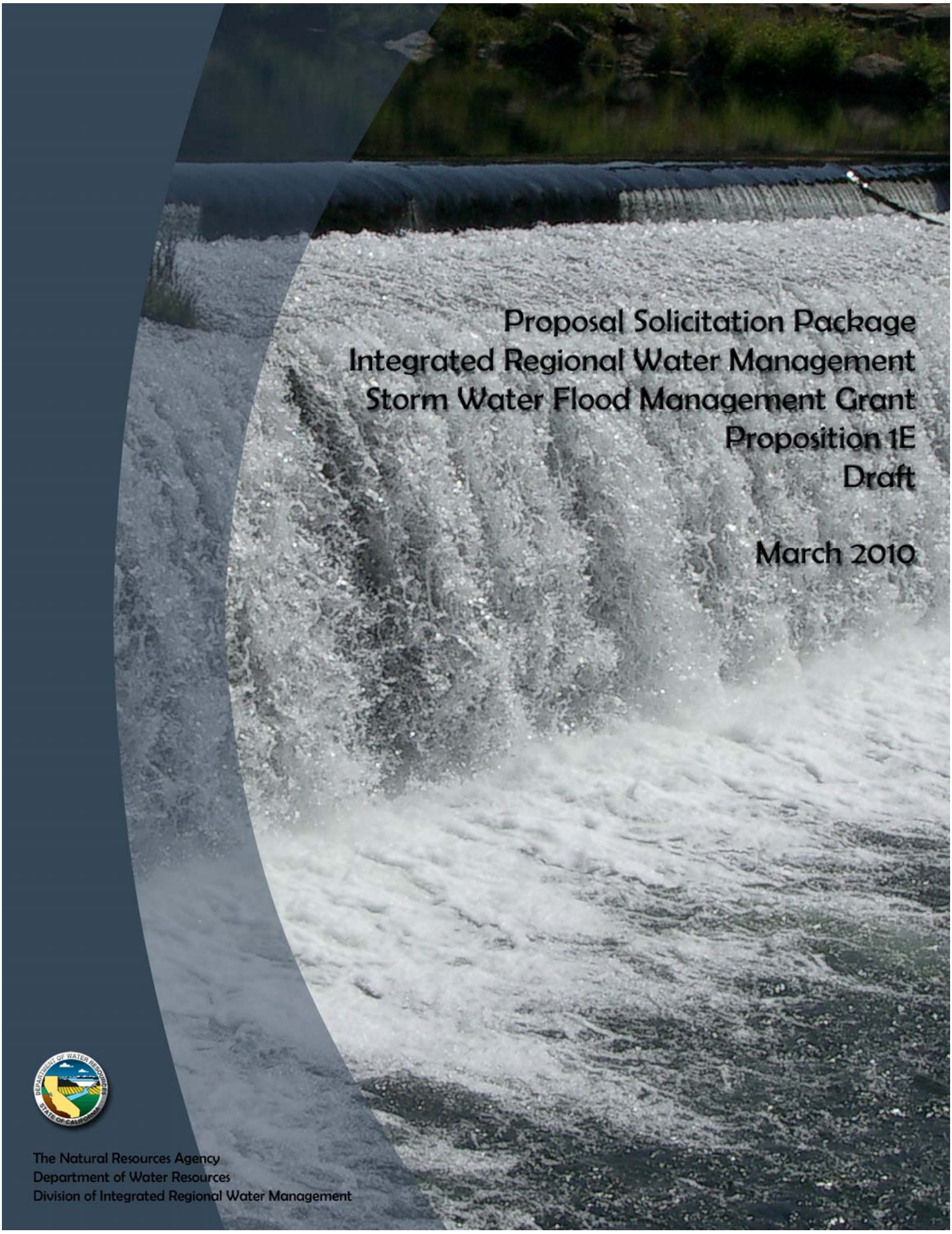

# Proposal Solicitation Package
# Integrated Regional Water Management
# Storm Water Flood Management Grant
# Proposition 1E
# Draft

March 2010

The Natural Resources Agency
Department of Water Resources
Division of Integrated Regional Water Management

# FOREWORD

This document contains the California Department of Water Resources' (DWR) Integrated Regional Water Management (IRWM) Grant Program Proposal Solicitation Package (PSP) for Proposition 1E Stormwater Flood Management (SWFM) grants.

This document walks the applicant through the application process from the history of the program to the eligibility requirements to the application instructions and finally to the Review and Scoring criteria. General information is covered in the front end of the document and detailed instructions for portions of the application are contained within Exhibits A-F. This document is not a standalone document and the applicant will need to refer to the Guidelines for additional information, found at http://www.water.ca.gov/irwm/index.cfm. Potential applicants are encouraged to read the Guidelines and PSP prior to deciding to submit an application.

The application process for this solicitation is a one step process; a complete application is required there is no concept proposal. This document contains the procedures for submitting applications for grant funding and the detailed scoring criteria. All qualified interested parties are encouraged to submit a grant proposal.

## POINT OF CONTACT

For questions about this document, or other technical issues, please contact DWR's Financial Assistance Branch at (916) 651-9613 or by email at DWR_IRWM@water.ca.gov.

## WEBSITE

This document as well as other information regarding the IRWM Grant Program, which includes the SWFM grant funding, can be found at: http://www.water.ca.gov/irwm/index.cfm. In addition to the website, DWR will distribute information via email. If you are not already on the IRWM contact list and wish to be placed on it, please e-mail your contact information to: DWR_IRWM@water.ca.gov

## DUE DATE

The complete application and all supporting documentation **must be submitted by 5pm on <DATE> 2010**. DWR will use an on-line submittal tool for grant applications. Instructions for the submittal tool are included in this PSP.

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TABLE TITLE PAGE #

# I. INTRODUCTION

The IRWM Grant Program is designed to encourage integrated regional management of water resources, including flood management, and provide funding for projects that support integrated water management planning and implementation. This PSP works in conjunction with the IRWM Grant Program Guidelines to disburse this first round of SWFM grant funding under the Disaster Preparedness and Flood Prevention Bond Act of 2006 (Proposition 1E). This solicitation is a one-step application process. DWR will evaluate the SWFM Grant applications in accordance with the Guidelines and this PSP. The Guidelines are posted on the DWR websites at:

http://www.grantsloans.water.ca.gov/grants/integregio.cfm

**Prospective applicants for IRWM Planning Grants should read this PSP and the entire IRWM Grant Program Guidelines. Specific emphasis should be directed to the IRWM Plan Standards (Appendix E of the Guidelines) and to the Proposal Selection section (Section V of the Guidelines) to ensure that the submittal will meet the grant program requirements.**

A complete list of acronyms and a glossary of terms used throughout this PSP are available in the IRWM Guidelines, page 6 and Appendix D, respectively.

# II. ELIGIBILITY

This section of the PSP provides an overview of the eligibility requirements that must be met to apply for this IRWM Grant Program solicitation.

## A. Eligible Grant Applicants

Eligible applicants are local agencies or non-profits, unless limiting conditions apply and noted in Section III, Funding below. Guidelines, Section III, contains more information on eligible applicants.

## B. Eligibility Criteria

Applications for SWFM grants must meet all Eligibility Criteria in order for the application to be considered for grant funding. Eligibility requirements that apply to all PSPs within the IRWM Grant Program are included in Section III of the Guidelines. Specific eligibility criteria that apply to this first round of SWFM are listed below. Eligibility will be determined based on information furnished by the applicant as described in Section VI of this PSP.

The IRWM region must have been accepted into the IRWM grant program through the region acceptance process, Table 1. Table 1 does not include some IRWM regions where the conditional acceptance was for planning grants only.

| TABLE 1 - 2009 RAP DECISIONS | |
|---|---|
| Regional Water Management Group | Region Acceptance |
| North Coast Funding Area | |
| North Coast | Approved Region |
| San Francisco Bay Funding Area | |
| San Francisco Bay Area | Approved Region |
| Central Coast Funding Area | |
| Greater Monterey County | Approved Region |
| Monterey Peninsula, Carmel Bay & South Monterey Bay | Approved Region |
| Pajaro River Watershed | Approved Region |
| San Luis Obispo County | Approved Region |
| Santa Barbara County | Approved Region |
| Santa Cruz County | Approved Region |
| Los Angeles-Ventura Funding Area | |
| Gateway | Approved Region |
| Greater Los Angeles County | Approved Region |
| Upper Santa Clara River | Approved Region |
| Watersheds Coalition of Ventura County | Approved Region |
| Lahontan Funding Area | |
| Antelope Valley | Approved Region |
| Inyo-Mono | Approved Region |
| Tahoe Sierra | Approved Region |
| Santa Ana Funding Area | |
| Santa Ana Watershed Project Authority | Approved Region |
| Colorado River Funding Area | |
| Borrego Valley | Approved Region |
| Coachella Valley | Approved Region |
| Imperial Valley | Approved Region |
| San Diego Funding Area | |
| San Diego | Approved Region |
| South Orange County Watershed Management Area | Approved Region |
| Upper Santa Margarita | Approved Region |
| Sacramento River Funding Area | |
| American River Basin | Approved Region |
| Cosumnes American Bear Yuba | Approved Region |
| Sacramento Valley | Conditionally Approved |
| Upper Feather River Watershed | Approved Region |
| Upper Pit River Watershed | Approved Region |
| Upper Sacramento-McCloud | Approved Region |
| Westside-Sacramento | Approved Region |
| Yuba County | Approved Region |
| San Joaquin Funding Area | |
| East Contra Costa County | Approved Region |
| Eastern San Joaquin | Approved Region |
| Madera | Conditionally Approved |
| Mokelumne-Amador-Calaveras | Approved Region |
| Tuolumne-Stanislaus | Approved Region |
| Tulare-Kern Funding Area | |
| Kaweah River Basin | Conditionally Approved |
| Poso Creek | Conditionally Approved |
| Upper Kings Basin Water Forum | Approved Region |
| Trans-San Joaquin-Tulare/Kern Funding Area | |
| Westside-SanJoaquin | Approved Region |
| Trans-Colorado-Lahontan Funding Area | |

| | |
|---|---|
| Mojave | Approved Region |

### C. Eligible Project Types

Eligible projects must be:

- Consistent with an adopted Plan (PRC §5096.827 9(e)). Consistency with an adopted IRWM Plan means either the project is included as an implementation project for the IRWM Plan, or the project has been added to the IRWM Plan implementation list after adoption, but in accordance with the procedures in the adopted IRWM Plan.

Designed to manage stormwater runoff to reduce flooding (PRC §5096.827 9(c))

- Consistent with the applicable Regional Water Quality Control Plan (Basin Plan) (PRC §5096.827 9(d))
- Not be part of the State Plan of Flood Control (SPFC) (PRC §5096.827 9(b)). Additional information on determining facilities considered part of the SPFC can be found in the Guidelines Section III.
- Yield multiple benefits (CWC §83002 (a) (2)). Multiple benefits may include one of the following elements:
  - Groundwater recharge
  - Water quality improvement
  - Ecosystem restoration and benefits
  - Reduction of instream erosion and sedimentation

# III. FUNDING

A total of $212,000,000 in SWFM funding is available through this grant round and is discussed in detail below. Of this amount DWR has the following funding targets to direct the distribution of a portion of the funds (CWC § 83002.(a)(2)).

- $100,000,000 for projects that address immediate public health and safety needs and strengthen existing flood control facilities to address seismic safety issues.
- $20,000,000 for local agencies to meet immediate water quality needs related to combined municipal sewer and storm water systems to prevent sewage discharge to state waters;
- $20,000,000 for urban stream SWFM projects to reduce the frequency and impacts of flooding in watersheds that drain to the San Francisco Bay.

If a project meets multiple funding targets the grant award will be counted toward each funding target. If DWR does not receive any projects applicable to a funding target in this solicitation, DWR will reserve (not award) the amount of grant funding specified in that funding target.

### A. Maximum Grant Amount

Grant funding shall not exceed $30,000,000 per project.

### B. Minimum Funding Match Requirements

For the Proposition 1E SWFM funding, PRC §5096.827(a) requires a 50% cost share minimum. The funding match for the Proposition 1E funding is a statutory requirement and cannot be waived or reduced. See Guidelines, Section II.E for additional information on Funding Match.

# IV. SCHEDULE

The schedule below, Table 2 shows the program timeline from the release of the Final Grant Program Guidelines and PSPs through final approval of awards. Updates for the events listed in this schedule may be required. When finalized, an updated schedule will be posted on the DWR website listed in the Foreword Updates may also be advertised through fliers, e-mail announcements, and news releases. Parties that are not already on the mailing list and wish to receive updates on the IRWM Grant Program should e-mail contact information to the email address listed in the foreword.

TABLE 2 - IRWM IMPLEMENTATION GRANTS PROPOSAL SOLICITATION PROCESS AND SCHEDULE

| Milestone or Activity | Schedule |
|---|---|
| Release Final Program Guidelines and PSP | Spring, 2010 |
| Applicant Workshops<br>Date, time, and locations to be determined | <DATES> |
| **Planning Grant applications must be submitted via BMS to DWR by 5:00 p.m. Applications submitted after 5 p.m. on the due date will not be reviewed or considered for funding.** | <DATE> |
| Public meeting to discuss initial funding recommendations. | <DATE> |
| DWR approves final grant awards. | <DATE> |

# V. APPLICATION INSTRUCTIONS

## HOW TO SUBMIT

***Specific BMS instructions/references will be included in the final version. The check list is included here to assist in understanding what types of questions will be asked DWR's BMS and as an aid to help applicants submit complete applications. In the final version this check list may be expanded to contain project specific information***.

Applicants must submit a complete application on-line using the DWR's BMS. The on-line BMS applications for this round of SWFM grants will be made available at the BMS website shown in Table 3. Applicants are encouraged to review the BMS User Manual and Frequently Asked Questions. Applicants will be notified of any changes via email and the changes will be posted on the DWR website listed in the Foreword.

A complete application consists of all the following items:

1. Electronic submittal of an application through the BMS
2. Three (3) hard copies (preferably double-sided) of attachments (as applicable) submitted to DWR.

Applications may include attachments with supplemental materials such as design plans and specifications, detailed cost estimates, feasibility studies, pilot projects, additional maps, diagrams, copies of agreements, or other applicable items. Applicants are encouraged to submit attachments and supporting documentation in an electronic format. File size for each attachment submitted via BMS is limited to 50 MB. Breaking documents into components

such as chapters or logical components so that files are less than 50MB will aid in uploading files. Acceptable file formats are: MS Word, MS Excel, MS Project, or PDF. PDF files should be generated, if possible, from the original application file rather than scanned hard copy. All portions of the application, BMS submittal and hard copies, must be received by the application deadline. Late submittals will not be reviewed.

## 1. Electric Submittal – Bond Management System

When uploading an attachment in BMS, the following attachment title naming convention must be used:

Att#_SWF_PIN_AttachmentName_#ofTotal#

Where:

**a.** "Att#" is the attachment number

b. **"**SWF" is the code for the solititation

**c.** "PIN" is the applicant's 5-digit PIN assigned by BMS;

**d.** "AttachmentName" is the name of the attachment as specified in Section A3 – Requirements for Attachments; and

**e.** "#ofTotal#" identifies the number of files that make up an attachment, where "#" is the number of a file and "Total#" is the total number of files submitted in the attachment.

For example, if the Attachment 3 – Work Plan for applicant with PIN "12345" is made up of 3 files, the second file in the set would be named "Att3_SWF_12345_WorkPlan_2of3".

## 2. Hard Copy Application Submittal

The addresses for mailing by U.S. mail, overnight courier, or hand delivery of hard copy and CD/DVD application components are listed as follows:

By U.S. Mail:

California Department of Water Resources

Division of Integrated Water Management

Post Office Box 942836

Sacramento, CA 94236-0001

Attn: Trevor Joseph

Or Overnight courier to:

California Department of Water Resources

Division of Integrated Regional Water Management

1416 9th Street, Room 213

Sacramento, CA 95814

Attn: Trevor Joseph

Or hand deliver to:

901 P Street, Lobby, Sacramento, CA95814

Attn: Trevor Joseph

# WHAT TO SUBMIT - REQUIRED APPLICATION ATTACHMENTS

This section presents the required elements of an application for SWFM grants funded from Proposition 1E. Applicants must submit a complete application by the due date contained in Section V Schedule, shown in Table 1. The grant application consists of seven sections outlined in Table 3, Grant Checklist, which is provided as a guide for the applicants to ensure that they have submitted the required information for a complete application.

All Attachments are required. Failure to submit any required attachment will make the application incomplete, and it will not be reviewed or considered for funding. A discussion of each of these attachments is provided below and the Attachments and associated Exhibits are summarized in Table 2.

TABLE 3 - GRANT CHECKLIST

| | |
|---|---|
| **1.** | **APPLICANT INFORMATION**<br>*The following information must be submitted as a part of or an attachment to the grant application*: |
| ☐ | Organization Name: Provide the name of the Agency/Organization responsible for submitting the application. |
| ☐ | Tax ID: Provide the federal tax ID number of the Agency/Organization submitting the application. |
| ☐ | Proposal Name: Provide the title of the Proposal |
| ☐ | Proposal Objective: Briefly describe how the Proposal helps achieve the objectives of the IRWM Plan. |
| **2** | **BUDGET** |
| ☐ | Other Contribution: Provide the total amount of other funds in dollars. Include detail for any legal services costs required to support the project. Include the costs for licenses and permits. Include any costs of monitoring and assessment required during the construction/initial implementation of the project. Do not include any monitoring and assessment costs for efforts required after project construction is complete. If there is no other contribution then leave field blank. |
| ☐ | Funding Match: Provide the total Funding Match that will be committed to the Proposal. SWFM grants requires a minimum match of 50% of total proposal cost. |
| ☐ | Federal Contribution: Provide the total amount of federal funding, in dollars. If there is no federal contribution then leave field blank. |
| ☐ | In kind Contribution: Provide the total dollar amount of in kind services in dollars. In Kind Contribution – refers to work performed by the grantee, the cost of which is considered cost match instead of actual funds from the grantee being used as cost match. If there is no in kind contribution then leave field blank. |
| ☐ | Amount Requested: Provide the amount of total grant funds requested, in dollars. |
| ☐ | Total Project Cost: Provide the total Proposal cost, in dollars. These amounts must agree with the total Proposal cost shown in Attachment 4. |
| **3.** | **GEOGRAPHIC INFORMATION** |
| ☐ | Latitude: ***Specific BMS Instructions Pending*** |
| ☐ | Longitude: ***Specific BMS Instructions Pending*** |
| ☐ | Longitude/Latitude Clarification: ***Specific BMS Instructions Pending*** |
| ☐ | Location: ***Specific BMS Instructions Pending*** |

| TABLE 3 - GRANT CHECKLIST | |
|---|---|
| ☐ | County: Provide the county in which the region is located. If the region covers multiple counties…….. |
| ☐ | Groundwater Basins: Provide the groundwater basin in which the region is located. For proposal covering multiple groundwater basins…***Specific BMS Instructions Pending*** |
| ☐ | Hydrologic Regions: Provide the hydrologic region in which your region is located. For proposals covering multiple hydrologic regions…***Specific BMS Instructions Pending*** |
| ☐ | Watershed: Provide the name of the watershed the region covers. For proposals covering multiple watersheds…***Specific BMS Instructions Pending*** |
| **4.** | **LEGISLATIVE INFORMATION** |
| ☐ | Enter the State assembly, State senate, and U.S. congressional districts in which the region is located (use district numbers only, not the name of the Legislator). For regions that include more than one district, please enter each district. …***Specific BMS Instructions Pending*** |
| **5.** | **APPLICATION QUESTIONNAIRE**<br>*The answers to these questions will be used in processing the application and determining eligibility and completeness.* |
| ☐ | Q1. Project Description: Provide a brief abstract of the Proposal, including a listing of individual project titles or types. |
| ☐ | Q2. Project Director: Provide the name and details of the person responsible for executing the grant agreement for the applicant. Persons that are subcontractors to be paid by the grant cannot be listed as the Project Director. |
| ☐ | Q3. Project Management: Provide the name and contact information of the Project Manager from the applicant agency or organization that will be the day-to-day contact on this application. |
| ☐ | Q4. Applicant Information: Provide the agency name, address, city, state and zip code of the applicant submitting the application. |
| ☐ | Q5. Additional Information: Provide the funding area(s) in which projects are located. |
| ☐ | Q6. Responsible RWCB(s): List the name of RWQCB in which your Proposal is located. For a region that extends beyond more than one RWQCB boundary, list the name of Board. |
| ☐ | Q7. Eligibility: Is the application from an IRWM planning region approved in the RAP (See Section IIIb, Table 1)? If yes, include the name of the IRWM planning region. If not, explain. |
| ☐ | Q8. Eligibility: Is the applicant a local agency or non-profit organization as defined in Section III A of the Grant Guidelines? |
| ☐ | Q9. Eligibility: List the urban water suppliers that will receive funding from the proposed grant. Those listed must submit self certification of compliance with CWC § 525 *et seq*. and AB 1420. If there are none, so indicate and you do not have to answer Q13 and Q14. |
| ☐ | Q10. Eligibility: Have all of the urban water suppliers, listed in Q12 above, submitted complete urban water management plans, to DWR? Have those plans been verified as complete by DWR? If not, explain and provide the anticipated date for having a complete plan. |
| ☐ | Q11. Eligibility: Have any urban water suppliers listed in Q12 recently submitted AB1420 compliance tables and supporting documentation to DWR for a different grant program within the past three months? If so, please list the urban water supplier and the grant program. An urban water supplier must submit AB 1420 compliance documentation to DWR. If the urban water supplier has not submitted AB 1420 documentation, or that documentation was determined to be incomplete by DWR, the urban water supplier's projects will not be considered eligible for grant funding. Refer to Section IIIB of the Guidelines for additional information. |
| ☐ | Q12. Eligibility: Does the Proposal include any groundwater management or groundwater recharge projects or projects with potential groundwater impacts? If so, provide the name(s) of the project(s) and list the agency(ies) that will implement the project(s) |
| ☐ | Q13. Eligibility: For the agency (ies) listed in Q11, how has the agency complied with CWC §10753 regarding GWMPs, as described in Section III.B of the Grant Guidelines? |

| TABLE 3 - GRANT CHECKLIST | | | |
|---|---|---|---|
| APPLICATION ATTACHMENTS<br>**Provide the attachments listed below by attaching files to the BMS application or providing CDs/DVDs as required. The naming convention for these attachments, and the requirements for information to be included in these attachments, is found in Section VI Application Instructions in this PSP.** | | | |
| Attachment #[1] | | **Attachment Title** | **Additional Information in Exhibit[2]** |
| ☐ | Attachment 1 | Authorization and Eligibility Requirements | |
| ☐ | Attachment 2 | Adopted Plan and Proof of Formal Adoption | |
| ☐ | Attachment 3 | Work Plan | Exhibit A |
| ☐ | Attachment 4 | Budget | Exhibit B |
| ☐ | Attachment 5 | Schedule | |
| ☐ | Attachment 6 | Monitoring, Assessment, and Performance Measures | |
| ☐ | Attachment 7 | Economic Analysis – Water Supply and Water Quality Benefits | Exhibit C |
| ☐ | Attachment 8 | Other Expected Benefits | Exhibit D |
| ☐ | Attachment 9 | Flood Damage Reduction | Exhibit E |
| ☐ | Attachment 10 | Benefits Summary | Exhibit F |
| ☐ | Attachment 11 | Program Preferences | |
| ☐ | Attachment 12 | Urban Water Management Plan and AB1420 Compliance Information | DO NOT UPLOAD TO ONLINE SYSTEM. Submit a single hard copy to DWR |

1) *The attachment discussion below provides the applicant with general directions regarding the content of each attachment.*

2) *The exhibit discussion provides specific direction regarding what information is to be submitted in the associated attachment.*

# ATTACHMENT
# AUTHORIZATION AND ELIGIBILITY REQUIREMENTS

For the "AttachmentName", in the application naming convention, use "Eligible" for this attachment.

Attachment 1 is mandatory and consists of authorization and eligibility documentation including the Urban Water Management Planning Act Compliance, CWC §525 compliance, Groundwater Management Plan (GWMP) Compliance, and IRWM Plan consistency. In Attachment 1 please provide:

Authorizing Documentation: The applicant must provide a resolution adopted by the applicant's governing body designating an authorized representative to submit the application and execute an agreement with the State of California for a SWFM Grant. The following text box provides and example resolution.

RESOLUTION NO. _____

Resolved by the <Insert name of governing body, city council, organization, or other> of the <Insert name of agency, city council, organization, or other>, that application be made to the California Department of Water Resources to obtain Stormwater Flood Management grant funding pursuant to the Disaster Preparedness and Flood Prevention Bond Act of 2006 (Public Resource Code Section 5096.800 *et seq*.), and to enter into an agreement to receive a grant for the: <Insert name of Proposal>. The <Insert title – Presiding Officer, President, Agency Manager, or other officer> of the <Insert name of agency , city, county, organization, or other> is hereby authorized and directed to prepare the necessary data, conduct investigations, file such application, and execute a grant agreement with California Department of Water Resources.

Passed and adopted at a meeting of the <Insert name of agency, city, county, organization, or other> on <Insert date>.

Authorized Original Signature: _____

Printed Name: _____

Title: _____

Clerk/Secretary: _____

Eligible Applicant Documentation: Eligible applicants are local agencies or non-profit organizations.

**If DWR determines that the applicant does not have the authority to enter into a grant agreement with the State, the applicant will not be eligible for funding and application will not be reviewed.**

The applicant must provide a written statement containing the appropriate information outlined below:

## LOCAL AGENCIES

- Is the applicant a local agency as defined in Section III of the Guidelines? Please explain.
- What is the statutory or other legal authority under which the applicant was formed and is authorized to operate?
- Does the applicant have legal authority to enter into a grant agreement with the State of California?
- Describe any legal agreements among partner agencies and/or organizations that ensure performance of the Proposal and tracking of funds.

## NON-PROFIT ORGANIZATIONS

- Is the applicant a non-profit agency as defined in Section III of the Guidelines? Please explain.
- Does the applicant have legal authority to enter into a grant agreement with the State of California?
- Describe any legal agreements among partner agencies and/or organizations that ensure performance of the Proposal and tracking of funds.
- Include a copy of the certificate of incorporation for the organization.

GWMP Compliance – For groundwater management and recharge projects and for projects with potential groundwater impacts, either positive or negative, the applicant or the participating agency responsible for such projects must provide in Attachment 1 the following, as applicable:

- If the Proposal does not contain a groundwater management or recharge project or none of the projects in the Proposal have a potential to impact groundwater, either positively or negative, so indicate, and include in Attachment 1 the justification for such a conclusion.
- Identification of projects in the Proposal that involve any groundwater management or groundwater recharge or may have either positive or negative groundwater impacts.
- The agency(ies) that will implement such project(s).

- The status of the applicable GWMP compliance option as described below:
  - The applicant or participating agency has prepared and implemented a GWMP that is in compliance with CWC §10753.7.
  - The applicant or participating agency participates or consents to be subject to a GWMP, basin-wide management plan, or other IRWM program or plan that meets the requirements of CWC §10753.7.
  - The applicant or participating agency conforms to the requirements of an adjudication of water rights in the subject groundwater basin.
  - The applicant or participating agency is in the process of revising the GWMP to be compliant with CWC §10753. In which case, Attachment 1 must state the estimated date for adoption, which must be within 1 year of application due date (see the Schedule in Table 2).
- Copies of applicable GWMP.

Consistency with an adopted IRWM Plan – In Attachment 1, the applicant must provide a listing of projects proposed for funding and how those projects are consistent with the adopted IRWM Plan, see Guidelines Section III.B. In cases where the project has been added post adoption, please discuss how the addition of the project(s) was consistent with the procedures established in the adopted IRWM Plan.

## ATTACHMENT 2
## PROOF OF FORMAL ADOPTION

For the "AttachmentName", in the application naming convention, use "Adopt" for this attachment.

Attachment 2 consists of proof of formal adoption (i.e. a signature page, with dates of signature) for all Regional Water Management Group (RWMG) entities and project proponents adopting the IRWM Plan and other documentation that the IRWM Plan was adopted consistent with CWC § 10543 (applicable only to those establishing eligibility with a plan meeting current plan standards and Guideline provisions).

The Work Plan, Budget, and Schedule, Attachments 3, 4 and 5, deal specifically with the Proposal and are used to evaluate whether the applicant's projects are ready to proceed. Attachments 3, 4, and 5 relate to one another and each should support the other. For example, if the Work Plan is detailed, the budget estimate should be equally detailed. Lump sum costs in the Budget may indicate a work item that is less implementable. The detail and accuracy of the Work Plan and Budget should support the readiness presented in the Schedule. Work items that are not detailed or are unclear indicate to a reviewer that the items are not ready to proceed.

## ATTACHMENT 3
## WORK PLAN

For the "AttachmentName", in the application naming convention, use "WorkPlan" for this attachment. See Exhibit A for detailed guidance on preparing this attachment**.** There is no page limitation for Attachment 3; however, applicants are encouraged to be clear and concise.

The Work Plan contains summary descriptions of all the projects constituting the Proposal and tasks necessary to complete each project in the Proposal. The Work Plan must be sufficiently detailed to demonstrate that the Proposal is ready for implementation, and should include a brief discussion of the supporting studies, data and resources for each project, to ensure implementation of the proposal is based on sound scientific and technical principles. Deliverables should be identified in the Work Plan. For this grant cycle, the scoring criteria for grant applications will include points for applications where the Work Plan includes Data Management and Monitoring Deliverables

that are consistent with the IRWM Plan Standards and Guidance - Data Management Standard in the Guidelines. The Work Plan should identify linkages between and among projects that are critical to the success of the regional effort. The Work Plan tasks should also be consistent with the major tasks and sub-tasks identified in the Budget, Attachment 4 and Schedule, Attachment 5. Refer to Exhibit A, attached to this PSP, for an outline of tasks that will also meet the major tasks listed in the Budget in Exhibit B.

## ATTACHMENT 4
## BUDGET

For the "AttachmentName", in the application naming convention, use "Budget" for this attachment. See Exhibit B for detailed guidance on preparation of this attachment.

Table 5 must be completed for each project in the Proposal and another form must be completed as a summary or roll-up budget of for the entire Proposal. For each project contained in the Proposal, provide detailed budget documentation supporting the costs shown in Table 5, Budget. For each budget category shown in Table 5, there may be several tasks and sub-tasks.

Table 5 will also be used to present the funding match for the Proposal. For SWFM funding, applicants must identify a minimum funding match of at least 50 percent for the total project costs on a per project basis.

Applicants must consider the relevant labor code compliance requirements and the applicability of prevailing wage laws in developing the Budget (Section IV of the Guidelines).

## ATTACHMENT 5
## SCHEDULE

For the "AttachmentName", in the application naming convention, use "Schedule" for this attachment.

Provide a schedule for implementation of the Proposal showing the sequence and timing of the proposed project or suite of projects. The schedule must show the start and end dates as well as milestones for each task contained in the Work Plan and should be in a horizontal bar or Gantt chart format. The schedule should also illustrate any dependencies or predecessors by showing links between tasks. An assumed end date of the grant agreement will not be established by DWR, instead applicants must include a reasonable estimate of the end date, based on their Proposal including time for any final reports and invoicing. The schedule, Attachment 5 must be consistent with the Work Plan, Attachment 3 and Budget, Attachment 4, and must use <DATE> as the assumed effective date of the grant agreement.

At a minimum, the following tasks should be included on the schedule:

- Development of financing
- Development of environmental documentation and CEQA/National Environmental Policy Act (NEPA) compliance
- Project design and bid solicitation process
- Acquisition of rights-of-way, if required
- Identification and acquisition of all necessary permits
- Construction start and end dates including significant milestones
- Implementation of any environmental mitigation or enhancement efforts

# ATTACHMENT 6
# MONITORING, ASSESSMENT, AND PERFORMANCE MEASURES

For the "AttachmentName", in the application naming convention, use "Measures" for this attachment. There is no page limitation for Attachment 6; however, applicants are encouraged to be clear and concise.

Describe the performance measures that will be used to quantify and verify project performance. Provide a discussion of the monitoring system to be used to verify project performance with respect to the project benefits or objectives identified in the Proposal. Indicate where the data will be collected and the types of analyses to be used. Include a discussion of how monitoring data will be used to measure the performance in meeting the overall goals and objectives of the IRWM Plan.

This attachment presents the planned project monitoring, assessment, and performance measures that will demonstrate that the Proposal will meet its intended goals, achieve measurable outcomes, and provide value to the State of California. The purpose of Attachment 6 is to provide a preview of the information that would go into a monitoring plan.

For Attachment 6, applicants are required to submit Project Performance Measures Tables specific to their Proposal. Project Performance Measures Tables should include the following items:

- Project goals
- Desired outcomes
- Output indicators – measures to effectively track output
- Outcome indicators – measures to evaluate change that is a direct result of the work
- Measurement tools and methods
- Targets – measurable targets that are feasible to meet during the life of the Proposal.

A Project Performance Measures Table should be submitted for each project included in the Proposal. When multiple projects carry the same goals and outcomes, a combined table can be developed to cover those projects. The measurement parameters (metrics) should fit the performance evaluation needs of the Proposal. The metrics may include decreased flood risks, water quality measurements, measurement-based estimates of pollution load reductions, acres of habitat successfully restored, feet of stream channel stabilized, groundwater level measurements, or other quantitative measures or indicators.

If the grant application is successful, upon implementation of the proposal, the monitoring tables should be used to develop the proposal monitoring plan.

# ATTACHMENT 7ECONOMIC ANALYSIS – FLOOD DAMAGE REDUCTION

For the "AttachmentName", in the application naming convention, use "DReduc" for this attachment. This attachment will provide estimates for the flood damage reduction benefits of each project in the grant application. See Exhibit C for detailed guidance on the preparation of this attachment.

Note that commitment to providing the anticipated flood damage reduction benefits will become a term of the grant agreement if the Proposal is selected for funding.

## ATTACHMENT 8
## ECONOMIC ANALYSIS – WATER SUPPLY BENEFITS

For the "AttachmentName", in the application naming convention, use "WSBen" for this attachment. See Exhibit D for detailed guidance on the preparation of this attachment. There is no page limitation for Attachment 8; however, applicants are encouraged to be clear and concise.

This attachment deals with estimating and presenting the costs and benefits of water supply aspects of the Proposal. A qualitative analysis can be provided if it is not feasible to quantify the benefits and the applicant provides adequate justification. If possible, water supply benefits should be quantified either in economic terms or physical terms.

Note that commitment to providing the water supply benefits will become a term of the grant agreement if the Proposal is selected for funding.

## ATTACHMENT 9
## WATER QUALITY AND OTHER EXPECTED BENEFITS

For the "AttachmentName", in the application naming convention, use "WQOtherBen" for this attachment. See Exhibit E for detailed guidance on the preparation of this attachment. There is no page limitation for Attachment 9; however, applicants are encouraged to be clear and concise.

This attachment allows applicants to claim benefits other than flood damage reduction and water supply benefits. Qualitative analysis is acceptable if it is not feasible to quantify the benefits and the applicant provides adequate justification.

Note that commitment to providing the other expected benefits will become a term of the grant agreement if the Proposal is selected for funding.

## ATTACHMENT 10
## BENEFITS SUMMARY

For the "AttachmentName", in the application naming convention, use "BSummary" for this attachment. This attachment will provide an overall estimate for the benefits of the project(s). If several projects are being proposed with multiple benefits, then Exhibit F (Proposal Summary) must be completed summarizing the costs and benefits for all projects in the grant application.

## ATTACHMENT 11
## PROGRAM PREFERENCES

For the "AttachmentName", in the application naming convention, use "Preference" for this attachment. Attachment 11 must be no more than 10 pages in length using a minimum 10-point type font.

Submit a discussion on how the Proposal assists in meeting the Program Preference(s) described in Guidelines, Section II.Fhttp://www.swrcb.ca.gov/funding/irwmgp/docs/prop50chap8_guidelines113004r1.doc. The discussion must identify the specific Program Preference(s) that the Proposal will meet; the certainty that the Proposal will meet the Program Preference(s); and the breadth and magnitude to which the Program Preference(s) will be met. Meeting the Program Preference(s) identified by the applicant will become a condition of the grant agreement in the event that the Proposal is awarded grant funding. Include graphics or maps as necessary to demonstrate how your proposal meets the preferences.

# ATTACHMENT 12
# AB 1420 AND WATER METER COMPLIANCE INFORMATION

This attachment consists of two self-certification documents. Both AB1420 (CWC §10631.5) and Water Meter Compliance (CWC §525 *et seq*.) self certification documents must be submitted for each urban water supplier that would receive grant funding.

The AB 1420 self certification documentation must be prepared in accordance to the instructions found at http://www.owue.water.ca.gov/finance/index.cfm. As DWR is both the funding agency and the approval agency, as single submittal to DWR is sufficient.

The Water Meter compliance self certification form and instructions can be found at the website listed in the Foreword. Each urban water supplier proposing wastewater projects, water use efficiency projects, or drinking water project must complete the form.

Both certification documents must be signed and submitted in hard copy. Only a single hard copy submittal is required for this attachment; **do not** submit 3 hard copies. Agencies submitting these forms should be consistent with the answers given in Q12, Q13, and Q14 of the electronic application.

## REVIEW AND SCORING CRITERIA

The entire review process is discussed in detail in Guidelines, Section V. Applications will first be screened for eligibility and completeness. Applications that are complete and eligible will be scored based on the scoring criteria presented in Table 4, Scoring Criteria and the Scoring Standards. Each criterion will be scored based on the general scoring standard contained in Section V.F of the Guidelines, or as presented below.

| TABLE 4 - SUPPLEMENTAL SCORING CRITERIA AND SCORING STANDARDS | | | | |
|---|---|---|---|---|
| Scoring Criteria | Weighting Factor | Range of Points Possible | Score | Scoring Standards |
| **Completeness and Eligibility Requirements**<br>Was a complete application submitted by the due date and time.<br>Will the project(s) manage stormwater in order to reduce flood damage?<br>Does the project(s) description make it clear that this project(s) it is not part of the SPFC?<br>Is the proposal consistent with the goals and objectives of the adopted IRWM Plan?<br>Is the proposal consistent with the applicable Basin Plan?<br>Does the project provide multiple benefits? | | | | Pass/Fail |
| **Work Plan**<br>*Scoring will be based on whether the applicant has presented a detailed and specific Work Plan that adequately documents the Proposal.*<br>Does the Work Plan contain an introduction that includes:<br>a) goals and objectives of the Proposal and how it relates to the adopted IRWM Plan?;<br>b) a tabulated overview of projects which includes an abstract and project status;<br>c) a map showing relative project locations; and<br>d) a discussion of the synergies or linkages among projects?<br>Are the tasks for each project of adequate detail and completeness so that it is clear that the project can be implemented?<br>Do the tasks include appropriate submittals (i.e., quarterly and final reports)?<br>Do the tasks collectively implement the Proposal?<br>Does the Work Plan include a listing of permits and their status including CEQA compliance?<br>Are the submitted plans and specifications consistent with the design tasks included in the Work Plan?<br>Does the submitted scientific and technical information support the feasibility of the Work Items?<br>Does the Work Plan include Data Management and Monitoring Deliverables consistent with the IRWM Plan Standards and Guidance - Data Management Standard?<br>Is this a study or part of a larger – multi-phased project effort? If so, will the proposed project(s) be operational as a standalone project(s) without the completion of the end project(s)? | 3 | 0–15 | | Standard Scoring Criteria<br>See Guidelines, Section V.F |

| TABLE 4 - SUPPLEMENTAL SCORING CRITERIA AND SCORING STANDARDS | | | | |
|---|---|---|---|---|
| Scoring Criteria | Weighting Factor | Range of Points Possible | Score | Scoring Standards |
| **Budget**<br>*Scoring will be based on whether the applicant has presented a detailed and specific budget that adequately documents the Proposal.*<br><br>Was a summary Budget provided for the Proposal and detailed Budgets provided for each project contained in the Proposal?<br>Do the items shown in the Budget generally agree with the tasks shown in the Work Plan and Schedule?<br>Are the detailed costs shown for each project reasonable?<br>Are all the costs shown in the Budget supported by documentation, if required, and is that documentation complete?<br>Does the budget attachment contain explanation of how the project costs were estimated? | 1 | 0–5 | 5 | A score of 5 points will be awarded where the Budgets for all the projects in the Proposal have detailed cost information as described in Attachment 4; the costs are reasonable, and all the Budget categories of Exhibit B are thoroughly supported. |
| | | | 4 | A score of 4 points will be awarded where the Budgets for all the projects in the Proposal have detailed cost information as described in Attachment 4 and the costs are considered reasonable but the supporting documentation for some of the Budget categories of Exhibit B are not fully supported or lack detail. |
| | | | 3 | A score of 3 points will be awarded where the Budgets for most of the projects in the Proposal have detailed cost information as described in Attachment 4, but not all costs appear reasonable or supporting documentation is lacking for a majority of the items shown in the Budget categories described in Exhibit B. |
| | | | 2 | A score of 2 points will be awarded where the Budgets for less than half the projects in the Proposal have detailed cost information as described in Attachment 4, many of the costs cannot be verified as reasonable, or supporting documentation is lacking for all of the Budget categories described in Exhibit B. |
| | | | 1 | A score of 1 will be awarded where there is no detailed Budget information provided for any of the proposed projects. |
| | | | 0 | A score of 0 will be awarded where there is no Budget information provided. |
| **Schedule**<br>*Scoring will be based on whether the applicant has presented a detailed and specific schedule that adequately documents the Proposal and on the readiness to proceed with the Proposal.*<br>Does the schedule correspond to the tasks described in the Work Plan?<br>Given the task descriptions in Attachment 3, does the schedule seem reasonable?<br>How many months occur between the assumed contract execution date and the start of construction or implementation for the earliest of the Proposal projects? | 1 | 0–5 | 5 | A score of 5 points will be awarded if the schedule is consistent and reasonable and demonstrates a readiness to begin construction or implementation of all elements of the Proposal by *six months after<DATE>.* |
| | | | 3 | A score of 3 points will be awarded if the schedule is not entirely consistent and reasonable or demonstrates a readiness to begin construction or implementation after *six months after the contract start date* but before *12 months after<DATE>.* |
| | | | 1 | A score of 1 point will be awarded if the schedule does not follow the work items presented in the Work Plan and Budget, is clearly not reasonable, or demonstrates a readiness to begin construction or implementation *13 months after <DATE>.* |
| | | | 0 | A score of 0 will be awarded if the schedule was omitted. |

| TABLE 4 - SUPPLEMENTAL SCORING CRITERIA AND SCORING STANDARDS | | | | |
|---|---|---|---|---|
| Scoring Criteria | Weighting Factor | Range of Points Possible | Score | Scoring Standards |
| **Monitoring, Assessment, and Performance Measures**<br>*Scoring will be based on whether the applicant has presented an adequate monitoring and assessment program including performance measures that will allow a determination of whether the objectives are met.*<br>Is the project/proposal consistent with the Basin Plan?<br>Do the output indicators effectively track output?<br>Are the outcome indicators adequate to evaluate change resulting from the work?<br>Is it feasible to meet the targets within the life of the Proposal? | 1 | 0–5 | Standard Scoring Criteria<br>See Guidelines, Section V.F | |
| **Economic Analysis - Flood Damage Reduction and Water Supply Benefits**<br>*Scoring will be based on the Flood Damage Reduction and Economic Analysis – Water Supply Benefits sections of the Proposal. The scores will be assigned relative to all other Proposals. Scoring is designed to not bias water supply and water quality projects with respect to each other.*<br>Did the applicant provide qualitative or quantitative information describing the flood damage reduction benefits of the Proposal?<br>Are the costs and flood damage reduction benefits claimed supported with adequate documentation?<br>Did the applicant provide qualitative or quantitative information describing the costs and water supply benefits of the Proposal?<br>Are the costs and water supply and water quality benefits claimed supported with adequate documentation? | 4 | 0–20 | The minimum score for this criterion is 1 point. The remaining 4 points will be allocated based on: 1) the flood damage reduction and water supply benefits realized through implementation of the Proposal and 2) the quality of the analysis and supporting documentation demonstrating those benefits. Points will be awarded based on a comparison of qualitative and quantitative information describing the flood damage reduction and water supply benefits of the Proposals. Proposals will be scored as follows: 1) high levels of flood damage reduction and water supply benefits will receive 3 to 4 points; 2) average levels of flood damage reduction benefits and limited water supply benefits will receive 2 to 3 points; and 3) low levels of flood damage reduction benefits, regardless of the level of water supply benefits will receive 1 point. The initial score will then be adjusted qualitatively based on the quality of the analysis and supporting documentation. Unsubstantiated or poor quality analysis or documentation can result in the score being reduced by up to 4 points, provided that the final score is not less than the minimum score of 1. A score of zero will be awarded to proposals that do not demonstrate flood damage reduction benefits or if this criterion is not addressed. | |
| **Water Quality and Other Expected Benefits**<br>*Scoring will be based on the certainty that the Proposal will provide the benefits claimed, as well as the magnitude and breadth of the Water Quality and Other Expected Benefits.*<br>Did the applicant provide qualitative or quantitative information describing the Water Quality and Other Expected Benefits of the Proposal?<br>Are the Water Quality and Other Expected Benefits claimed supported with adequate documentation? | 1 | 0-5 | The minimum score for this criterion is 1 point. The remaining 4 points will be allocated based on: 1) the benefits realized through implementation of the Proposal and 2) the quality of the analysis and supporting documentation demonstrating those benefits. Points will be awarded based on a comparison of qualitative and quantitative information describing the benefits of the Proposals. Proposals will be grouped by the reviewers on the basis of physical quantification in Proposals with: 1) high levels of Water Quality and Other Expected Benefits will receive 3 to 4 points, 2) average levels of Water Quality and Other Expected Benefits will receive 2 to 3 points and 3) low levels of Water Quality or Other Expected Benefits will receive 1 point. The initial score will then be adjusted qualitatively based on the quality of the analysis and supporting documentation. Unsubstantiated or poor quality analysis or documentation can result in the score being reduced by up to 4 points, provided that the final score is not less than the minimum score of 1. A score of zero will be awarded to Proposals that do not have Water Quality or Other Expected Benefits of if this criterion is not addressed. | |

| TABLE 4 - SUPPLEMENTAL SCORING CRITERIA AND SCORING STANDARDS | | | | |
|---|---|---|---|---|
| Scoring Criteria | Weighting Factor | Range of Points Possible | Score | Scoring Standards |
| Program Preferences<br>*Scoring will be based on whether the Proposal will implement one or more of the specified IRWM Grant Program Preferences (See Section II.D). Proposals that demonstrate significant, dedicated, and well-defined projects that meet multiple Program Preferences will be considered more favorably than Proposals that demonstrate a significant potential to meet a single Program Preference or demonstrate a low degree of commitment or certainty to meeting Program Preferences*<br>Does the Proposal include projects that implement Program Preferences, including Statewide priorities such as practicing integrated flood management?<br>Did the applicant demonstrate a high degree of certainty that the Proposal will implement the Program Preferences?<br>Did the applicant document the magnitude and breadth of Program Preferences that the Proposal will meet? | 2 | 0–10 | 5 | A score of 5 points will be awarded if the Proposal:<br>Addresses the following Program Preferences – Practice Integrated Flood Management, Protect Surface and Groundwater Quality, Expand Environmental Stewardship, and Use and Reuse Water More Efficiently;<br>Demonstrates a significant degree of certainty that the Program Preference claimed can be achieved; AND<br>Thoroughly documents the breadth and magnitude of the Program Preference to be implemented. |
| | | | 4 | A score of 4 points will be awarded if the Proposal includes a project(s) that implements one or more Program Preference, but does not address practice integrated flood management, protecting water quality, and expanding environmental stewardship. The proposal also needs to demonstrate with a significant degree of certainty that the Program Preference claimed can be achieved, and thoroughly documents the breadth and magnitude of the Program Preference to be implemented. |
| | | | 3 | A score of 3 points will be awarded if the Proposal includes project(s) that implement multiple Program Preferences, demonstrates a limited degree of certainty that the Program Preferences claimed can be achieved, and lacks thorough documentation for the breadth and magnitude of the Program Preferences to be implemented. |
| | | | 2 | A score of 2 points will be awarded if the Proposal includes project(s) that implement a single Program Preference, demonstrates a limited degree of certainty that the Program Preference claimed can be achieved, and lacks thorough documentation for the breadth and magnitude of the Program Preference to be implemented. |
| | | | 1 | A score of 1 point will be awarded if the Proposal addresses one or more Program Preference, but it is highly unlikely to be achieved. |
| | | | 0 | A score of 0 points will be awarded if the Proposal does not address any Program Preference. |
| Total Range of Points Possible = | 0 – 60 | | | |
| Total Overall Scored Points Possible = | 60 | | | |

# EXHIBIT A
# WORK PLAN

This exhibit provides guidance for presenting, in Attachment 3, the Work Plan for the Proposal.

All Proposals must include a detailed description of the proposed implementation project(s) for which funding will be requested. The goals and objectives of the Proposal must be identified. Where requested funding is for a component of a larger project, this section must describe all of the components of the larger project and identify which elements of the project the IRWM grant is proposed to fund. Linkages to any other projects that must be completed first or that are essential to obtain the full benefits of the Proposal must be discussed.

Based on the goals and objectives of the Proposal, a description of all work that will be necessary to complete the project or suite of projects must be included in this section. The Work Plan should include a description of work to be performed under each task and deliverables for assessing progress and accomplishments. The description should include as much detail as possible, and explain all tasks necessary to complete the Proposal and how the applicant will coordinate with the DWR.

The tasks described in the Work Plan must agree with the tasks shown on the Budget and Schedule discussed in Attachments 4 and 5. Additionally, the application must describe how the Proposal is consistent with the adopted IRWM Plan.

Attachment 3, Work Plan, should consist of two parts: an introduction and proposed work. Based on the goals and objectives of the Proposal, a description of all work that will be necessary to complete the Proposal must be included in this attachment. The Work Plan must include a summary of the entire Proposal as well as details for each project within the Proposal. Any supporting documentation necessary to substantiate work already completed should be submitted as appendices to Attachment 3.

## *INTRODUCTION*

The introduction should provide information about the Proposal and shall include, but not be limited to the following items:

- A presentation of the Goals and Objectives of the Proposal.
- A description of the purpose and need of the Proposal and how it addresses the adopted IRWM Plan's goals and objectives.
- A table of specific projects in the Proposal, including, an abstract of each project, the current status of each project in terms of percent completion of design, and implementing agencies.
- A description of synergies or linkages between projects that result in added value, or require coordinated implementation or operation.
- Detailed maps that show, at a minimum, the location of activities or facilities of the project(s);regional and local drainage systems; flood control level of protection; major water bodies and streams; flood management infrastructure; the project location in relation to the SPFC; and for project attempting to be considered for the seismic funding target, relevant active faults.
- A description of the work that has been completed or is expected to be completed prior to <DATE> the assumed grant agreement execution date. For example, if CEQA/NEPA and other environmental compliance efforts have been completed discuss the environmental determination made by the lead agency and the documents that were filed.
- A brief discussion of the data that have been collected and studies that have been performed that support the projects' site location, feasibility, and technical methods. If necessary, include references to the page locations of the studies or reports that support the claims made in this discussion.
- Provide a site map showing the project(s) geographical location and the surrounding work boundaries.

- A table of specific project(s) in the Proposal, including explanations and illustrations of how it is not part of the State Plan of Flood Control by identifying: the site specific geographic location; the project's function with relation to other stormwater or sewage conveyance systems; or, by describing the project's O&M liability associated with the Sacramento River and San Joaquin River Flood Control System.
- If the proposed project(s) is part of a multi-phased project complex, provide a description that demonstrates that the proposal can operate on a "stand alone" basis, i.e., can be fully functional without implementation of the subsequent projects.

Where requested funding is for a component of a larger project, this section must describe all of the components of the larger project complex and identify project elements the SWFM grant is proposed to fund. Linkages to any other projects that must be completed first or that are essential to obtain the full benefits of the Proposal must be discussed.

## TASKS

Tasks are specific activities that will be performed to implement each project in the Proposal. The task descriptions will be used as the scope of work in the grant agreement if the Proposal is selected for funding. The task detail must be sufficient to demonstrate a high expectation of successful implementation and must allow the reviewer to fully understand the work to be performed in order to evaluate the adequacy of the Proposal. Additionally, the tasks must provide sufficient detail to justify the project(s) cost estimates. Tasks listed in the Work Plan should be consistent with those used in Attachment 4, Budget, and Attachment 5, Schedule.

The tasks section must contain the following items:

- For each project contained in the Proposal, include a description of work to be performed under each task and the current status of the task. The description should include as much detail as possible and explain all work necessary to complete each project in the Proposal.
- Procedures by which the applicant will coordinate with its partner agencies and organizations that may receive funding from the grant including any contracts, memorandums of understanding, and other formal agreements.
- A discussion of standards, such as construction standards, health and safety standards, laboratory analysis, or accepted classifications methods that will be used in implementation.
- Development of performance measures and monitoring plans for the project(s) listed in the Proposal.
- A discussion of the status of acquisition of land or rights-of-way, if applicable.
- A discussion of the merits of the building materials or computational methods that were or will be used for project development, such as use of specific grades of building materials or use of specific, tested, and established models (or software). Also discuss the status of project design and bid solicitation efforts.
- Identification of all necessary permits and the status of securing such permits.
- A discussion of the status of preparation and completion of requirements to comply with the CEQA, NEPA, and other environmental laws. If environmental compliance efforts have not been completed, include tasks for environmental compliance. Discuss the status of environmental mitigation or enhancement actions or tasks to comply with recommended mitigation measures.
- If a GWMP must be prepared, work items to complete the GWMP.
- A description of deliverables to DWR for assessing progress and accomplishments, such as quarterly and final reports.
- Any other tasks or sub-tasks that may be applicable to describe implementation of the projects but are not listed above.

Additionally, the most recent plans and specifications should be referenced, including page or sheet numbers, in the Work Plan and copies of the plans and specifications must be submitted as part of the application, as detailed in Section VI, Attachment Instructions. Table 5 provides an outline of a typical work plan that may be submitted for

this grant program. Individual tasks will vary; however, ensure the budget items do not change to be consistent with the budget and cost benefit tables provided in the following exhibits.

| TABLE 5 – TYPICAL WORK PLAN OUTLINE |
|---|
| ***Budget Item 1: Direct Administration Costs*** |
| **Task 1: Administration**<br>[Description of work]<br>**Deliverables: Preparation of invoices and other deliverables as required.** |
| **Task 2: Labor Compliance Program**<br>[Description of work]<br>**Deliverable: Submission of Labor Compliance Program** |
| **Task 3: Reporting**<br>[Description of work]<br>**Deliverables: Submission of quarterly, annual and final reports as specified in the Grant Agreement.** |
| ***Budget Item 2: Land Purchase/Easement***<br>[If applicable, describe work] |
| ***Budget Item 3: Planning/Design/Engineering/Environmental Documentation*** |
| **Task 4: Assessment and Evaluation**<br>[Description of work]<br>**Deliverables: technical studies** |
| **Task 5: Final Design**<br>[Description of work]<br>**Deliverables: Completion of project plans and specifications at the 90 percent and final level.** |
| **Task 6: Environmental Documentation**<br>[Description of work]<br>**Deliverable: Approved and adopted CEQA/NEPA documentation** |
| **Task 7: Permitting**<br>[Description of work]<br>**Deliverables: Section 1602, 404, 402, NPDES, etc** |
| ***Budget Item 4: Construction/Implementation*** |
| **Task 8: Construction contracting**<br>[Description of work]<br>**Deliverables: Advertisement for bids; pre-bid contractors meeting; evaluation of bids; award contract** |
| **Task 9: Construction**<br>[Description of work]<br>**Subtask 9.1 Mobilization and Site Preparation** |

# EXHIBIT B
# BUDGET

The Proposal must provide a detailed estimate of costs and funding sources. The estimate must at a minimum include the following for each individual project within the Proposal:

- Land costs, planning and design costs, environmental compliance and documentation costs, construction costs shown by project task, or phase, and the contingency amount for the Proposal;
- All sources of the funding match, eligible funding match amounts can include, subject to DWR approval, prior costs borne by the applicant or individual project sponsor after September 30, 2008;
- The amount of funding match applied to each task, eligible state costs consist of those costs incurred after the date of the grant agreement is executed; and
- Tasks that are completely supported by funding match.

The detailed budget should be commensurate with the design stage that is being submitted and be broken out by task used in the Work Plan. The detailed budget should clearly identify the amount of any contingencies amounts and provide an explanation for the rationale used to determine the percentage contingency used in the estimate. The tasks shown on the Budget must agree with the tasks described in the Work Plan and shown schedule discussed in Attachments 3 and 5.

Table 5 must be completed for <u>each project in the Proposal</u>. Table 6 must be completed as a summary (roll-up) Budget for the entire Proposal. The "Summary Budget Table 6" must be clearly marked as such. Although the applicant should complete Row (j) for each individual project, the Minimum Funding Match requirement applies to the costs of the overall Proposal.

Table 6 - Project Budget

Proposal Title:_____

Project Title:_____

| | Budget Category | Non-State Share (Funding Match) | Requested Grant Funding | Total | % Funding Match |
|---|---|---|---|---|---|
| **(a)** | Direct Project Administration Costs | | | | |
| **(b)** | Land Purchase/Easement | | | | |
| **(c)** | Planning/Design/Engineering/ Environmental Documentation | | | | |
| **(d)** | Construction/Implementation | | | | |
| **(e)** | Environmental Compliance/ Mitigation/Enhancement | | | | |
| **(f)** | Construction Administration | | | | |
| **(g)** | Other Costs | | | | |
| **(h)** | Construction/Implementation Contingency | | | | |
| **(i)** | Grand Total (Sum rows (a) through (h) for each column) | | | | |
| **Sources of Funds for Non-State Share (Funding Match) and Other State Funds** | | ***Use as much space as required to show the source of the Non-State Share and Other State Funds*** | | | |

For each of the categories shown in the Table 5 above, the applicant must provide supplemental detailed costs for each project as follows:

### Row (a) Direct Project Administration Costs

Detail shall include hourly wage paid by discipline; number of hours to be expended for administration; and costs shown for equipment, supplies, with back-up data provided. If project administrative costs are shown as a percentage of a cost, include both: a) the total on which the project administration is based (i.e., total project costs, total construction cost, etc.) and b) how the percentage was determined (i.e., flat rate, based on prior experience, etc.). This budget category includes all such costs for the grant recipient and any partner agencies or organizations. Applicants are encouraged to limit administrative costs proposed to be reimbursed by the grant to less than 5% of the total Proposal costs. Such administrative costs expenses are necessary costs incidentally but directly related to the project including an appropriate pro-rata allocation of overhead and administrative expenses that are regularly assigned to all such projects in accordance with the standard accounting practices of the grantee.

### Row (b) Land Purchase/Easement

Detail shall distinguish whether the cost is for purchase of land or an easement to use the land. If land purchase is to be included in the funding match, include whether it is a proposed acquisition or whether the land is already owned by the applicant or partner agency/organization. If the land is already owned by the applicant or partner agency/organization, indicate when the land was purchased and the purchase price. The purchase price for that portion of the land that will be dedicated to the Proposal may, in certain circumstances, be included as funding match.

### Row (c) Planning/Design/Engineering/Environmental Documentation

Detail shall include hourly wage paid by discipline, number of hours, and the total cost for the particular item (i.e., 60% design, final design, engineering field investigations, preparation of CEQA documentation etc.). If any contingency amounts are used in the estimate, provide an explanation for the rationale used to determine the contingency percentage.

For purposes of this PSP, the following design stages are provided to assist applicants in determining their design percentage for projects under design:

- **10% (Conceptual) Design** – The 10% design shows project siting and the layout of major facilities. No specifications are provided. Design analysis has been started and is nearing completion. Background geologic, seismic literature research has been performed. A listing of project objectives, environmental or infrastructure constraints is provided.
- **30 % (Concept) Design –** The 30% design shows project siting and all project appurtenances. Some detail is provided for each of the disciplines (such as civil, structural, mechanical, and geology). Design analysis should be complete at this stage. A rough listing of specifications required for the project is provided. Preliminary geologic and foundation studies have been performed.
- **60% Design** – The 60% design is the same as for the 30% design submittal, with more details provided for each design discipline, including electrical, and traffic control, if applicable. Standard details and outline specifications, including the front end and technical portion, are provided. Foundation studies completed, lab testing performed, structural analysis and/or modeling performed, permitting underway.
- **90% (Pre-final) Design** – The 90% design is the final, un-stamped, submittal. Complete plans and specifications are prepared, and a detailed itemized cost estimate is included.
- **100% (Final) Design** – The 100% design is the design package that will be advertised for project award for construction/implementation of project. The package consists of the complete, signed, and "As-Advertised" plans and specifications.

### ROW (D) CONSTRUCTION/IMPLEMENTATION

Provide a cost estimate commensurate with the design stage that is being submitted for the project. For example, if the applicant states that the design for a particular project is at the 60% design stage, then a cost estimate with appropriate detail based on that design stage must be included (See above for guidance on design stages). The estimate should include the quantity of materials used, unit cost, number of units, and, if possible, should have separate costs for labor, equipment, and materials. Do not show any construction/implementation contingency costs in this category. They will be shown in Construction/Implementation Contingency category. For any implementation costs, show as much detail as required to support the implementation costs shown in Row (H).

### ROW (E) ENVIRONMENTAL COMPLIANCE/MITIGATION/ENHANCEMENT

This item includes an estimate of all environmental compliance, mitigation, and enhancement costs. The estimate of costs for this work should be provided in the same format as shown for Construction/Implementation.

### ROW (F) CONSTRUCTION ADMINISTRATION

The costs to administer and manage construction of the project must be presented. Provide a discussion of the method used to determine this cost. If a percentage of construction costs is used here, indicate the percentage used. If the estimate will be based on expected hours of effort, list the hours, by discipline, unit cost, equipment costs, and total cost.

### ROW (G) OTHER COSTS

Include detail for any legal services costs required to support the project. Include the costs for licenses and permits. Include any costs of monitoring and assessment required during the construction/initial implementation of the project. Do not include any monitoring and assessment costs for efforts required after project construction is complete.

### ROW (H) CONSTRUCTION/IMPLEMENTATION CONTINGENCY

Normally these costs include costs to handle unknown conditions encountered during construction or implementation of the project and may cover items that are not yet shown in the design. Specify the percentage used for this cost, and provide a reason for using the percentage used. Include only those contingency costs for construction/implementation efforts here. All other contingency costs should be included in the appropriate cost category.

### ROW (I) GRAND TOTAL (SUM ROWS (A) THROUGH (H) FOR EACH COLUMN)

Sum each of the columns as shown in Table 5 to determine the grand total of costs for each project. Provide a separate table that summarizes, or rolls-up, the costs for each project in the Proposal. From this summary sheet use the grand total from the "Non-state Share (Funding Match)" column, and use this cost to include in Table 3, Step 1 Checklist, under the box entitled "Local Cost Match". Use the grand total from the "State Share (Grant Funding)" column, and use this cost to include in Table 3, under the box entitled "Grant Funds Requested." Finally, use the grand total from the "Total" column, and use this cost to include in Table 3, under the box entitled "Total Budget."

| Table 7 - Summary Budget<br><br>Proposal Title:_____ | | | | | |
|---|---|---|---|---|---|
| Individual Project Title | | Non-State Share (Funding Match) | Requested Grant Funding | Total | % Funding Match |
| (a) | Project A | Grand Total (Sum rows (a) through (h) for each column in Table 5) | Grand Total (Sum rows (a) through (h) for each column in Table 5) | Grand Total (Sum rows (a) through (h) for each column in Table 5) | |
| **(b)** | Project B | | | | |
| **(c)** | Project C | | | | |
| **(d)** | Project D | | | | |
| **(e)** | Project E | | | | |
| **(f)** | Project F | | | | |
| **(g)** | Project G | | | | |
| **(h)** | Project H (add more rows for additional projects as necessary | | | | |
| **(i)** | Grand Total (Sum rows (a) through (h) for each column) | | | | |
| **Sources of Funds for Non-State Share (Funding Match) and Other State Funds** | | ***Use as much space as required to show the source of the Non-State Share and Other State Funds*** | | | |

# EXHIBIT C
# ECONOMIC ANALYSIS: FLOOD DAMAGE REDUCTION COSTS AND BENEFITS

This Exhibit provides methods and formats for estimating and presenting, in Attachment 9, the costs and the flood damage reduction benefits of the project. If several projects are being proposed with multiple benefits, then Exhibit F (Proposal Summary) must be completed summarizing the costs and benefits for all projects.

Flood Damage Reduction Benefits may include, but are not limited to, the following benefit types:

- Avoided physical damage
  - Buildings
  - Contents,
  - Infrastructure,
  - Landscaping,
  - Vehicles,
  - Equipment,
  - Crops, and
  - Ecosystems
- Avoided loss of functions:
  - NET loss of business income,
  - NET loss of rental income,
  - NET loss of wages,
  - NET loss of public services,
  - NET loss of utility services,
  - Displacement costs of temporary quarters, and
  - Transportation system disruptions.
- Avoided emergency response costs:
  - Evacuation and rescue costs,
  - Security costs,
  - Dewatering, debris removal and cleanup costs,
  - Emergency flood management system repairs, and
  - Humanitarian assistance
- Avoided public safety and health impacts:
  - Population at risk,
  - Casualties,
  - Displacement/shelter needs,
  - Critical facilities

At a minimum, all applications must provide a narrative description of the expected flood damage reduction benefits of the project. If possible, each such benefit should be quantified and presented in physical or economic terms, using existing information or reasonable effort. If benefits cannot be quantified, explain why and justify. Discussions of public safety benefits should be on a qualitative basis only. Applicants may use the tables contained in this Exhibit to present the flood damage reduction benefits of the project, or may use other formats if desired. Excel spreadsheet versions of following tables can be found at the links listed in the Foreword.

Each applicant must provide the following information:

- Narrative description of the project and its relationship to other projects in the Proposal.
- Narrative description of the project's economic costs.
- Cost details for the project using Table 9 and the information in Table 5 (Budget).
- Narrative description of all of the project's expected flood damage reduction benefits, which shall address the following items:
  - Estimates of historical flood damage data,
  - Estimates of existing without-project conditions,
  - Estimates of existing with-project conditions,
  - Description of methods used to estimate without- and with-project conditions,
  - Description of the distribution of local, regional, and statewide benefits, as applicable,
  - Identification of beneficiaries,
  - When the benefits will be received,
  - Uncertainty of the benefits, and
  - Description of any adverse effects.
- Narrative discussion that describes, qualifies, and supports the values entered in the tables.
- If possible, quantified estimates of economic flood damage reduction benefits using Table 11 as applicable.
- Documentation to support information presented in the project(s), including studies, reports, and technical data, which will be used to assess the project's ability to produce the benefits claimed.

Applicants should take necessary care to provide realistic and supportable cost and benefits analyses. Other studies or documents used to support cost and benefit estimates should be clearly referenced. See Section VI, Application Instruction for guidance on submitting studies, documents, or other reference materials. Other types of project benefits (such as water quality, ecosystem restoration, recreation, etc.) should be described in Exhibit 5: Water Quality and Other Benefits.

## PROJECT COSTS

This section provides guidance for describing all costs that will be incurred to implement and operate the project and to achieve benefits from the project. This includes costs funded by local, State, and federal agencies, non-profit organizations, and other entities. All costs, both initial investments and operational costs, associated with the project necessary to accomplish full implementation of the project and achievement of the stated benefits, must be included. All costs must be clearly documented to allow a reviewer to assess the accuracy and reasonableness of the analysis. If the reviewers find that some project costs are not included in the analysis, a lower score will result. Applicants must use the following guidelines and assumptions in an economic analysis for the project:

- *Consistency* – The economic analysis must be completed for the entire project and must be consistent with other data and information provided in the project.
- *With-Project and Without-Project Comparison* – The economic analysis should be based on a comparison of expected conditions with- and without-project over the period of analysis.

- *Period of Analysis* – The economic analysis will be based on a project life cycle specified by the applicant which shall include the construction period and operational life.
- *Economic Cost* – Any costs associated with the project, regardless of who bears the cost and regardless of the funding source is considered an economic cost. Opportunity costs should be included, but sunk costs should be excluded.
- *Sunk Costs*– Sunk costs are costs spent in the past that have no salvage value; therefore, they cannot be recovered and should not be counted.
- *Opportunity Costs* – Opportunity cost is the benefit that a resource could provide in the without-project condition and should be counted. For example, land already purchased for use in a project could be used for other purposes; therefore, a reasonable estimate of the market value of that land should be included as a cost. Note that any expenditure paid for an asset before September 30, 2008 cannot be included in Table 5 presented in Attachment 4, because it is not eligible for reimbursement. However, the current value of the asset should be included here as an economic cost.
- *Discount Rate* – Because costs and benefits are evaluated over the life of the project, they must be discounted to reflect the value of money over time. All applicants must use a 6% discount rate. Table 8 provides the discount factors that must be used for projects with up to a 50 year analysis period based upon the Gross Domestic Product Implicit Price Deflator.

TABLE 8 - DISCOUNT FACTORS

| Year | Discount Factor | Year | Discount Factor | Year | Discount Factor | Year | Discount Factor | Year | Discount Factor |
|---|---|---|---|---|---|---|---|---|---|
| 2009 | 1.000 | 2019 | 0.558 | 2029 | 0.312 | 2039 | 0.174 | 2049 | 0.097 |
| 2010 | 0.943 | 2020 | 0.527 | 2030 | 0.294 | 2040 | 0.164 | 2050 | 0.092 |
| 2011 | 0.890 | 2021 | 0.497 | 2031 | 0.278 | 2041 | 0.155 | 2051 | 0.087 |
| 2012 | 0.840 | 2022 | 0.469 | 2032 | 0.262 | 2042 | 0.146 | 2052 | 0.082 |
| 2013 | 0.792 | 2023 | 0.442 | 2033 | 0.247 | 2043 | 0.138 | 2053 | 0.077 |
| 2014 | 0.747 | 2024 | 0.417 | 2034 | 0.233 | 2044 | 0.130 | 2054 | 0.073 |
| 2015 | 0.705 | 2025 | 0.394 | 2035 | 0.220 | 2045 | 0.123 | 2055 | 0.069 |
| 2016 | 0.665 | 2026 | 0.371 | 2036 | 0.207 | 2046 | 0.116 | 2056 | 0.065 |
| 2017 | 0.627 | 2027 | 0.350 | 2037 | 0.196 | 2047 | 0.109 | 2057 | 0.060 |
| 2018 | 0.592 | 2028 | 0.330 | 2038 | 0.185 | 2048 | 0.103 | 2058 | 0.058 |

- *Dollar Value Base Year* – All costs and benefits will be expressed in 2009 dollars. When using economic data from past years, costs should be escalated to account for inflation. The update factors shown in Table 9 can be used to update economic data to 2009 dollars which are based upon the Gross Domestic Product Implicit Price Deflator. If the applicant needs to update costs from years preceding 2002, please contact DWR staff listed in the Foreword.

| TABLE 9. UPDATE FACTORS | |
|---|---|
| Year | Update Factor |
| 2002 | 1.19 |
| 2003 | 1.17 |
| 2004 | 1.13 |
| 2005 | 1.10 |
| 2006 | 1.06 |
| 2007 | 1.04 |
| 2008 | 1.01 |

## *TABLE 10*

The project costs presented in this section must be consistent with Table 5 presented in Attachment 4 (Exhibit C) of the grant application. Table 10 may augment initial costs from Table 5 if there are costs, such as opportunity costs, that are not eligible for reimbursement under this grant program. Note that cost savings realized as a result of the project should be included as a benefit and not subtracted from the costs. To complete Table 10, the applicant should use the following steps:

- Modify the number of rows to match the estimated project life, i.e. how long the project is intended to operate and provide benefits.
- Columns (a) through (g): Enter costs for each applicable cost category in each year of the project's lifecycle. Enter costs beginning in the first year of expenditure, not the first year of operation.
- Column (h): Enter the sum of all costs for the year (Columns (a) through (g)).
- Column (i): These are the discount factors provided in Table 8.
- Column (j): Enter the result of multiplying Column (h) by the discount factor in Column (i) for each year.
- Bottom of Column (j): Total Present Value of Discounted Costs: Enter the sum of the Column (j) entries in the last row at the bottom of the table. This is the total present value of all costs discounted at 6%. **For each project, these costs must be transferred to Table 20, column (c) in Exhibit F: Proposal Summary.**
- Comment Box: Enter any sources and references; include page numbers, supporting the numbers used in this table.

TABLE 10- ANNUAL COST OF PROJECT
(All costs should be in 2009 Dollars)
Project: _____

| | Initial Costs | | Operations and Maintenance Costs (1) | | | | | | Discounting Calculations | |
|---|---|---|---|---|---|---|---|---|---|---|
| YEAR | (a) | (b) | (c) | (d) | (e) | (f) | (g) | (h) | (i) | (j) |
| | Capital and Other Initial Costs from Table 5 | Capital and Other Initial Costs Not Included in Table 5 | Admin | Operation | Maintenance | Replacement | Other | Total Costs (a) +...+ (g) | Discount Factor | Discounted Costs (h) x (i) |
| 2009 | | | | | | | | | 1.000 | |
| 2010 | | | | | | | | | 0.943 | |
| 2011 | | | | | | | | | 0.890 | |
| 2012 | | | | | | | | | 0.840 | |
| ... | | | | | | | | | … | |
| ... | | | | | | | | | … | |
| Project Life | | | | | | | | | … | |
| Total Present Value of Discounted Costs (Sum of Column (j))<br>Transfer to Table 21, column (c), Exhibit F: Proposal Summary | | | | | | | | | | |

Comments

*(1) The incremental change in O&M costs attributable to the project.*

## PROJECT BENEFITS

This section provides guidance for displaying and describing the physical and economic flood damage reduction benefits of the project.

## BENEFITS ANALYSIS

The estimation of flood damage reduction benefits for SWFM projects is similar to methods used for other flood risk management programs; namely, the estimation of potential flood damage expected to occur over an analysis period for without-project conditions which is compared to consequences expected to occur with a proposed project. The reduction in flood losses attributable to a project are its benefits which can then be compared to project costs to determine if the project is economically justified. Flood damage and other flood-related losses can be expressed as either *event* or *expected annual damage* (EAD). Event damage results from specific flood events (for example, 10-, 20-, 50-, and 100-year); event damage estimates are useful for characterizing damage potential from specific magnitude storms and associated emergency planning purposes and are input into expected annual damage calculations. EAD is the damage that could be expected to occur in any given year taking into account all types of flood events. Differences in the total present value of EAD between without- and with-project conditions over the project life cycle provide an estimate of the benefits which are then compared to the total present value of costs of the proposed project to determine net benefits or a benefit-cost ratio.

### STEPS TO DETERMINE FLOOD DAMAGE REDUCTION BENEFITS

The general steps for determining flood damage reduction benefits for proposed SWFM projects are:

- Identify at least three flood events for which flood conditions and associated flood damage will be different for without- and with-project conditions;
- Identify existing *without-project* conditions[1]:
  - Determine area affected by flooding for the identified flood events;
  - Estimate number and values of structures affected by flooding by each event;
  - If flood management structures are present (such as levees, culverts, etc.), determine probability of failure by event; and
  - Estimate flood damage for *without-project* conditions for each event.
- Identify existing and future *with-project* conditions[2]:
  - Determine area affected by flooding for the identified flood events;
  - Estimate number of and values structures affected by flooding by each event;
  - If flood management structures are present (such as levees, culverts, etc.), determine probability of failure by event; and
  - Estimate flood damage for *with-project* conditions for each event.

[1] Without-project conditions will be assessed based only upon existing conditions; future growth without the project should be excluded from the analysis. Although this greatly simplifies the analysis, it avoids having to determine if future growth meets the Federal Emergency Management Agency (FEMA) National Flood Insurance Program building elevation/floodproofing requirements.

[2] With-project conditions will be assessed based only upon existing conditions; future growth with the project should be excluded from the analysis. Although this greatly simplifies the analysis, it avoids having to determine if future growth meets FEMA NFIP building elevation/floodproofing requirements. It also avoids the situation where a project may induce growth that would have otherwise not occurred. Such benefits are termed "location" benefits which may occur, but it is the intention of DWR to fund only projects protecting existing development and not future development. Therefore, plans formulated to produce primarily land development opportunities do not reduce actual flood damage and will not be funded by the State.

- Calculate expected annual flood damage as described below for *without-* and *with-project* conditions; and
- Calculate the expected annual flood damage reduction benefit as described below.

## CALCULATING EXPECTED ANNUAL DAMAGE

EAD must be calculated for the without-project and the with-project conditions. EAD is a function of three variables:

- The probability of an event occurring that could result in flooding;
- The probability that, if present, any flood management structures (such as a levee or culvert) fail given the event's occurrence; and
- The resulting damage if the flood management structural protection fails.

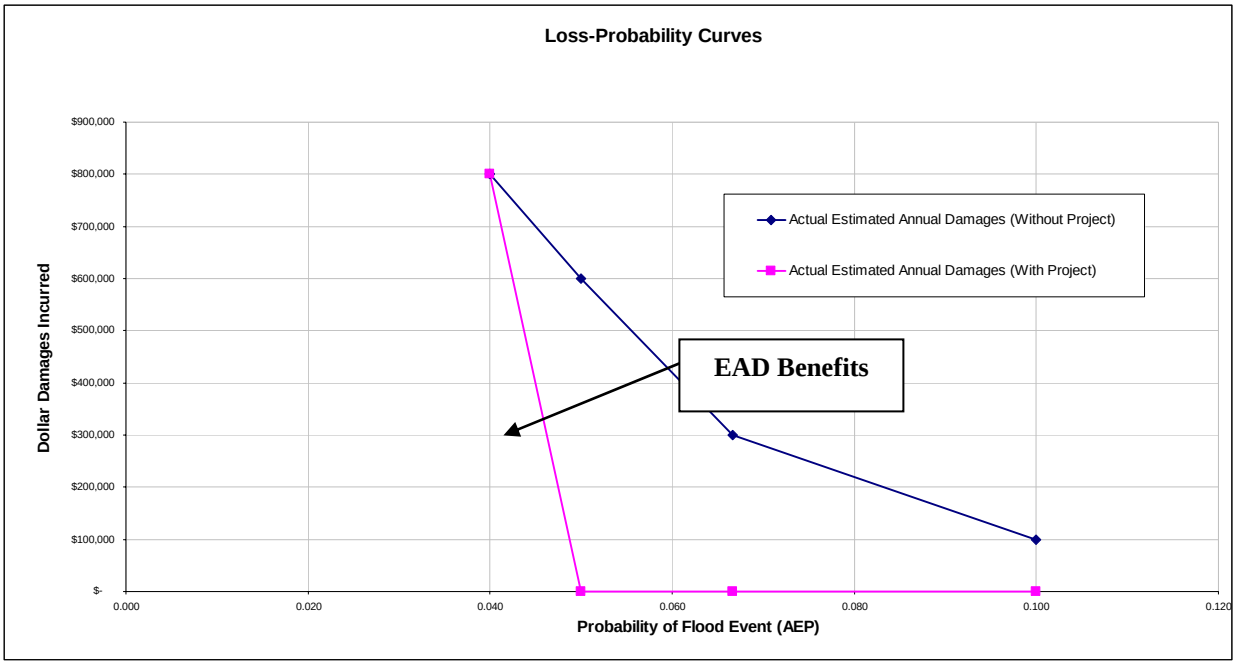
Table 11 and Figure 1 below provide an example of how to estimate EAD for the without-project and with-project conditions. Table 18 identifies five hydrologic events that could result in flooding for an area with some form of structural flood protection (levee, culvert, etc.). The probability of an event resulting in flooding depends on the without- and with-project level of protection provided by flood protection structures (if present). As shown in Table 18, there is a 50 percent chance that a 10-year event will result in flooding without the project because of structural failure. With the project, the structure is improved (or replaced) and the probability of structural failure for all events through year 20 is reduced to zero. Event damage equals the monetary damage if the structure fails multiplied by the probability that the structure will fail for this event. In this example, event damage is greater for the without-project condition than for the with-project condition for all events through year 20. Loss-probability curves are generated by plotting event damage for the without-and with-project conditions compared with the corresponding event probability, as in Figure 1. The area under a loss-probability curve equals the EAD from flooding. In this example, EAD is greater for the without-project condition than the with-project condition and the area between the two curves represents the benefits of the project.

The estimation of EAD requires significant hydrologic, hydraulic, engineering/geotechnical (if levees or other structures are involved) and economics data which must be analyzed to produce the loss-probability curves shown in Figure 1. EAD is the area under the loss-probability curves which requires integration. Computer models are available to assist with these calculations, which range in complexity from the US Army Corps of Engineers' (USACE) HEC-Flood Damage Assessment which incorporates risk and uncertainty, as well as simpler spreadsheet tools such as the Flood Rapid Assessment Model (FRAM) developed for DWR and the Benefit Cost Analysis (BCA) software developed by FEMA for its own mitigation programs. These models are described in DWR's *Draft Economic Analysis Guidelines for Flood Risk Management.* For the SWFM projects, spreadsheet models such as FRAM are acceptable as long as the agency will not be seeking USACE funding for the proposed project. FRAM is available from the DWR staff listed in the Foreword.

TABLE 11 - EVENT DAMAGE (EXAMPLE)

| Hydrologic Event | Event Probability | Damage if Flood Structures Fail | Probability Structural Failure | | Event Damage | | Event Benefit (Million $) |
|---|---|---|---|---|---|---|---|
| | | | Without Project | With Project | Without Project | With Project | |
| (a) | (b) | (c) | (d) | (e) | (f) | (g) | (h) |
| | | | | | (c) x (d) | (c) x (e) | (f) – (g) |
| 10-Year | 0.100 | $200,000 | 0.50 | 0.00 | $100,000 | $0.0 | $100,000 |
| 15-Year | 0.067 | $400,000 | 0.75 | 0.00 | $300,000 | $0.0 | $300,000 |
| 20-Year | 0.050 | $600,000 | 1.00 | 0.00 | $600,000 | $0.0 | $600,000 |
| 25-Year | 0.040 | $800,000 | 1.00 | 1.00 | $800,000 | $800,000 | $0.00 |
| 50-Year | 0.020 | $1,000,000 | 1.00 | 1.00 | $1,000,000 | $1,000,000 | $0.00 |

Figure 1 - Loss-Probability Curves (Example)




## CALCUALTING TOTAL PRESENT VALUE OF EXPECTED ANNUAL DAMAGE BENEFITS

The expected annual benefit of the project equals the difference between EAD without- and with- the project for *one* year. Table 12 illustrates how to determine the total present value of EAD over the life cycle of the project. Continuing with the above example, EAD without the project is $59,200 and with the project is $42,000 (integrating the areas under the loss-probability curves shown in Figure 1); therefore the expected annual benefit is $17,200. This value is multiplied by the appropriate present value coefficient for the project's life cycle at a 6% discount rate (this example uses 15.76 which assumes a 50 year period) which results in a total present value of $271,100. **This value is transferred to Table 20, column (e), Exhibit F: Proposal Summary**.

TABLE 12 - PRESENT VALUE OF EXPECTED ANNUAL DAMAGE BENEFITS

Project: _____

| | | | |
|---|---|---|---|
| (a) | Expected Annual Damage Without Project (1) | | **$59,200** |
| (b) | Expected Annual Damage With Project (1) | | **$42,000** |
| (c) | Expected Annual Damage Benefit | (a) – (b) | **$17,200** |
| (d) | Present Value Coefficient (2) | | **15.76** |
| (e) | **Present Value of Future Benefits (3) Transfer to Table 21, column (e), Exhibit F: Proposal Summary.** | **(c) x (d)** | **$271,100** |

*(1) This program assumes no population growth thus EAD will be constant over analysis period.*

*(2) 6% discount rate; 50-year analysis period (could vary depending upon life cycle of project).*

## OTHER FLOOD DAMAGE REDUCTION BENEFITS

The above discussion of flood damage reduction benefits focused upon physical tangible assets (such as structures) that can be monetarily valued. However, SWFM grant may also result other types of flood damage reduction benefits that are just as important but cannot easily be quantified and/or valued monetarily (for example, reductions in the loss of life and other injuries associated with flooding). These types of benefits can be qualitatively described.

### SEISMIC RETROFIT PROJECTS

The above discussion focuses upon the economic evaluation of projects that mitigate the effects of storm events upon flood management structures. However, the SWFM funding is also available for projects that mitigate the effects of *seismic* events upon these structures. In many respects, a seismic analysis would be similar to the analyses described above: the estimation of potential flood damage expected to occur over an analysis period for without-project conditions which is compared to consequences expected to occur with a proposed project. For a seismic analysis, some key variables would include:

- The probability of a seismic event;
- The magnitude of the seismic event;
- The timing of the seismic event relative to storm events,
- The probability that, if present, any flood management structures (such as a levee or dam) fail given the seismic event's occurrence or thereafter if the structure is weakened and later fails due to a storm event; and
- The resulting damage if the flood management structural protection fails.

Because many of these variables can be very difficult to estimate (especially those concerned with seismic probabilities and the probability of structural failures), projects competing for this type of funding will not be required to estimate benefit/cost ratios. However, at a minimum, Table 13 should be completed. FEMA's HAZUS-MH model may be particularly useful for estimating potential damage if GIS-based potential structural failure inundation maps are available.

TABLE 13 - MINIMUM SEISMIC FAILURE ECONOMICS DATA

Project: _____

| Variables | Without Project | With Project |
|---|---|---|
| Earthquake magnitude which causes structural failure | | |
| Estimated probability of seismic event causing structural failure | | |
| Potential inundation damage | | |

## RESOURCES

Further information concerning how to conduct flood risk management benefit-cost analyses can be found at:

- Department of Water Resources Draft Economic Analysis Guidelines for Flood Risk Management (http://www.economics.water.ca.gov/guidance.cfm) and
- USACE National Economic Development Manuals: http://www.pmcl.com/nedprototype/index.asp

# EXHIBIT D
# ECONOMIC ANALYSIS: WATER SUPPLY COSTS & BENEFITS

This exhibit provides methods and formats for estimating and presenting, in Attachment 7, the costs and the water supply benefits of each individual project contained within a Proposal. If several projects are being proposed with multiple benefits, then Exhibit F must be completed summarizing the costs and benefits for all projects.

The Water Supply Benefits may include, but are not limited to, the following benefit types:

- Avoided water supply purchases, including those for environmental purposes;
- Avoided water supply projects;
- Avoided water shortage costs;
- Avoided operations and maintenance costs; and
- Water revenue from sales to another purveyor or third party.

At a minimum, all applications must provide a narrative description of the expected water supply benefits of the project. If possible, each such benefit should be quantified and presented in physical or economic terms, using existing information or reasonable effort. If benefits cannot be quantified, explain why and justify. Applicants may use the tables contained in this Exhibit to present the water supply or water quality benefits of the project, or may use other formats if desired. Excel spreadsheet versions of following tables can be found at the links listed in the Foreword.

Each applicant must provide the following information:

- Narrative description of the project's economic costs.
- Cost details for the entire project using Table14 and the information in Table 5.
- Narrative description of all of the project's expected water supply benefits, including those achieved by restoring, protecting, or enhancing beneficial uses, which shall address the following items:
  - Estimates of without-project conditions; e.g. current and future water supplies and demand.
  - Estimates of with-project conditions; e.g. improvements in new water supplies made available to meet demand.
  - Description of methods used to estimate without- and with-project conditions.
  - Description of the distribution of local, regional, and statewide benefits.
  - Identification of beneficiaries.
  - When the benefits will be received.
  - Uncertainty of the benefits.
  - Description of any adverse effects.
- Narrative discussion that describes, qualifies, and supports the values entered in the tables.
- If possible, quantified estimates of physical and economic benefits using Tables 15, 16, and 17, as applicable. Table 15is used to present physical and economic benefits. Table 16 is used for the benefits in an avoided cost of future projects. Table 17 is used if the benefit is estimated in some other way (i.e., not using a unit monetary value or an avoided cost).
- Documentation to support information presented in the project, including studies, reports, and technical data, which will be used to assess the project's ability to produce the benefits claimed. Applicants may provide requested information for each project to help document the project, including using Tables 14

through 17 on a project basis. However, the evaluation score will be determined based on the information provided for the project in its entirety.

- If the project includes a suite of projects, describe the relationship of each project to the overall project costs and to the overall water supply benefits of the entire project.

Applicants should take necessary care to provide realistic and supportable cost and benefits analyses. Other studies or documents used to support cost and benefit estimates should be clearly referenced. See Section VI, Application Instructions for guidance on submitting studies, documents, or other reference materials.

## PROJECT COSTS

This section provides guidance for describing all costs that will be incurred to implement and operate the project and to achieve benefits from the project. This includes costs funded by local, State, and federal agencies, non-profit organizations, and other entities. All costs, both initial investments and operational costs, associated with the project necessary to accomplish full implementation of the project and achievement of the stated benefits, must be included. All costs must be clearly documented to allow a reviewer to assess the accuracy and reasonableness of the analysis. If the reviewers find that some project costs are not included in the analysis, a lower score will result. Applicants must use the following guidelines and assumptions in an economic analysis for the project:

- *Consistency* – The economic analysis must be completed for the entire project and must be consistent with other data and information provided in the project.
- *With-Project and Without-Project Comparison* – The economic analysis should be based on a comparison of expected conditions with- and without-project over the period of analysis.
- *Period of Analysis* – The economic analysis will be based on a project life cycle specified by the applicant which shall include the construction period and operational life.
- *Economic Cost* – Any costs associated with the project, regardless of who bears the cost and regardless of the funding source is considered an economic cost. Opportunity costs should be included, but sunk costs should be excluded.
- *Sunk Costs*– Sunk costs are costs spent in the past that have no salvage value; therefore, they cannot be recovered and should not be counted.
- *Opportunity Costs* – Opportunity cost is the benefit that a resource could provide in the without-project condition and should be counted. For example, land already purchased for use in a project could be used for other purposes; therefore, a reasonable estimate of the market value of that land should be included as a cost. Note that any expenditure paid for an asset before September 30, 2008, cannot be included in Table 5 presented in Attachment 4, because it is not eligible for reimbursement. However, the current value of the asset should be included here as an economic cost.
- *Discount Rate and Dollar Base Year* – Please refer to Exhibit C, Tables 8 and 9 for guidance and the appropriate factors.

## TABLE 14

The project costs presented in this section must be consistent with Table 5 presented in Attachment 4 (Exhibit B) of the grant application. Table 14 may augment initial costs from Table 5 if there are costs, such as opportunity costs, that are not eligible for reimbursement under this grant program. Note that cost savings realized as a result of the project should be included as a benefit and not subtracted from the costs. To complete Table 14, the applicant should use the following steps:

- Modify the number of rows to match the estimated project life, i.e. how long are the projects intended to operate and provide benefits.
- Columns (a) through (g): Enter costs for each applicable cost category in each year of the project's lifecycle. Enter costs beginning in the first year of expenditure, not the first year of operation.

- Column (h): Enter the sum of all costs for the year (Columns (a) through (g)).
- Column (i): These are the discount factors provided in Table 6.
- Column (j): Enter the result of multiplying Column (h) by the discount factor in Column (i) for each year (each row).
- Bottom of Column (j): Total Present Value of Discounted Costs: Enter the sum of the Column (j) entries in the last row at the bottom of the table. This is the total present value of all costs discounted at 6%. **For each project, these costs must be transferred to Table 20, column (c) in Exhibit F: Proposal Summary.**
- Comment Box: Enter any sources and references; include page numbers, supporting the numbers used in this table.

TABLE 14 - ANNUAL COST OF PROJECT
(All costs should be in 2009 Dollars)
Project: _____

| | Initial Costs | | Operations and Maintenance Costs (1) | | | | | | Discounting Calculations | |
|---|---|---|---|---|---|---|---|---|---|---|
| YEAR | (a) | (b) | (c) | (d) | (e) | (f) | (g) | (h) | (i) | (j) |
| | Capital and Other Initial Costs from Table 5 | Capital and Other Initial Costs Not Included in Table 5 | Admin | Operation | Maintenance | Replacement | Other | Total Costs (a) +...+ (g) | Discount Factor | Discounted Costs (h) x (i) |
| 2009 | | | | | | | | | 1.000 | |
| 2010 | | | | | | | | | 0.943 | |
| 2011 | | | | | | | | | 0.890 | |
| 2012 | | | | | | | | | 0.840 (etc.) | |
| ... | | | | | | | | | 0.312 (etc.) | |
| Project Life | | | | | | | | | … | |
| Total Present Value of Discounted Costs (Sum of Column (j)) Transfer to Table 21, column (c), Exhibit F: Proposal Summary | | | | | | | | | | |

Comments

*(1) The incremental change in O&M costs attributable to the project.*

## PROJECT BENEFITS

This section provides guidance for displaying and describing the physical and economic water supply benefits of the project.

## BENEFITS ANALYSIS

At a minimum, each water supply benefit must be described. If possible, each benefit should be quantified in physical terms. For each water supply physical benefit, the applicant should determine if a monetary value could be placed on each unit of benefit. For benefits that could not be quantified in physical terms, the applicant should still determine if an estimate of economic benefits is possible. In particular, avoided costs of other projects may be counted as a benefit even if the benefit cannot be physically quantified.

A description of economic benefits should be provided even if monetary value cannot be quantified. The applicant must describe how economic benefits for the water supply benefits were calculated to allow the reviewers to assess the accuracy and reasonableness of the analysis. For benefits that can be quantified in dollars, applicants should present results in 2009 dollars. The applicant must avoid double-counting economic benefits.

The applicant should provide a description of economic factors that may affect or qualify the amount of economic benefits to be realized. The application should also include a discussion of any uncertainty about the future that might affect the level of benefits received.

## TABLE 15

Table 15 should be used to present *Physically Quantifiable Benefits*, whether they are quantifiable in either physical or economic terms. To present only physically quantified water supply benefits, the applicant should complete Columns (a) through (f) of Table 15. If the applicant also wishes to claim economic benefits based on unit dollar value, then also complete columns (g) through (j) and indicate the source of the unit dollar value. If the applicant claims economic benefits based upon avoided costs of future projects, then columns (g) through (j) should not be completed. Instead, Table 11 should be completed for economic benefits based upon avoided future project costs. **To avoid double-counting, only one of these tables must be used.**

To complete Table 15, the applicant should use the following steps:

- Format a table that will display the various water supply benefits that are claimed in the project. For each individual benefit, repeat a full block of row for each year of the project lifecycle, including the column headings.
- Identify the benefit and measure (e.g., units) of that benefit in the boxes provided. This must be completed for each benefit claimed.
- Once the table has been appropriately formatted, the applicant should provide the following information for each year of the projects life:
  - Column (b) identify the type of benefit from the project.
  - Column (c) identify the units of the benefit claimed (e.g. acre-feet).
  - Column (d): identify the level (units) of the water supply for the without-project condition.
  - Column (e): identify the level (units) of the water supply benefit for the with-project condition.
  - Column (f): enter the result of subtracting Column (d) from Column (e) to determine the change in the water supply resulting from the project.
  - Columns (g) through (j): complete these columns only if the applicant has identified a monetary value for the benefit.
  - Column (g): enter the per unit monetary value for the benefit claimed.
  - Column (h): enter the result of multiplying the value in Column (d) by the value in Column (e).

- Column (j): these are the discount factors provided in Table 7.
- Column j): enter the result of multiplying each value in Column (h) by the discount factor in Column (i).
- Column (j) Bottom of the table: enter the total of all Column (j) values in the "Total Present Value of Discounted Benefits" row.
- Comment Box: enter any sources and references, including page numbers, supporting the numbers used in this table.

TABLE 15 - ANNUAL WATER SUPPLY BENEFITS
(All benefits should be in 2009 dollars)
Project: _____

| (a) | (b) | (c) | (d) | (e) | (f) | (g) | (h) | (i) | (j) |
|---|---|---|---|---|---|---|---|---|---|
| Year | Type of Benefit | Mea-sure of Benefit (Units) | Without Project | With Project | Change Resulting from Project (e) – (d) | Unit $ Value (1) | Annual $ Value (f) x (g) (1) | Discount Factor (1) | Discounted Benefits (h) x (i) (1) |
| 2009 | a | | | | | | | 1.000 | |
| | b | | | | | | | 1.000 | |
| | c | | | | | | | 1.000 | |
| | .. | | | | | | | 1.000 | |
| **Total** | ----- | ----- | | | | ----- | | ----- | |
| 2010 | a | | | | | | | 0.943 | |
| | b | | | | | | | 0.943 | |
| | c | | | | | | | 0.943 | |
| | .. | | | | | | | 0.943 | |
| **Total** | ----- | ----- | | | | ----- | | ----- | |
| 2011 | a | | | | | | | 0.890 | |
| | b | | | | | | | 0.890 | |
| | c | | | | | | | 0.890 | |
| | .. | | | | | | | 0.890 | |
| … | | | | | | | | 0.312… (etc.) | |
| Project Life | | | | | | | | … | |
| | | | | | | | | Total Present Value of Discounted Benefits Based on Unit Value (Sum of the values in Column (i) for all Benefits shown in table) | |
| Comments | | | | | | | | | |

*(1) Complete these columns if dollar value is being claimed for the benefit.*

## TABLE 16

Table 16 should be used if the applicant wishes to present *Benefits from Avoided Costs of Future Projects*. This type of benefit applies to the extent to which the project will cause other water supply projects to be avoided, delayed, or scaled down. This table should also be used to present the avoided cost of water shortages or the avoided cost of future operations, such as treatment costs. To claim this type of benefit, the applicant should provide documentation that the avoided cost would actually be incurred in the absence of the project. To estimate a benefit from avoided costs of future projects, shortages, or operations complete Table 17. While this is a benefit, the estimate will require a cost estimate for the avoided project. Estimates from existing studies, updated to 2009 dollars, can be used to complete Table 16. The applicant should show that those cost estimates are reasonably comparable to the standards and procedures described in the cost section of this exhibit.

Below, the project(s) that would be avoided because of the project are called alternative(s). Note that a precise quantification of physical benefits is not required to claim costs of alternative(s) as a benefit; however, the alternative(s) should provide approximately the same types and levels of benefits as the project. An applicant should compare the amount and timing of physical benefits from the project with the alternative to make sure they are comparable. If an alternative provides a physical benefit larger than that of the project, the applicant must make adjustments to the alternative to make it similar to the project. Without an adjustment, only a portion of the cost of the alternative can be claimed as a measure of benefit. If the alternative provides an amount of physical benefit smaller than that of the project, an additional benefit might be claimed (see Table 16, 2nd to last row – "% Avoided Cost Claimed by Project"). If the alternative provides physical benefits at times (e.g. year types or season) different from those of the project, additional adjustments may be needed or the alternative may simply not be a reasonable alternative to the project. If the alternative would delay action until a future time within the planning horizon, enter the delayed costs when they are avoided as a benefit, and enter them again as a cost at the time they would be paid with the project.

To complete Table 16, the applicant must:

- Format a table that will display all alternatives that apply by copying Columns (b) through (e) of Table 11 for each individual alternative.
- Describe the alternative in the box provided. This must be completed for each alternative.
- Once the table has been appropriately formatted, the applicant should provide the following information for each year of the alternative life:
  - Column (b): enter capital costs for each year of the alternative life. Enter costs beginning in the first year of expenditure of any cost, not the first year of operation.
  - Column (c): enter replacement costs for each year of the alternative life. Enter costs beginning in the first year of expenditure of any cost, not the first year of operation.
  - Column (d): enter O&M costs for each year of the alternative. Enter costs beginning in the first year of expenditure of any cost, not the first year of operation.
  - Column (e): enter the sum of costs contained in Columns (b), (c), and (d).
  - Column (f): enter the sum of "Total Cost Avoided for Individual Alternatives" for each alternative.
  - Column (g): these are the discount factors provided in Table 7.
  - Column (h): enter the result of multiplying the value in Column (f) by the number provided in Column (g) for each year (each row).
- Bottom of Column (h): to represent the net present value of all costs discounted at 6% and to take into account the percentage of the alternative claimed, do the following:
  - Enter the sum of all values in Column (h) in the row marked "Total Present Value of Discounted Costs." This represents the net present value of all costs discounted at 6%.

- In the next row, enter the "% Claimed by Project." This is the percentage of the cost of the alternative that the applicant is claiming for the project. If claiming the entire cost, enter 100%.
- In the final row labeled "Total Present Value of Discounted Costs Claimed by Project," enter the result of multiplying the "Total Present Value of Discounted Costs by the % Annual Avoided Cost Claimed by alternative Project."

Comment box: enter any sources and references, including page numbers, supporting the numbers used in this table.

**TABLE 16 - ANNUAL COSTS OF AVOIDED PROJECTS**
**(All avoided costs should be in 2009 dollars)**
**Project: _____**

| | Costs | | | | Discounting Calculations | | |
|---|---|---|---|---|---|---|---|
| **(a)** | **(b)** | **(c)** | **(d)** | **(e)** | **(f)** | **(g)** | **(h)** |
| **YEAR** | Alternative (Avoided Project Name): _____ *Replicate this column block with headers for each avoided alternative* | | | | Total Cost Avoided for All Alternatives (Sum of Total Cost Avoided for Individual Alternatives) | Discount Factor | Discounted Costs (f) x (g) |
| | Avoided Capital Costs | Avoided Replacement Costs | Avoided Operations and Maintenance Costs | Total Cost Avoided for Individual Alternatives (b) + (c) + (d) | | | |
| 2009 | | | | | | 1.000 | |
| 2010 | | | | | | 0.943 | |
| 2011 | | | | | | 0.899 | |
| 2012 | | | | | | 0.839 | |
| ... | | | | | | 0.312 (etc.) | |
| Project Life | | | | | | … | |
| Total Present Value of Discounted Costs (Sum of Column (h)) | | | | | | | |
| (%) Avoided Cost Claimed by Project | | | | | | | |
| Total Present Value of Discounted Avoided Project Costs Claimed by alternative Project (Total Present Value of Discounted Costs x % Avoided Cost Claimed by Project) | | | | | | | |
| Comments | | | | | | | |

## TABLE 17

Table 17 should be used if the applicant wishes to present *Other Water Supply Benefits*. Other Water Supply Benefits are those benefits that do not meet the criteria for Physically Quantifiable Benefits or Benefits from Avoided Costs of Future Projects. Because there is less tabular information for these benefits, it is important to

provide sufficient documentation or narrative information to support the benefit estimates. To complete Table 17, applicants should use the following steps:

- Column (c): describe the benefit in qualitative terms and the basis for associated monetary value of the benefits over the life of the project.
- Column (d): enter the dollar value of the monetary benefit claimed for each year.
- Column (e): these are the discount factors provided in Table 7.
- Column (f): enter the result of multiplying each value in Column (d) by the discount factor in Column (e).
- Column (f) Bottom: enter the total of all Column (d) values in the "Total Present Value of Discounted Other Benefits" Row (last row).
- Comment Box: provide citations and qualitative information to support the benefit claimed. Enter any sources or references, including page numbers, supporting the number used in this table.

TABLE 17 - ANNUAL OTHER WATER SUPPLY BENEFITS
(All benefits should be in 2009 dollars)
Project: _____

| (a) | (b) | (c) | (d) | (e) | (f) |
|---|---|---|---|---|---|
| Year | Type of Benefit | Description of Benefit | Annual Benefits ($) | Discount Factor (1) | Discounted Benefits (h) x (i) (1) |
| 2009 | a | | | 1.000 | |
| | b | | | 1.000 | |
| | c | | | 1.000 | |
| | .. | | | 1.000 | |
| 2010 | | | | 0.943 | |
| | a | | | 0.943 | |
| | b | | | 0.943 | |
| | c | | | 0.943 | |
| 2011 | .. | | | 0.890 | |
| | | | | 0.890 | |
| | a | | | 0.890 | |
| | b | | | 0.890 | |
| ... | c | | | 0.312 (etc.) | |
| Project Life | .. | | | … | |
| | | | | Total Present Value of Discounted Benefits Based on Unit Value (Sum of the values in Column (i) for all Benefits shown in table) | |
| Comments | | | | | |

## TABLE 18

Table 18 sums the different types of water supply benefits. To complete Table 18, the applicant should use the following steps:

- Place the total Present Value of Discounted Benefits of Water Supply from Table 15 in column (a) OR
- Place the total Present Value of Discounted Benefits of Avoided Project Costs from Table 16 in column (b)
- Place the total Present Value of Discounted Benefits of Other Water Supply Benefits from Table 17 in column (c)
- Enter the sum of column (a) or (b) and (c) to get the total Water Supply Benefits. **Transfer this value to Table 20, column (d), Exhibit F: Proposal Summary**.

TABLE 18. TOTAL WATER SUPPLY BENEFITS

(All benefits should be in 2009 dollars)

Project: _____

| Total Discounted Water Supply Benefits (a) | Total Discounted Avoided Project Costs (b) | Other Discounted Water Supply Benefits (c) | Total Present Value of Discounted Benefits (d) (a) or (b) + (c) |
|---|---|---|---|
| | | | |

Comments

# EXHIBIT E
# WATER QUALITY AND OTHER EXPECTED BENEFITS

This exhibit provides methods and formats for estimating and presenting, in Attachment 9, the Water Quality and Other Expected Benefits of the Project. If the Project does not have Water Quality and Other Expected Benefits; then simply state so in Attachment 9. For Projects with Water Quality and Other Expected Benefits, applicants must describe such benefits. If possible, each such benefit should also be quantified and presented in physical or economic terms. If not possible to quantify the benefits, please include an explanation and justification of why it cannot be done. In addition to Table 19 below, the applicant should provide the following items:

- Narrative discussion of the estimates of without-project physical conditions.
- Narrative discussion of the estimates of with-project physical conditions.
- Description of methods used to estimate without- and with-project conditions.
- Description of potential other benefits.
- Description of the distribution of local, regional, and statewide benefits, as applicable.
- Identification of beneficiaries.
- When the benefits will be received.
- Uncertainty associated with the benefits.
- Description of any adverse effects.

Applicants should attempt to make descriptions as detailed and quantitative as possible using existing information or reasonable effort. Computer models can be used to provide quantitative analyses of benefits but such detailed analysis is not required. For presenting analysis, clear, concise tables and narrative descriptions are preferred.

The Water Quality and Other Expected Benefits may include, but are not limited to, the following benefit types:

Water Quality – water quality benefits include: improvements related to protecting, restoring, or enhancing beneficial uses; water quality improvements for impaired water bodies and sensitive habitats; avoided water quality projects costs; avoided water treatment costs; avoided wastewater treatment costs; and water quality improvements related to providing water supplies (if not already captured as a water supply benefit).

Ecosystem Restoration – Ecosystem restoration includes habitat restoration, ecosystem improvements and preservation, and fish and wildlife enhancement. If a Habitat Evaluation Procedure has been performed, enter information from that analysis. A Habitat Evaluation Procedure for ecosystem restoration is preferred but not required. For ecosystem restoration analysis, applicants may count benefits from both restoration and preservation of high-quality existing habitat. The ecosystem benefits analysis should take into account both structural and functional elements of the ecosystem being protected or restored. Without- and with-project conditions for ecosystem restoration could include the acreage of habitat, the quality of that habitat, and the special-status species considered in the analysis.

Recreation and Public Access – Recreation and public access benefits should be documented on a with- and without-project basis. With- and without-project conditions could include the types and quality of recreational activities, visitor days, and unit day values.

Power Cost Savings and Production – Power cost savings and power production benefits should be based on market value of power. Document the quantity and the unit value of the power saved or produced. Include information on when the savings or production would occur (time of year, time of day), change in capacity, or other factors that influence the cost savings or production benefit.

Other – If the Project has benefits not already accounted for, please describe them in detail. Some benefits, such as in-stream flow, may be difficult to categorize. In such cases, the applicant should attempt to place it in the most appropriate category or categories, or describe it as an "Other" benefit.

An Excel spreadsheet version of Table 19 can be found at the links listed in the Foreword. Table 19 should be used to present *Water Quality and Other Expected Benefits*, whether they are quantifiable in either physical or economic terms. To present only physically quantified benefits, then the applicant should complete Columns (b) through (f) of Table 19. If the applicant also wants to claim economic benefits based on unit dollar values, then columns (g) through (j) must be completed. To complete Table 19, the applicant should use the following steps:

Identify all other benefits associated with the project and enter these for year 2009 in column (b); a separate row will be used for each benefit. For example, if "water quality" is a benefit of the project, this would replace the "a" in column (b). Repeat this for each benefit and then for all years of the Project Life.

Identify the measure (e.g., units) of each benefit claimed in column (c).

Identify the level (units) of each benefit for the without-Project condition in column (d).

Identify the level (units) of each benefit for the with-Project condition in column (e).

Enter the result of subtracting Column (d) from Column (e) to determine the change in the resource conditions resulting from the Project in Column (f).

Complete columns (g) through (j) only if a monetary value for the benefit has been identified.

Enter the result of multiplying each value in Column (f) by the $ unit value in Column (g) in Column (h).

Column (i) contains the discount factors provided in Exhibit C, Table 7.

Enter the result of multiplying each value in Column (h) by the discount factor in Column (i) in Colum (j).

Sum discounted benefits for all benefit types for all years in Colum (j). **This value is transferred to Table 20, column (f) in Exhibit F: Proposal Summary**

Comment Box: enter any sources and references, including page numbers, supporting the numbers used in Table 19.

TABLE 19. WATER QUALITY AND OTHER EXPECTED BENEFITS
(All benefits should be in 2009 dollars)
Project: _____

| (a) | (b) | (c) | (d) | (e) | (f) | (g) | (h) | (i) | (j) |
|---|---|---|---|---|---|---|---|---|---|
| Year | Type of Benefit | Measure of Benefit (Units) | Without Project | With Project | Change Resulting from Project (e) – (d) | Unit $ Value (1) | Annual $ Value (f) x (g) (1) | Discount Factor (1) | Discounted Benefits (h) x (i) (1) |
| 2009 | a | | | | | | | 1.000 | |
| | b | | | | | | | 1.000 | |
| | c | | | | | | | 1.000 | |
| | .. | | | | | | | 1.000 | |
| 2010 | a | | | | | | | 0.943 | |
| | b | | | | | | | 0.943 | |
| | c | | | | | | | 0.943 | |
| | .. | | | | | | | 0.943 | |
| 2011 | a | | | | | | | 0.890 | |
| | b | | | | | | | 0.890 | |
| | c | | | | | | | 0.890 | |
| | .. | | | | | | | 0.890 | |
| Project Life | | | | | | | | | |
| Total Present Value of Discounted Benefits Based on Unit Value (Sum of the values in Column (j) for all Benefits shown in table) Transfer to Table 21 as appropriate, column (f), Exhibit F: Proposal Summaries | | | | | | | | | |
| **Comments** | | | | | | | | | |

*(1) Complete these columns if dollar value is being claimed for the benefit.*

# EXHIBIT F
# PROPOSAL PROJECT COSTS AND BENEFITS SUMMARIES

Exhibits C (Economic Analysis – Flood Damage Reduction), D (Economic Analysis – Water Supply), and E (Water Quality and Other Expected Benefits) contain tables that are to be completed for individual projects. However, proposals may contain several projects, the benefits and costs for all of these projects must be summarized in Table 21 below.

- *Project* – list all projects in column (a);
- *Agency* – list the project's sponsor agency in column (b);
- *Costs* – identify the project's total present value of costs;
- *Benefits* – identify the present value of all benefits for each project;
- *Benefit/cost ratio* – include the B/C ratio for each project; and
- *Total* – sum the total present value of costs and benefits for all projects and compute a B/C ratio for all projects in the proposal.

Care must be taken in completing Table 20 to avoid double-counting of benefits and costs, especially if an individual project has multiple benefits. For example, if an individual project results in water supply and flood damage reduction benefits, then those benefit values can be transferred to Table 20 from Exhibits C (Water Supply) and E (Flood Damage Reduction) without double-counting. However, the project costs included in Exhibits C and E for each benefit may represent the total costs to provide both benefits. If that is the case, then those costs should only be transferred once from either Exhibit C or E to Table 20. This problem with potentially double-counting costs could be addressed through cost-allocation procedures; however, to simplify the analysis, this will not be required.

TABLE 20 - PROPOSAL PROJECT COSTS AND BENEFITS SUMMARY FOR PROPOSITION 1E

Proposal: _____

Agency: _____

| Project | Agency | Total Present Value Project Costs (1) | Total Present Value Project Benefits | | | | B/C Ratio |
|---|---|---|---|---|---|---|---|
| | | | Water Supply (2) | Flood Damage Reduction (3) | Other (4) | Total | |
| (a) | (b) | (c) | (d) | (e) | (f) | (g) (d) + (e) + (f) | (h) (g) / (c) |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| TOTAL | | | | | | | |

*(1) From Exhibit C, Table 9, column (j).*

*(2) From Exhibit C, Table 13.*

*(3) From Exhibit E, Table 19, row (e).*

*(4) From Exhibit D, Table 14, column (j).*