These preferences are summarized in Table 9-1.

Table 9-1: Program Preferences and Statewide Priorities

Program Preferences	Statewide Priorities
1. Include regional projects or programs	1. Drought Preparedness
2. Effectively integrate water management programs and projects within a hydrologic region identified in the California Water Plan; RWQCB region or subdivision; or other region or sub-region specifically identified by DWR	2. Use and Reuse Water More Efficiently
3. Effectively resolve significant water-related conflicts within or between regions	3. Climate Change Response Actions
4. Contribute to attainment of one or more of the objectives of the CALFED Bay-Delta Program	4. Expand Environmental Stewardship
5. Address critical water supply or water quality needs of disadvantaged communities within the region	5. Practice Integrated Flood Management
6. Effectively integrate water management with land use planning	6. Protect Surface Water and Groundwater Quality
7. For eligible SWFM funding, projects which: a) are not receiving State funding for flood control or flood prevention projects pursuant to PRC §5096.824 or §75034 or b) provide multiple benefits, including, but not limited to, water quality improvements, ecosystem benefits, reduction of instream erosion and sedimentation, and groundwater recharge	7. Improve Tribal Water and Natural Resources
8. Address Statewide priorities (*see right*)	8. Ensure Equitable Distribution of Benefits

Each of the projects included within this Proposal are ready to proceed, and are listed within the Coachella Valley IRWM Region's adopted project list which is housed in the online Project Database (http://www.cvrwmg.org/projects.php). These projects were selected by the Planning Partners and the Coachella Valley Regional Water Management Group (CVRWMG) in accordance with the project prioritization process described in *Chapter 7: Project Evaluation and Prioritization* of the IRWM Plan. As a result of the thorough analysis that was performed on these projects through the selection process and with respect to monitoring, assessment, and performance measures (refer to Attachment 6), it is fully certain that each of the projects included in this Proposal will provide the benefits described below.

The package of projects included in this proposal addresses six of the aforementioned Program Preferences on a local, regional, or statewide scale. These terms, used to define the breadth and magnitude to which each project addresses Program Preferences, are defined as follows:

- *Local*: Project benefits are focused locally within the project area.
- *Regional*: Project benefits extend throughout the Coachella Valley IRWM Region (Region).
- *Statewide*: Project benefits are widespread and will benefit not only the Region but other areas throughout California.

Table 9-2 below shows the Program Preferences that will be addressed by each of the projects within this Proposal, and demonstrates the magnitude and breadth to which each Program Preference will be addressed.

Table 9-2: Proposed Projects and Program Preferences

	Program Preferences						
Proposed Projects	**Include Regional Projects or Programs**	**Integrate Water Management Programs and Projects**	**Resolve Significant Water-Related Conflicts**	**Contribute to Attainment of CALFED Bay-Delta Program Objectives**	**Address Critical Water Supply or Water Quality Needs of DACs**	**Integrate Water Management with Land Use Planning**	**Address Statewide Priorities**
Non-Potable Water Use Expansion Program	✓	✓	✓	✓		✓	✓
Coachella Valley Salt and Nutrient Management Program	✓	✓	✓	✓		✓	✓
Groundwater Quality Protection Program – Subarea D-2		✓	✓		✓		✓
San Antonio del Desierto DAC Sewer Extension Project		✓	✓		✓		✓
Torres-Martinez Avenue 64 Water Supply Connection Project		✓	✓		✓		✓
Degree of Certainty Preference will be Addressed	**HIGH**	**HIGH**	**HIGH**	**HIGH**	**HIGH**	**N/A**	**HIGH**
Magnitude and Breadth to Which Preference will be Addressed	**Region**	**Region**	**Region**	**State**	**Local**	**N/A**	**Region**

Relation to the Implementation Grant Proposal

The following sections demonstrate how this *Coachella Valley IRWM Implementation Grant Proposal - Round 2* will assist in meeting each of the Program Preferences listed within Section II.F of the 2012 IRWM Guidelines, as summarized within Table 9-2 above.

Program Preference: Include Regional Projects or Programs

Non-Potable Water Use Expansion Program

The *Non-Potable Water Use Expansion Program* includes expansion of the Region's Mid-Valley Pipeline (MVP) and Coachella Canal infrastructure to supply non-potable water to seven golf courses within the Region. These golf course conversion projects are part of a larger effort on behalf of the Region to expand the use of non-potable water for irrigation to achieve basin-wide groundwater recharge via source substitution. Further, while the Coachella Valley Water District (CVWD) owns and operates the MVP and Coachella Canal infrastructure, other agencies such as the Indio Water Authority and the Coachella Water Authority are interested in taking an active role in connecting potential customers within their service areas to available non-potable water infrastructure. Therefore, this program is considered regional in nature as it will serve groundwater users within eastern and western Valley, and will help to expand the Region's non-potable water infrastructure.

Coachella Valley Salt and Nutrient Management Program

The *Coachella Valley Salt and Nutrient Management Program*'s goal is to develop a Salt and Nutrient Management Plan (SNMP) for the Coachella Valley groundwater basin. This basin is a major source of water supply for the entire Region and protecting the water quality of the basin will benefit the entire region. The CVRWMG, made up of all five water purveyors in the Valley, are partnering on this important program to protect the basin. As such, this program is considered regional pursuant to CWC §10544 and it is fully certain that this project will adhere to this Program Preference on a regional level.

Program Preference: Effectively Integrate Water Management Programs and Projects within the Coachella Valley IRWM Region

All of the projects included within this proposal would address the Program Preference of effectively integrating water management programs and projects within a hydrologic region specifically identified by DWR (the Coachella Valley IRWM Region). The Coachella Valley IRWM Region was specifically identified by DWR as part of a Region Acceptance Process that was submitted in April 2009.

Because this proposal has been found to be consistent with the Coachella Valley IRWM Plan (refer to Attachment 1), this proposal will effectively carry out the goals of the Plan, which includes coordinating and integrating water resource management (IRWM Goal 4) within the Region. In addition, each project included in this Proposal would meet at least one of the regionally-established objectives. Each objective was established upon reviewing the various goals, issues, and needs that currently exist within the Region. The consistency evaluation carried out in Attachment 1 shows that together, the five projects listed within this Proposal will either directly or indirectly address twelve of the thirteen IRWM Plan Objectives (Refer to Table 1-3 within Attachment 1).

Because this proposal will be consistent with the Coachella Valley IRWM Plan by fulfilling IRWM Goal 4 (Coordinate and integrate water resource management) and twelve of the thirteen Plan Objectives, it is fully certain that all five projects will adhere to this Program Preference throughout the Region (on a regional level). The following sections provide an in-depth explanation of why each of the projects listed within this Proposal will effectively integrate water management programs and projects within the Region.

Non-Potable Water Use Expansion Program

The *Non-Potable Water Use Expansion Program* will serve to promote water conservation and protection of local resources by increasing the use of non-potable water for irrigation purposes. By leveraging unused capacity of non-potable systems and expanding the number of connections to users, this project will implement multiple strategies to ultimately decrease the use of potable water for non-potable purposes. The sites proposed for connection to the Mid Valley Pipeline and/or Coachella Canal non-potable distribution systems would be located in the service areas of several different agencies (CVWD, IWA, and CWA), thereby further integrating the partner agencies.

Coachella Valley Salt and Nutrient Management Program

This project will develop a SNMP for the Coachella Valley groundwater basin. This basin is an important source of water for the entire Region. In order to develop a SNMP, this project will draw on data collected throughout the Region, and use a technical team of experts from across the Region to review and assess data, groundwater characterizations, and salt/nutrient loading. This project will be an involved process utilizing a wide variety of resources throughout the Region, and aims to incorporate relevant data, appropriate and accurate descriptions of Regional and local issues and concerns, and recommend BMPs appropriate to the Region. All five of the CVRWMG agencies, as well as many other stakeholders interested in protection of groundwater quality, will be involved in both defining the basin characterizations and the strategies to protect it.

Groundwater Quality Protection Program – Subarea D2

This project continues to build on the work completed by the *Groundwater Quality Protection Program – Desert Hot Springs* from Proposition 84-Round 1. That project occurred in the D1 Subarea, immediately adjacent to this project's location (Subarea D2). This project would reduce the threat that densely located and/or failing septic systems pose to groundwater quality within the Desert Hot Springs Sub-Basin. This is an expansive sub-basin which sustains a local economy of hot water users. Due to its size, groundwater quality within this sub-basin could potentially impact drinking water supplies in the adjacent Mission Creek Subbasin that is used by MSWD. By reducing threats to municipal groundwater quality, this program effectively integrates water management projects within the Coachella Valley.

San Antonio del Desierto DAC Sewer Extension Project

The *San Antonio del Desierto DAC Sewer Extension Project* is a community-driven project designed to protect human and environmental health and safety. It will provide sewer connections for a severely DAC (San Antonio del Desierto Mobile Home Park) and allow for the abandonment of currently used but poorly designed sewer lagoons. This project will serve to protect surface and groundwater from contamination from the lagoons, which are improperly lined and have unstable dikes. This serves multiple benefits of human health, environmental health, and protecting an important source of irrigation water, which is vital to the local economy.

Torres-Martinez Avenue 64 Water Supply Connection Project

This project represents an important effort to build relationships with local Tribes. The project will design a pipeline and connection between CVWD and the Torres-Martinez Desert Cahuilla Indians that will allow the Tribe to disconnect their existing inadequate and unsafe well system. This project builds upon work completed in a Preliminary Engineering Report, and will allow the Tribe to seek future funding sources to implement the design developed in this project. The design itself will incorporate CVWD's portion of the necessary infrastructure, and the portion of infrastructure on Tribal lands, providing for opportunities to address common goals and issues. In addition to the benefits of the project, the Tribe qualifies as a DAC, and this project represents an important effort in reaching out to DACs and Tribes to ensure an equitable distribution of benefits.

Program Preference: Effectively Resolve Significant Water-Related Conflicts Within or Between Regions

The Coachella Valley IRWM Plan provides an overview of the significant water-related conflicts within the Region. This section states that, "major water-related conflicts have generally revolved around groundwater recharge and pumping activities and associated assessments." Groundwater issues were likely identified as the major source of water-related conflicts within the Region, because groundwater constitutes the Region's primary urban water supply source. Due to the importance of groundwater within the Region, groundwater quality and supply availability are critically important to the entire Region, and therefore constitute the primary source of water-related conflicts. Each of the projects listed within this Proposal aims at improving groundwater supply, quality, and groundwater-related drinking water quality within the Region, and therefore each project will aim to help resolve this significant water-related conflict within the Region.

In addition, the IRWM Plan Objectives were established as a result of an open and transparent stakeholder process, where all CVRWMG members, Planning Partners entities, DAC and Tribal Issues Groups entities, and other stakeholders were invited to voice their significant issues and conflicts within the Region. Together, the five projects will address twelve of the thirteen IRWM Plan Objectives, and will therefore effectively resolve significant water-related conflicts addressed by a comprehensive stakeholder group within the Region.

Non-Potable Water Use Expansion Program

This project will address groundwater overdraft by reducing groundwater demand through expansion of non-potable water infrastructure to serve additional clients. Reducing groundwater demand may reduce the need to increase recharge and pumping activities in the future, thereby resolving significant water-related conflicts regarding groundwater recharge and pumping activities. In addition, this program may involve two other water agencies, promoting ongoing collaboration between three water purveyors. This type of collaboration will also potentially reduce conflicts by heightening relationships between regional agencies. It is fully certain that this program will address the Program Preference of effectively resolving significant water-related conflicts within or between regions.

Coachella Valley Salt and Nutrient Management Program

The *Coachella Valley Salt and Nutrient Management Program* will draft an SNMP using comprehensive data sets for the Coachella Valley groundwater basin. It will involve stakeholders and experts, opening communication between different groups. In this way, it will establish an agreed-upon set of standards for salt and nutrient loading, reducing future conflicts over water quality standards. Additionally, this project will meet the State requirement of having a SNMP for groundwater basins, reducing conflicts with the State and within the Region relating to salt and nutrient loading and management practices.

Groundwater Quality Protection Program – Subarea D2

Individual domestic septic tanks were identified in the issues sections of the Coachella Valley IRWM Plan. The issues identified with respect to individual domestic septic tanks include potential nitrate percolation from failing systems, and lack of sewer infrastructure to serve DAC communities. The program directly addresses both of the aforementioned issues by replacing septic tanks with sewer connections in areas that have known groundwater quality issues and contain neighborhoods that qualify as DACs. As such, it is fully certain that this program will address the Program Preference of effectively resolving significant water-related conflicts.

San Antonio del Desierto DAC Sewer Extension Project

This project will provide necessary wastewater infrastructure to an economically disadvantaged mobile home park to facilitate future procurement of a Conditional Use Permit for the mobile home park from the

County of Riverside. Therefore, the project will help to effectively resolve conflicts related to provision of affordable housing that is also compliant with applicable regulations pertaining to infrastructure.

Torres-Martinez Avenue 64 Water Supply Connection Project

This project will contribute to the reduction of groundwater demand through engineering a planned expansion of water mains to Tribal lands that are currently on wells. This will allow the Tribe to cease pumping groundwater, and may reduce the need to increase recharge and pumping activities in the future, thereby resolving significant water-related conflicts regarding groundwater recharge and pumping activities. In addition, this program involves coordination between CVWD and the Tribe, which may potentially reduce conflicts by heightening relationships between the agency and the Tribe. It is fully certain that this program will address the Program Preference of effectively resolving significant water-related conflicts within or between regions.

Program Preference: Contribute to Attainment of One or More of the Objectives of the CALFED Bay-Delta Program

The CALFED Bay-Delta Program has the following four objectives: Water Quality, Water Supply, Ecosystem Restoration, and Levee Integrity (http://calwater.ca.gov/).

- *Water Quality*: the objective of this program is to invest in projects that improve the state's water quality from source to tap.
- *Water Supply*: this objective is comprised of five critical elements: conveyance, storage, environmental water account, water use efficiency and water transfer. Together and in partnership with local and regional agencies, this program allows for the increase of water supplies and more efficient and flexible use of water resources.
- *Ecosystem Restoration*: this objective aims at restoring and protecting habitats, ecosystem functions, and native species.
- *Levee Integrity*: the objective of this program is to protect water supplies needed for ecosystems, cities, industry, and farms by reducing levee failures that would lead to seawater intrusion.

As described below, the five projects contained within this Proposal will meet two of the four objectives: water quality and water supply.

Non-Potable Water Use Expansion Program

This program will meet the Water Supply objective of the CALFED Bay-Delta Program by maximizing the use of local water to meet existing and future demand. This program will increase water use efficiency in the Coachella Valley Region, thereby potentially reducing future increased demands for water supplies from the Bay-Delta. In addition, this program will allow for more efficient use of water resources through source substitution (matching non-potable supplies to irrigation uses). Due to the conservation-oriented nature of this program, the Region's current reliance on Bay-Delta water, and the degree to which this project was analyzed, it is fully certain that this project will provide water supply benefits as described within the CALFED Bay-Delta Program. Due to the connection between the Coachella Valley and imported water from the Bay-Delta, this program will provide water supply benefits at a statewide level.

Coachella Valley Salt and Nutrient Management Program

This program will meet the Water Quality objective of the CALFED Bay-Delta Program. It will draft a comprehensive SNMP for the Coachella Valley groundwater basin, which will assess salt/nutrient loading and trends, identify water management goals and strategies, and evaluate anti-degradation strategies. This will serve to protect and potentially improve water quality in the Region. Due to the Region's current reliance on Bay-Delta water, improvements to local water that is blended with Bay-Delta water will improve water quality delivered to customers, or reduce the cost of treating potable water. This meets the Water Quality Program goal of improving water quality from source to tap.

Program Preference: Address Critical Water Supply or Water Quality Needs of Disadvantaged Communities within the Region

Critical water supply or water quality needs of DACs within the Region were addressed through the development of the Coachella Valley IRWM Plan. While developing the Plan, the CVRWMG and Planning Partners formed a DAC Issues Group that was created to address specific water-related needs of DACs within the Region. The IRWM Plan identifies the specific water-related needs of DACs as water affordability, the need for connections to municipal sewer and water systems, poor groundwater quality, and flooding hazards. This Proposal addresses four of the five topics above (all but flooding). The projects within this Proposal that address critical water supply and/or water quality needs of DACs within the region are discussed below.

Groundwater Quality Protection Program – Subarea D2

The *Groundwater Quality Protection Program – Subarea D2* directly addresses water quality and sanitation needs of DACs by providing for expansion of the municipal sewer system. This program addresses sanitation needs relative to failing and/or densely located septic tank systems and therefore protects groundwater quality by eliminating the potential for septic tank effluent to reach the groundwater supply. This program also addresses critical water supply needs of DACs by protecting potable groundwater sources from contamination.

San Antonio del Desierto DAC Sewer Extension Project

This project directly addresses critical water quality and sanitation needs of DACs by providing sewer connection for the St. Anthony's Mobile Home Park. This will allow for abandonment of existing sewer lagoons. These lagoons are located 150 feet from residences, are improperly lined, and have unstable dikes. They represent a risk to groundwater quality and public health, and have experienced spills in the past. This is an important project that will significantly improve the health and safety conditions of the severely disadvantaged families living in the mobile home park.

Torres-Martinez Avenue 64 Water Supply Connection Project

The pipeline that this project will engineer will serve a Tribe that is currently using wells for its water supply. This will address critical water quality and water supply needs of a DAC because these wells and their related infrastructure have been documented as posing a critical risk to human health and safety by the USEPA. The Tribe experiences multiple unscheduled water outages per month, have an insufficient backup water source, failing infrastructure (including an inoperable fire pump), corroded electronics, a risk for tank explosion, an inability to properly treat backup well water, and concerning levels of percholate and chromium. Designing a connection to CVWD's water system will allow the Tribe to abandon their unsafe infrastructure, and provide reliable access to sufficient and safe water supplies.

Program Preference: Effectively Integrate Water Management with Land Use Planning

Non-Potable Water Use Expansion Program

This program involves the provision of non-potable water for irrigation purposes in place of localized groundwater pumping. Therefore, this program involves matching quality to use by using non-potable water for irrigation rather in place of high-quality groundwater. Matching quality to use is considered a land use planning feature as water resources of varying qualities are generally matched by land use (i.e. non-potable water is appropriate for golf courses). Further, the *Non-Potable Water Use Expansion Program* relies upon land use information to identify applicable conversion candidates, which are identified based on land use (agricultural or landscape irrigation) and proximity to existing non-potable water infrastructure.

Coachella Valley Salt and Nutrient Management Program

This program involves work required to complete a SNMP in accordance with the Recycled Water Policy, which will include conducting an anti-degradation analysis for the Region's groundwater basin. An anti-degradation analysis involves analyzing various salt and nutrient loadings as a function of land use type and other applicable factors. As such, this program will effectively integrate water management for water quality purposes with land use planning.

Program Preference: Address Statewide Priorities

This proposal will either directly or indirectly address every Statewide priority with the exception of priority four: practice integrated flood management. Table 9-3 below demonstrates which Statewide priorities are addressed by each of the projects or programs included within this proposal, and to what degree (either directly or indirectly). Each project submitted as part of the Coachella Valley IRWM Plan was evaluated for its consistency with Statewide priorities as part of the plan development process. As such, based on the level of analysis for each project with respect to meeting Statewide priorities, it is fully certain that each of these projects, and therefore the Proposal will achieve the Statewide priorities. Due to the regional emphasis of this proposal, the benefits that will occur from meeting Statewide priorities are expected to occur at a regional level (throughout the Coachella Valley).

Table 9-3: Proposed Projects and Programs with Statewide Priorities

Proposed Projects	Drought Preparedness	Reuse Water More Efficiently	Climate Change Response Actions	Expand Environmental Stewardship	Practice Integrated Flood Management	Protect Surface/ Groundwater Quality	Improve Tribal Water/Natural Resources	Ensure Equitable Distribution of Benefits
Non-Potable Water Use Expansion Program	●	●	○			●	○	○
Coachella Valley Salt and Nutrient Management Program		○		●		●	○	○
Groundwater Quality Protection Program – Subarea D-2		○				●		●
San Antonio del Desierto DAC Sewer Extension Project		○		○		●		●
Torres-Martinez Avenue 64 Water Supply Connection Project			○			●	●	●

○ indirectly related; ● directly related

Non-Potable Water Use Expansion Program

The statewide priorities achieved by the *Non-Potable Water Use Expansion Program* are described in detail below.

- *Drought Preparedness*: This program will promote water use efficiency. Reducing groundwater demand will make the Region better prepared for situations in which water supply availability is lower than average by reducing groundwater overdraft. Because groundwater is the main source of drinking water in the region, this will provide for more reliable local water supply.
- *Use and Reuse Water More Efficiently*: This program will match water use to water type. In this case, using non-potable water for non-potable purposes (irrigation). This is a more efficient use of water than using treated, potable water for irrigation purposes, which is currently the case.
- *Climate Change Response Actions*: This project may indirectly address key climate change issues by reducing groundwater overdraft. Reduced groundwater demand could cut energy consumption related to groundwater pumping and use, thereby decreasing greenhouse gas (GHG) emissions. It will also reduce the amount of treated water being used for irrigation, and therefore reduce GHG emissions related to water treatment.

- *Protect Surface/Groundwater Quality*: This program will reduce overdraft, which is known to have a deteriorating effect on groundwater quality therefore protecting groundwater quality.
- *Improve Tribal Water and Natural Resources*: This program will reduce groundwater pumping for irrigation purposes, therefore making local groundwater available for other users, including Native American tribes.
- *Ensure Equitable Distribution of Benefits*: This program will reduce overdraft, which will benefit the entire Region. Further, this project will help to maintain the affordability of water through the provision of non-potable water, which is provided at a reduced rate to users.

Coachella Valley Salt and Nutrient Management Program

The statewide priorities achieved by the *Coachella Valley Salt and Nutrient Management Program* are described in detail below.

- *Use and Reuse Water More Efficiently*: This program will facilitate current and future use of recycled water throughout the Region. Recycled water used for irrigation is more efficient than using potable water for the same purpose, which would occur without this program.
- *Expand Environmental Stewardship*: The project will directly expand environmental stewardship by the water purveyors and participating stakeholders through development of a salt and nutrient management plan for the Coachella Valley basin. This project will determine sources of salts and nutrients, develop guidelines on acceptable levels based on beneficial uses, and evaluate BMPs to ensure compliance with these levels. All of these activities will help protect regional water bodies.
- *Protect Surface/Groundwater Quality:* This project will help protect water quality by evaluating sources of salts and nutrients, determining appropriate levels of salts and nutrients in water bodies to protect beneficial uses, and recommend BMPs to maintain safe levels of salts and nutrients.
- *Improve Tribal Water and Natural Resources*: Salt and nutrient management is a concern to tribes in the Region who utilize the local groundwater supply. Collaboration with the tribes to address groundwater quality through this program will help to address tribal concerns relating to groundwater quality.
- *Ensure Equitable Distribution of Benefits*: This program will reduce overdraft, which will benefit the entire Region. Further, this project will help to maintain the affordability of water through the provision of recycled water, which is provided at a reduced rate to users.

Groundwater Quality Protection Project – Subarea D2

The statewide priorities achieved by the *Groundwater Quality Protection Program-Subarea D2* are described in detail below.

- *Use and Reuse Water More Efficiently*: By converting septic tanks to sewer systems, this program will potentially increase the amount of wastewater supplies available for future reuse. Therefore, this project will potentially increase water reuse by diverting wastewater from septic tanks to water reclamation facilities.
- *Protect Surface/Groundwater Quality*: By eliminating failing or densely located septic systems in an area with known groundwater quality issues, this project will protect and potentially improve groundwater quality by removing a known contamination source.
- *Ensure Equitable Distribution of Benefits:* This project will address a critical water quality issue of a DAC by removing users in the D2 subarea from septic and converting them to sewer. This subarea qualifies as a DAC with an MHI under $48,706. Portions of the City of Desert Hot Springs have septic tank densities 2.3 to 2.8 times higher than the densities recommended by the RWQCB, which pose a threat to the groundwater quality of the Desert Hot Springs sub-basin. Converting from septic to sewer will protect water quality in the sub-basin, and human health in

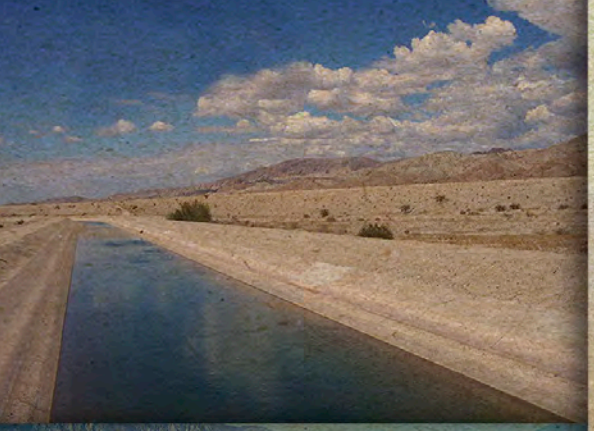
the area. This sub-basin also provides natural hot water to fuel the city's spa-dependent economy; therefore, protection of its water quality will also serve to protect the local economy.

San Antonio del Desierto DAC Sewer Extension Project

- *Use and Reuse Water More Efficiently*: By converting septic tanks to sewer systems, this program will potentially increase the amount of wastewater supplies available for future reuse. Therefore, this project will potentially increase water reuse by diverting wastewater from septic tanks to water reclamation facilities.
- *Expand Environmental Stewardship*: This project will divert flows from onsite wastewater lagoons to the CVWD municipal water system. Therefore, the project will divert untreated wastewater from flowing into the Salton Sea or to the Torres-Martinez wetlands located adjacent to the Salton Sea. Wastewater from the project will either be treated to secondary levels and discharged to the Coachella Valley Stormwater Channel, or will be treated to tertiary levels and reused as recycled water. Therefore, the project will expand environmental stewardship by improving the quality of water entering the environment.
- *Protect Surface/Groundwater Quality:* This project will protect surface and groundwater quality by allowing for the abandonment of four sewer lagoons. There is a risk of groundwater contamination from improper lining of the lagoons, and a risk for both groundwater and surface water contamination from unstable dikes around the lagoons. This provides potential for major lagoon spills, and past lagoon overflows are well documented.
- *Ensure Equitable Distribution of Benefits:* This project addresses the wastewater treatment needs of two DACs – the St. Anthony's Mobile Home Park, and the Huerta Mobile Home Park. It will connect these communities to the sewer system, and allow for the abandonment of sewer lagoons located only 150 feet from residences. This will serve to protect human health, as well as surface and groundwater quality in the area, and replaces a failing septic system with a system that provides for the long term wastewater treatment needs of the community.

Torres-Martinez Avenue 64 Water Supply Connection Project

- *Climate Change Response Actions*: By engineering a way to remove the Tribe from dependence on wells and unsafe infrastructure, this project will indirectly address climate change response actions. It will reduce groundwater overdraft, providing for a more reliable local water supply. The Tribe experiences frequent water supply outages, which may increase in the future due to climate change. This project will reduce both causes and concerns about water supply outages. Additionally, this project will leave old infrastructure in place, in the event of future conversion of said infrastructure to non-potable use. This will help indirectly respond to climate change by increasing water use efficiency and reducing energy consumption.
- *Protect Surface/Groundwater Quality*: This project will reduce overdraft, which is known to have a deteriorating effect on groundwater quality. It will therefore protect groundwater quality and supplies within the Coachella Valley groundwater basin.
- *Improve Tribal Water and Natural Resources*: This project will involve the Torres-Martinez Desert Cahuilla Indians, and allow for abandonment of unsafe water supply infrastructure on Tribal lands. It will engineer a connection from a reliable, safe water supply (CVWD's infrastructure) to the Tribe.
- *Ensure Equitable Distribution of Benefits*: This project addresses a critical water supply and water quality need of a Native American Tribe. The existing water supply system on Tribal land has been documented as unsafe by the USEPA and Indian Health Service. Water produced by the existing system contains perchlorate and chromium at levels of concern to the Tribe, and experiences outages multiple times a month. Additionally, the backup well for the system cannot be properly treated, and so poses high risk to human health if relied on for more than a few days.











Attachment 10

Disadvantaged Community Assistance

Implementation Grant, Round 2

Coachella Valley IRWM
Implementation Grant Proposal

Attachment

10

Coachella Valley Integrated Regional Water Management Implementation Grant Proposal – Round 2

Disadvantaged Community Assistance

Attachment 10 consists of the following items:

- ✓ **Documentation of Presence and Needs of DACs**

  Local DACs are defined and mapped using the American Community Survey (ACS) 2010 data recommended by DWR. Critical water supply and water quality needs identified by local DAC representatives are summarized.

- ✓ **Description of Proposed Projects and Targeted Benefits to DACs**

  The targeted benefits to local DACs from the proposed projects are described.

- ✓ **Letters of Support**

  Letters of support from DAC representatives for the *Groundwater Quality Protection Program – Subarea D2*, *San Antonio del Desierto DAC Sewer Extension Project*, and *Torres-Martinez Avenue 64 Water Supply Connection Project* are included in Appendix 10-1.

This attachment documents information regarding the *Groundwater Quality Protection Program – Subarea D2*, *San Antonio del Desierto DAC Sewer Extension Project*, and *Torres-Martinez Avenue 64 Water Supply Connection Project*, which address critical water supply or water quality needs of DACs. This attachment documents the presence and needs of DACs, and describes the proposed projects and targeted benefits to DACs.

Presence and Needs of the DAC

The Coachella Valley has a wide range of DACs from different demographics, including migrant and seasonal farm workers, very low-income families, urban residents, and low-income seniors. Water management issues that have been identified to date by DAC representatives include arsenic contamination in drinking water supplies, sanitation needs to protect groundwater, health, and safety, and general affordability and accessibility of water.

A DAC is identified as a community with an annual median household income (MHI) of less than 80 percent of the Statewide MHI. According to the 2012 Guidelines, data from the American Community Survey (ACS) from 2006-2010 estimates 80% of the Statewide MHI is $48,706. Therefore, a DAC is a community with an MHI of less than $48,706.

MHIs in the Coachella Valley IRWM Region were estimated through 2010 ACS data at the census tract level. Census tracts are small, relatively permanent geographic entities within counties delineated by a committee of local data users. The Census tracts did not align perfectly with Region boundaries, so ESRI Community Analysis was used to append an accurate MHI value to Census tracts with were only partially represented in the Region. Using this information, all nine cities in the Coachella Valley contain pockets of communities that would qualify as DACs. In addition, this dataset shows that the unincorporated communities of Desert Edge, North Shore, Mecca, Oasis, Sky Valley, Thermal, Thousand Palms, and

Vista Santa Rosa also qualify as DACs. Figure 10-1 shows DACs at the census tract-level using the 2010 ACS data.

Many communities within the East Valley are dependent on on-site drinking water wells that are reported as having elevated arsenic levels. Moreover, these communities pay relatively high rates for their groundwater supply, and in many instances must travel long distances to purchase alternative bottled water. Lack of transportation creates an additional barrier to purchase of bottled water. Some DAC areas within the Coachella Valley contain remote or difficult to serve areas that are not within the path of development or close to municipal services for water and wastewater service. These communities have special difficulties in affordability of water-related services.

Many communities in the Region, including DACs, rely on septic systems for wastewater treatment, rather than a central sewer system. These systems are frequently in poor condition, aging, poorly designed, or in higher densities than recommended by the Regional Water Quality Control Board. Because of this, these systems often pose a risk to groundwater or surface water quality, public health and safety, and otherwise inadequately provide for the wastewater needs of the community.

Proposed Projects and Targeted Benefits to DACs

Groundwater Quality Protection Program – Subarea D2

The entire city of Desert Hot Springs qualifies as a DAC (Figure 10-2). The *Groundwater Quality Protection Program – Subarea D2* is a continuation of MSWD's Groundwater Quality Protection Program, which has identified subareas throughout the Desert Hot Springs sub-basin to convert from septic systems to sewer connections. Parts of these areas have septic system densities 2.3 to 2.8 times higher than the RWQCB's recommendation, which threaten to contaminate the Desert Hot Springs Sub-basin. This sub-basin produces naturally hot water, which forms the basis for Desert Hot Springs' spa-based economy. Converting users in Subarea D2 from septic to sewer will address a critical water quality need of a DAC. It will provide replacement wastewater collection systems necessary to prevent groundwater contamination and replace failing septic systems with a system that provides for the long term wastewater treatment needs of the community. In addition to meeting these critical water quality needs, this project will help protect Desert Hot Springs' economy, further benefitting and supporting a DAC.

San Antonio del Desierto DAC Sewer Extension Project

The *San Antonio del Desierto DAC Sewer Extension Project* will connect the San Antonio del Desierto Mobile Home Park to the CVWD sewer system. This community qualifies as a DAC per DWR's definition (Figure 10-3). Currently, the San Antonio del Desierto Mobile Home Park is completely reliant on septic for their wastewater treatment needs. Wastewater collected by this system is treated in five sewer lagoons located only 150 feet from the homes at San Antonio del Desierto. These lagoons have a history of spills, and pose groundwater and surface water contamination risks through improper lagoon lining and unstable dikes. Once connected to the CVWD sewer system, these lagoons can be abandoned, and the risks to water quality and public health abated. This project meets DWR's criteria for a critical water quality need by providing wastewater treatment necessary to abate or prevent surface or groundwater contamination, replacement of wastewater collection systems necessary to abate or prevent surface or groundwater contamination, and replacement of failing septic systems with a system that provides for the long term wastewater treatment needs of the community. Additionally, this project has been community-driven, providing DAC involvement in water management in the Region.

Torres-Martinez Avenue 64 Water Supply Connection Project

The Torres-Martinez Desert Cahuilla Indian reservation is considered a DAC with an MHI of less than $48,706 (Figure 10-4). This project will engineer a pipeline and connection between Tribal land and CVWD's potable water distribution system. This will enable the Tribe to seek future funding to construct the connection. The proposed connection will supply the Tribe with a safe, reliable source of potable water, and allow them to disconnect from their current well system. The current system presents documented health and safety hazards, and experiences frequent water supply outages. Because of these issues, the Tribe must supplement their water with hauled-in water, a costly endeavor. Additionally, the system is unable to provide both the water supply and the water pressure to provide for firefighting efforts, posing further risk the community. This project meets the critical water supply needs of a DAC by modifying the supply system to meet primary drinking water standards, infrastructure renovations necessary to assure continued reliability of the minimum quality and quantity of water, augmentation of water supply pressure needed to prevent loss of system integrity and maintain adequate fire protection flows, replacement of water supply wells that have exceeded their useful life, and meeting the CDPH Safe Drinking Water SRF Priority List Ranking Criteria E: Water systems with water outages, significant water quantity problems caused by source water capacity or water delivery capability that is insufficient to supply current demand.

Proposed Projects that Indirectly Benefit DACs

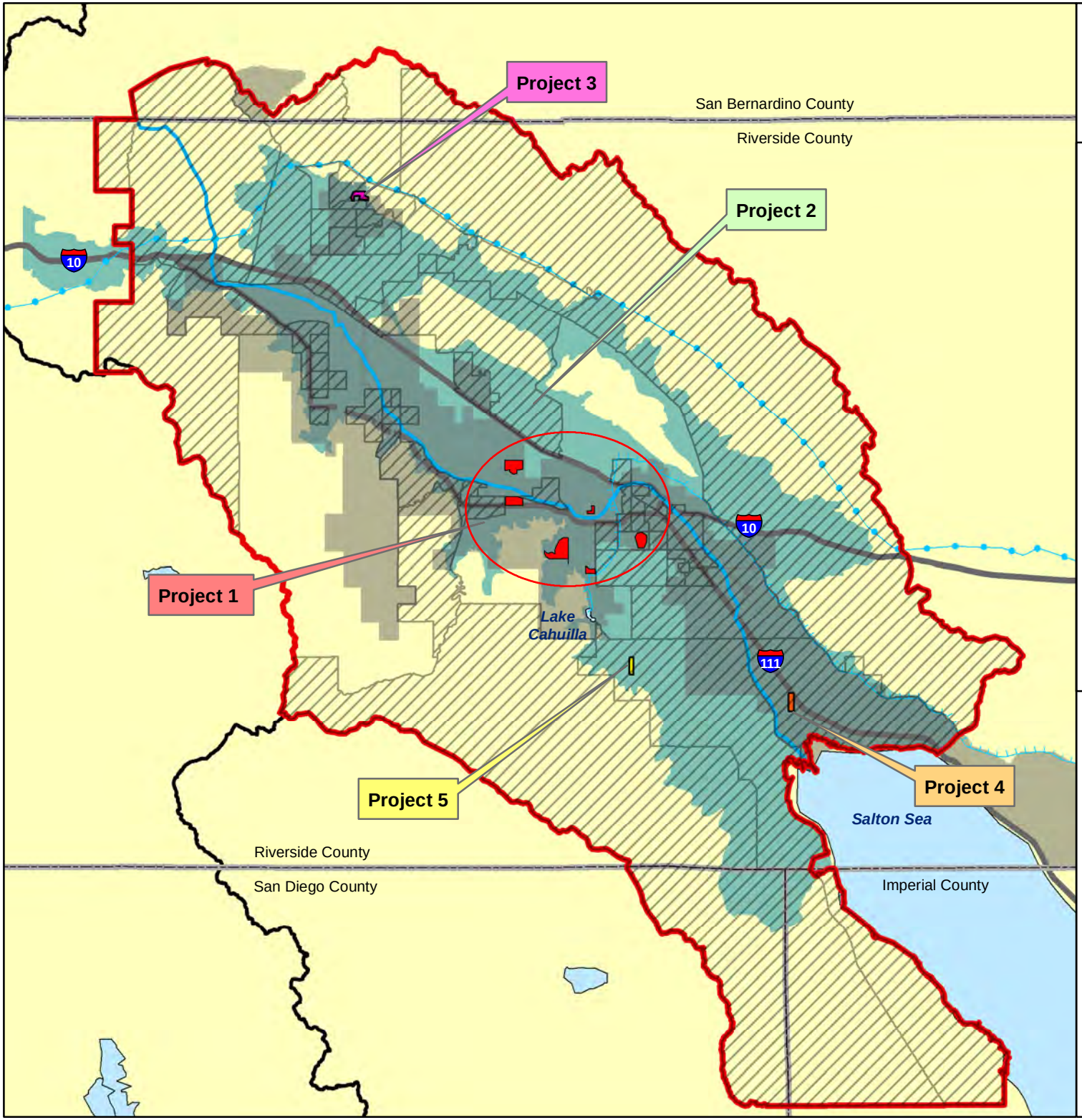
All five projects included in this proposal will benefit DACs in the Region in some way. The three projects described above all meet DWR's criteria for meeting a critical water supply or water quality need of a DAC. The following projects, though not meeting the criteria for critical water needs of a DAC, will address water-related needs of a DAC, either indirectly or through Regional benefits, as described below.

Non-Potable Water Use Expansion Program

This program will indirectly benefit DACs by reducing potable water demand, and increasing water use efficiency through matching water quality with use. Through reduced groundwater pumping and reduced water treatment needs, this project will create Regional benefits, including a reduction in energy consumption, reduced groundwater basin overdraft, and increased water security (by securing imported water rights and reducing overdraft). These Regional benefits may lead to potential reduction in water costs or avoided water cost increases, drought and climate change resilience, and improved groundwater quality. This will benefit DACs, who may be disproportionately affected by the potential increased water costs, decreased water quality, and effects of climate change or droughts.

Coachella Valley Salt and Nutrient Management Program

Another project with Regional benefits, the *Coachella Valley Salt and Nutrient Management Program* will draft a Salt and Nutrient Management Plan for the Coachella Valley groundwater basin – an important source of water in the Region. This program will establish and evaluate appropriate salt and nutrient loading levels that remain protective of beneficial uses. This will serve to protect water quality in communities throughout the Region, including DACs. It will also provide evaluation of management strategies for salt and nutrient loading, which may reduce future conflicts over permitting and potential violations. Having a clear set of standards and management strategies in place will make it easier for communities to make planning decisions, and has the potential to make growth easier and more attractive for DACs.



CVIRWMP Project Locations with Diadvantaged Communities

Project Location

- Project 1
- Project 2
- Project 3
- Project 4
- Project 5
- Colorado River Aqueduct
- Coachella and All American Canals
- Whitewater River Stormwater Channel
- Interstate Hwys.
- Lakes
- County Boundaries
- Colorado River Funding Area
- Coachella Valley IRWM Region
- City or Unincorporated Community
- Disadvantaged Communities

Disadvantaged communities are considered those who earned less than $48,706 (80% Statewide MHI)

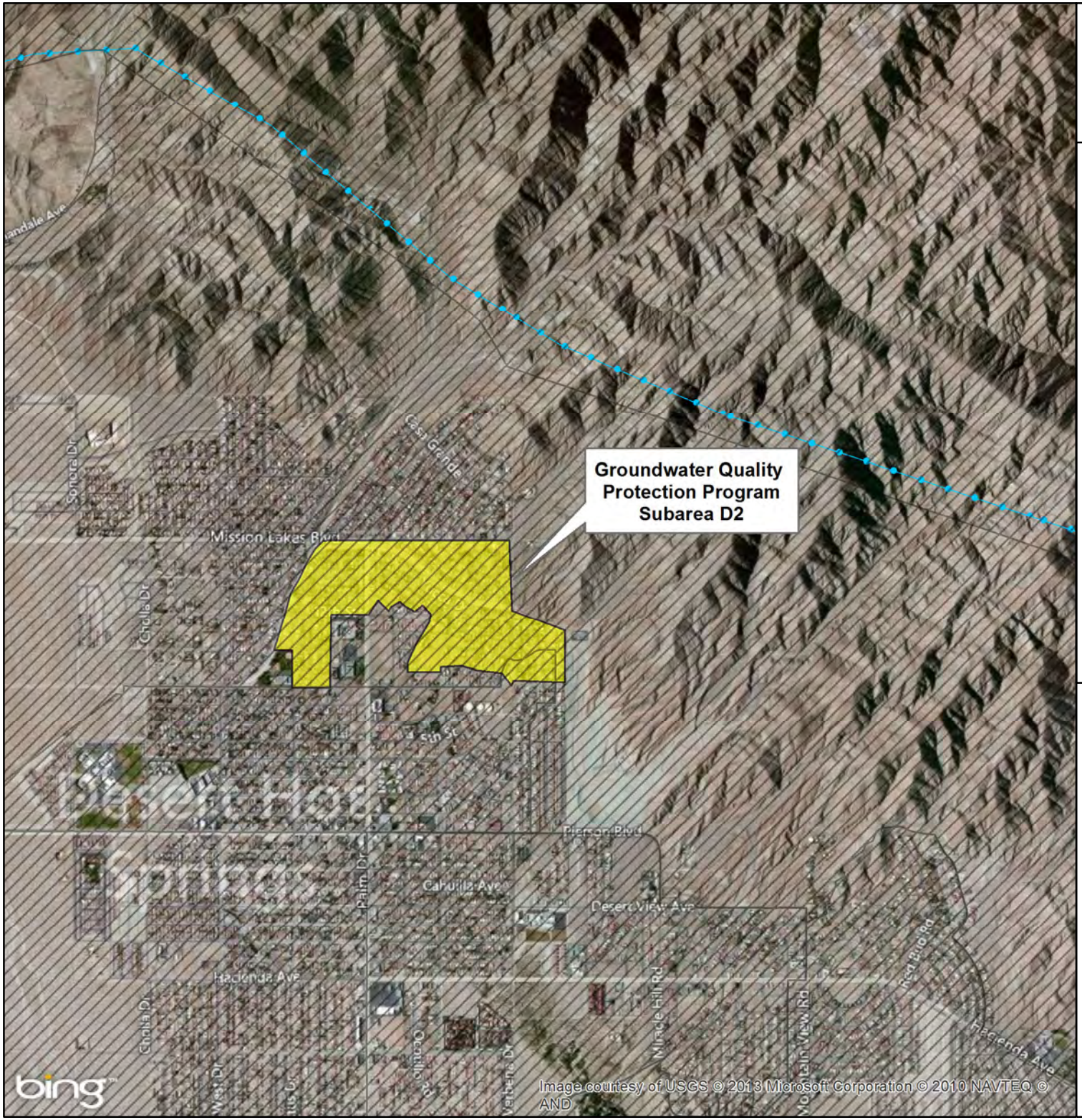
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Date Updated: November 2010
Made By: DNF
Department: RMC Water & Environment



CVIRWMP Project Locations
Groundwater Protection Program

- Groundwater Protection Program
- Colorado River Aqueduct
- Coachella and All American Canals
- Whitewater River Stormwater Channel
- Interstate Hwys.
- Lakes
- Colorado River Funding Area
- Disadvantaged Communities

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Date Updated: November 2010
Made By: DNF
Department: RMC Water & Environment



CVIRWMP Project Locations
San Antonio Del Desierto

- Proposed Sewer Connection
- Colorado River Aqueduct
- Coachella and All American Canals
- Whitewater River Stormwater Channel
- Interstate Hwys.
- Lakes
- Colorado River Funding Area
- Disadvantaged Communities

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Date Updated: November 2010
Made By: DNF
Department: RMC Water & Environment



CVIRWMP Project Locations
Torres-Martinez Ave 64

- Connection to CVWD
- Tribe Water Main
- Colorado River Aqueduct
- Coachella and All American Canals
- Whitewater River Stormwater Channel
- Interstate Hwys.
- Lakes
- Colorado River Funding Area
- Disadvantaged Communities

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COACHELLA VALLEY IRWMP

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Date Updated: November 2010
Made By: DNF
Department: RMC Water & Environment

Letters of Support

The following nine (9) letters of support were submitted by agencies and organizations representing DACs in the Coachella Valley Region. These letters are included as Appendix 10-1.

In support of the *Groundwater Quality Protection Program – Subarea D2:*

1. City of Desert Hot Springs
2. Chamber of Commerce and Visitors Center for the City of Desert Hot Springs
3. Desert Hot Springs Ministerial Fellowship

In support of the *San Antonio del Desierto DAC Sewer Extension Project:*

4. California Assemblymember V. Manuel Pérez
5. California Rural Legal Assistance, Inc.
6. Inland Congregations United for Change
7. San Jose Community – Bea Main Learning Center
8. Clinicas de Salud del Pueblo, Inc.

In support of the *Torres-Martinez Water Extension Project:*

9. Department of Health and Human Services – Indian Health Service

City of Desert Hot Springs

65-950 Pierson Boulevard• Desert Hot Springs • California • 92240
(760) 329-6411
www.cityofdhs.org

March 19, 2013

Coachella Valley Regional Water Management Group
C/O Patti Reyes, Coachella Valley Water District
85-995 Avenue 52
P.O. Box 1058
Coachella, CA 92236

RE: *Support for Mission Springs Water District Groundwater Protection Project*

Dear Ms. Reyes and Water Management Group Representatives:

The purpose of this letter is to extend our support for the *Groundwater Protection Program* Proposed by the Mission Springs Water District (MSWD) through the Coachella Valley Regional Water Management Group (CVWRMG), Round Two Application.

As the lowest median-income city in Riverside County, Desert Hot Springs is home to thousands of families which are unable to pay 100 percent of the cost to construct wastewater facilities to protect groundwater. Nevertheless, in 2004, a two-thirds majority of property owners voted to establish a sewer assessment district which provides funding for about 50 percent of the cost of construction.

The lifeblood of the Desert Hot Springs economy is water quality. The City's tourist-spa industry is tied to its water resources. Further, restaurants and retail stores are dependent on the influx of visitors who come to enjoy the high-quality drinking water as well as the world-renown hot water that is the foundation of the spa industry. Degradation of either of these water resources would be economically devastating to the city.

It is in the best interest of the state of California to assist the Coachella Valley Regional Water Management Group (CVRWMG) and its member agency, Mission Springs Water District, in protecting these irreplaceable resources. The City of Desert Hot Springs supports their efforts and urges the Department of Water Resources to ascribe the highest merit to the CVRWMG proposal.

Sincerely,

Yvonne Parks, Mayor
City of Desert Hot Springs

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CVWD

e/mc P Reyes
J Barrett

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Feel the Power of Nature
DESERT HOT SPRINGS
CALIFORNIA
CHAMBER OF COMMERCE
& VISITORS CENTER
11-999 Palm Drive
Desert Hot Springs, CA 92240
(760) 329-6403
www.DesertHotSprings.com

March 11, 2013

Coachella Valley Regional Water Management Group
C/O Patti Reyes, Coachella Valley Water District
85-995 Avenue 52
P.O. Box 1058
Coachella, CA 92236

RE: *Support for Mission Springs Water District Groundwater Protection Project*

Dear Ms. Reyes and Water Management Group Representatives:

The Desert Hot Springs Chamber of Commerce, representing over 225 businesses in the greater Desert Hot Springs region supports for the *Groundwater Protection Program* Proposed by the Mission Springs Water District (MSWD) through the Coachella Valley Regional Water Management Group (CVWRMG), Round Two Application.

The Business community recognizes the importance of water quality as it pertains to community health and wellness as well as the local economy. Nearly every business in the Desert Hot Springs region benefits from the notoriety of the water quality and from the tourist who come to experience the waters each year. Degradation of local water resources would be economically devastating to the city.

The Desert Hot Springs community is home to thousands of low- and very low-income families. In 2004, two-thirds of the voting property owners voted to establish a sewer assessment district which provided seed funding for construction of the sanitary sewer system in order to protect groundwater. Match funding through the Proposition 84 IRWM program is necessary to assist the community in realizing its goal and securing groundwater for coming generations.

The Desert Hot Springs Chamber of Commerce, with its membership, endorses MSWD's efforts to protect water quality and believe that it is in the best interest of the state of California to assist in this process by funding the Coachella Valley Regional Water Management Group (CVRWMG) grant application.

Sincerely,

Heather Coladonato
CEO

SCANNED
SCAN/SHRED

March 13, 2013

Coachella Valley Regional Water Management Group
C/O Patti Reyes, Coachella Valley Water District
85-995 Avenue 52
P.O. Box 1058
Coachella, CA 92236

RE: *Support for Mission Springs Water District Groundwater Protection Project*

Dear Ms. Reyes and Water Management Group Representatives:

The purpose of this letter is to extend our support for the *Groundwater Protection Program* Proposed by the Mission Springs Water District (MSWD) through the Coachella Valley Regional Water Management Group (CVWRMG), Round Two Application.

The Desert Hot Springs Ministerial Fellowship—an organization representing twenty churches in the greater Desert Hot Springs region—is acutely aware of the needs of the community. As the lowest median-income city in Riverside County, it is highly unlikely that the residents of the region will be able to afford the prohibitive cost of constructing sanitary sewers to protect groundwater resources, and the local economy, on their own. Nevertheless, the Mission Springs Water District has informed this organization that the community has committed to half of the costs through formation of an assessment district. That funding—nearly $32 million—is only available as match funding is identified and secured.

The Ministerial fellowship supports the proposal of the Coachella Valley IRWM in bringing these much needed funds to the Desert Hot Springs DAC and urges the Department of Water Resources to fully fund the proposed CVRWMG programs.

Sincerely,

Paul E. Miller

Reverend Paul E. Miller

President

STATE CAPITOL
P.O. BOX 942849
Room 4112
SACRAMENTO, CA 94249
(916) 319-2056
FAX (916) 319-2156

Assembly
California Legislature

V. MANUEL PÉREZ
ASSEMBLYMEMBER, FIFTY-SIXTH DISTRICT

STANDING COMMITEES:
Government Organization
Health
Jobs, Economic Development, and the Economy
Revenue & Taxation
Rules

March 13, 2013

Coachella Valley Regional Integrated Water Management Group
C/O Patti Reyes, Coachella Valley Water District
85-995 Avenue 52
PO Box 1058
Coachella, CA 92236

Re: Support for St. Anthony MHP Waste Water Project

Dear Ms. Reyes and Water Management Group Representatives:

I am writing to express my support for Pueblo Unido Community Development Corporation's (PUCDC) application to secure funding from the State Water Resources under Proposition 84 for the project in reference.

Pueblo Unido CDC (PUCDC) proposes to redevelop San Antonio del Desierto, also known as St. Anthony MHP. As part of this project PUCDC is seeking to extend sewer sanitary collection services to the park and replace existing sewer lagoons. It is my understanding that San Antonio del Desierto is currently operating five (5) anaerobic sewer lagoons, whose proximity to the residents is extremely close, 150 feet. As representative of the 56th Assembly District, I appreciate the nature of this project as it seeks to protect the health of our predominantly farmworker residents as well as our ground water.

Since PUCDC took over the management in January 2010 critical milestones have been achieved to stabilize the existing unhealthy conditions at the park including the implementation of a Point-of-Entry Reverse Osmosis water treatment station, and substantial electrical repairs. Furthermore, PUCDC has obtained a Conditional Use Permit (CUP03645) which requires the connection of sewer services to the CVWD's force main located north of the park.

PUCDC has formed strong collaboration and support from the park residents, the Riverside County Counsel, the California Rural Legal Assistance, and The Riverside County Transportation and Land Management Agency to ensure the success of the project. This is a testimony of leadership and ability to gather local resources to benefit disadvantaged communities living in substandard conditions.

Please feel free to contact Silvia Paz if my office can be of assistance to you regarding this matter.

Sincerely,

V. Manuel Perez

V. MANUEL PÉREZ
Assemblymember, District 56

DISTRICT OFFICES

RIVERSIDE COUNTY
45-677 Oasis St., Indio, CA 92201
(760) 342-8047 / FAX (760) 347-8704

IMPERIAL COUNTY
1625 W. Main St., #220, El Centro, CA 92243
(760) 336-8912 / FAX (760) 336-8914

CALIFORNIA RURAL LEGAL ASSISTANCE, INC.

MIGRANT FARMWORKER PROJECT, Coachella Regional Office

LSC

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1460 6th Street
Coachella, CA 92236
(760) 398-7261
(760) 398-1050 (fax)
www.crla.org

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Blaz Gutierrez
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Laura Massie
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Ruth Estrada
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José R. Padilla
Executive Director
Luis C. Jaramillo
Deputy Director
Ralph Santiago Abascal
General Counsel
(1934-1997)

William G. Hoerger
Ilene J. Jacobs
Michael Meuter
Cynthia Rice
Directors of Litigation, Advocacy, and Training

OTHER REGIONAL OFFICES

Arvin	Oxnard [Basic]
Delano	Paso Robles
El Centro	Salinas
Fresno	San Luis Obispo
Gilroy	Santa Barbara
Madera	Santa Cruz
Marysville	Santa Maria
Modesto	Santa Rosa
Monterey	Stockton
Oceanside	Watsonville
Oxnard (Migrant)	

March 6, 2013

Coachella Valley Regional Integrated Water Management Group
C/O Patti Reyes, Coachella Valley Water District
85-995 Avenue 52
PO Box 1058
Coachella, CA 92236

Re; Support for St. Anthony MHP Waste Water Project

Dear Mrs. Reyes and Water Management Group Representatives:

I am writing to express my support for Pueblo Unido Community Development Corporation (PUCDC) application to secure funding from the State Water Resources under Proposition 84 for the project in reference.

Pueblo Unido CDC (PUCDC) proposes to redevelop San Antonio del Desierto, also known as St. Anthony MHP. As part of this project PUCDC is seeking to extend sewer sanitary collection services to the park and replace existing sewer lagoons. Since PUCDC took over the management in January 2010 critical milestones have been achieved to stabilize the existing unhealthy conditions at the park including the implementation of a Point-of-Entry Reverse Osmosis water treatment station, and substantial electrical repairs. Furthermore, PUCDC has obtained a Conditional Use Permit (CUP03645) which requires the connection of sewer services to the CVWD's force main located north of the park.

PUCDC has formed strong collaboration and support from "La Union Hace la Fuerza", a grassroots movement formed by leaders at the park, the Riverside County Counsel, the California Rural Legal Assistance, and The Riverside County Transportation and Land Management Agency to ensure the success of the project. This is a testimony of leadership and ability to gather local resources to benefit disadvantaged communities living in substandard conditions.

Please feel free to contact me if my office can be of assistance to you regarding this matter.

Sincerely,

Rosalio Castro
Directing Attorney

ICUC

Inland Congregations United for Change

"Unlocking the POWER of People"

March 6, 2013

Coachella Valley Regional Integrated Water Management Group
C/O Patti Reyes, Coachella Valley Water District
85-995 Avenue 52
PO Box 1058
Coachella, CA 92236

Re; Support for St. Anthony MHP Waste Water Project

Dear Mrs. Reyes and Water Management Group Representatives:

I am writing to express my support for Pueblo Unido Community Development Corporation (PUCDC) application to secure funding from the State Water Resources under Proposition 84 for the project in reference.

Pueblo Unido CDC (PUCDC) proposes to redevelop San Antonio del Desierto, also known as St. Anthony MHP. As part of this project PUCDC is seeking to extend sewer sanitary collection services to the park and replace existing sewer lagoons. Since PUCDC took over the management in January 2010 critical milestones have been achieved to stabilize the existing unhealthy conditions at the park including the implementation of a Point-of-Entry Reverse Osmosis water treatment station, and substantial electrical repairs. Furthermore, PUCDC has obtained a Conditional Use Permit (CUP03645) which requires the connection of sewer services to the CVWD's force main located north of the park.

PUCDC has formed strong collaboration and support from "La Union Hace la Fuerza", a grassroots movement formed by leaders at the park, the Riverside County Counsel, the California Rural Legal Assistance, and The Riverside County Transportation and Land Management Agency to ensure the success of the project. This is a testimony of leadership and ability to gather local resources to benefit disadvantaged communities living in substandard conditions.

Inland Congregations United for Change has been a partner with PUCDC for many years now and can only speak of the impactful grass-roots organizing efforts they have lead in the Coachella Valley. I have full knowledge that Pueblo Unido has the capacity, leadership, and partnerships to carry this project forward. Once more, I, on behalf of ICUC, fully support the project in reference and ask that the Coachella Valley Regional Integrated Water Management Group do as well.

Sincerely,

Karen Borja

Inland Congregations United for Change
Community Organizer- Coachella Valley

Appendix 10-1: DAC Letters of Support



March 14, 2013

Coachella Valley Regional Integrated Water Management Group
C/O Patti Reyes, Coachella Valley Water District
85-995 Avenue 52
PO Box 1058
Coachella, CA 92236

Re:Support for St. Anthony MHP Waste Water Project

Dear Mrs. Reyes and Water Management Group Representatives:

I am writing to express my support for Pueblo Unido Community Development Corporation (PUCDC) application to secure funding from the State Water Resources under Proposition 84 for the project in reference.

Pueblo Unido CDC (PUCDC) proposes to redevelop San Antonio del Desierto, also known as St. Anthony MHP. As part of this project PUCDC is seeking to extend sewer sanitary collection services to the park and replace existing sewer lagoons. Since PUCDC took over the management in January 2010 critical milestones have been achieved to stabilize the existing unhealthy conditions at the park including the implementation of a Point-of-Entry Reverse Osmosis water treatment station, and substantial electrical repairs. Furthermore, PUCDC has obtained a Conditional Use Permit (CUP03645) which requires the connection of sewer services to the CVWD's force main located north of the park.

PUCDC has formed strong collaboration and support from "La Union Hace la Fuerza", a grassroots movement formed by leaders at the park, the Riverside County Counsel, the California Rural Legal Assistance, and The Riverside County Transportation and Land Management Agency to ensure the success of the project. This is a testimony of leadership and ability to gather local resources to benefit disadvantaged communities living in substandard conditions.

Please feel free to contact me 760-702-7056 cell number if I can be of assistance to you regarding this matter.

Sincerely,

Sr. Gabi Williams, OP
Social Concerns
San Jose Community
760-702-7056

CLINICAS DE SALUD DEL PUEBLO, INC.

"OUR SUCCESS IS MEASURED BY THE LIVES WE CHANGE"

CORPORATE OFFICES
1166 K Street
Brawley, CA 92227
Telephone: (760) 344-9951
Fax: (760) 344-5840
Dental: (760) 344-3583
Fax: (760) 344-8480

BRAWLEY CLINIC
900 Main Street
Brawley, CA 92227
Telephone: (760) 344-6471
Fax: (760) 344-8410
Medical Records
Fax: (760) 344-351-1540

BLYTHE CLINIC
321 W. Hobsonway, Ste. C
Blythe, CA 92225
Telephone: (760) 922-4981
Fax: (760) 922-4442

CALEXICO CLINIC
223 W Cole Blvd.
Calexico, CA 92231
Telephone: (760) 357-2020
Fax: (760) 357-1056
Dental: (760) 357-2748
Fax#: (760) 357-1056

COACHELLA CLINIC
49-111 HWY. 111, Suite 4
Coachella, CA 92236
Telephone: (760) 393-0555
Fax: (760) 393-0522

EHMAN WOMEN'S CENTER
197 w. Legion Road, Suite 300/400
Brawley, CA 92227
Telephone: (760-344-7750)
Fax: (760) 344-1410

EL CENTRO CLINIC
651 Wake Avenue, Suite A
El Centro, CA 92243
Telephone: (760) 352-2257
Fax: (760) 352-4579

MECCA CLINIC
91275 66th Avenue, Suite 500
P.O. Box 1378
Mecca, CA 92254
Telephone: (760) 396-1249
Fax: (760) 396-1253
Dental: (760) 396- 0521, Suite 300
Fax: (760) 396-0529

NILAND CLINIC
8027 Hwy 111
Niland, CA 92257
Telephone: (760) 359-0110
Fax: (760) 359-3629

WEST SHORES
1298 S. Marina West (S22), Suite B
Salton Sea, CA 92275
Telephone: (760) 394-4338
Fax: (760) 394-4339

WINTERHAVEN CLINIC
2133 Winterhaven Drive
P.O. Box 788
Winterhaven, CA 92283
Telephone: (760) 572-2700
Fax: (760) 572-2255

BRAWLEY WIC NUTRITION
561 E Street
Brawley, CA 92227
Telephone: (760) 344-9606
Fax: (760) 344-5063

CALEXICO WIC NUTRITION
2451 Rockwood Avenue, Suite 109
Calexico, CA 92231
Telephone: (760) 768-5330
Fax: (760) 768-5333

EL CENTRO WIC NUTRITION
2600 Thomas drive
El Centro, CA 92243
Telephone: (760) 353-2777
Fax: (760) 353-2555

March 13, 2013

Coachella Valley Regional Integrated Water Management Group
C/O Patti Reyes, Coachella Valley Water District
85-995 Avenue 52
PO Box 1058
Coachella, CA 92236

Re; Support for St. Anthony MHP Waste Water Project

Dear Mrs. Reyes and Water Management Group Representatives:

I am writing to express my support for Pueblo Unido Community Development Corporation (PUCDC) application to secure funding from the State Water Resources under Proposition 84 for the project in reference.

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Please feel free to contact me if my office can be of assistance to you regarding this matter.

Sincerely,

Yvonne Bell
Chief Executive Officer

DEPARTMENT OF HEALTH & HUMAN SERVICES

PUBLIC HEALTH SERVICE
INDIAN HEALTH SERVICE

ESCONDIDO DISTRICT OFFICE
1320 W. Valley Parkway, Suite 309
ESCONDIDO, CA 92029

March 14, 2013

Honorable Mary L. Resvaloso, Tribal Chairperson
Torres Martinez Desert Cahuilla Indians
PO Box 1160 - 66725 Martinez Road
Thermal, CA 92274

Re: Support for the Connection of Torres Martinez Ave 64 Water Distribution System to the CVWD Water Supply System

Madam Chairperson:

The purpose of this letter is to express IHS support for the Torres Martinez Desert Cahuilla Indians' pursuit of grant funding to connect the Torres Martinez Ave 64 Subdivision water distribution system to the Coachella Valley Water District (CVWD) water supply system.

The water system for this subdivision was constructed in the mid to late 1980's. It serves 34 connections (33 residential units and a church). There is no water treatment, two wells, a water storage tank, and distribution system serving this subdivision and nearby park, church, and cemetery. The primary well for this system has in the past tested near the EPA limit for arsenic, and recent test results have exceeded the State of California Maximum Contaminant Level (MCL) for perchlorate. Although perchlorate is not yet regulated by EPA, EPA is developing a perchlorate rule at the time of this letter.

The community is served by a ground-level water storage tank, which provides pressure to the system with booster pumps. When there is a power outage, all the homes on the system lose water until power is restored. Additionally, the booster pump system and pump controls were not installed properly and fail frequently. The Tribe reports that water outages in the community occur several times per month. Water outages occur at random and inconvenient times, leaving all the homes with no access to water – no ability to shower or flush toilets, no drinking water coming from the tap. Until the water is restored (usually a few hours later), the residents either must leave home to buy water to drink or live without any source of water.

These recurring water outages are not only an inconvenience to homeowners in the subdivision; they represent a real risk to human health. When a water system has an outage and loses positive pressure, groundwater, drainage water, or sewage collected near water pipes can infiltrate into the water distribution system. Given the failing septic systems in the community there is a chance that raw sewage could infiltrate into the water

distribution system. Contamination of a water system with sewage can cause numerous gastrointestinal diseases, with significant and potentially fatal consequences.

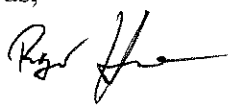
Many different solutions to these problems have been considered in informal discussions between IHS and the Tribe over the past several years. While the water outages could be helped by replacing the booster pump system and electrical controls, and providing a backup generator, building arsenic and/or perchlorate treatment systems would be very costly, particularly for operation and maintenance (O&M). Replacing the existing facilities would also not address persistent O&M difficulties the Tribe has faced, as documented extensively by EPA.

The best solution to this situation would be to connect the Avenue 64 housing subdivision to community water provided by Coachella Valley Water District (CVWD). The system is located about one mile away at the intersection of Avenue 62 and Monroe St. Also, CVWD has indicated an interest in allowing the Avenue 64 housing area to connect to its community water system.

IHS has assisted the Tribe with grant applications for this project from Federal agencies, and supports their efforts to secure funding from other sources, to implement this important project. Implementation of this project will address a serious community health risk and improve the health and safety of the community.

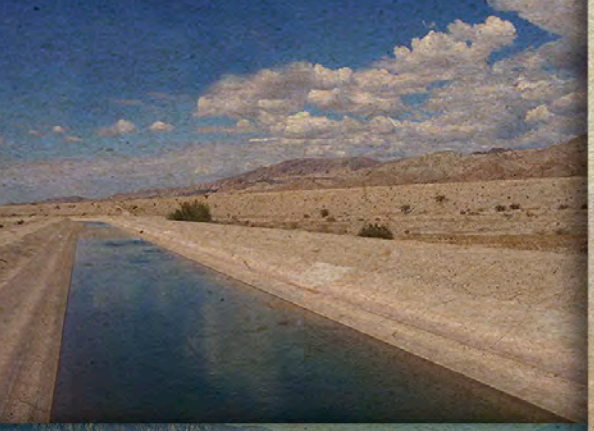
Please do not hesitate to contact me if you have any questions. I can be reached at (760) 735-6883. Thank you.

Regards,



Roger Hargrove, P.E.
Project Engineer

cc: Roland Ferrer, Torres Martinez Planning Director
Columba Quintero, Torres Martinez Grants Administrator
Laura Ward, Torres Martinez Grants Specialist







Attachment 11

GWMP, AB 1420, and
Water Meter Compliance Information

Implementation Grant, Round 2
Coachella Valley IRWM
Implementation Grant Proposal

Attachment

11

Coachella Valley Integrated Regional Water Management Implementation Grant Proposal – Round 2

GWMP, AB 1420 and Water Meter Compliance

Attachment 11 consists of the following items:

- ✓ **GWMP Self Certification Forms**

  None of the projects included within this *Coachella Valley IRWM Implementation Grant Proposal – Round 2* would directly affect groundwater levels or quality. As such, the projects included in this proposal do not require Groundwater Management Plan (GWMP) compliance in accordance with the *IRWM Grant Program Guidelines*.

- ✓ **AB 1420 Self Certification Forms**

  Coachella Valley Water District (CVWD) and Mission Springs Water District (MSWD) are both urban water suppliers that would receive grant funding, and have therefore completed and submitted AB 1420 Self-Certification Tables 1 and 2.

- ✓ **Water Meter Compliance Forms**

  CVWD and MSWD are both urban water suppliers that would receive grant funding, and have therefore completed and submitted the Water Meter Compliance forms.

GWMP Self Certification Forms

As required in the *Proposal Solicitation Package*, each proponent of a project with potential groundwater impacts must submit a GWMP (CWC §10753.7) self certification document.

None of the projects included within this *Coachella Valley IRWM Implementation Grant Proposal – Round 2* would directly affect groundwater levels or quality via extraction or recharge. Rather, several of the projects would preserve the existing groundwater supply by reducing pumping through source substitution and/or by converting on-site septic systems to municipal sewer service. Because no actions are being taken to directly impact the aquifer, the projects included in this proposal do not require GWMP compliance in accordance with the *IRWM Grant Program Guidelines*.

AB 1420 Self Certification Forms

As defined in the *IRWM Grant Program Guidelines*, all urban water suppliers must provided the required documentation of compliance with AB 1420 (CWC §10631.5) and water meter implementation (CWC §525 *et seq*.).

AB 1420 conditions the receipt of IRWM grant funds on implementation of demand management measures in compliance with CWC §10631. There are two urban water suppliers included in this grant proposal which must also comply with AB 1420 requirements: CVWD and MSWD. CVWD and MSWD both submitted AB 1420 self certification forms to DWR with the 2011 *Coachella Valley IRWM Implementation Grant Proposal – Round 1*. DWR has responded with confirmation letters that CVWD is in compliance with AB 1420 and is eligible for state grants and loans (refer to Appendix 11-1).

Water Meter Compliance Forms

CWC §529.5 requires urban water suppliers applying for IRWM grant funds to demonstrate that they meet the State's water meter requirements. There are two urban water suppliers included in this grant proposal which must also comply with Water Meter requirements: CVWD and MSWD. As CVWD and MSWD have already submitted wet (original) hard copies of these forms, Appendices 11-1 and 11-2 include the electronic versions of these forms that were previously submitted to DWR.

STATE OF CALIFORNIA – CALIFORNIA NATURAL RESOURCES AGENCY ARNOLD SCHWARZENEGGER, Governor

DEPARTMENT OF WATER RESOURCES
1416 NINTH STREET, P.O. BOX 942836
SACRAMENTO, CA 94236-0001
(916) 653-5791

File: 0541.65
0644.105.1

REC'D NOV 19 2010 CVWD

c/n/c SRobbins JBarrett PReyes

November 9, 2010

Mr. Steve Robbins
General Manager-Chief Engineer
Coachella Valley Water District
Post Office Box 1058
85-995 Avenue 52
Coachella, California 92236

Dear Mr. Robbins:

The Department of Water Resources (DWR) has reviewed the Coachella Valley Water District 's (CVWD) Self-Certification Statement – Table 1 dated September 20, 2010, regarding implementation of the Urban Best Management Practices (BMPs).

The purpose of DWR's review is to determine eligibility of CVWD to receive water management grant or loan funds. DWR has followed the *Draft AB 1420 Compliance Requirements* dated June 1, 2009. For detailed information, please visit http://www.water.ca.gov/wateruseefficiency/finance/.

Based on DWR's review of the information in Table 1, CVWD has and is currently implementing the BMPs consistent with AB 1420 and, therefore, is eligible to receive water management grant or loan funds.

DWR reserves the right to request additional information and documentation, including reports from CVWD to substantiate the accuracy of the information provided in Table 1. DWR may reverse or modify its eligibility determination and notify you and the funding agency if inaccuracies are found in the supporting documentation or in Table 1.

If you have any questions, please contact me at (916) 651-7025 or Jodi Evans at (916) 651-7026.

Sincerely,

Fethi BenJemaa
Ag Water Use Efficiency Section Chief

SCANNED

SCAN/SHRED

California State Water Resources Control Board
California Department of Water Resources
California Department of Public Health

CERTIFICATION FOR COMPLIANCE WITH WATER METERING REQUIREMENTS FOR FUNDING APPLICATIONS

Funding Agency name: Department Of Water Resources

Funding Program name: Proposition 84 Planning Grant, Round 1

Applicant (Agency name): Coachella Valley Water District

Project Title (as shown on application form): Coachella Valley Integrated Regional Water Management Planning Grant Application

Please check one of the boxes below and sign and date this form.

☐ As the authorized representative for the applicant agency, I certify under penalty of perjury under the laws of the State of California, that the agency is not an urban water supplier, as that term is understood pursuant to the provisions of section 529.5 of the Water Code.

☒ As the authorized representative for the applicant agency, I certify under penalty of perjury under the laws of the State of California, that the applicant agency has fully complied with the provisions of Division 1, Chapter 8, Article 3.5 of the California Water Code (sections 525 through 529.7 inclusive) and that ordinances, rules, or regulations have been duly adopted and are in effect as of this date.

I understand that the Funding Agency will rely on this signed certification in order to approve funding and that false and/or inaccurate representations in this Certification Statement may result in loss of all funds awarded to the applicant for its project. Additionally, for the aforementioned reasons, the Funding Agency may withhold disbursement of project funds, and/or pursue any other applicable legal remedy.

Steve Robbins
Name of Authorized Representative (Please print)

Signature

General Manager - Chief Engineer
Title

September 22, 2010
Date

AB 1420 Self- Certification Statement Table 1

Note: Table 1 documents Status of Past and Current BMP implementation.

Self-Certification Statement: The Urban Water Supplier and its authorized representative certifies, under penalty of perjury, that all information and claims, stated in this table, regarding compliance and implementation of the BMPs, including alternative conservation approaches, are true and accurate. This signed AB 1420 Self-Certification Statement Table 1, and Table 2 are the basis for granting funds by the Funding Agency. Falsification and/or inaccuracies in AB 1420 Self Certification Statement Table 1, and Table 2 and in any supporting documents substantiating such claims may, at the discretion of the funding agency, result in loss of all State funds to the applicant. Additionally, the Funding Agency, in its sole discretion, may halt disbursement of grant or loan funds, not pay pending invoices, and/or pursue any other applicable legal remedy and refer the matter to the Attorney General's Office.

Name of Signatory__ Arden Wallum General Manager 27-Dec-10

Application Date:

Proposal Identification Number: Coachella Valley CUWCC Member? Yes/No: NO

Has Urban Water Supplier submitted a 2005 Urban Water Management Plan? Yes/No: Yes Is the UWM Plan Deemed Complete by DWR? Yes/No: Yes

Applicant Name: Mission Springs Water District

Project Title:

Applicant's Contact Information: Name: Marilyn McKay Phone: 760/329-5169 E-mail: MMcKay@MSWD.org

Participants:

Retailer (List Below)	*Wholesaler (List Below)*
Mission Springs Water District	

C1	C2	C3	C4	C5			*C6	C7	**C8	**C9	**C10	C11	C12	C13	C14	C15	C16	C17	C18
				BMP Implemented by Retailers and/or Wholesalers / *BMP*			Compliance Options/Alternative Conservation Approaches (1)					BMP Is Exempt (2)			BMP Implementation Requirements Met				
BMPs required for Wholesale Supplier	BMPs required for Retail Supplier	BMPs	Retailer *Yes/No*	Wholesaler *Yes/No*	Regional *Yes/No*	BMP Checklist	Flex Track	Gallons Per Capita Per Day GPCD	Not Cost Effective	Lack of Funding	Lack of Legal Authority	CUWCC MOU Requirement Met: Retailer *Yes/No*	CUWCC MOU Requirement Met: Wholesaler *Yes/No*	Date of BMP Report Submitted to CUWCC for (2007-2008) (MOU Signatories)	Date BMP Implementation Data Submitted to DWR in CUWCC Format (Non MOU Signatories) (3)	All Supporting Documents have been Submitted Yes/No			
	✓	BMP 1 Water Survey for Single/Multi-Family Residential Customers	Yes			✓									Reported in 2005 UWMP and will be updated in 2010 UWMP Update	Yes			
	✓	BMP 2 Residential Plumbing Retrofit	Yes			✓									Reported in 2005 UWMP and will be updated in 2010 UWMP Update	Yes			
✓	✓	BMP 3 System Water Audits, Leak Detection	Yes			✓									Reported in 2005 UWMP and will be updated in 2010 UWMP Update	Yes			
✓	✓	BMP 3 Leak Repairs	Yes			✓									Reported in 2005 UWMP and will be updated in 2010 UWMP Update	Yes			

C1	C2	C3	C4	C5	*C6	C7	**C8	**C9	**C10	C11	C12	C13	C14	C15	C16	C17	C18
				BMP Implemented by Retailers and/or Wholesalers / *BMP*			**Compliance Options/Alternative Conservation Approaches (1)**			**BMP Is Exempt (2)**			**BMP Implementation Requirements Met**				
BMPs required for Wholesale Supplier	BMPs required for Retail Supplier	BMPs	Retailer *Yes/No*	Wholesaler *Yes/No*	Regional *Yes/No*	BMP Checklist	Flex Track	Gallons Per Capita Per Day GPCD	Not Cost Effective	Lack of Funding	Lack of Legal Authority	CUWCC MOU Requirement Met: Retailer *Yes/No*	CUWCC MOU Requirement Met: Wholesaler *Yes/No*	Date of BMP Report Submitted to CUWCC for (2007-2008) (MOU Signatories)	Date BMP Implementation Data Submitted to DWR in CUWCC Format (Non MOU Signatories) (3)	All Supporting Documents have been Submitted Yes/No
	✓	BMP 4 Metering with Commodity Rates for All New connections	Yes			✓									Reported in 2005 UWMP and will be updated in 2010 UWMP Update	Yes
	✓	BMP 4 Retrofit of Existing Connections	N/A			N/A									All metered	Yes
	✓	BMP 5 Large Landscape Conservation Programs and Incentives	Yes			✓									Reported in 2005 UWMP and will be updated in 2010 UWMP Update	Yes
	✓	BMP 6 High-Efficiency Washing Machine Rebate Programs	Exempt					✓	✓						Alternate compliance will be documented in 2010 UWMP Update	No
✓	✓	BMP 7 Public Information	Yes			✓									Reported in 2005 UWMP and will be updated in 2010 UWMP Update	Yes
✓	✓	BMP 8 School Education	Yes			✓									Reported in 2005 UWMP and will be updated in 2010 UWMP Update	Yes
	✓	BMP 9 Conservation programs for Commercial, Industrial, and Institutional (CII) Accounts	Yes			✓									Reported in 2005 UWMP and will be updated in 2010 UWMP Update	Yes
✓		BMP 10 Wholesale Agency Assistance Programs	N/A								✓				Not applicable	
	✓	BMP 11 Conservation Pricing	Yes			✓									Reported in 2005 UWMP and will be updated in 2010 UWMP Update	Yes
✓	✓	BMP 12 Conservation Coordinator	Yes			✓									Reported in 2005 UWMP and will be updated in 2010 UWMP Update	Yes
	✓	BMP 13 Water Waste Prohibitions	Yes			✓									Reported in 2005 UWMP and will be updated in 2010 UWMP Update	Yes
	✓	BMP 14 Residential ULFT Replacement Programs	Exempt					✓	✓						Alternate compliance will be documented in 2010 UWMP Update	No

***C6:** Wholesaler may also be a retailer (supplying water to end water users)

****C8, **C9, ****, and C10:** Agencies choosing an alternative conservation approach are responsible for achieving water savings equal or greater than that which they would have achieved using only BMP list.

(1) For details, please see: http://www.cuwcc.org/mou/exhibit-1-bmp-definitions-schedules-requirements.aspx.
(2) BMP is exempt based on cost-effectiveness, lack of funding, and lack of legal authority criteria as detailed in the CUWCC MOU
(3) Non MOU signatories must submit to DWR reports and supporting documents in the same format as CUWCC.

California State Water Resources Control Board
California Department of Water Resources
California Department of Public Health

CERTIFICATION FOR COMPLIANCE WITH WATER METERING REQUIREMENTS FOR FUNDING APPLICATIONS

Funding Agency name: Department of Water Resources

Funding Program name: Prop 84 Implementation Grant

Applicant (Agency name): Mission Springs Water District

Project Title (as shown on application form): Groundwater Quality Protection Project - Mission Springs Water District

Please check one of the boxes below and sign and date this form.

☐ As the authorized representative for the applicant agency, I certify under penalty of perjury under the laws of the State of California, that the agency is not an urban water supplier, as that term is understood pursuant to the provisions of section 529.5 of the Water Code.

☒ As the authorized representative for the applicant agency, I certify under penalty of perjury under the laws of the State of California, that the applicant agency has fully complied with the provisions of Division 1, Chapter 8, Article 3.5 of the California Water Code (sections 525 through 529.7 inclusive) and that ordinances, rules, or regulations have been duly adopted and are in effect as of this date.

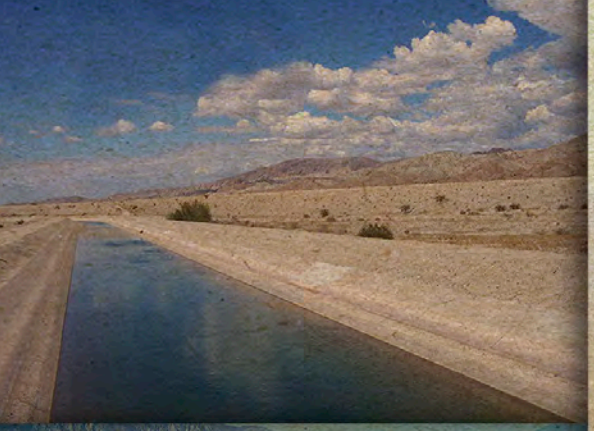
I understand that the Funding Agency will rely on this signed certification in order to approve funding and that false and/or inaccurate representations in this Certification Statement may result in loss of all funds awarded to the applicant for its project. Additionally, for the aforementioned reasons, the Funding Agency may withhold disbursement of project funds, and/or pursue any other applicable legal remedy.

Arden Wallum
Name of Authorized Representative (Please print)

Signature

General Manager
Title

12/27/2010
Date







Attachment 12

Consent Form

Implementation Grant, Round 2

Coachella Valley IRWM
Implementation Grant Proposal

Attachment

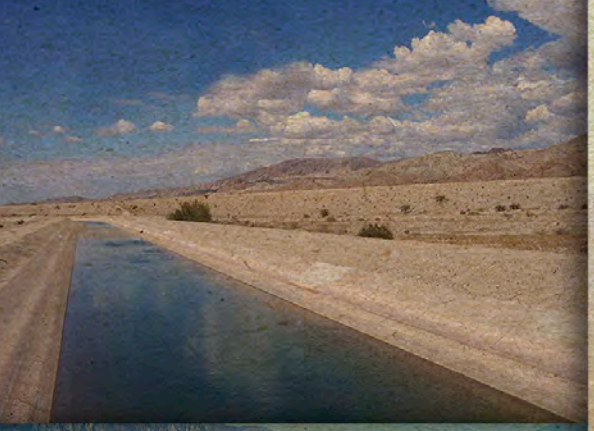
12

Coachella Valley Integrated Regional Water Management Implementation Grant Proposal – Round 2

Consent Form

Attachment 12 is not applicable to the *Coachella Valley IRWM Implementation Grant Proposal – Round 2*, because the Coachella Valley IRWM Plan was not adopted on or before September 30, 2008. The Coachella Valley IRWM Plan, adopted by all five Coachella Valley Regional Water Management Group (CVRWMG) partners and several project sponsors in December 2010, is included in Appendix 1-4 (refer to Attachment 1).

Although the Coachella Valley IRWM Plan was adopted after 2008, the CVRWMG via Coachella Valley Water District (CVWD) has already entered into a binding agreement (Agreement No. 4600009342) with DWR to update the IRWM Plan with provisions set forth in the 2012 *IRWM Grant Program Guidelines*. This IRWM Plan Update is currently underway and is anticipated for adoption in Spring 2014.







Attachment 13

IRWM Plan — Reduce Delta Water Dependence

Implementation Grant, Round 2

Coachella Valley IRWM
Implementation Grant Proposal

Attachment 13

Coachella Valley Integrated Regional Water Management Implementation Grant Proposal – Round 2

Reduce Delta Water Dependence

Attachment 13 consists of the following items:

- ✓ **Summary of IRWM Plan Relating to Reducing Delta Water Dependence**

  This attachment contains information describing how the Coachella Valley IRWM Plan will reduce future additional dependence on the Sacramento-San Joaquin Delta (Delta) for water supply.

- ✓ **Assurances that IRWM Plan Update Will Continue Reducing Delta Water Dependence**

  The Coachella Valley Regional Water Management Group (CVRWMG) is committed to implementation and revision of the IRWM Plan in ways that continue to reduce future additional dependence on the Sacramento-San Joaquin Delta.

This attachment summarizes the portions of the 2010 Coachella Valley IRWM Plan that address reduced dependence on future additional supplies from the Sacramento-San Joaquin Delta and documents relevant Plan excerpts to support this summary.

Summary of IRWM Plan Relating to Reducing Delta Water Dependence

The Coachella Valley IRWM Plan addresses reduced water supply dependence on the Sacramento-San Joaquin Delta water in four areas:

1) IRWM Plan Objectives (Chapter 4);
2) Considering desalination as a means to increase local water supply (Chapter 6);
3) Adapting resource management strategies to climate change (Chapter 6); and
4) IRWM Plan regional priority of addressing reduced supply reliability (Chapter 7).

Each of these four areas is described below with Plan excerpts provided for support and documentation.

IRWM Plan Objectives Relating to Reducing Delta Water Dependence

The IRWM Plan Objectives function as a means to accomplish the five regional IRWM Plan goals. Subsequently, projects to be included in the IRWM Plan were evaluated based on their ability to comply with and achieve the objectives and goals set out by the Plan. The Plan contains four objectives that explicitly relate to reducing dependence on the Sacramento-San Joaquin Delta for water supply—Objectives 1, 3, 4 and 9—as listed in *Chapter 4: Objectives*.

Chapter 4: Objectives, Section 4.1.1 Determining Objectives (page 4-3 to 4-5)

Objective 1: Provide reliable water supply for residential and commercial, agricultural community, and tourism needs.

The focus of this objective is to meet the requirements of Goal 1 (optimize local water supply reliability). The Valley's 448,000 residents and $576M agricultural economy are both dependant on a reliable water supply. Additionally, regional growth forecasts project that water demands within

the region are expected to increase despite conservation efforts (see Figure 3-1 in *Chapter 3 Issues and Needs, Section 3.1 Demand*). Adequate water supplies must be identified for all sectors of the Valley economy, including residential and commercial, agricultural, and tourism needs. Emphasizing local solutions that increase reliability would potentially reduce future additional demand for imported water supply from the Sacramento-San Joaquin Delta by encouraging development of other, more reliable sources of water.

…

Objective 3: Secure reliable imported water supply, including restoring/improving reliability of State Water Project supply and securing other imported water supplies.

The focus of this objective is to meet the requirements of Goal 1 (optimize local water supply reliability).As documented in the *California Water Plan 2009 Update* (DWR 2009), water allocation, environmental, and hydrologic constraints present significant challenges to the sustainability of historic State Water Project and Colorado River supplies, particularly during long-term droughts. In order to serve projected growth while limiting groundwater overdraft, new or expanded imported water supplies must be secured for the Coachella Valley. This objective aims at securing reliable (non-SWP) imported water supplies and/or encouraging the Region to engage in water transfers that would potentially reduce Sacramento-San Joaquin Delta dependence. For example, collaboration with coastal water purveyors could potentially provide a new source of ocean desalinated water and reduce the region's future dependence on SWP supplies.

…

Objective 4: Maximize local supply opportunities, including water conservation, water recycling and source substitution, and capture and infiltration of runoff.

The focus of this objective is to meet the requirements of Goal 1 (optimize local water supply reliability). Diversification of regional water portfolios is a key element of this IRWM Plan. Water conservation (reducing water demand and use) is the Valley's most cost effective option and is therefore a central component of the region's diversification program. In order to meet the State's 20x2020 Water Conservation Plan (February 2010) goals for the Colorado River Funding Area…all five local water purveyors are implementing water conservation measures. The CVRWMG agencies are also focusing on expansion of recycled water systems, source substitution, desalination of agricultural drain water, and stormwater capture and reuse. Maximizing local supply opportunities is the primary climate change adaptation strategy being employed by the CVRWMG. Source substitution will also help the CVRWMG mitigate potential climate change by reducing energy consumption, especially the energy embedded in water use, and ultimately reduce GHG emissions. Increasing local supply opportunities would also potentially reduce the need for future additional imported water supply from the Sacramento-San Joaquin Delta.

…

Objective 9: Optimize conjunctive use of available water resources.

The focus of this objective is to meet the requirements of Goal 4 (coordinate and integrate water resource management). Conjunctive use involves closer coordination between imported surface water supply and other supply sources, including groundwater, recycled water, stormwater, and flood flows. Optimizing conjunctive use will contribute to meeting future water demands, while combating challenges associated with supply unreliability and/or climate change. Optimizing conjunctive use will also contribute to possible climate change adaptation by more efficiently managing water supply and, therefore, reducing associated energy use and GHG emissions. In addition, by improving efficiency through conjunctive use, the Region could potentially reduce future additional demand for imported water from the Sacramento-San Joaquin Delta.

Desalination as a Means to Reduce Delta Water Dependence

Chapter 6: Resource Management Strategies of the IRWM Plan provides a comprehensive range of resource management strategies considered to achieve the goals and objectives of the IRWM Plan, and provides examples of how the Region is currently implementing these strategies. One of the strategies used to increase local water supply to the region is desalination. Desalination would provide a reliable, long-term local water supply, thus reducing dependence on imported supplies, including those from the Sacramento-San Joaquin Delta.

Chapter 6: Resource Management Strategies, Section 6.4.3 Increase Water Supply (page 6-14)

Desalination

Desalination has been identified as a potential solution for increasing water supplies and reducing groundwater overdraft for the Coachella Valley IRWM region. However, desalination requires complicated technologies and is a high energy consuming technology. Desalination offers many potential benefits including: increases water supply and reliability during drought periods, reduced dependency on imported supplies by developing a local supply source, protection of public health, and facilitates more recycling and reuse, given the lower salinity of the source.

Several recommendations identified by the *California Water Plan Update 2009* to facilitate desalination strategies include:

- Desalination projects should be given the same funding opportunities as other water supply and reliability projects,
- Ensure most economical and environmentally appropriate desalination technology is utilized,
- Project sponsors need to ensure planning of desalination projects is a collaborative process that engages key stakeholders, the general public, and permitting agencies.

Coachella Valley Efforts

Desalination strategies being considered by the Coachella Valley IRWM region are listed below.

- **CVWD Desalination Pilot Project**. CVWD recently received a grant from DWR's Proposition 50 Water Desalination Proposal. The proposal requested funds for a pilot desalination project to compare reverse osmosis with solar still "dewvaporation" of agricultural drainage runoff within the Coachella Valley. CVWD will receive $596,000 from the program and will match the same for a total pilot project cost of approximately $1.2 million. The plan is to have 11,000 AFY of agriculture drain water be desalted.

Adapting Resource Management Strategies to Climate Change and Reduce Delta Water Dependence

Climate change in California could potentially present uncertainties relating to the availability of Sacramento-San Joaquin Delta water supply for Southern California (including the Coachella Valley). As a result, the Region is looking to implement management practices that would reduce dependence on Delta water supply, also presented in *Chapter 6: Resource Management Strategies.*

Chapter 6: Resource Management Strategies, Section 6.5: Adapting Resource Management Strategies to Climate Change (page 6-34)

Adapting Resource Management Strategies to Climate Change

The variability of location, timing, amount, and form of precipitation in California, suggested as a result of climate change, could present some uncertainty to the availability of future SWP's delivery capabilities and future SWP deliveries. DWR has determined that the Sierra snowmelt is shrinking and that melting is occurring earlier, shifting runoff from the spring further into the winter and causing winter flooding. Changes in precipitation pattern and quantity throughout the Southwest may also impact potential water supply availability from the Colorado River. Concerns about climate uncertainty have resulted in the need to adapt existing flood management and water supply systems in response to changing conditions.

The *2009 SWP Delivery Reliability Report* (DWR 2009) is intended to help local agencies, cities, and counties that use SWP water to develop adequate and affordable water supplies for their communities now and in the future. The information provided in this report can be used by local agencies in preparing or amending their water management plans and identifying the new facilities or programs that may be necessary to meet future water demands. A new feature of the *2009 SWP Delivery Reliability Report* is the estimation of possible reduction of SWP delivery reliability due to future climate changes and sea level rises. As vulnerability tools and assessments are developed, additional adaptation strategies will be identified to address the potential region-specific impacts of climate change.

Achievable "no regret" management practices for tackling climate change concerns that Coachella Valley can employ include:

- continued investment in local water conservation;
- diversification of local water supply portfolio;
- practicing integrated flood management;
- increasing conjunctive use of available water supplies;
- protecting and restoring water-related ecosystems;
- increasing water reuse and recycling;
- monitoring local and regional activities;
- tracking related legislation;
- investigating water supply/energy relationships and coordinating with larger water utilities; and
- following the State's required adaptation strategies and legislation.

In order to further address these predictions, the region may attempt to incorporate some of the strategies outlined in the *2009 California Climate Adaption Strategy Handbook* (CNRA 2009). The document summarizes the best known science on climate change impacts in seven specific sectors and provides recommendations on how to manage against those threats.

The *2009 California Climate Adaption Strategy Handbook* defines climate change adaptation as adjustments to the natural or human systems due to actual or expected climate changes in an effort to minimize harm or take advantage of beneficial opportunities (CNRA 2009), while climate change mitigation aims at directly reducing the sources of climate change, such as GHGs. To effectively address the impacts of climate change, both climate change adaptation and mitigation strategies should complement each other.

RMS that are implemented to manage water resources can also address climate change adaptation and/or mitigation. Table 6-3was extracted from the *California Water Plan Update 2009*; it categorizes resource management strategies and identifies GHG reduction opportunities associated with each RMS.

Finally, project-level CEQA analysis will include detailed climate change analysis, including generation and mitigation of GHG emissions. In preparing project-level GHG emissions analysis, project proponents should estimate GHG emissions from the project; establish significance criteria; identify those project components that may support carbon sequestration; and, if applicable, explain how the project may help in adapting to potential effects of climate change. Further, DWR will be a responsible agency for such project-level CEQA analysis, and project proponents shall follow the guidelines established by DWR with respect to project-level GHG analysis.

Water Conservation to Reduce Delta Water Dependence

The CVRWMG understands the issues affecting future supply reliability from the Delta, thus they are strongly encouraging water conservation and source substitution to reduce Delta water dependence, as emphasized in the Regional Priorities section of *Chapter 7: Project Evaluation and Prioritization*.

Chapter 7: Project Evaluation and Prioritization, Section 7.1 Regional Priorities (page 7-2)

Priority 6: Address Reduced Reliability

Developing a better understanding of the State's SWP priorities and issues affecting reliability will help the Region coordinate its efforts and resources towards improving future supply reliability. In the meantime, the CVRWMG is committed to encouraging water conservation and source substitution projects to reduce demand on the imported water supply. For example, the CVRWMG recognizes the importance of expanding the region's recycled water systems to offset potable water demand. With this emphasis on water conservation and recycling, the CVRWMG will implement DWR's Statewide Priority "Drought Preparedness" within the Valley. The Region's *Proposition 84-Round 1 Implementation Grant Proposal* includes a regional water conservation program to address the potential for reduced reliability and to achieve compliance with the State's 20x2020 Plan.

Assurances that IRWM Plan Update Will Continue Reducing Delta Water Dependence

The CVRWMG is committed to updating the Coachella Valley IRWM Plan within two years of execution of the Implementation Grant Agreement (estimated October 1, 2013) if the grant is funded. The update will refine all requirements of the IRWM Plan Standards contained within the 2012 IRWM Grant Program Guidelines. Revisions and updates to the IRWM Plan are expected as part of the IRWM planning process, as described within *Chapter 5: Stakeholder Involvement*. As such, the CVRWMG anticipates updating the Coachella Valley IRWM Plan by the end of 2014. The Coachella Valley, due to its current dependence on the Sacramento-San Joaquin Delta for water supply, has a vested interest in reducing future water demand, increasing local water supply, and increasing other reliable (non-Delta) water supply sources for future water use. Due to an increasing importance of these issues involving water supply availability and reliability in the Delta, the IRWM Plan update will include an increased emphasis on helping to reduce Coachella Valley's future additional dependence on the Sacramento-San Joaquin Delta for water supply.