



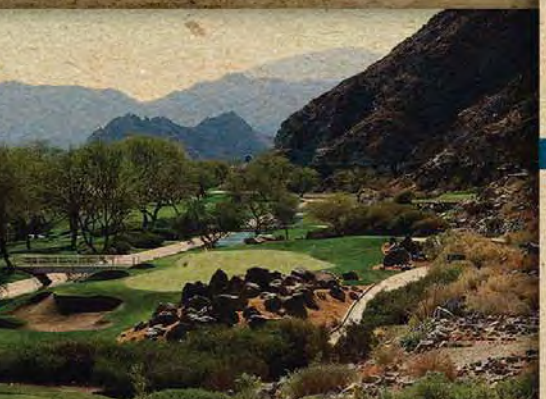

CVRWMG

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

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Prepared by:

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With Support from:

and

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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
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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.

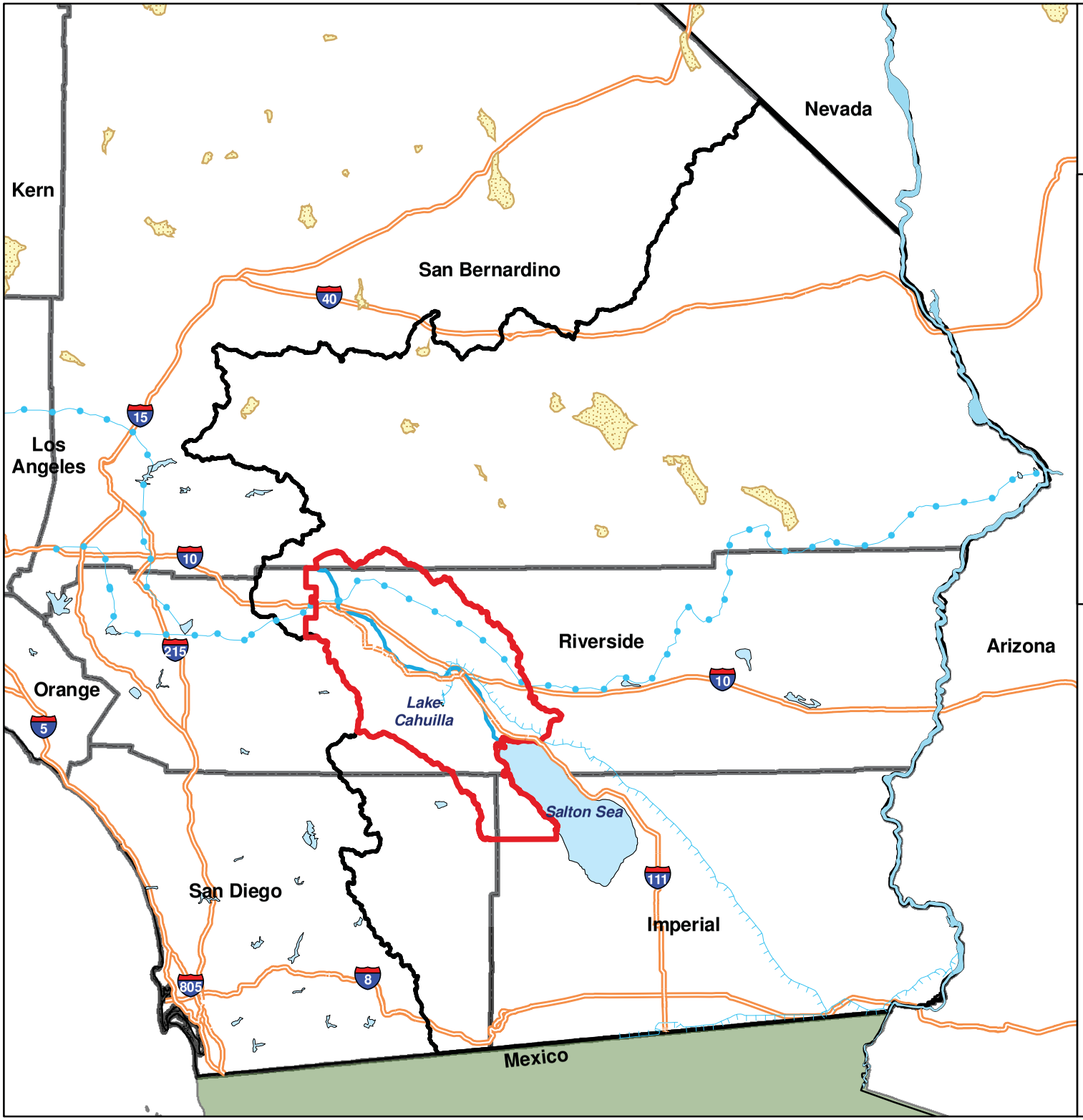
1.2 Regional Water Management Group

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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COACHELLA VALLEY IRWMP

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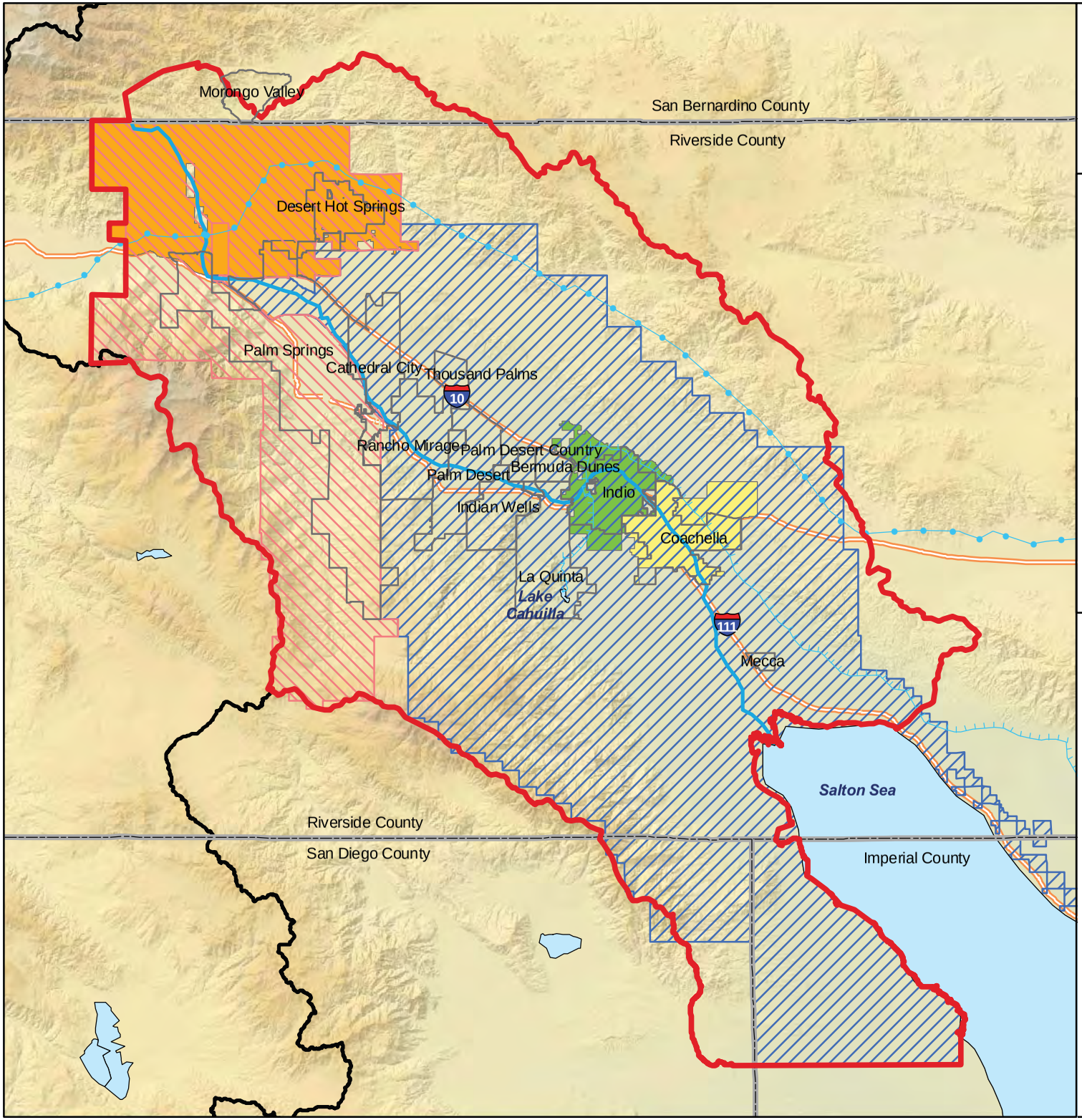
Department: RMC Water & Environment



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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COACHELLA VALLEY IRWMP

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Date Updated: Nov 2009
Made By: DNF
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.

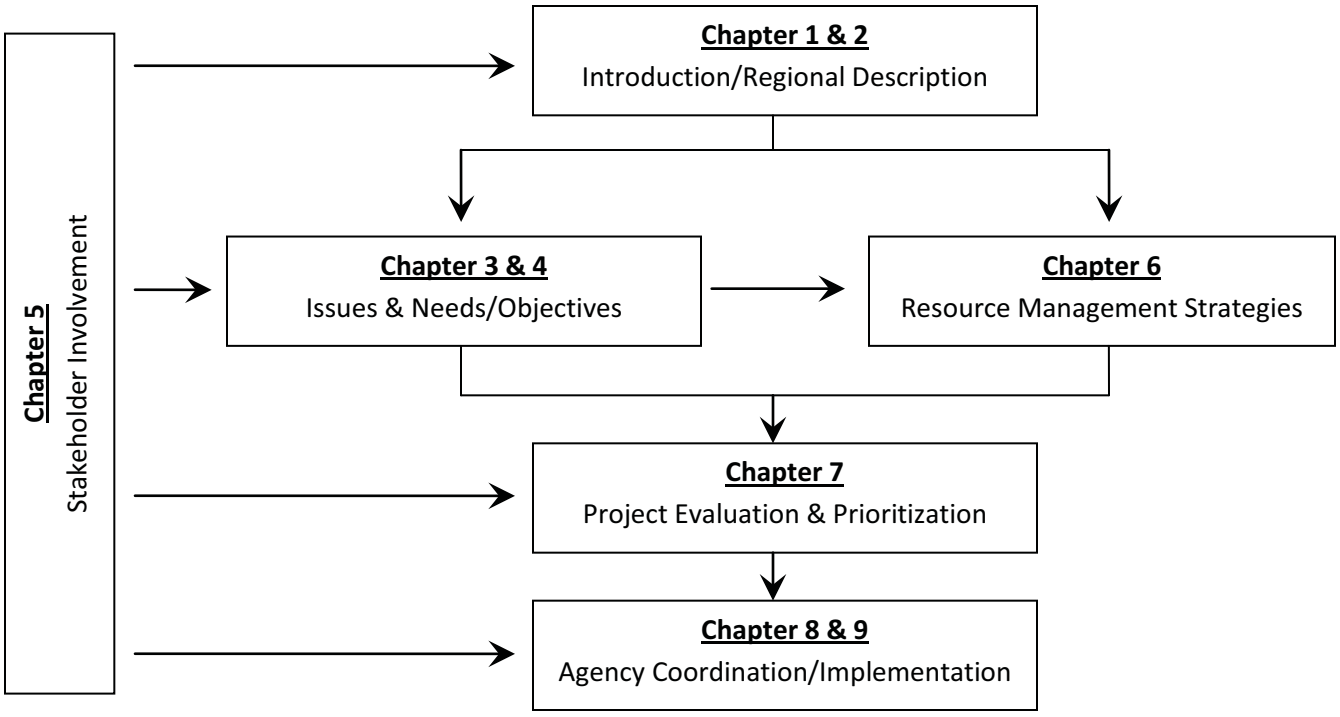
The overall direction and development of the IRWM Plan was provided by the CVRMWG and Planning Partners. The CVRMWG were assisted in preparing plan documents by:

- 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

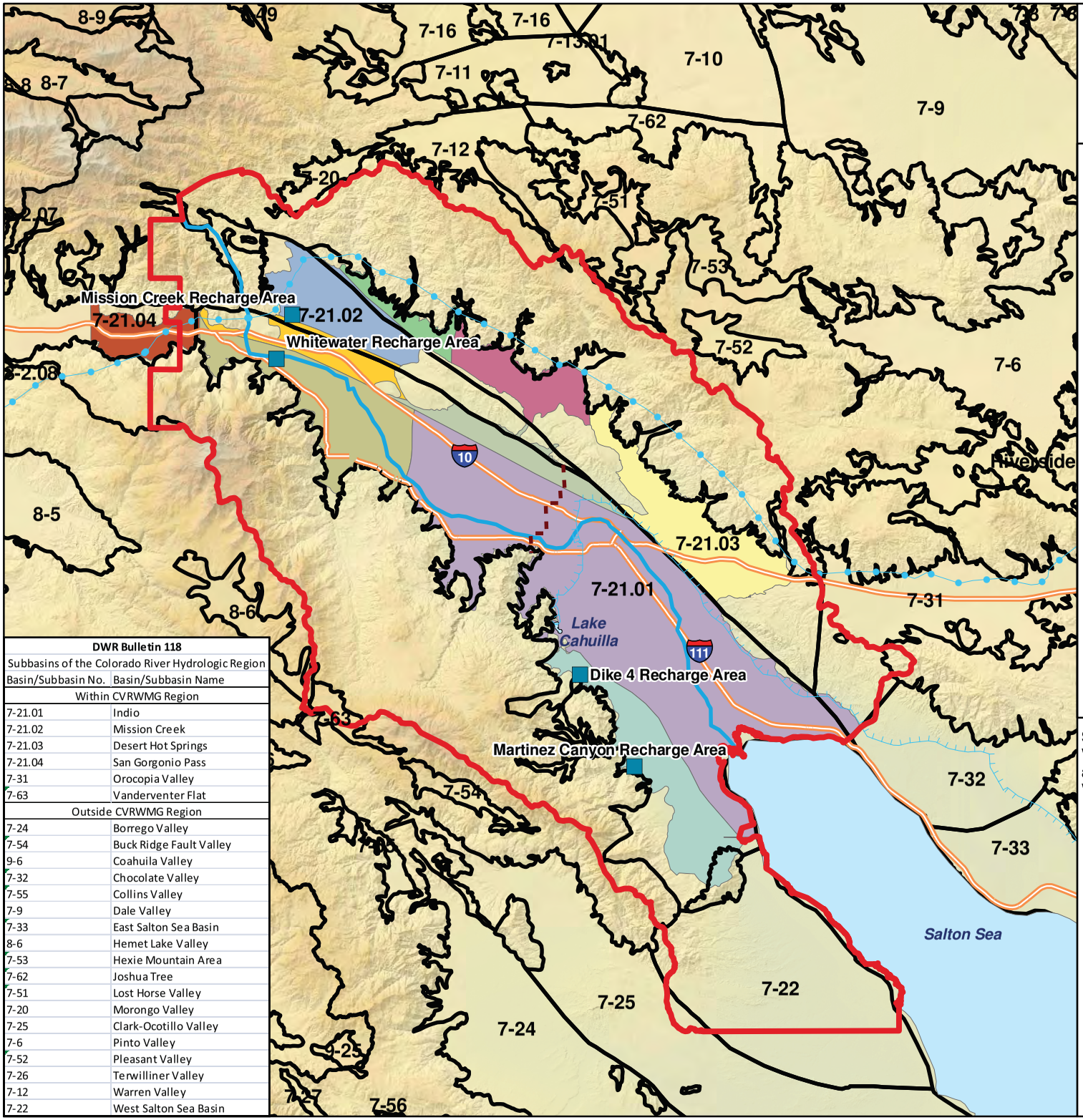
Groundwater is the largest source of water supply for the Coachella Valley IRWM region. The Coachella Valley Groundwater Basin has an estimated storage capacity of 39 million acre-feet of water. DWR's *Bulletin 118: California's Groundwater* (2004) defines the Coachella Valley Groundwater Basin (No. 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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Date Updated: Friday, November 19, 2010
Made By: DNF
Department: RMC Water & Environment

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**).

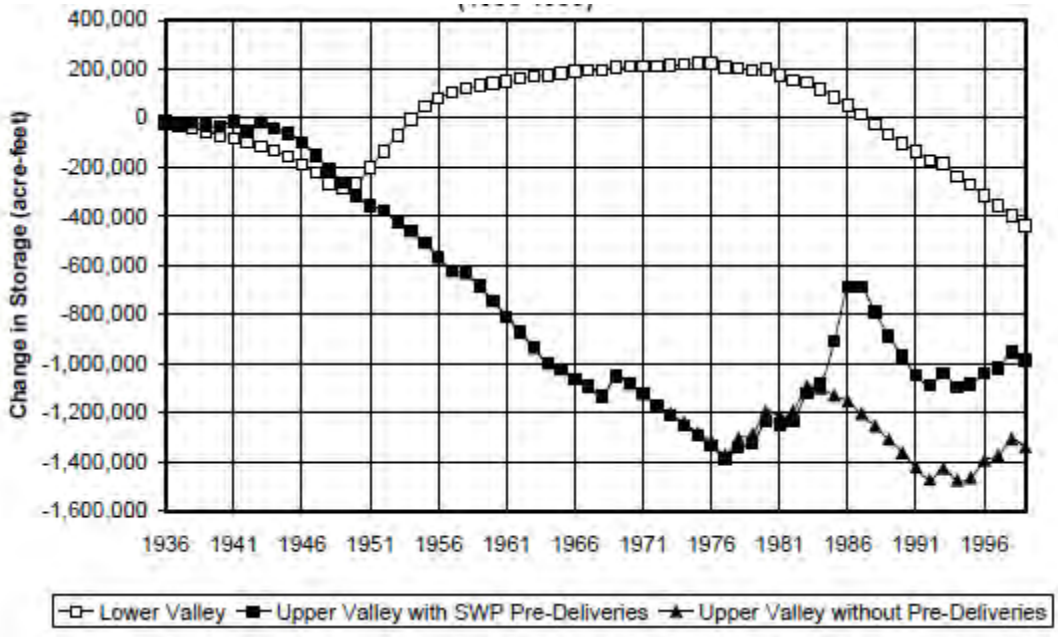
Table 2-1: Groundwater Subbasins and Corresponding Recharge Areas

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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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.

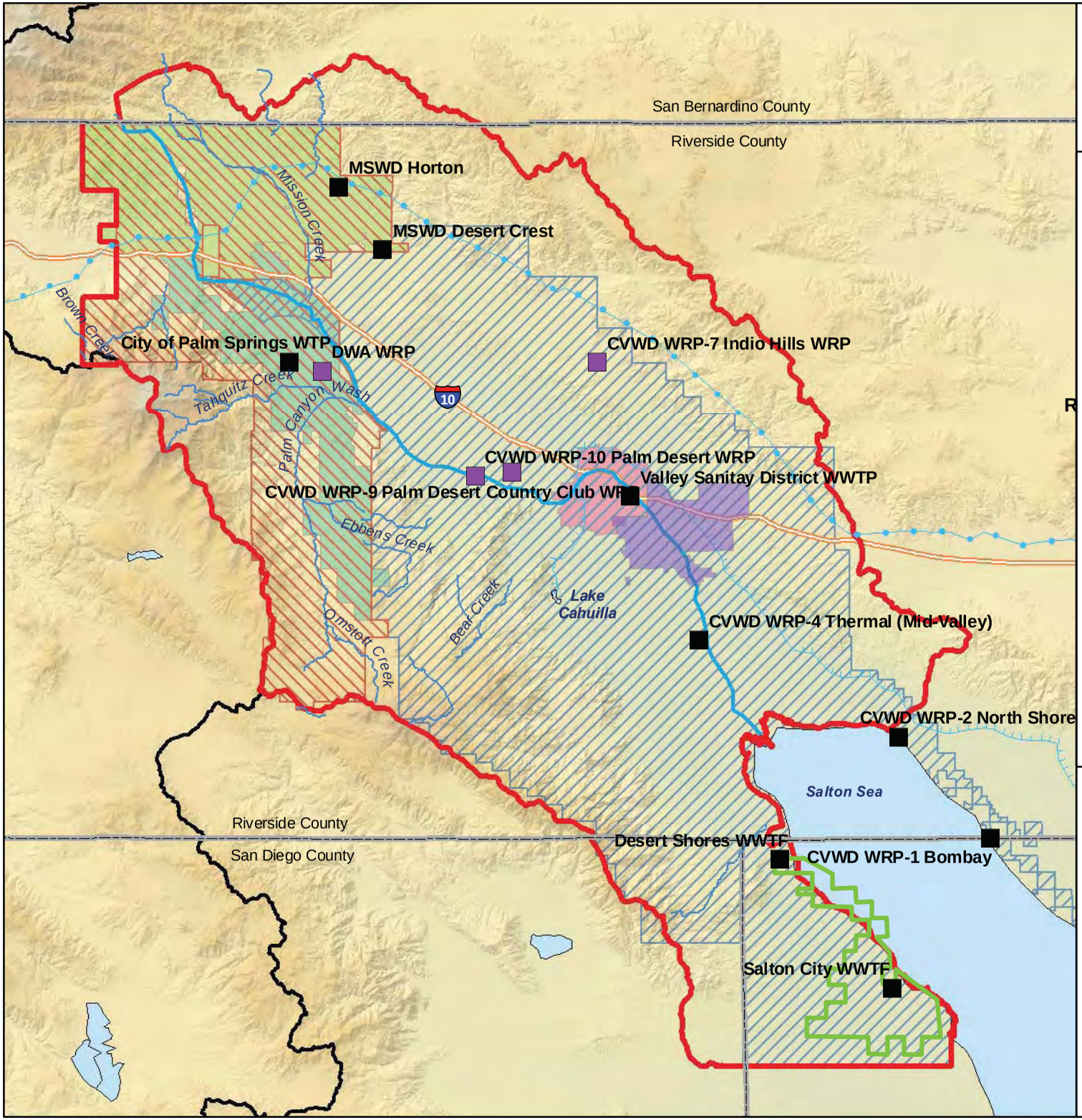
2.2.3 Wastewater

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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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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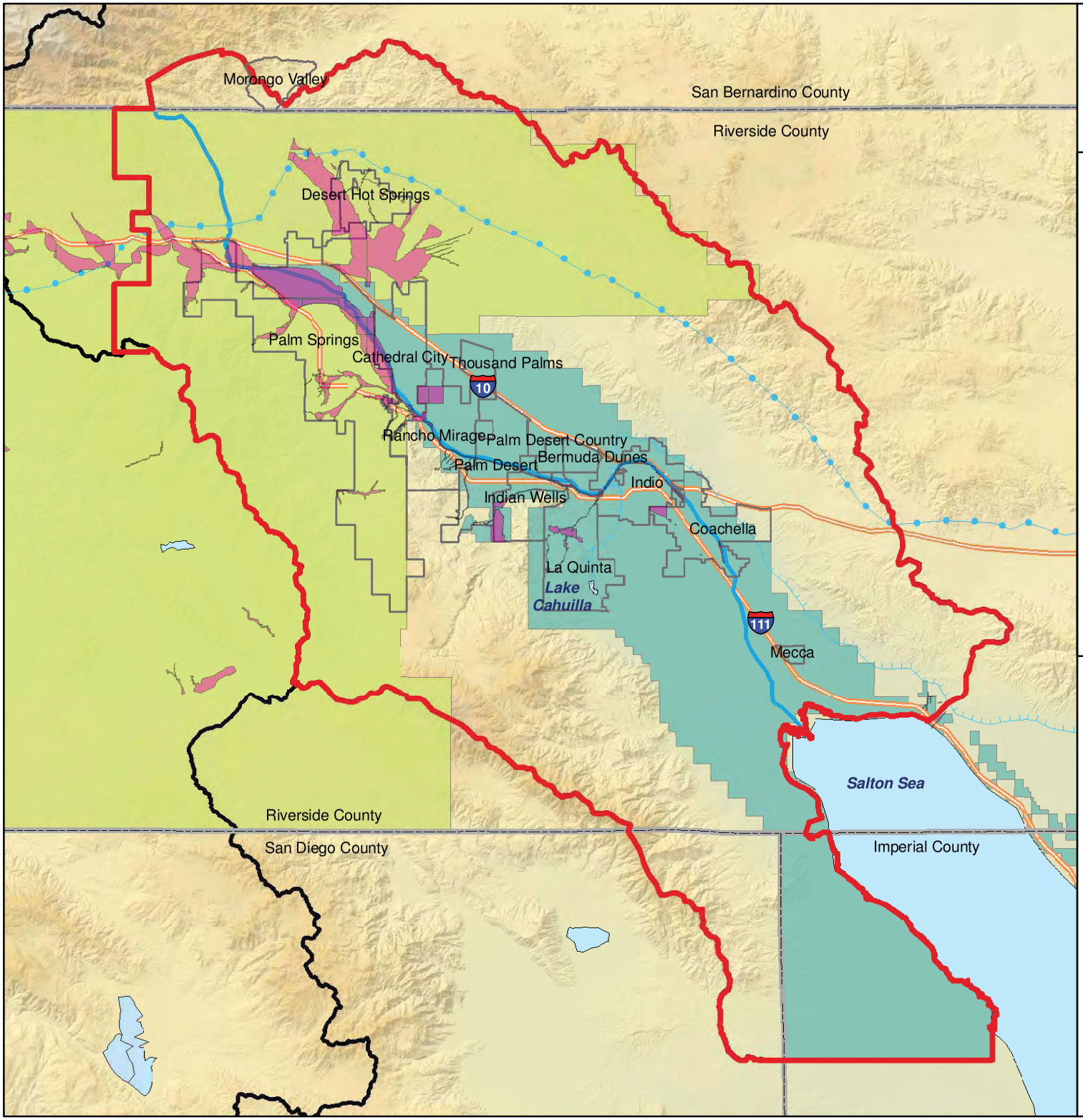

Stormwater Management

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.

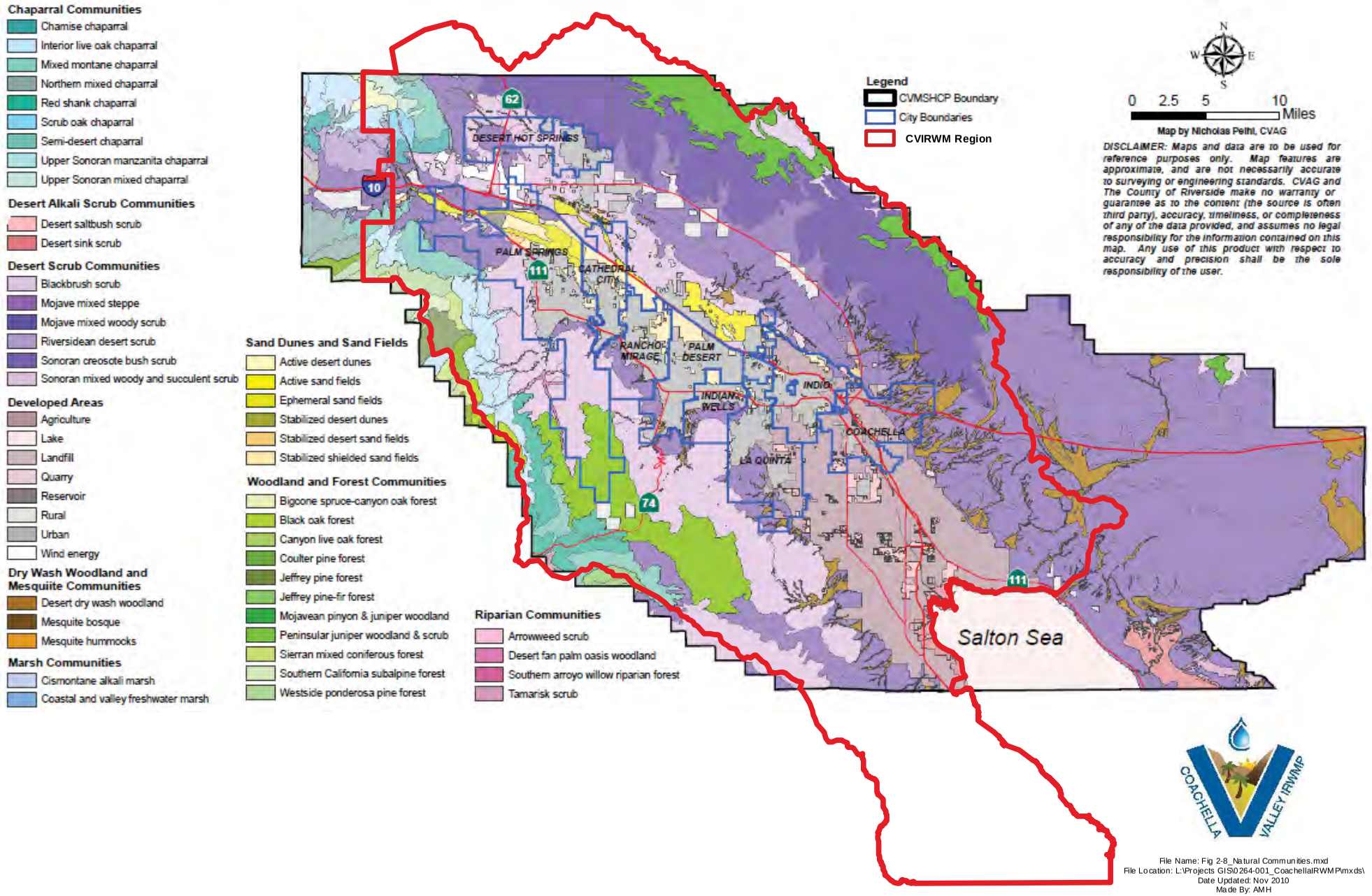
Jurisdictional boundaries of the Coachella Valley IRWM region include the nine Coachella Valley cities, the service areas of the five CVRWMG partners, and eleven Coachella Valley Community Councils. In addition to the information within this section, further information regarding internal boundaries 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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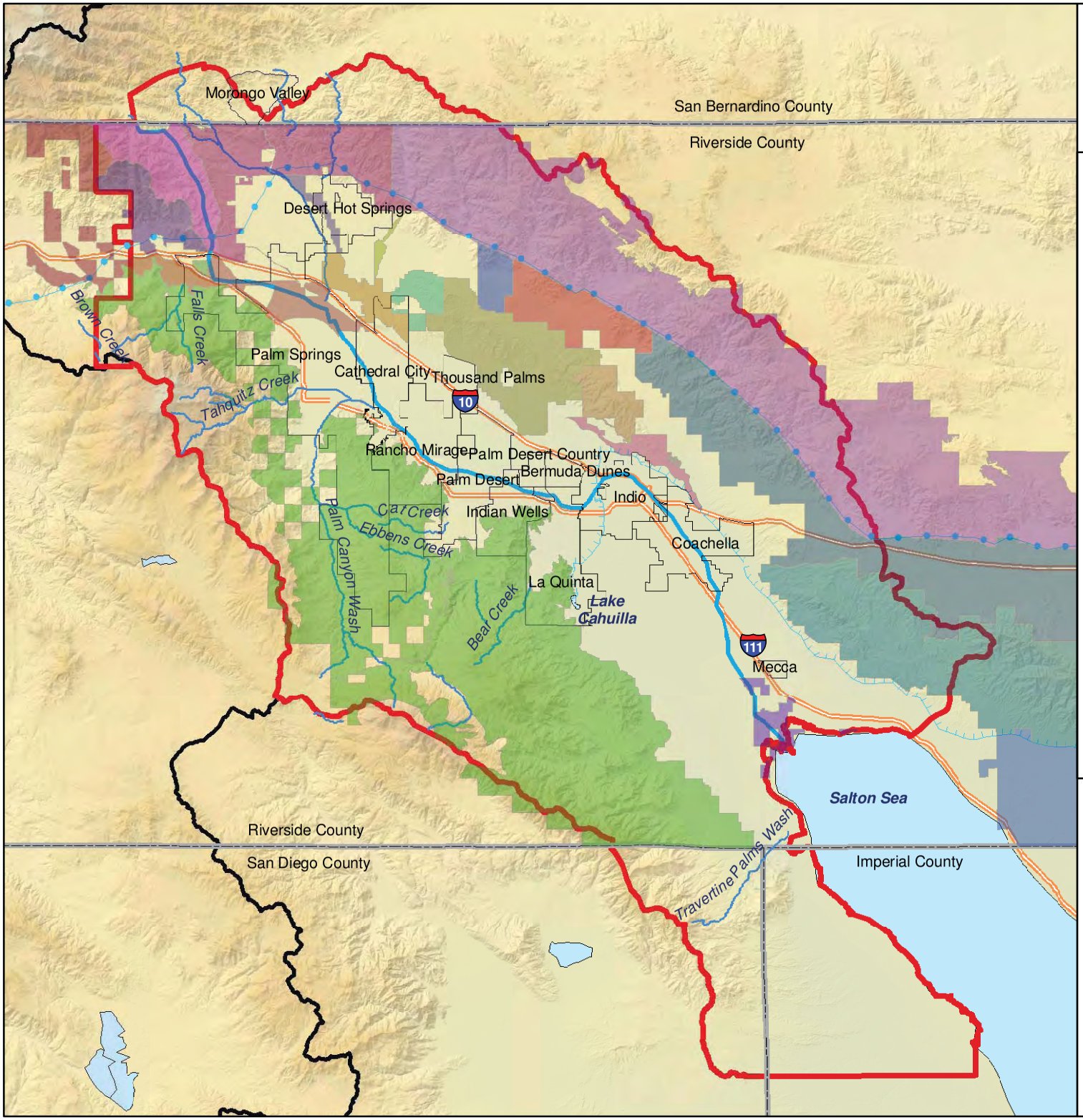

Conservation Areas

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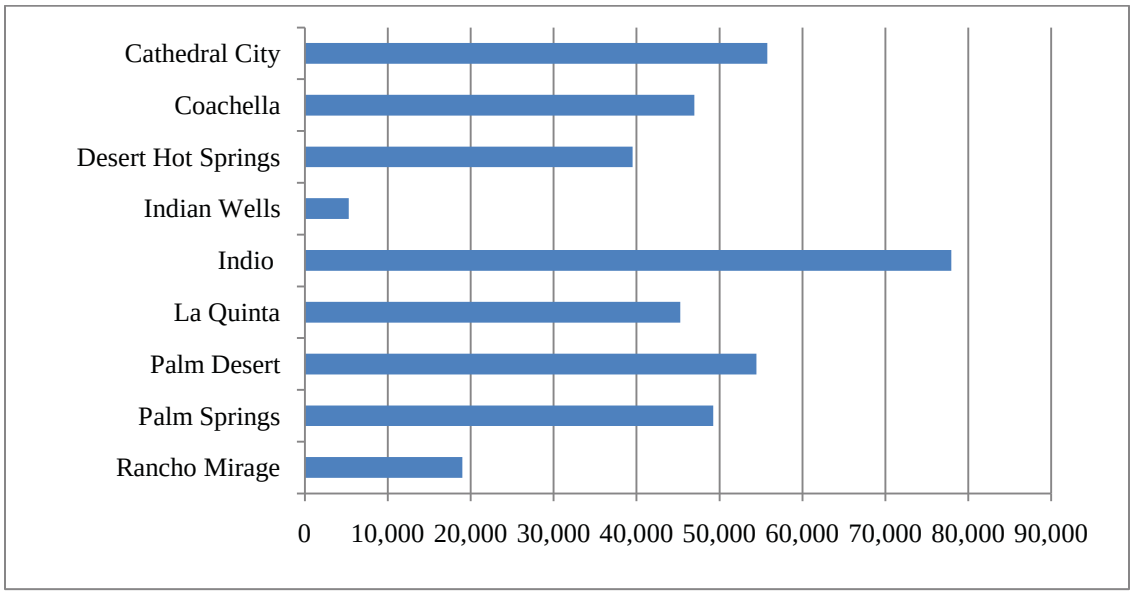
Date Updated: Nov 2010
Made By: DNF
Department: RMC Water & Environment

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

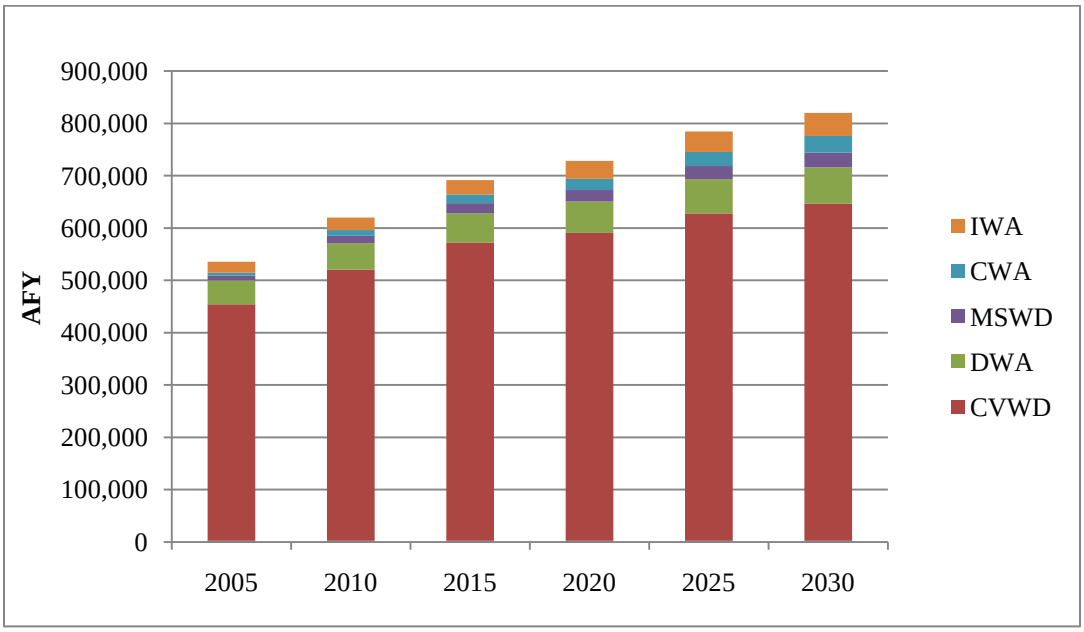
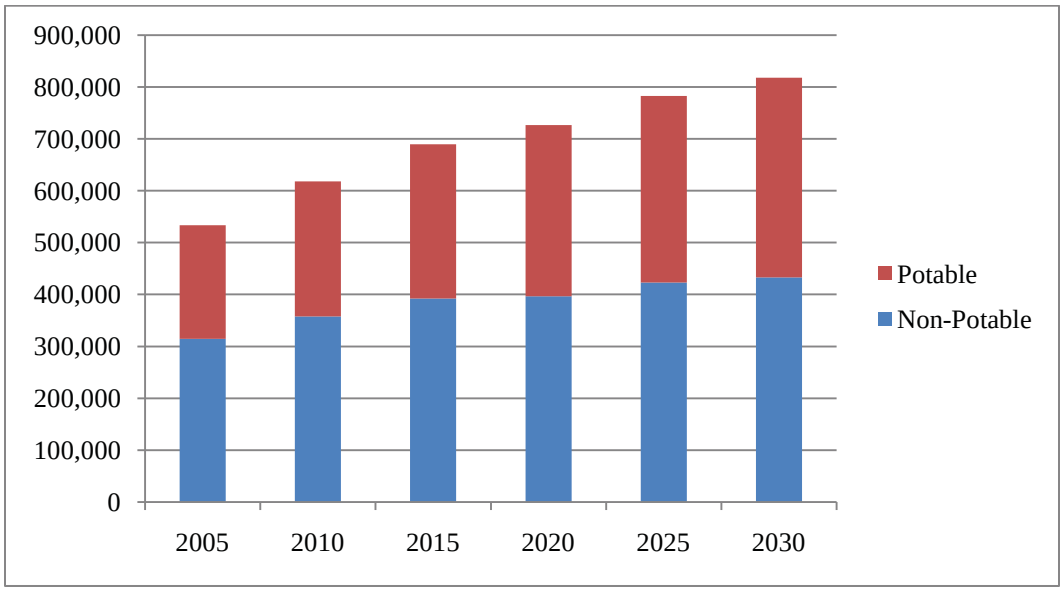


Table 2-9: Total Projected Non-Potable Water Demand with Conservation[1]

	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



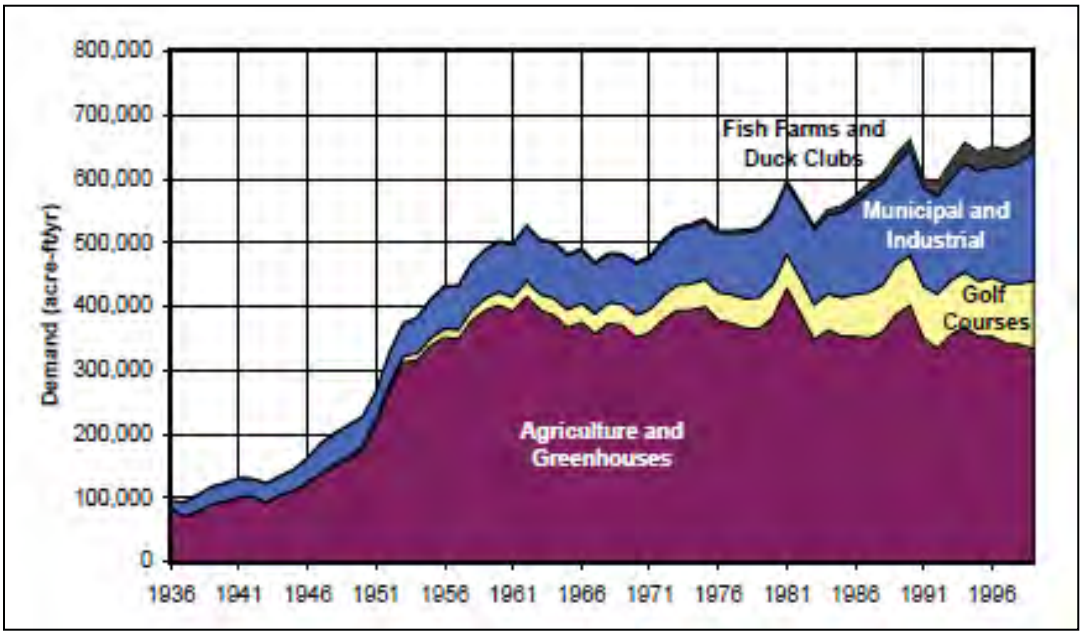
Note that this analysis was prepared during the height of an economic boom and does not reflect the recent downturn in housing and other development trends. In order to get a more realistic projection of future demands, it will be necessary to reassess current growth trends in the Region. Regardless 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.

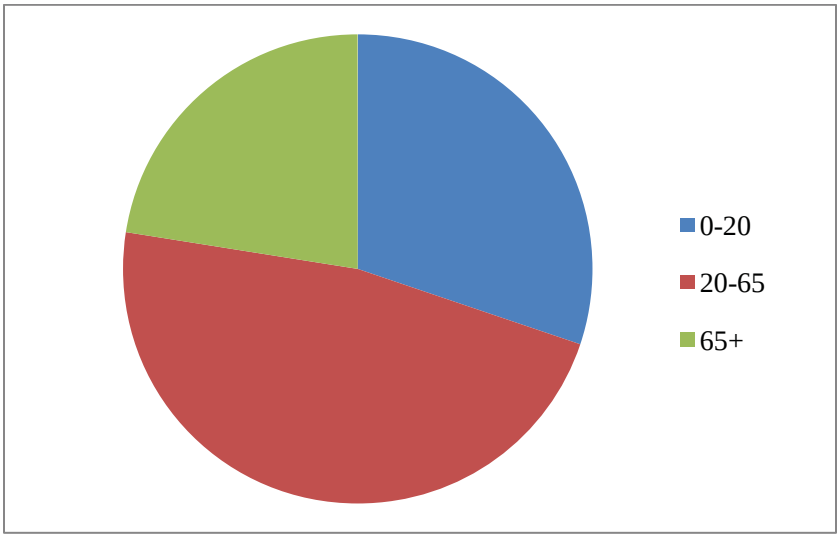
Compared with the state as a whole, the Coachella Valley economy has a larger proportion of jobs in agriculture, construction, retail trade, and services and a comparatively small proportion of jobs in manufacturing, wholesale trade, and government. The Coachella Valley is one of the fastest growing 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

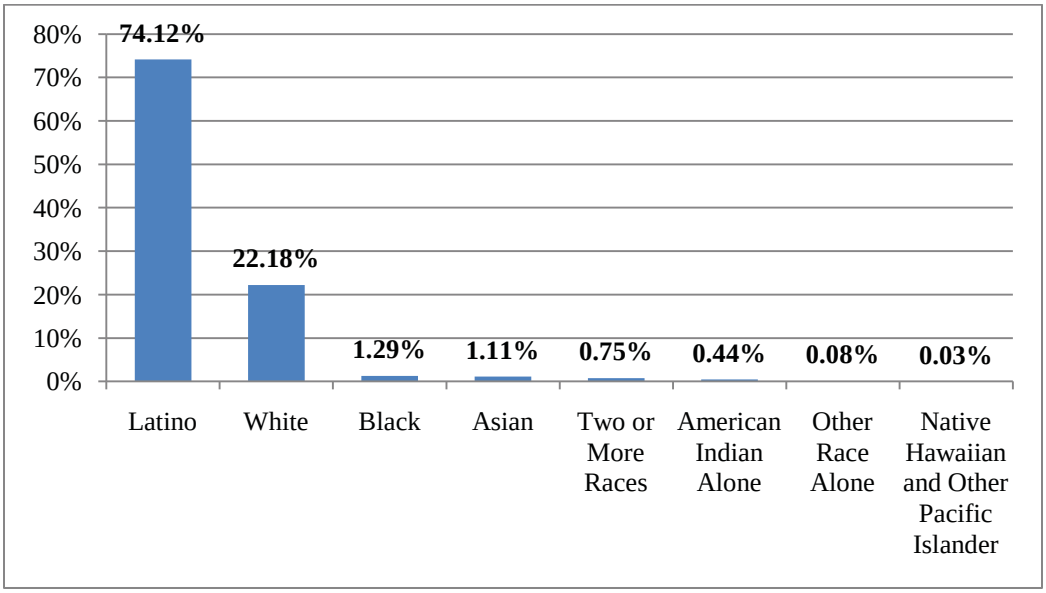


CVAG has provided a summary of the age data of the region by city. Generally speaking, the highest median age groups (61.3 years old and 63.4 years old) are living in Rancho Mirage and Indian Wells respectively. The youngest age-group reside in Coachella, their median average age was 22.8; followed by 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.

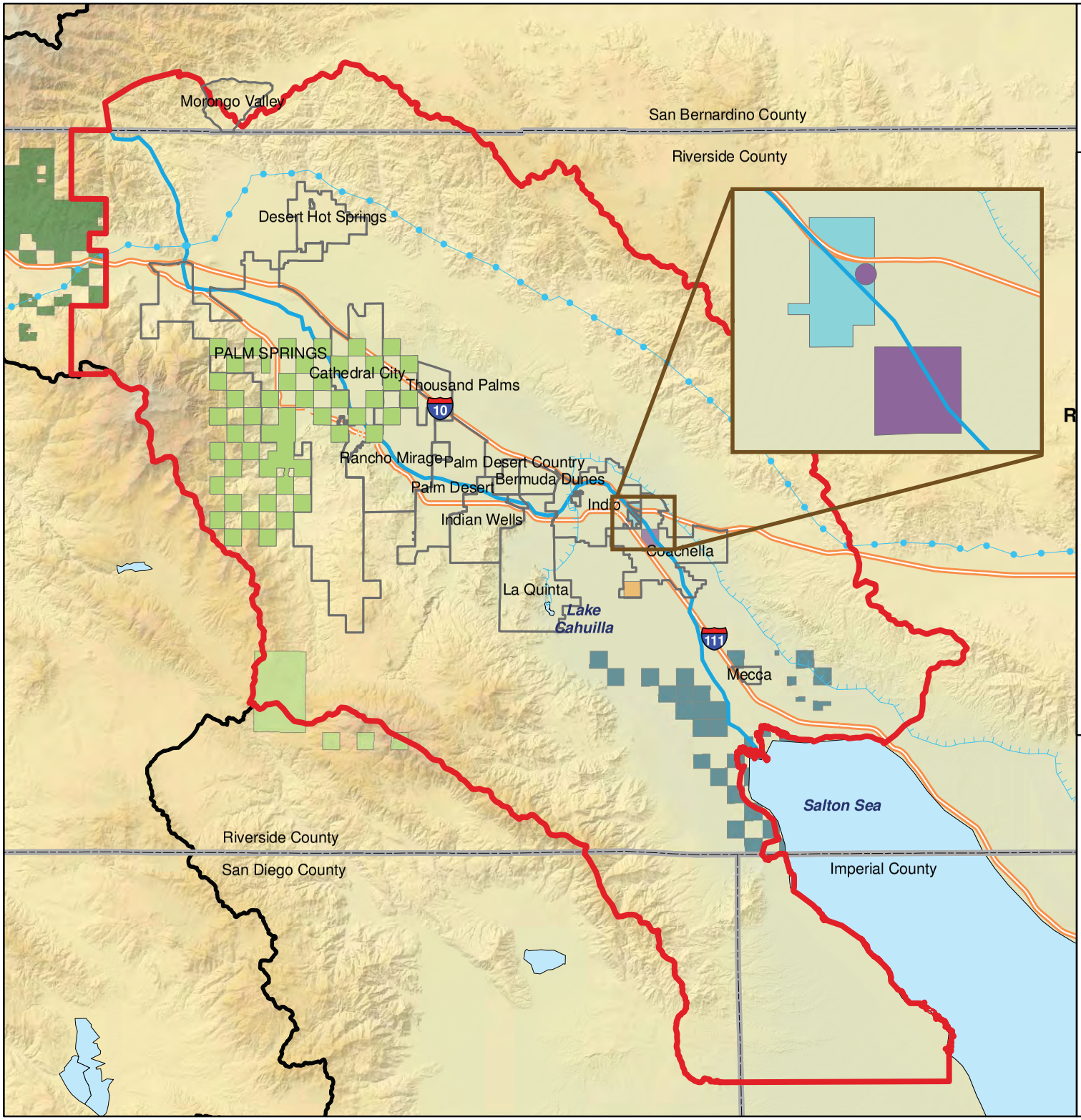
Due to their historical presence in the Valley, tribes face specific issues and considerations with relation to this IRWM Plan. Native Americans are the original inhabitants of the Coachella Valley, having resided in the Valley for centuries. The water in the Valley has sustained these Native American 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

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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

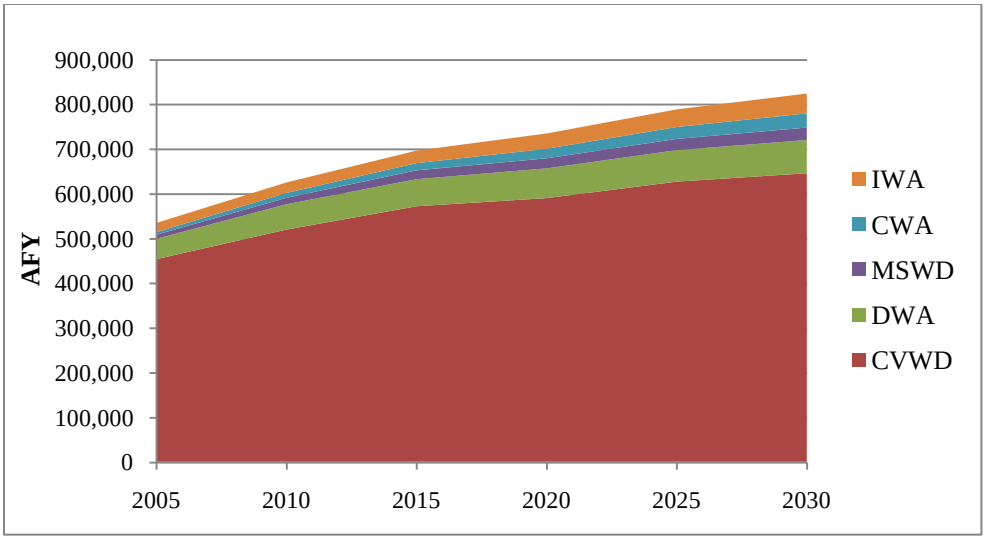
In order to clearly establish the IRWM Plan Objectives (see *Chapter 4, Objectives*), the following section outlines the issues, needs, and conflicts related to water management in the Valley.

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.

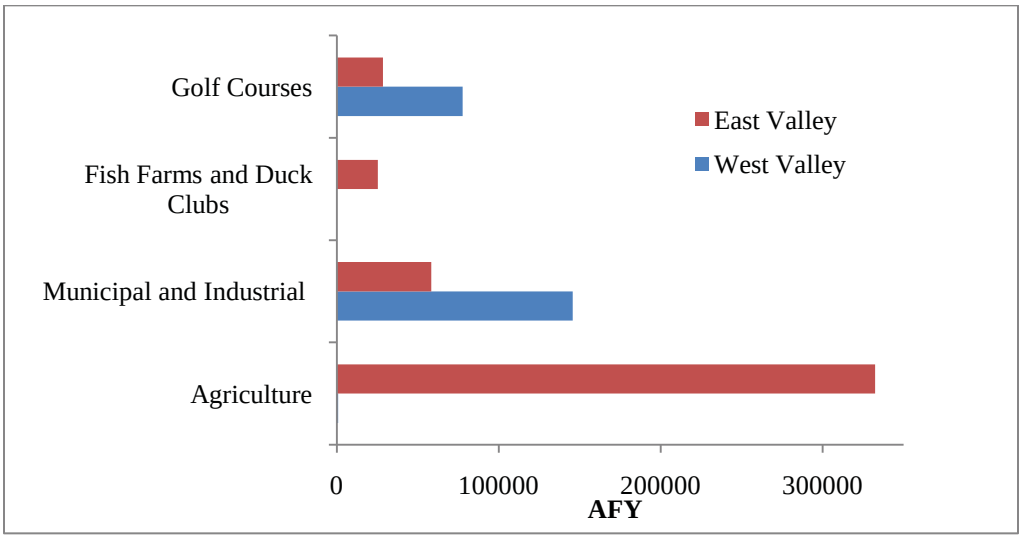
Figure 3-1: Total Projected Water Demand with Conservation[1]



[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

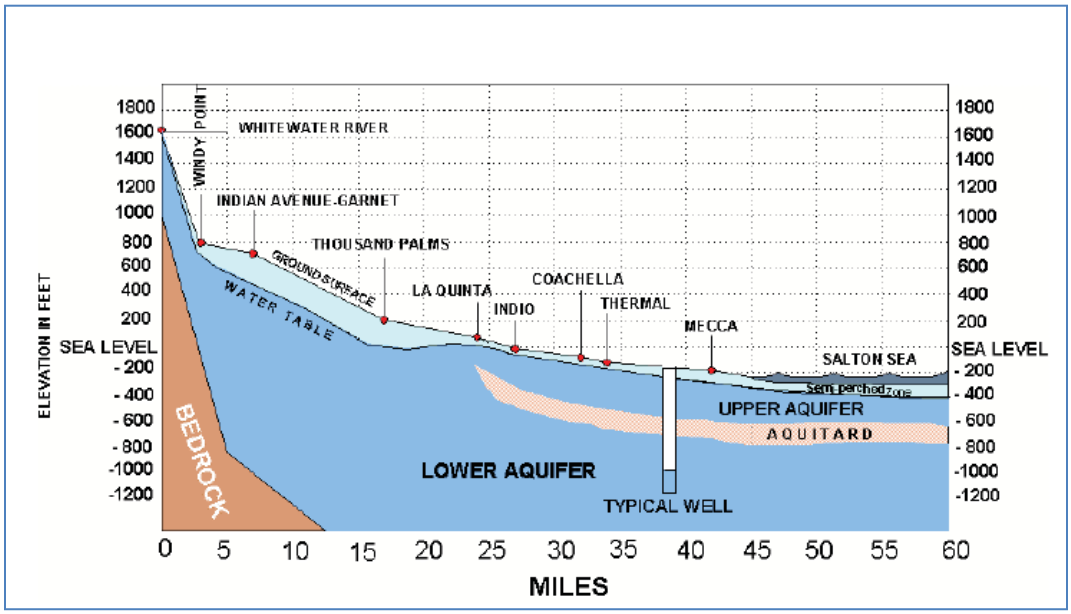
maintains a collector system of 166 miles of pipe, along with 21 miles of open ditches, to serve as a drainage network for nearly 38,000 acres of irrigated lands. All agricultural drains empty into the CVSC, except those at the southern end of the Coachella Valley which flow directly to the Salton Sea. 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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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

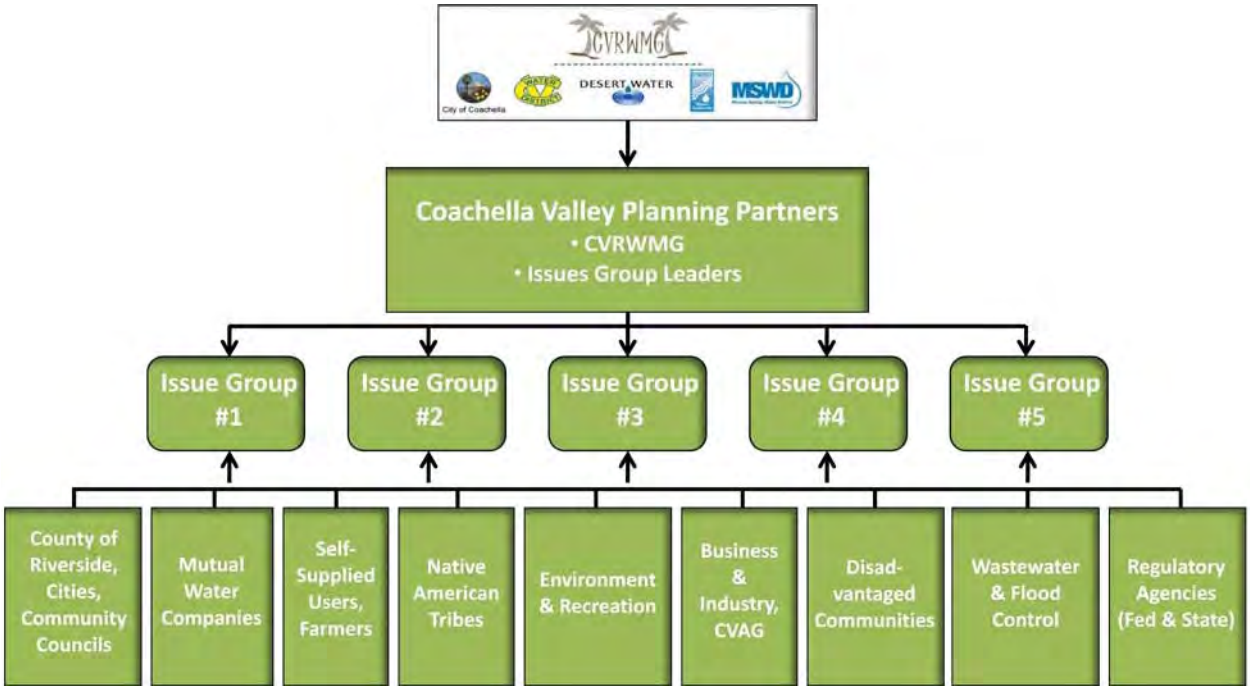
This section contains a description of the chosen governance structure, including committees or groups that support Plan development and implementation.

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.

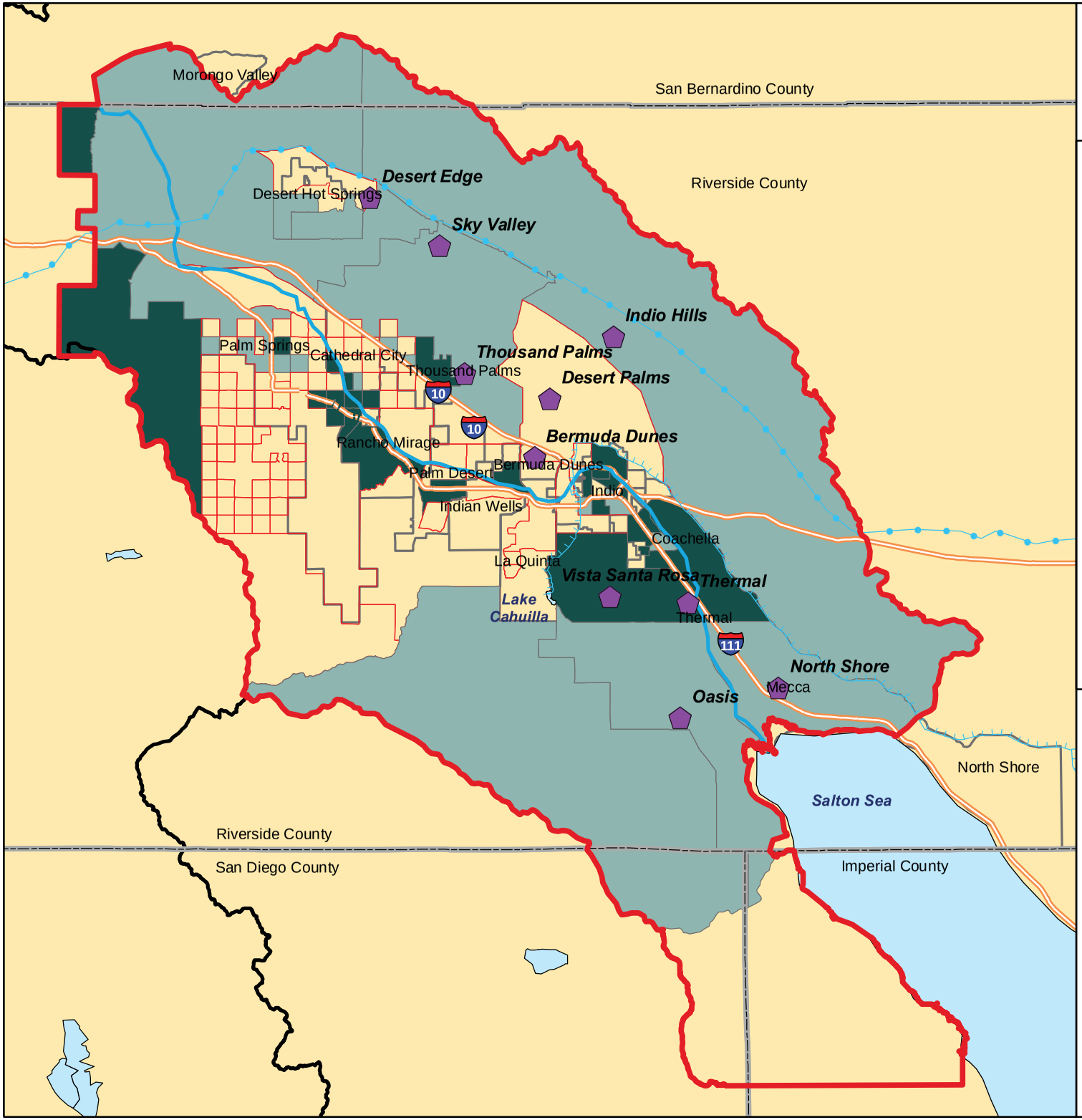
The goal of DAC outreach is to identify and obtain input from groups that may be otherwise restricted from participating in the IRWM planning and implementation efforts due to financial and other constraints. Through targeted outreach, the CVRWMG seeks to learn more about the major water-related concerns 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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Miles

COACHELLA VALLEY IRWMP

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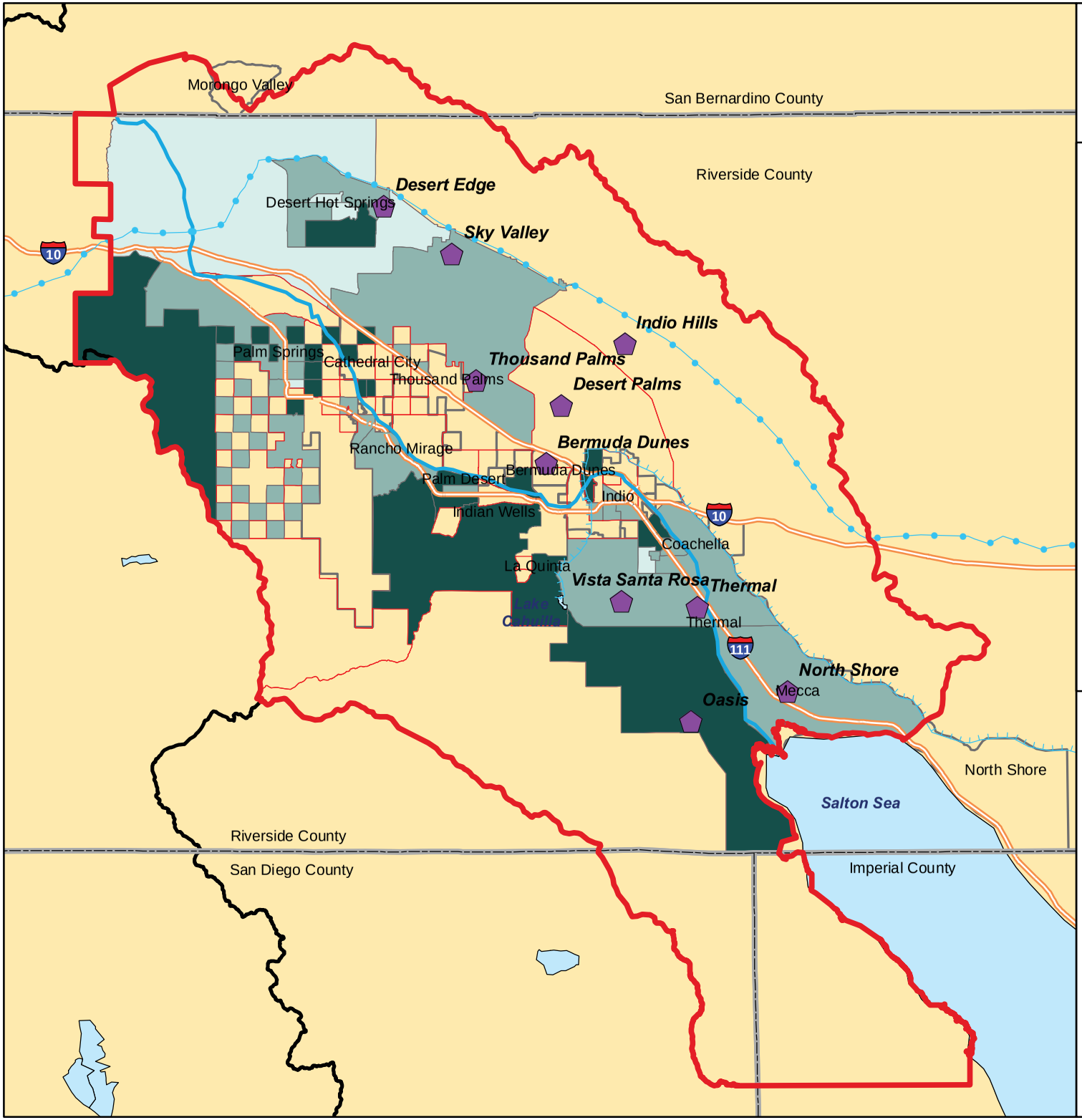
File Location: L:\Projects GIS\0264-001_CoachellaIRWMP\mxds\
Date Updated: Nov 2010
Made By: DNF
Department: RMC Water & Environment



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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Miles

COACHELLA VALLEY IRWMP

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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.

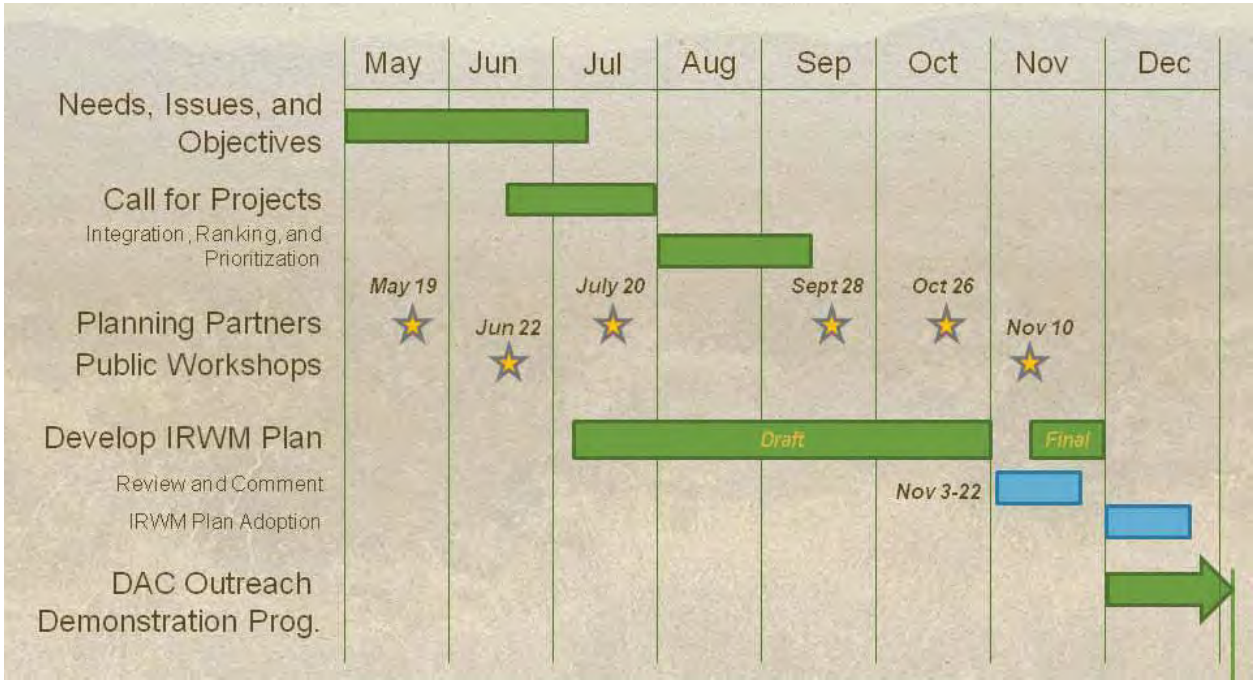
The timeline for Plan preparation and adoption can be seen below in **Figure 5-4**. The Planning Partners and members of stakeholder groups have provided information, projects, and comments in an ongoing process leading up to the public draft.

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:

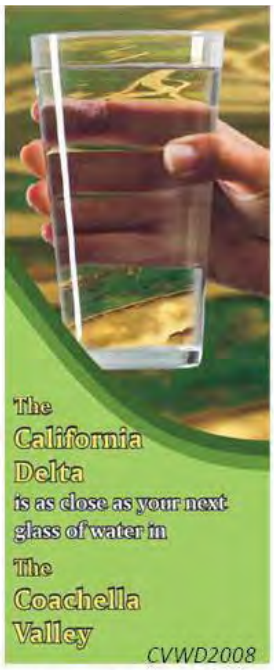
- implementing programs such as Best Management Practices (BMPs);
- reviewing the Urban Water Management Plan to ensure 20 percent water use reductions are achieved by 2020;
- installing water efficient landscapes;

- 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.

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.

Sacramento-San Joaquin Delta

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's fishing and recreational activities are overseen by the County of Riverside.

- **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.
- **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

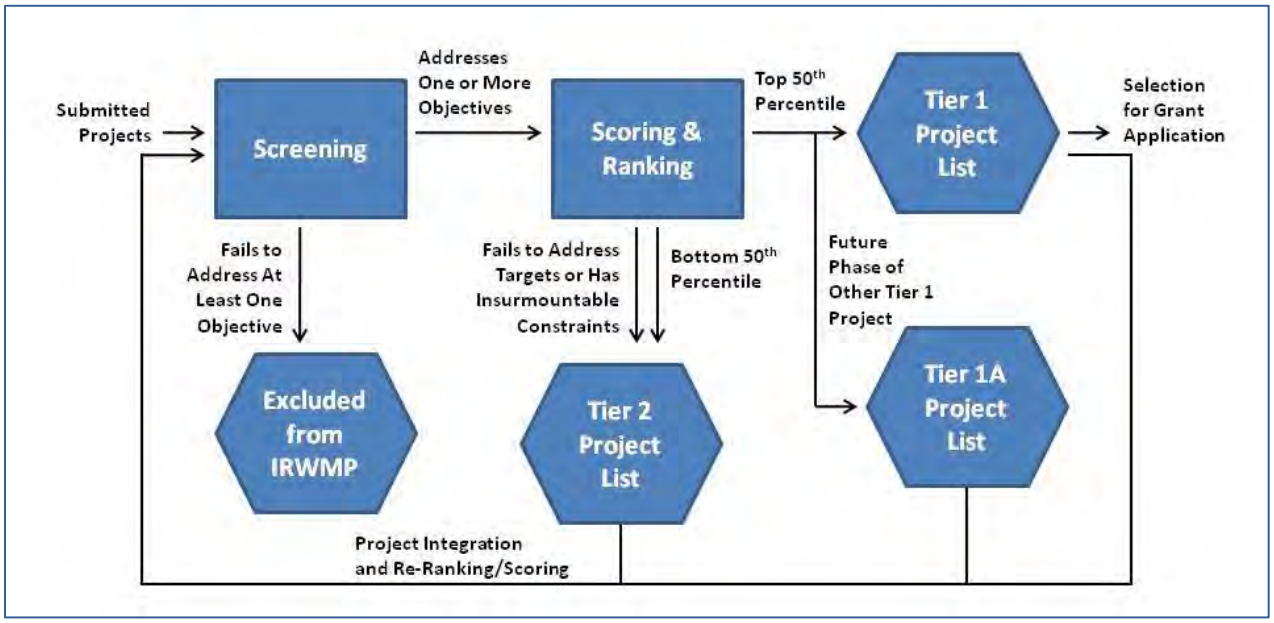
found to meet at least one objective passed the screening process and moved on to the next step of the project review process: scoring and ranking.

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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COACHELLA VALLEY IRWMP

File Name: Fig 8-1_Adjacent IRWM Efforts.mxd
File Location: L:\Projects GIS\0264-001_CoachellaIRWMP\mxds\
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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