

# PROPOSITION 1E STORMWATER FLOOD MANAGEMENT GRANT APPLICATION

SAN FRANCISCO STORMWATER & FLOOD MANAGEMENT  
PRIORITY PROJECTS



APRIL 15, 2011



## Attachment 1 Authorization and Eligibility Requirements

<u>PSP Requirements</u>	<u>Page</u>
Authorizing Documentation .....	1-1
Eligible Applicant Documentation .....	1-1
GWMP Compliance.....	1-2
Project Eligibility .....	1-2
Consistency with an Adopted IRWM Plan .....	1-2

### Authorizing Documentation

This proposal is submitted by the San Francisco Public Utilities Commission (SFPUC). The Commission adopted a resolution authorizing the General Manager of SFPUC to submit this application and execute an agreement with the State of California for Proposition 1E Stormwater Flood Management grant funding on April 12, 2011. A copy of the adopted resolution is included at the end of this attachment.

### Eligible Applicant Documentation

**Is the applicant a local agency as defined in Appendix B of the Guidelines? Please explain.**

Response: Yes, the SFPUC is a department of the City and County of San Francisco that provides water, wastewater, and municipal power services to San Francisco. SFPUC is a local public agency governed by a Board of Commissioners that are nominated by the Mayor of San Francisco and approved by the Board of Supervisors.

**What is the statutory or other legal authority under which the applicant was formed and is authorized to operate?**

Response: The SFPUC is a department of the City and County of San Francisco.

**Does the applicant have legal authority to enter into a grant agreement with the State of California?**

Response: Yes. The SFPUC (Applicant) has legal standing to enter into contractual relationships with the State of California, Department of Water Resources. On April 12, 2011, the SFPUC Commissioners adopted the authorizing Resolution No. 11-0050 giving explicit authority to SFPUC to submit this Proposition 1E Stormwater and Flood Management application, and enter into and implement the grant agreement.

**Describe any legal agreements among partner agencies and/or organizations that ensure performance of the Proposal and tracking of funds.**

Response: SFPUC is the sole applicant and there are no partner agencies and/or organizations. SFPUC will be responsible for ensuring performance of the Proposal and tracking of funds.

### GWMP Compliance

The projects included in this proposal are not groundwater recharge or groundwater management focused projects and do not have any direct impacts to local groundwater sources because they are located on the Bayside watershed in San Francisco which is not used for groundwater recharge.

### Eligibility Criteria

The projects included in this proposal are eligible for implementation grant funding:

- ✓ **The Region has been accepted.** The San Francisco Bay Area Region has been accepted through the Regional Acceptance Process (RAP) and is listed in Table 1 (Round 1 Stormwater Eligible IRWM Regions from the 2009 RAP Decisions) under the San Francisco Bay Funding Area.
- ✓ **The Region's IRWM Plan was adopted prior to September 30, 2008.** The San Francisco Bay Area Integrated Regional Water Management Plan was adopted in December 2006.
- ✓ **The projects included in this Proposal are consistent with the Bay Area IRWM Plan adopted in December 2006.** The projects were added to the IRWM Plan implementation list after adoption, but in accordance with the procedures in the adopted IRWM Plan.
- ✓ **The projects included in this Proposal are designed to manage stormwater runoff to reduce flood damages** (PRC §5096.827 9(c)).
- ✓ **The projects included in this Proposal are consistent with the Regional Water Quality Control Plan (Basin Plan) for Region 2, the San Francisco Bay region.**
- ✓ **The projects included in this Proposal are not part of the State Plan of Flood Control (SPFC)** (PRC §5096.827 9(b)) because the projects are located outside the Central Sacramento – San Joaquin Valley.
- ✓ **The projects in this Proposal yield multiple benefits,** including water quality improvement.
- ✓ **The projects in this Proposal identify a funding match of at least 50% for each project.** The Sunnydale Flood and Stormwater Management Sewer Improvement Project has a funding match from SFPUC of 82%. The Cesar Chavez Street Flood and Stormwater Management Sewer Improvement Project has a funding match from SFPUC of 50%.

### Consistency with an Adopted IRWM Plan

The projects included in this Proposal are consistent with the San Francisco Bay Area IRWM Plan adopted on December 2006. The list of projects proposed for funding is as follows:

1. Sunnydale Flood and Stormwater Management Sewer Improvement Project
2. Cesar Chavez Street Flood and Stormwater Management Sewer Improvement Project

Both projects were added post adoption of the IRWM Plan, in accordance with the process developed and agreed upon by the Bay Area IRWM Regional Water Management Group (or Coordinating Committee). The Sunnydale and Cesar Chavez projects were fully vetted by the Project Screening Subcommittee of the Bay Area IRWM Plan, and recommended for addition to the IRWM Plan because the projects are located within the Bay Area regional IRWM boundary, are consistent with the overall goals of the IRWM Plan, and demonstrated benefits in flood and stormwater management and multiple

water resource management areas. With consensus from the Coordinating Committee, the projects were approved for additional to the IRWM Plan on March 28, 2011.

Documentation showing the Coordinating Committee's and Project Screening Subcommittee's decision-making process in adding the above projects is included at the end of this attachment. This document has been formally approved by the Coordinating Committee as an appendix added to the IRWM Plan.

**Authorizing Documentation**  
SFPUC Resolution



**AGENDA ITEM**  
**Public Utilities Commission**  
*City and County of San Francisco*



DEPARTMENT Wastewater Enterprise AGENDA NO. 8b  
 MEETING DATE April 12, 2011

**Authorize Grant Application: Consent Calendar**  
**Project Manager: Tommy Moala**

**Authorize Submittal of Proposition 1E Grant Application**

<p><b>Summary of Proposed Commission Action:</b></p>	<p><b>Authorize</b> the General Manager of the San Francisco Public Utilities Commission (SFPUC) to apply for Proposition 1E grant funding pursuant to the Disaster Preparedness and Flood Prevention Bond Act of 2006 (Public Resource Code Section 5096.800 <i>et seq.</i>) through the California Department of Water Resources in order to obtain up to \$24.2 million, or up to 50 percent of approved project cost, in stormwater flood management funding. As stipulated in the grant application requirements, the SFPUC would provide a matching amount of funding or in-kind contributions up to \$24.2 million.</p>
<p><b>Background:</b></p>	<p>The State of California, Natural Resources Agency, Department of Water Resources announced the availability of \$212 million of state funds for Proposition 1E grants for projects that support integrated water management planning and implementation. The grants are intended to assist local municipal agencies with combined sewer and stormwater systems to meet immediate water quality needs related to preventing discharges to State waters and to assist local agencies in addressing requirements in the California Water Code related to stormwater flood management.</p> <p>The SFPUC has identified two candidate projects, Cesar Chavez and Sunnydale Flood and Stormwater Management Sewer Improvements, which are required to manage stormwater runoff to reduce flooding and to meet immediate water quality needs related to combined sewer systems.</p> <p>A requirement of the grant application is the submission of an official resolution adopted by the applicant's governing body verifying that: 1) the governing body supports the proposal, 2) the applicant is capable of</p>

**APPROVAL:**

DEPARTMENT / BUREAU   
 COMMISSION SECRETARY Mike Housh

FINANCE Todd L. Rydstrom  
 GENERAL MANAGER 

	<p>providing the necessary amount of funding and/or in-kind contributions, and 3) if selected to receive grant funding, the applicant is able to enter into a grant agreement with the California Department of Water Resources.</p> <p>In addition, if the grant is awarded, approval from the Board of Supervisors to accept and expend the grant funds will be requested. This Resolution authorizes the General Manager to initiate the steps to apply for this grant, and eventually accept and expend the award, and execute the grant agreement.</p>
<b>Result of Inaction:</b>	A delay in authorizing the grant application will make the SFPUC ineligible to apply to the California Department of Water Resources Proposition 1E Grant Program, at a potential loss of up to \$24.2 million to be put toward SFPUC projects.
<b>Budget &amp; Costs:</b>	Up to \$24.2 million in state grant funds are being requested. The grant program requires 100 percent local match from the SFPUC. The required funding and in-kind contributions are available from Project Number CENMSCIC11 - Cesar Chavez Project and Project Number CENMSCIC23 - Sunnydale Project.
<b>Schedule:</b>	Grant applications are due April 15, 2011. The Department of Water Resources is scheduled to announce grant recipients in September 2011. If awarded funds, the SFPUC will coordinate with the Department of Water Resources to develop a grant agreement. It is anticipated that the agreement will take approximately three months to implement, at which time the grant funding will become available for use by the SFPUC.
<b>Environmental Review:</b>	The San Francisco Planning Department approved a Mitigated Negative Declaration for the Cesar Chavez Project on January 13, 2010 and also approved a Mitigated Negative Declaration for the Sunnydale Project on April 8, 2010.
<b>Recommendation:</b>	SFPUC staff recommends that the Commission adopt the attached resolution.
<b>Attachments:</b>	1. SFPUC Resolution

## **PUBLIC UTILITIES COMMISSION**

City and County of San Francisco

RESOLUTION NO. 11-0050

WHEREAS, This Commission supports projects that improve the management of stormwater and water quality; and

WHEREAS, This Commission supports leveraging local resources by applying for external funding; and

WHEREAS, The California Department of Water Resources recently announced the availability of \$212 million in state funds through the Proposition 1E Grant Program for projects that support integrated water management planning and implementation; and

WHEREAS, The SFPUC intends to apply for grant funding through the California Department of Water Resources Integrated Regional Water Management grant program for the Cesar Chavez Street Flood and Stormwater Management Sewer Improvement Project and the Sunnydale Flood and Stormwater Management Sewer Improvement Project; and

WHEREAS, Final mitigated negative declarations ("FMND") were prepared for these projects; and

WHEREAS, On January 13, 2010, the Environmental Review Officer (ERO), San Francisco Planning Department, Major Environmental Analysis Division, reviewed and considered the FMND for the Cesar Chavez Project and on April 8, 2010 for the Sunnydale Project, and found that the contents of said reports and procedures through which the FMNDs were prepared, publicized, and reviewed, complied with the California Environmental Quality Act (CEQA) (California Public Resources Code Sections 21000 et seq.), 14 California Code of Regulations Sections 15000 et seq. (the "CEQA Guidelines") and Chapter 31 of the San Francisco Administrative Code ("Chapter 31"); and

WHEREAS, On February 23, 2010, the San Francisco Public Utilities Commission (SFPUC), by Resolution No. 10-0034, approved the Cesar Chavez Project and adopted findings (CEQA findings) and a Mitigation Monitoring and Reporting Program (MMRP) required by the California Environmental Quality Act (CEQA); and

WHEREAS, On May 11, 2010, the San Francisco Public Utilities Commission (SFPUC), by Resolution No. 10-0082, approved the Sunnydale Project and adopted findings (CEQA findings) and a Mitigation Monitoring and Reporting Program (MMRP) required by the California Environmental Quality Act (CEQA); and

WHEREAS, The Department of Water Resources can fund up to \$24.2 million or up to 50 percent of approved project cost;

WHEREAS, An equal amount matching the grant award would be provided by the SFPUC; and

WHEREAS, This Commission supports the submittal of the Proposition 1E Grant Application to the California Department of Water Resources Grant Program; and

WHEREAS, If selected for a Proposition 1E grant, the SFPUC will work with the California Department of Water Resources to meet established grant requirements; and

WHEREAS, The required funding and in-kind contributions are available from Project Number CENMSCIC11, Cesar Chavez Project and Project Number CENMSCIC23, Sunnydale Project, now, therefore, be it

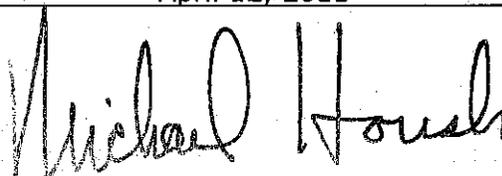
RESOLVED, That this Commission has reviewed and considered the FMNDs for the projects and the record as a whole, finds that the FMNDs are adequate for its use as the decision-making body for the action taken herein and incorporates the CEQA findings contained in Resolution Nos. 10-0034 and 10-0082, including the MMRPs, by this reference thereto as though set forth in this Resolution; and be it further

RESOLVED, The Commission further finds that since the FMNDs were finalized, there have been no substantial project changes and no substantial changes in project circumstances that would require major revisions to the FMNDs due to the involvement of new significant environmental effects or an increase in the severity of previously identified significant impacts, and there is no new information of substantial importance that would change the conclusions set forth in the FMNDs; and be it further

RESOLVED, That this Commission authorizes the General Manager of the San Francisco Public Utilities Commission (SFPUC) to apply to the California Department of Water Resources Proposition 1E Grant Program for funding up to \$24.2 million for the Cesar Chavez and Sunnydale Stormwater Management and Sewer Improvement projects, to be matched by equal SFPUC funding, and, be it

FURTHER RESOLVED, That this Commission authorizes the General Manager of the SFPUC to accept and expend those grant funds, if awarded; to seek Board of Supervisors approval to accept and expend those funds; and, to execute such additional documents or take such additional actions as may be necessary to implement the Grant Agreement, including, if appropriate, indemnifying the California Department of Water Resources for liability associated with the projects, to the extent approved by the City's Risk Manager and the City Attorney.

*I hereby certify that the foregoing resolution was adopted by the Public Utilities Commission at its meeting of* \_\_\_\_\_ *April 12, 2011*



\_\_\_\_\_  
*Secretary, Public Utilities Commission*

**Consistency with Adopted IRWM Plan**  
Documentation for Projects Added to the IRWM Plan

# Appendix G

## New Projects Added to IRWMP

March 2011



### Appendix G: New Projects Added to the IRWM Plan (as of March 28, 2011)

On March 28, 2011, the Bay Area IRWMP Coordinating Committee (CC) agreed by consensus to add 13 new flood and stormwater management projects into the IRWM Plan, and update the description of one existing project in the Plan. This appendix documents the addition of the new projects listed in **Table 1** and the updated project description in **Table 2**.

**Table 1: New Projects Added to the IRWM Plan**

Project No.	Project Name	Lead Agency
139	Lower Redwood Creek Restoration	Golden Gate National Parks Conservancy
140	Lake Dalwigk Habitat Enhancement Project	Vallejo Sanitation and Flood Control District
141	Bayfront Regional Flood Protection System Improvements and 5th Avenue Pump Station Renovation Project	City of Redwood City
142	San Francisquito Creek Flood Protection and Ecosystem Restoration Capital Improvement Project, East Bayshore Road to San Francisco Bay	San Francisquito Creek Joint Powers Authority
143	Cesar Chavez Street Flood and Stormwater Management Sewer Improvement Project	San Francisco Public Utilities Commission
144	Sunnydale Flood and Stormwater Management Sewer Improvement Project	San Francisco Public Utilities Commission
145	Phoenix Lake IRWM Retrofit	Marin County Flood Control and Water Conservation District, Flood Zone 9 (FZ9)
146	Quartermaster Reach	Golden Gate National Parks Conservancy
147	Multi-Benefit Flood and Runoff Management for Sonoma Valley	City of Sonoma, Sonoma County Water Agency
148	Stivers Lagoon Marsh Complex Restoration	Alameda Flood Control and Water Conservation District
149	Sabercat Historical Park Master Plan <sup>1</sup>	City of Fremont
150	Grimmer Greenbelt Gateway (Line G Channel Enhancement)	Alameda County Flood Control and Water Conservation District
151	Arroyo de la Laguna, Verona Phase I <sup>2</sup>	Urban Creeks Council, Zone 7 Agency
152	Improving Quantitative Precipitation Information for the San Francisco Bay Region <sup>3</sup>	City and County of San Francisco, Dept of Public Works, Bureau of Engineering

<sup>1</sup> This project was considered more of a planning effort than an implementation project and analogous to Tier 2 projects in the 2006 IRWMP (Appendix E-1 of the IRWMP).

<sup>2</sup> This project is an update of the R10-4 Arroyo de la Laguna (ADLL) Improvement Project 4, included in Appendix E-1 of the IRWMP, and listed as a Tier 2 project from the FP-SW Functional Area document.

<sup>3</sup> This project was recommended by the Project Screening Subcommittee for addition to the IRWMP through an email vote.

**Table 2: Updated Descriptions for Existing Projects in the IRWM Plan**

<b>Project No.</b>	<b>Project Name</b>	<b>Lead Agency</b>	<b>IRWMP Status</b>
<b>49</b>	Lower Silver Creek, Reaches 4-6 and Lake Cunningham	Santa Clara Valley Water District	This project is currently in the IRWMP but has been updated to include Lake Cunningham, in addition to Lower Silver Creek, Reaches 4-6. An updated project description is attached at the end of this document.

### **New Projects Added to the IRWM Plan**

In anticipation of the Proposition 1E Flood and Stormwater Management grant funding opportunity, the Bay Area IRWM Coordinating Committee (CC) announced that it was accepting submittals for new stormwater flood management projects for review, evaluation and inclusion in the IRWM Plan.

Project proponents were requested to submit their proposed projects to the Bay Area IRWM website by February 25, 2011. A preliminary list of projects was circulated for consideration at the February 28, 2011 CC meeting. The project list was then evaluated by the Project Screening subcommittee on March 10, 2011, based on consensus to carry out screening level review for the projects to be added to the IRWM Plan. The Project Screening subcommittee approved recommending the addition of the projects based on two factors:

- i. All projects are within the regional IRWM boundary
- ii. All the projects demonstrated benefits in multiple water resource management areas

With consensus from the Bay Area IRWM Coordinating Committee (CC), the projects listed in Table 1 were approved for addition to the IRWM Plan on March 28, 2011.

**Figure 1** presents the general locations of the projects added into the IRWM Plan and the lead agency for the project. Individual project information and meeting notes documenting the Coordinating Committee's and Project Screening subcommittee's decision-making process in adding the new projects, and detailed project descriptions are included at the end of the document.

Figure 1: General Location of New Projects Added to the IRWM Plan as of March 28, 2011



## Project Name:

**Lower Redwood Creek Restoration**

## Responsible Agency:

Please identify one agency that is involved in the project and is responsible for providing information for inclusion in the Bay Area IRWMP.

Golden Gate National Parks Conservancy

## Other Participating Agencies:

Please identify other agencies that are involved in the project, if applicable.

National Park Service-GGNRA

## Summary Description:

Please provide a one paragraph description of the project. If you would like to include additional information, please do so under "Detailed Description" at the end of this form.

The project will restore the lost natural function of lower Redwood Creek, its estuary, tidal lagoon, adjacent floodplain and associated wetland and dune habitats, and will protect privately owned wetlands in the creek's floodplain in perpetuity. Lower Redwood Creek has been degraded by a century of landscape modifications, and suffers from a lack of connectivity with its floodplain and severe channel aggradation. The project will restore a functional, self-sustaining ecosystem, re-create habitat for sustainable populations of special status species, reduce flooding by restoring floodplain connectivity and sediment transport, and provide extensive educational programs and stewardship opportunities. The project is part of a watershedwide collaboration involving watershed residents, non-profits, local, state, and federal agencies. Project is on National Park Service lands, and protected in perpetuity.

## Proposition 50 Water Management Strategies Addressed:

Please select the water management strategies addressed by this project. Check all that apply.

- |  |   |
|--|---|
| <input checked="" type="checkbox"/> Ecosystem Restoration                                | <input checked="" type="checkbox"/> Wetlands enhancement and creation |
| <input checked="" type="checkbox"/> Environmental and habitat protection and improvement | <input type="checkbox"/> Conjunctive use                              |
| <input type="checkbox"/> Water Supply Reliability  | <input type="checkbox"/> Desalination                                 |
| <input checked="" type="checkbox"/> Flood management                                     | <input type="checkbox"/> Imported water                               |
| <input type="checkbox"/> Groundwater management  | <input checked="" type="checkbox"/> Land use planning                 |
| <input checked="" type="checkbox"/> Recreation and public access                         | <input type="checkbox"/> NPS pollution control                        |
| <input checked="" type="checkbox"/> Storm water capture and management                   | <input type="checkbox"/> Surface storage                              |
| <input type="checkbox"/> Water conservation  | <input checked="" type="checkbox"/> Watershed planning                |
| <input checked="" type="checkbox"/> Water quality protection and improvement             | <input type="checkbox"/> Water and wastewater treatment               |
| <input type="checkbox"/> Water recycling   | <input type="checkbox"/> Water transfers                              |



## Primary Water Strategy:

Please list the primary water management strategy to facilitate project classification. Please select only ONE of the water management strategies listed above.

Ecosystem Restoration

## Project Benefits:

### **Proposition 84 & 1E: Project Benefits as Eligibility Criteria**

Please select the benefits provided by this project. Check all that apply. **Need one or more.**  
(from page 17 of draft Guidelines)

- Water supply reliability, water conservation and water use efficiency
- Stormwater capture, storage, clean-up, treatment, and management
- Removal of invasive non-native species, the creation and enhancement of wetlands, and the acquisition, protection, and restoration of open space and watershed lands
- Non-point source pollution reduction, management and monitoring
- Groundwater recharge and management projects
- Contaminant and salt removal through reclamation, desalting, and other treatment technologies and conveyance of reclaimed water for distribution to users
- Water banking, exchange, reclamation and improvement of water quality
- Planning and implementation of multipurpose flood management programs
- Watershed protection and management
- Drinking water treatment and distribution
- Ecosystem and fisheries restoration and protection

### **Proposition 1E Additional Eligibility Criteria:**

Please select the criteria met by this project. **All must apply.**  
(from page 18 of draft Guidelines)

- Designed to manage stormwater runoff to reduce flood damage.
- Consistent with the applicable Regional Water Quality Control Plans (Basin Plans) (default is “yes” for projects in the Bay Area IRWMP).
- Yield multiple benefits the may include one of the following elements (**need one for eligibility**): (from page 7 of draft 1E PSP)
  - Groundwater recharge
  - Water quality improvement
  - Ecosystem restoration and benefits
  - Reduction of instream erosion and sedimentation

## Purpose and Need:

Please provide a detailed description of the purpose and need for the project. Include discussion of the project’s goals and objectives and of the critical impacts that will occur if the project is not implemented.

### Purpose

The purpose of the Lower Redwood Creek Restoration Project is to restore the lost natural function of Lower Redwood Creek, its estuary, tidal lagoon, adjacent foodplain and associated wetland and dune

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habitats, and will protect privately owned wetlands in the creek's floodplain in perpetuity. Lower Redwood Creek has been degraded by a century of landscape modifications, and suffers from a lack of connectivity with its floodplain and severe channel aggradation. The project will restore a functional, self-sustaining ecosystem, re-create habitat for sustainable populations of special status species, reduce flooding by restoring floodplain connectivity and sediment transport, and provide extensive educational programs and stewardship opportunities.

#### Need

The need for the project is supported by the high biological value of the site and of the overall Redwood Creek watershed. Located just five miles northwest of San Francisco and the Golden Gate Bridge, the Redwood Creek watershed is biologically diverse and part of a nationally significant region. It is included in one of 25 global biodiversity "hot spots" recognized by The Nature Conservancy and targeted by the global conservation community as key to preserving the world's ecosystems (Stein et al. 2000). It is also within the Golden Gate Biosphere Reserve, one of 411 reserves designated by the United Nations Educational, Scientific, and Cultural Organization's (UNESCO) Man and the Biosphere Program to provide a global network representing the world's major ecosystem types. The Redwood Creek watershed extends from the peaks of the Mt. Tamalpais to the Pacific Ocean, and is nestled in one of the nation's most densely populated regions, but 95% of its lands are protected as state and federal park land, including Muir Woods National Monument. The watershed encompasses an area of less than nine square miles, yet it harbors a highly diverse ecosystem and rich assemblages of plant and animal species. Within this small watershed are found native grasslands, coastal chaparral, mixed hardwood and old-growth redwood forests, seasonal wetlands, and riparian woodlands that extend in an unbroken mosaic from the mountain's ridge tops to the sea. This watershed is also home to some of the west coast's most imperiled species, such as coho salmon (federally endangered), steelhead (federally threatened), northern spotted owl (federally threatened), and the California red legged frog (near threatened). Approximately seven miles of Redwood Creek provide accessible habitat for anadromous salmonids, and this basin is considered one of the most productive and restorable basins for anadromous salmonid habitat in Marin County (CDFG 2004). With coho populations ranging from Alaska to California, Redwood Creek is the southernmost stream in the United States with a healthy population of coho salmon. Protecting populations such as this one, which are located near the edge of the species range, is especially important to protecting the genetic diversity and viability of the species overall. The importance of this population to the genetic diversity of the species is underscored by the fact that it appears to be very distinct genetically from nearby coho populations (Hedgecock et al. 2002).

The region around Redwood Creek provides key habitat for wildlife and includes numerous protected areas, including: Point Reyes National Seashore, Gulf of the Farallones National Marine Sanctuary, Golden Gate National Recreation Area, Muir Woods National Monument, Mt. Tamalpais State Park, and Marin County Parks and Open Space. Situated at a key junction of anadromous fish and neotropical songbird migration routes, these wetlands complement the internationally recognized habitat values of San Francisco Bay.

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## Goals & Objectives

The Lower Redwood Creek Restoration Project will restore natural hydrologic and geomorphic processes, notably floodplain connectivity and sediment transport, along the downstream distributary floodplain of lower Redwood Creek, and will protect the privately owned portion of that floodplain in perpetuity. The project will restore natural function to 2,500 linear feet of Redwood Creek and 31 acres of adjacent floodplain through the removal of the levee road, relocation of the channel to the pasture east of the existing channel, reconfiguration of the parking lot and picnic area, removal of invasive species such as Cape ivy (*Delairea odorata*), and planting of native vegetation.

The project will restore and enhance an additional 1.7 acres of freshwater emergent wetlands for the California red-legged frog and 1 acre of brackish marsh that is currently a mono culture of non-native kikuyu grass. The quality of habitat in an intermittent tidal lagoon for salmonid summer habitat will be enhanced by excavation that will allow the tidal lagoon to expand naturally, and engineered log jams will be installed to provide cover. This project will result in a significant enhancement of the habitat value of the entire nine square mile coastal watershed. Specific project goals and objectives include:

### 1. Restore Natural Hydrologic and Geomorphic Processes

Restore natural, self-sustaining hydrologic and geomorphic processes to 34 acres of Lower Redwood Creek and its floodplain through the relocation of the channel and removal of artificial constraints on the floodplain, notably the levee road and NPS parking lot. Marin County will partner in these actions by constructing a new 250-linear foot bridge over the relocated channel and its floodplain. These actions will restore natural processes such as sediment transport, channel migration, channel-floodplain interaction, and seasonal and long-term beach change. The Project will also restore natural beach processes, such as delivery of fine sand from the creek to the beach, which will help increase the extent of active dunes and may help impound the tidal lagoon earlier in the season to expand available summer habitat for salmonids.

### 2. Restore Fish and Wildlife Habitat

Restore and enhance fish and wildlife habitat on 34 acres of the Project area for the benefit of federally listed coho salmon, steelhead, and California red-legged frog. The Project is also designed to benefit a diverse group of fish and bird species, including 20 species with significant designations in the four major national bird conservation plans.

### 3. Increase Support for Coastal Wetlands Conservation through Education and Outreach

The NPS and its partners will initiate an extensive community stewardship, education and interpretive program as part of the project to both educate and involve the public in the project implementation. A portion of the requested NCWC funds would help achieve this objective by paying for a coordinator to lead site work with and conduct educational events for volunteer stewards.

### 4. Reduce flooding by restoring natural geomorphic and floodplain processes

The confinement of the Redwood Creek channel has contributed to annual winter flooding and closure of the county-owned Pacific Way road, which is the only access to some Muir Beach residences. This, in turn, has led to on-going public pressure to dredge the creek for flood reduction purposes. Realignment of the channel and construction of a longer bridge (bridge construction will be funded by Marin County) will greatly reduce flooding of Pacific Way at the same time as it restores natural hydrologic and sediment transport processes to Redwood Creek and its floodplain wetlands. The result will be a restored creek and floodplain, and an adjacent residential community better able to live in harmony with it.

### 5. Restore cover by native riparian and wetland plant communities

The project will restore native riparian and wetland plant communities to 34 acres of the project area. This objective includes the removal of invasive non-native species, particularly those which form monocultures or suppress cover by native species, such as cape ivy (*Delairea odorata*), Harding grass (*Phalaris aquatica*), and kikuyu grass (*Pennisetum clandestinum*). Revegetation by native species grown

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from locally collected propagules will be another important component of restoring cover by native plants.

**6. Protect Archeological Resources**

Subsurface archaeological resources are present in the project area, including at least 3 shell middens from the Coast Miwok Native American period and earlier. Protected cultural resources, such as the shell middens, will be avoided or protected during project implementation. The project will include extensive education activities regarding the Coast Miwok heritage of the site.

**7. Conduct the restoration in the context of the watershed**

Not only will the Project dramatically improve fish and wildlife habitat quality in the project area, it will support upstream habitats by reestablishing the health and connectivity of the Redwood Creek watershed's wetland and riparian habitats. The relative ecological health of adjacent preserved lands and protected waters will facilitate rapid recovery of the restored Lower Redwood Creek ecosystem, and will increase the benefits of restored habitat in the project area.

**Critical Impacts That Will Occur If The Project Is Not Implemented**

**Project Status and Schedule:**

*Please provide the actual or projected start and finish dates for each of the following project stages. If any stage does not apply to the project please enter N/A.*

Stage	Duration	Start Date	Finish Date
Planning	1 year	1/5/2003	9/1/2005
Demonstration Project	N/A	N/A	N/A
Design	11 Mos	6/1/2008	2/1/2009
Environmental Documentation / Permitting	3 years	9/1/2005	11/30/2008
Construction	4 years	8/2/2009	9/30/2013

**Additional Notes:**

BAIRWMP funding would be used for project actions in Phases 3-5 as outlined below.

**Readiness to Proceed:**

*Please clearly describe project readiness and realistic start date; include status of design, environmental review and securing required matching funds.*

Readiness to proceed is immediate (as is the need for matching funds). The planning, design and permitting, plus the first two phases of construction were successfully completed. The schedule for previously completed and future project actions is as follows:

- Fall 2009: Phase 1 was completed. The tidal lagoon and its adjacent brackish wetland were expanded, followed by outplanting of 30,000 native plants by volunteers.
- Summer/Fall 2010: Phase 2. Construct part of the new channel alignment in Green Gulch pasture.
- Summer/Fall 2011: Phase 3 will complete channel construction, side channels, floodplain reconnection and large woody installation in the Green Gulch pasture.

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-Summer/Fall 2012-13: Phase 4 and 5. The final 600 linear feet of channel u.s. of the bridge will be constructed. Marin County Dept. of Public Works will construct a new 250-foot-long bridge to span the floodplain and new channel. The NPS visitor parking lot will be reconfigured to reconnect the floodplain.

## **Integration with Other Activities:**

*Please identify any linkages between the schedule of this project and the schedules of other projects, if applicable. Please discuss the integration of the project with other Bay Area IRWMP projects.*

## **Cost and Financing:**

*Please identify the capital cost and operation and maintenance cost of the proposed project. Please indicate the base year (e.g. CCI) for all costs. Please identify the beneficiaries, potential funding/financing options for project implementation, and ongoing support and financing for operation and maintenance of the project once implemented.*

The amount needed to complete the next phases of work applicable to this IRWM application is approximately \$2.3M. Available project funds for this work include a \$1M USFWS grant which requires a \$2.5M non-federal match. The California State Coastal Conservancy has awarded a \$1M grant to help meet this match, and we must raise the remaining \$1.5M from other sources. A grant is currently pending with CDFG (\$440K) which, if successful will leave us with a balance needed in the amount \$1,060,000. Once implemented, the National Park Service will maintain the project in cooperation with the Parks Conservancy and community volunteers.

## **Benefits and Impacts:**

*Please provide a detailed discussion of the projected benefits and impacts of the project, both locally and for the region. Please include an evaluation of impacts/benefits to other resources, such as air quality or energy.*

The project at Redwood Creek/Muir Beach was on the list of BAIRWMP projects November 2006 (please see excerpted text below) which summarized some regional and local benefits of the project.

Wetland and Creek Restoration at Big Lagoon, Muir Beach (National Park Service-GGNRA)  
This project will provide substantial regional benefits since it will enhance habitat for the federally endangered coho salmon. This project will increase the flow conveyance of the channel, expand its functional floodplain, increase its sediment transport capacity, increase winter rearing habitat, and eliminate features which can cause fish stranding. Other regional benefits extend to the more than 260,000 annual visitors who will enjoy a more integrated ecosystem, with recreational facilities designed to be compatible with ecosystem protection. Stewardship and educational opportunities will be extended to the vast body of volunteers in the San Francisco Bay Area. The project will benefit local residents, whose access to their homes is obstructed annually by winter flood events.

## **Disadvantaged Communities / Environmental Justice:**

*Please include a specific discussion of how the project will benefit or impact disadvantaged communities or environmental justice goals.*

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Key to the mission of the Golden Gate National Parks Conservancy is to reach out to include disadvantaged communities that have been underrepresented in our national parks. The Parks Conservancy specifically reaches out to the diverse communities of our region, offering rich park experiences, educational programs for youth, and many ways for people to become involved as volunteers. In this way, we are creating new “park advocates and stewards” who will continue our work for years to come and contribute to the betterment of the parks, our environment, and our communities. Despite the Parks Conservancy’s track record of success in serving disadvantaged communities, engaging a diverse corps of volunteers in the Redwood Creek watershed presents special challenges, primarily because the area is more remote than much of the rest of this urban national park, and lacks public transportation. With this challenge in mind, this project has taken a different approach. Instead of emphasizing weekly, drop-in opportunities for individuals, we changed our focus to emphasize increased opportunities for partnering organizations, businesses and schools. We’ve found that this adjustment to our community engagement strategy has been quite successful. Of the 98 programs hosted over the past year, 88 were organized through partnerships. Through this project, a diverse cross-section of public, including children, youth and adults from the San Francisco Bay Area will benefit from increased opportunities to contribute to the restoration of habitat for endangered species and the restoration of natural processes, and to learn more about the Coast Miwok heritage and other cultural history related to the site.

## **Environmental Compliance Strategy:**

*Please provide a detailed description of how the project will comply with all applicable environmental review requirement, including CEQA and/or (if applicable) NEPA. For ongoing CEQA/NEPA work, indicate when required documentation would be completed. Also, include discussion of how compliance with local, county, State and federal permitting requirements will be achieved.*

The National Park Service and the County of Marin issued a Final EIS/EIR for the project in 2007, in accordance with the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA). The Marin County Board of Supervisors certified the EIR, pursuant to CEQA, on May 13, 2008, following a public comment period. The National Park Service (NEPA lead agency) issued a Record of Decision on the Final EIS in July 2008, following receipt of a programmatic-level Biological Opinion from the National Marine Fisheries Service. Most required regulatory permits have been obtained, including a concurrence of No Adverse Effect determination from the State Historic Preservation Office, a Consistency Determination from the California Coastal Commission, and a Biological Opinion from the U.S. Fish & Wildlife Service. Permits from the U.S. Army Corps of Engineers and the Regional Water Quality Control Board under Sections 404 and 401 of the Clean Water Act were obtained following submittal of construction design documents in early 2009.

## **Statewide Priorities:**

*Please select the statewide priorities that are addressed by this project. Check all that apply.*

### ***From Proposition 50 Guidelines (pg 5)***

- Reduce conflicts between water rights users
- Implement TMDLs
- Implement RWQCB’s Watershed Management Initiatives
- Implement SWRCB’s NPS Pollution Plan
- Assist in meeting Delta Water Quality Objectives
- Implement recommendations of the floodplain, desalination, and recycling task forces, or of the state species recovery plan
- Address environmental justice concerns
- Assist in meeting the CALFED Bay-Delta Program goals

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***From Proposition 84 and Proposition 1E draft Guidelines (pg 13-14)***

- Drought Preparedness
- Use and Reuse Water More Efficiently
- Climate Change Response Actions
- Expand Environmental Stewardship
- Practice Integrated Flood Management
- Protect Surface Water and Groundwater Quality
- Improve Tribal Water and Natural Resources
- Ensure Equitable Distribution of Benefits

**Additional Notes:**

**Stakeholder Involvement and Coordination:**

*Please describe any coordination with stakeholders, land use agencies, or other state and local agencies. Please include a list of proposed stakeholders, how they have/will participate in the planning and implementation of the project, and how their involvement will influence the implementation of the project. Discuss efforts to address environmental justice concerns.*

The project is a critical element of an overall watershed restoration effort for Redwood Creek. Other groups participating in the restoration of the Redwood Creek watershed include the Muir Beach Community Service District, Marin Municipal Water District, the County of Marin, the California Department of Fish and Game, and the San Francisco Zen Center. In 2002-2003, these groups, the NPS, and other stakeholders, including community organizations and leaders, collaborated on the creation of the Redwood Creek Watershed Vision of the Future. Public participation was essential to creating the watershed vision and included three public workshops, as well as opportunities for input through the project website and written response forms. Through this visioning effort, public agencies in the watershed worked with the public and the vision team to identify issues and values in the watershed and design desired future conditions for watershed resources. The project will accomplish many of these future goals as defined by the Watershed Vision, including restoration and protection of a full range of natural geomorphic and hydraulic functions (such as sediment transport, channel migration, and recruitment of large wood), reduction of non-native plant invasions, protection and expansion of special status animal populations, and protection and restoration of key habitat linkages for native wildlife. By providing extensive volunteer stewardship opportunities and educational programs, the project will advance the Watershed Vision's goals for public education about watersheds and for stewardship opportunities for visitors and residents. The project also advances the Watershed Vision's goals for protection of the watershed's cultural resources, and connection of residents and visitors with the cultural history of the Redwood Creek watershed—particularly its heritage as the ancestral homeland of the Coast Miwok. In addition, the project advances the goals of multiple natural resource plans in the area, including: San Francisco Bay Basin Control Plan (Region 2) Water Quality Control Plan; California Coastal Nonpoint Source Pollution Control Plan; California Marine Life Management Act; Redwood Creek Watershed Vision for the Future; Marin County Local Coastal Plan; Marin County Watershed Management Plan.

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## **Documentation of Feasibility:**

*Please identify any studies that document the technical and economic feasibility of the proposed project. If study is still in progress please indicate this next to its citation. If no studies exist, please type "N/A".*

Site conditions and proposed actions were fully evaluated and analyzed by consulting hydrologists, geomorphologists, sediment transport specialists, engineers, and biologists. The site conditions will fully support the proposed project. The primary reports summarizing conditions and feasibility analysis are listed below.

Philip Williams & Associates (PWA) with Stillwater Sciences, John Northmore Roberts & Associates, and the Point Reyes Bird Observatory. 2003. Big Lagoon Wetland and Creek Restoration Project, Muir Beach, California. Part 1. Site Analysis Report. PWA Ref. # 1664.02 San Francisco, CA. Prepared for the National Park Service, San Francisco, CA.

Philip Williams & Associates (PWA) with Stillwater Sciences, John Northmore Roberts & Associates. 2004. Big Lagoon Wetland and Creek Restoration Project: Part 2. Feasibility Analysis Report. Prepared for the National Park Service. February. San Francisco, CA

Stillwater Sciences. 2004. Sediment Budget for Redwood Creek Watershed, Marin County, California. Berkeley, CA.

Analyses conducted for these reports demonstrated that the physical resources at the site are suitable for restoration of natural hydrologic conditions. Analyses consisted of model runs using a Mike-11 hydraulic model analyses of channel stability using three methods, evaluation of the substrate through 28 soil cores, collection of groundwater elevations and comparison to elevations 10 years earlier, topographic surveys and channel cross-sections, sediment yield analyses, flow and suspended sediment monitoring using pressure transducers, a review of historic maps and surveys, wetlands mapping and plant surveys. A watershed sediment budget prepared by Stillwater Sciences (2004) has informed final project design.

Fisheries biologists with the National Park Service, California Department of Fish & Game, the National Marine Fisheries Service, and academic institutions, particularly Dr. Jerry Smith, of San Jose State University, have worked to understand and describe the functions and values of existing lower Redwood Creek for anadromous fish and other wildlife and to identify actions most needed for these populations (Fong, 1996, 1999; Reichmuth et al, 2006; Smith, 1995, 1996, 1997, 1998, 2000, 2001.)

Finally, the technical soundness of the project's restoration design is demonstrated through the analyses in a 1,100-page Final EIS/EIR, Dec. 2007, which finds the proposed actions are also the environmentally preferred actions.

## **Detailed Project Description:**

*If desired, please provide a detailed description with additional information about the project.*

Redwood Creek, in southern Marin County, California, is one of the most natural creeks in the San Francisco Bay Area, with extremely high natural resource values, but the mouth of the creek at Muir Beach is the most disturbed reach in the Redwood Creek watershed. A century of landscape modifications for agriculture, recreation, and road construction have highly confined the lower 2,500 linear feet of channel and its floodplain, thereby reducing the conveyance capacity of the channel, severely limiting the extent of connected floodplain, and causing rapid aggradation of the creekbed. From 1992 to 2002, 2 to 5

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feet of sediment accumulated in the channel between the parking lot and Pacific Way Bridge. These physical effects have limited the quantity and quality of winter habitat for the federally and state-listed endangered coho salmon (*Oncorhynchus kisutch*) and federally threatened steel head trout (*O. mykiss*) in Redwood Creek. Fish biologists consider the lack of sufficient winter habitat to be one of the primary limiting factors for the coho salmon in Redwood Creek.

#### Channel Confinement and Floodplain Disconnection

Redwood Creek at the project site is confined by a levee, a visitor parking lot at Muir Beach, and an undersized vehicular bridge on a county-owned road, Pacific Way, which provides both residential and visitor access. The channel confinement has created a geomorphically unstable channel which is highly subject to avulsion its course) into the Green Gulch pasture. The channel once naturally flowed into the Green Gulch pasture in the middle of the valley, but was channelized in the early twentieth century on the west side of the valley to accommodate agricultural and road development. Only two small culverts allow passage between the pasture and the creek channel in the 1,300-foot creek reach constrained by the levee road. The creek's connection with its natural floodplain is highly limited compared to its historic condition. The confinement of the channel has contributed to annual winter flooding and closure of the county-owned Pacific Way road which is the only access to some Muir Beach residences, and this, in turn, has led to ongoing public pressure to dredge the creek and remove logjams for flood reduction purposes. Dredging the creek and removing large woody debris severely degrades habitat for coho, steelhead, and other aquatic species. Muir Beach is a popular and highly visited National Park Service site, with approximately 260,000 visitors annually. However, the visitor parking lot contributes to the confinement of the channel because it consists of a 500-foot-long fill pad across the floodplain that has severely limited the area available for conveyance of high flows.

#### Filled and Degraded Coastal Wetlands

More than 46% of the lower Redwood Creek floodplain wetlands have become disconnected from the channel due to the many landscape modifications constructed there over the last century. Approximately 38% of the floodplain wetlands have been converted from riparian scrub to pasture, although grazing has been discontinued in this pasture for some years. Lost and degraded riparian scrub and forest has decreased the habitat for riparian birds, including state listed species such as the willow flycatcher (*Empidonax/raillii*). In addition, habitat quality in floodplain wetlands has been degraded by invasive non-indigenous species. Cape ivy (*Delairea adora/a*) dominates the understory in much of the riparian scrub and forest within the project area. Kikuyu grass (*Pennisetum clandestinum*) dominates a one acre brackish marsh adjacent to Redwood Creek 's tidal lagoon.

#### Sediment Transport and Water Quality

The Project is part of a watershed-wide effort to reduce impacts from fine sediment on the coastal waters of Redwood Creek. As discussed above, lower Redwood Creek is disconnected from its former floodplain wetlands by the levee road, and its flows are restricted by the levee road, undersized bridge, and visitor parking lot. The creek is therefore unable to deposit fine sediment outside the channel, or to effectively transport the sediment load from the upper watershed. Therefore, suspended sediment loads in the creek channel are high, and severe channel aggradation degrades instream habitat and causes flooding, as described above. In addition to difficulties with sediment transport, runoff from the existing parking lot is a concern for water quality. The parking lot is unpaved, but does not include any plantings or biofiltration swales. Runoff from the parking lot may carry oil and trash into the adjacent riparian wetlands.

#### California Red-Legged Frog

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The site supports a remnant population of the federally listed threatened California red-legged frog (*Rana aurora dray/ani i*), but its habitat is extremely unstable, maintained by the same structures that make the overall creek system dysfunctional. The levee constructed in the 1960's to confine the creek allows ponding and emergent vegetation growth in the Green Gulch pasture, thereby providing suitable breeding habitat for the frog.

However, actions to prevent flooding taken in recent years have lowered the water table in the frog 's breeding area, making it dry up before tadpoles have time to metamorphose. For this reason, an artificial flashboard structure on a culvert under the levee must be used to provide adequate ponding for the frog. While this approach has been successful, it is not reliable over the long term. The current habitat for the frogs is not sustainable, and the levee road cannot remain in place without obstructing natural floodplain and channel processes.

### Education and Stewardship

There is a great need for environmental and cultural education programming at the project site. The project is located in Muir Beach, a part of the Golden Gate National Recreation Area that receives approximately 260,000 visitors annually . Muir Beach is located along the Pacific Coast Highway (Route 1), a designated National Scenic Byway, and is only 6 miles down the road from the Muir Woods National Monument.

While large numbers of tourists and local residents visit Muir Beach, many of these visitors are unaware of the pressing need for restoration of lower Redwood Creek, and of the ongoing restoration efforts in the rest of the Redwood Creek watershed. It is especially important to provide education about the fish and wildlife in lower Redwood Creek in order to inform people who are concerned about flooding and are advocating for dredging of the creek.

Furthermore, important subsurface archaeological resources, including at least 3 shell middens from the Coast Miwok Native American period and earlier, are present in the project area, but there are no current educational programs related to the Coast Miwok use of the site. The need for an education component to the restoration project is compounded by the expected ongoing visitor use of the site during the restoration. Explaining the restoration activities and offering opportunities for the public to participate will be essential. The need is clear- people will come to Muir Beach to recreate and find that construction activities with heavy equipment are underway. It will be very important to explain what is happening and why.

## Project Name:

**Lake Dalwigk Habitat Enhancement Project**

## Responsible Agency:

Please identify one agency that is involved in the project and is responsible for providing information for inclusion in the Bay Area IRWMP.

Vallejo Sanitation and Flood Control District



## Other Participating Agencies:

Please identify other agencies that are involved in the project, if applicable.

none

## Summary Description:

Please provide a one paragraph description of the project. If you would like to include additional information, please do so under "Detailed Description" at the end of this form.

Lake Dalwigk is a stormwater detention basin owned and operated by the Vallejo Sanitation and Flood Control District (VSFCD). Due to environmental restrictions on maintenance, the lake has become choked with cattails and tules. VSFCD must maintain the active flood storage volume to provide flood protection to low lying areas to the south of the lake. VSFCD has developed the Lake Dalwigk Habitat Enhancement Project in order to create a more varied habitat and to gain the ability to maintain the entire lake bottom except for two designated wetland areas. The water level in the lake will be controlled by a new lower level outlet for optimum wetland development and to facilitate annual maintenance. The project also includes replacement of two storm drains entering the lake and an access road which will also serve as a bike path.

## Proposition 50 Water Management Strategies Addressed:

Please select the water management strategies addressed by this project. Check all that apply.

- |  |   |
|--|---|
| <input checked="" type="checkbox"/> Ecosystem Restoration                                | <input checked="" type="checkbox"/> Wetlands enhancement and creation |
| <input checked="" type="checkbox"/> Environmental and habitat protection and improvement | <input type="checkbox"/> Conjunctive use                              |
| <input type="checkbox"/> Water Supply Reliability  | <input type="checkbox"/> Desalination                                 |
| <input checked="" type="checkbox"/> Flood management                                     | <input type="checkbox"/> Imported water                               |
| <input type="checkbox"/> Groundwater management  | <input type="checkbox"/> Land use planning                            |
| <input checked="" type="checkbox"/> Recreation and public access                         | <input type="checkbox"/> NPS pollution control                        |
| <input checked="" type="checkbox"/> Storm water capture and management                   | <input type="checkbox"/> Surface storage                              |
| <input type="checkbox"/> Water conservation  | <input type="checkbox"/> Watershed planning                           |
| <input type="checkbox"/> Water quality protection and improvement                        | <input type="checkbox"/> Water and wastewater treatment               |
| <input type="checkbox"/> Water recycling   | <input type="checkbox"/> Water transfers                              |

## Primary Water Strategy:

Please list the primary water management strategy to facilitate project classification. Please select only ONE of the water management strategies listed above.

The Lake Dalwigg Habitat Enhancement Project is primarily a flood control project. It is the first phase of a large flood control project which will provide 100-year protection to the Lemon Street Area and the Vallejo Mobile Estates development. However, the project will also enable VSFCD to maintain an existing flood control basin and protect the level of protection that was historically provided. Additionally, the project significantly diversifies the habitat in the lake.

## Project Benefits:

### **Proposition 84 & 1E: Project Benefits as Eligibility Criteria**

Please select the benefits provided by this project. Check all that apply. **Need one or more.**  
(from page 17 of draft Guidelines)

- Water supply reliability, water conservation and water use efficiency
- Stormwater capture, storage, clean-up, treatment, and management
- Removal of invasive non-native species, the creation and enhancement of wetlands, and the acquisition, protection, and restoration of open space and watershed lands
- Non-point source pollution reduction, management and monitoring
- Groundwater recharge and management projects
- Contaminant and salt removal through reclamation, desalting, and other treatment technologies and conveyance of reclaimed water for distribution to users
- Water banking, exchange, reclamation and improvement of water quality
- Planning and implementation of multipurpose flood management programs
- Watershed protection and management
- Drinking water treatment and distribution
- Ecosystem and fisheries restoration and protection

### **Proposition 1E Additional Eligibility Criteria:**

Please select the criteria met by this project. **All must apply.**  
(from page 18 of draft Guidelines)

- |  |   |
|--|---|
| <ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> Designed to manage stormwater runoff to reduce flood damage.</li> <li><input checked="" type="checkbox"/> Consistent with the applicable Regional Water Quality Control Plans (Basin Plans) (default is “yes” for projects in the Bay Area IRWMP).</li> </ul> | <ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> Yield multiple benefits that may include one of the following elements (<b>need one for eligibility</b>): (from page 7 of draft 1E PSP)           <ul style="list-style-type: none"> <li>• Groundwater recharge <input type="checkbox"/></li> <li>• Water quality improvement <input checked="" type="checkbox"/></li> <li>• Ecosystem restoration and benefits <input checked="" type="checkbox"/></li> <li>• Reduction of instream erosion and sedimentation <input type="checkbox"/></li> </ul> </li> </ul> |
|--|---|

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## **Purpose and Need:**

*Please provide a detailed description of the purpose and need for the project. Include discussion of the project's goals and objectives and of the critical impacts that will occur if the project is not implemented.*

The purpose of the project is to protect the existing level of flood protection provided by the lake and to complete the first phase of a more comprehensive future flood control project. If the project is not implemented, the necessary maintenance of the lake will be much more difficult and costly. Also, the VSFCDC expects renewable 5-year permits for its maintenance activities to be issued with the project permits, thus guaranteeing future maintenance. Last but not least, the habitat provided by the mowed lake bottom would be considerably less varied and valuable than with the project.

## **Project Status and Schedule:**

*Please provide the actual or projected start and finish dates for each of the following project stages. If any stage does not apply to the project please enter N/A.*

<b>Stage</b>	<b>Duration</b>	<b>Start Date</b>	<b>Finish Date</b>
Planning			completed
Demonstration Project			n/a
Design			completed
Environmental Documentation / Permitting			May 2011
Construction	5 months window	May 2011	October 2011 or 2012

## **Additional Notes:**

## **Readiness to Proceed:**

*Please clearly describe project readiness and realistic start date; include status of design, environmental review and securing required matching funds.*

The project is currently out to bid. Bid opening is scheduled for March 3, 2011. The VSFCDC intends to award the project in April, 2011. A CEQA Negative Declaration for the project has been adopted by the VSFCDC Board of Trustees in November of 2010. The VSFCDC is in the process of finalizing a Streambed Alteration Agreement with the California Department of Fish and Game. The Corps of Engineers has asserted jurisdiction over the lake and will issue a 404 permit. The Corps is in support of the project and an expeditious processing of the permit application is expected. If the 404 permit is not received in time for the April 15 to October 15 construction window provided by the California Department of Fish and Game, the activities subject to the 404 permits will be postponed to the 2012 construction window.

The VSFCDC has the matching funds for the project in its capital reserves.

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## **Integration with Other Activities:**

*Please identify any linkages between the schedule of this project and the schedules of other projects, if applicable. Please discuss the integration of the project with other Bay Area IRWMP projects.*

The project is the first phase of a larger project, but has its own merits. There is currently no implementation schedule for the larger project.

## **Cost and Financing:**

*Please identify the capital cost and operation and maintenance cost of the proposed project. Please indicate the base year (e.g. CCI) for all costs. Please identify the beneficiaries, potential funding/financing options for project implementation, and ongoing support and financing for operation and maintenance of the project once implemented.*

The engineer's estimate for the project is \$1,760,607 to be paid out of VSFCDC capital reserves. The O&M costs of the project are estimated to be \$50,000 (\$70,000 without the project) and will be paid out of the VSFCDC's rate-funded operating budget.

## **Benefits and Impacts:**

*Please provide a detailed discussion of the projected benefits and impacts of the project, both locally and for the region. Please include an evaluation of impacts/benefits to other resources, such as air quality or energy.*

The project will protect the existing level of flood protection and provide significant improvements to the habitat. There are no regional benefits or impacts. For impacts to other resources, please refer to the Final Initial Study / Mitigated Negative Declaration for the project, dated November, 2010.

## **Disadvantaged Communities / Environmental Justice:**

*Please include a specific discussion of how the project will benefit or impact disadvantaged communities or environmental justice goals.*

The project will improve the recreational use of the area by providing a walkway/bikepath. The lake is surrounded by a public park. Vallejo is a depressed community, but does not qualify as a disadvantaged community under the median income criteria applied by the State of California.

## **Environmental Compliance Strategy:**

*Please provide a detailed description of how the project will comply with all applicable environmental review requirement, including CEQA and/or (if applicable) NEPA. For ongoing CEQA/NEPA work, indicate when required documentation would be completed. Also, include discussion of how compliance with local, county, State and federal permitting requirements will be achieved.*

The CEQA document for the project has been adopted by the VSFCDC Board of Trustees. NEPA does not apply to the project. The Corps of Engineers 404 permit and the associated 401 Water Quality Certification by the Regional Water Quality Control Board will have complete application packages shortly. The California Department of Fish and Game has issued a draft Streambed Alteration Agreement and VSFCDC is in negotiations regarding some of the permit conditions. VSFCDC anticipates the Streambed Alteration Agreement to be issued soon. The City of Vallejo has reviewed the project plans and will issue a grading permit.

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## **Statewide Priorities:**

*Please select the statewide priorities that are addressed by this project. Check all that apply.*

### ***From Proposition 50 Guidelines (pg 5)***

- Reduce conflicts between water rights users
- Implement TMDLs
- Implement RWQCB's Watershed Management Initiatives
- Implement SWRCB's NPS Pollution Plan
- Assist in meeting Delta Water Quality Objectives
- Implement recommendations of the floodplain, desalination, and recycling task forces, or of the state species recovery plan
- Address environmental justice concerns
- Assist in meeting the CALFED Bay-Delta Program goals

### ***From Proposition 84 and Proposition 1E draft Guidelines (pg 13-14)***

- Drought Preparedness
- Use and Reuse Water More Efficiently
- Climate Change Response Actions
- Expand Environmental Stewardship
- Practice Integrated Flood Management
- Protect Surface Water and Groundwater Quality
- Improve Tribal Water and Natural Resources
- Ensure Equitable Distribution of Benefits

### **Additional Notes:**

## **Stakeholder Involvement and Coordination:**

*Please describe any coordination with stakeholders, land use agencies, or other state and local agencies. Please include a list of proposed stakeholders, how they have/will participate in the planning and implementation of the project, and how their involvement will influence the implementation of the project. Discuss efforts to address environmental justice concerns.*

The project is supported by the Greater Vallejo Recreation District and by the Vallejo Watershed Alliance.

## **Documentation of Feasibility:**

*Please identify any studies that document the technical and economic feasibility of the proposed project. If study is still in progress please indicate this next to its citation. If no studies exist, please type "N/A".*

The project was first identified in the 2002 VSFCD Storm Drain Master Plan. Subsequently, the VSFCD designed the Lemon Street Flood Control Project, which was postponed for lack of funds. The economic feasibility of the Lemon Street Flood Control Project was evaluated for a previous grant application. The study is available upon request. There has been no specific feasibility for the Lake Dalwigk Habitat

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Enhancement Project, which is the first phase of the Lemon Street Flood Control Project. The economic feasibility of the Lake Dalwigk project is considered high because it is protecting the existing level of flood protection. VSFCDD may be liable for flood damages if the project is not completed.

## **Detailed Project Description:**

*If desired, please provide a detailed description with additional information about the project.*

### PROJECT DESCRIPTION (adapted from CEQA Document)

#### INTRODUCTION

The Vallejo Sanitation and Flood Control District (District) proposes improvements to the operations and maintenance of Lake Dalwigk, which currently provides stormwater storage, flood control, and wildlife habitat as a detention basin. The Lake Dalwigk Habitat Enhancement Project (Proposed Project) would facilitate modifications to current operations and maintenance activities to ensure 100-year flood protection within the area, for which the Lake was originally designed. Under the Proposed Project, the installation of a new low flow outlet and modification of the channels and wetland areas contained within the Lake would jointly increase the quality and diversity of wildlife habitat.

#### PROJECT LOCATION

The Proposed Project is located in Solano County, California, within the District's service area. The District's service area covers approximately 26-square miles, 90 percent of which is in the City of Vallejo. The Proposed Project is southwest of downtown Vallejo, located in an area framed by Interstate-80 (I-80), the Curtola Parkway, Solano Avenue, and Sonoma Boulevard. The Proposed Project is centered in Lake Dalwigk, which is bordered by park land to the north and south, 5th Street to the southwest, Curtola Parkway to the northeast, and Lemon Street to the south.

#### PROJECT BACKGROUND

The District oversees approximately 150 miles of stormwater pipelines and channels as well as four pump stations that provide drainage throughout the Vallejo area. The Solano Ave/Lemon Street watershed, wherein Lake Dalwigk serves as a stormwater detention basin, is susceptible to flooding.

#### EXISTING STORMWATER SYSTEM

The Solano Avenue/Lemon Street watershed consists of various storm drains leading to one of three primary stormwater conveyance systems: Lake Dalwigk, the Solano Avenue Drain (which includes the Railroad Drain offshoot), and the Lemon Street Channel. Stormwater is collected by drains in developed areas south of Georgia Street, surrounding I-80, and north of Sonoma Boulevard. Stormwater collected within Lake Dalwigk is pumped to the Solano Avenue Drain via the pump station at the corner of Steward Street and Solano Avenue. The Solano Avenue Drain conveys flows to Mare Island Strait located to the southwest of the project site.

#### LAKE DALWIGK

Lake Dalwigk serves as a detention basin for the watershed. Inlets at the western and southeastern edges of the Lake accept flows from adjacent neighborhoods. An outlet/inlet on the northern edge regulates flows to the pump station. Water overflowing the weir at the pump station enters the Lake through the inlet during storm events. Once flows have subsided, water is pumped out through the outlet for discharge via the Solano Avenue Drain. A primary inlet on the southern edge of the Lake accepts flows from the Lemon Street Channel.

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Sediment deposition and aquatic vegetation have gradually decreased the storage capacity of Lake Dalwigk, reducing the Lake's utility as a detention basin during large storm events. Currently for a 100-year storm event, Lake Dalwigk overflows its banks by a depth of up to 0.6 feet.

#### SOLANO AVENUE AND RAILROAD DRAINS

Stormwater conveyed to the Solano Avenue Drain east of Stewart Street flows southwest towards the pump station. The pump station is equipped with a weir. During high flow storm events, water that tops the weir flows to Lake Dalwigk for temporary detention. Once flows subside, detained water is pumped back to the Solano Avenue Drain, where it flows southwest through a 90-inch diameter pipeline to a submerged discharge point in Mare Island Strait. In 1990, a 108-inch diameter pipeline offshoot, referred to as the Railroad Drain, was added to divert flows from the Solano Avenue Drain to Mare Island Strait. Stormwater conveyed from neighborhoods west of Wallace Avenue flow directly to Mare Island Strait via the Solano Avenue Drain.

#### LEMON STREET CHANNEL

The Lemon Street Channel conveys stormwater collected from the southern and southwestern drainages of the watershed to Lake Dalwigk. Stormwater is collected from drains located along I-80. The trapezoidal channel flows south-southwest around the adjacent mobile home park, following San Marcus Drive and then northwest along San Fernando Way until discharging into Lake Dalwigk.

#### EXISTING WATER LEVEL MANAGEMENT/ROUTINE MAINTENANCE AGREEMENT

The District and the California Department of Fish and Game (DFG) have entered into a 1602 Routine Maintenance Agreement (March 4, 2005, Notification No. 1600-2003-5282-3). The agreement allows the District to perform maintenance activities within the creeks and channels in the District to ensure flood relief capacity. The agreement establishes acceptable and prohibited maintenance activities. Specific to the Solano Avenue/Lemon Street watershed, the agreement prohibits maintenance equipment from being operated in sodden areas or within the stream channel below the level of top-of-bank. Equipment may be operated on a lower terrace, below the level of top-of-bank, but not in any saturated areas on the western half of Lake Dalwigk. The existing maintenance regime has contributed to an increase in sedimentation and an overall reduction of storage capacity in Lake Dalwigk.

The existing outlet structure of Lake Dalwigk is higher than the elevation of the eastern portion of the Lake. The location of the current outlet results in year-round pooling that contributes to sediment deposition and monoculture wetland vegetation, which inhibits optimal regulation of seasonal flows.

As currently maintained, habitat in Lake Dalwigk is segmented. The western two-thirds are, per the agreement, subject to wet season inundation and dry season mowing, while the remaining eastern portion is not subject to routine maintenance due to year-round inundation and dense cattail habitat. Functionally, the eastern half of the Lake remains wet and unmaintained. As a consequence of the current operation of the single existing outlet structure, as well as the guidelines outlined in the Routine Maintenance Agreement that restrict maintenance activities below top-of-bank, a significant portion of the site remains inundated year round. This has resulted in both a cattail (*Typha* sp.) dominant vegetation regime within a majority of the project site and the inability of the District to perform routine maintenance within the Lake to ensure sufficient flood capacity. Therefore, current maintenance procedures reduce stormwater storage and flood control capacity, as well as limit the quality and diversity of habitat that could be supported by Lake Dalwigk.

#### STORM DRAIN MASTER PLAN

In 2002, the Solano Avenue/Lemon Street watershed was evaluated in the Vallejo Sanitation and Flood Control District Storm Drain Master Plan (Master Plan). The Master Plan recommended the following as components of the Lemon Street Flood Control Project: 1) sealing the pump station weir and installing a

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new outlet at Lake Dalwigk, thereby reserving more capacity within Lake Dalwigk to hold water from the Lemon Street Channel and restoring the Lake's 100-year flood capacity, 2) making several associated modifications to the existing stormwater infrastructure around Vallejo Mobile Estates, 3) and some minor improvements downstream of Lake Dalwigk. Implementation of these recommendations would provide 100-year flood protection to the areas surrounding Lake Dalwigk. Due to fiscal constraints, only the Lake Dalwigk improvement portion of the Lemon Street Flood Control Project is proposed for implementation at this time.

## PROJECT OBJECTIVES

The Proposed Project is designed to meet the following objectives:

- Provide the Lemon Street area with improved flood protection by the modified operations of the Lake Dalwigk portion of the flood control network as recommended in the Master Plan, by the installation of a new second outlet from the Lake and the removal of approximately 25,000 cubic yards (cy) of sediment from the Lake.
- Improve the quality and diversity of wildlife habitat supported by Lake Dalwigk through the modified operations and maintenance of the detention basin.
- Provide for the routine maintenance needed to maximize the performance of the stormwater drainage system and reduce the potential for flooding in a manner that is compatible with the maintenance of habitat and the DFG.
- Reduce financial burdens associated with flooding impacts to persons and property.

## PROJECT COMPONENTS

### FLOOD PROTECTION

The components of the Proposed Project would improve ongoing maintenance associated with stormwater flood capacity of Lake Dalwigk during 100-year storm events through the addition of a new outlet, modification of the central conveyance channel, and the operation of the outlets from the Lake. Additionally, a corroded 42-inch diameter corrugated metal pipe at the southeast corner of the Lake would be replaced. The metal pipe would be replaced from a manhole at the parking lot at this location to its outlet at the edge of the Lake. The existing pipe is severely corroded and structurally deficient, and the replacement of the pipe at the time improvements are being made to the Lake would minimize the temporal extent of construction activities in the area, thereby limiting any potential impacts. No wetlands or other sensitive habitat would be disturbed as a result of the pipe replacement. The planned improvements would facilitate the District's operations and maintenance of the Lake, thereby restoring the original design capacity of Lake Dalwigk.

### STORAGE VOLUME RESTORATION

With the implementation of the Proposed Project, the water level during a 100-year storm event would remain approximately 2.7 feet below the top of the Lake banks. To restore capacity, the District proposes to remove some of the sediment and aquatic vegetation that has built up in the lakebed. For purposes of this project description, the initial amount of sediment to be removed was calculated to equal an average depth of 18 inches over one fourth of the Lake bottom. The actual depth and contour of the Lake would vary to benefit the stormwater storage capacity, stormwater conveyance, and habitat enhancement. The total amount of soil to be removed based on this calculation would be approximately 25,000 cy.

A new low-flow channel, approximately two to three feet deep with a varied channel width of between 50 to 150 feet, will be created generally through the eastern and central parts of the Lake to accommodate a mixture of wetland and upland habitats.

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The channel would be designed with a central path that captures flow from the three existing drainage inlets on the south and west sides of the Lake. This channel would connect to both the existing outlet and the new lower drainage level outlet approximately three feet below the current outlet structure on the northwest corner of the Lake. The main portion of the channel would be excavated deep enough to sustain water throughout the normal wet season (October through April) but would dry out sufficiently by late August to facilitate maintenance. Some areas in the wider portions of the channel would be excavated to an additional depth of up to one foot below the main channel's average depth to maintain standing water on a nearly year-round basis that would support a mosaic of perennial wetland vegetation at the Lake. The new channel and the new lower outlet would allow for modified operations and maintenance of the Lake to meet both the flood capacity needs and to enhance the habitat of the Lake. The construction of this drainage channel will occur over several seasons as part of the ongoing maintenance of the Lake.

#### OUTLET MODIFICATION

The addition of a new low-flow outlet would prevent year-round pooling in the Lake, except in designed perennial habitat areas, and would improve the operational flexibility of the system for proper flood control maintenance.

The new outlet would be constructed at a depth approximately three feet lower than the current outlet. This new outlet would consist of a pipe culvert with a regulated gate opening that would be connected beyond the current Lake area to the existing drainage system. The new outlet would be used during the late spring and summer months to drain the Lake, thereby facilitating improved management of the existing wetland and flood capacity of the Lake. The existing outlet would be retained and would be used during the wet season (winter months) thus maintaining the overall area of the Lake and seasonal wetlands of the same size they are today. The new drain pipe on the lower outlet would remain closed during normal rain events in the wet season and would be opened in early to mid-May to allow most of the standing water in the entire main channel to drain. This modified operations schedule would achieve the following goals: (1) reduce the area of standing water during the dry season; (2) help diversify the habitat of the Lake through water management; (3) enhance a variety of wetland habitat types; and (4) facilitate flood control maintenance and capacity of the Lake.

#### HABITAT ENHANCEMENT/ROUTINE MAINTENANCE AGREEMENT

The construction of the proposed lower outlet would enable modifications to water level management at the project site for sediment and flood control. The operations of the new lower outlet structure combined with channeling would reduce problems associated with stagnation, while giving the District the ability to retain water all year long in designed areas which support wildlife habitat. Since the wet season level of the Lake would remain the same, the total inundated wetland acreage of the Lake would not be significantly altered by the proposed enhancements, and diversification of wetland types would result primarily through water level management.

As noted above under "Project Background", the project site is operated under a Routine Maintenance Agreement with the DFG. In order to implement the Proposed Project, it would be necessary to obtain a new or revised 1602 Routine Maintenance Agreement from DFG. The Proposed Project would increase the diversity and quality of habitat in Lake Dalwigk. The most important component of the habitat enhancement would be the channeling of stormwater inflows into a single, centralized waterway of a width and alignment intended to mimic a natural channel in similar conditions and designed to flow generally through the middle and eastern portions of Lake Dalwigk.

The approximately 2.5 acre channelized waterway would flow adjacent to approximately 8.3 acres of contoured wetlands and upland areas where wetland vegetation would continue to flourish. To ensure the reestablishment of wetland vegetation after dredging activities, plugs of soil and accompanying

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vegetation would be removed from the wetland areas prior to dredging and would be replaced in the wetland soil once dredging activities have been completed. Additionally, a mixture of wetland vegetation is anticipated to naturally establish when adjacent cattail and tule stands colonize the area as a result of the modified water management regimen. The excavated areas of the new channel would support seasonal/perennial wetland habitat of greater diversity than those currently present on site. The overall intent is for seasonal/perennial wetlands to occupy approximately 30 percent of the total area of Lake Dalwigk on a relatively permanent basis while not affecting the overall wetland acreage of the Lake as a whole, especially during the wet season. As part of the long term flood-capacity maintenance, the areas of permanent inundation would be rotated periodically by the District's maintenance staff. The construction of this channel would occur over several seasons as part of the District's ongoing maintenance program. Additionally, native trees, such as willows (*Salix* spp.) would be planted in the eastern portion of the Lake to reestablish a more natural riparian buffer for the wetlands.

The current pattern of siltation within the basin is expected to continue. As silts enter and settle in the basin during the rainy season, the lower more perennial wetland areas will fill in over time. The District proposes that a DFG-approved protocol for operations and maintenance be established under the revised Routine Maintenance Agreement that would permit modification of the wetlands and uplands within and adjacent to the proposed channel on a periodic basis to maintain habitat-to-Lake area ratios with approximately 30 percent of the Lake in seasonal/perennial wetlands. As silt deposition fills the deeper areas of the Lake, the other surrounding areas adjacent to the main channel would be lowered to create new seasonal/perennial wetlands. Such activities would effectively "rotate" the lower wetland with the silt-filled upland areas, and this depth modification plan would be concurrent with seasonal mowing and maintenance grasses and other vegetation in the overall Lake area. The rotation of wetlands would also ensure that habitat remains present for wildlife at all times, since one set of wetlands would remain as the other is dredged. Re-vegetation of the newly dredged wetlands would occur through natural colonization of the area by adjacent stands of cattail and tule. During the wet season (winter months), the water level management will continue as it does today through the utilization of the existing upper water outlet.

## CONSTRUCTION ACTIVITIES GRADING AND GROUND DISTURBANCE

Restoration of Lake Dalwigk's storage capacity and implementation of the habitat enhancement portion of the proposed project would involve vegetation removal and desiltation at an overall average depth of approximately 18 inches in the channelized waterway and eastern portion of the Lake. This would facilitate more effective water management and a more diversified wetland mosaic. Re-contouring would be required to create the channelized waterway and surrounding upland/wetland habitats. The volume of sediment and amount of vegetation to be removed would be determined during the final design phase of the project and would be dependent on the specific conditions of the habitat enhancement plan developed in consultation with DFG. The overall amount of the excavated material is anticipated to be approximately 25,000 cubic yards, or the equivalent of lowering approximately one fourth of the total surface area of the wet season Lake by approximately 18 inches in average depth.

For the purposes of this analysis, it was assumed as a worst case scenario that the construction equipment utilized for vegetation removal and excavation activities would include two D-8tractors/loaders/backhoes, a two-wheel tractor with mower, and two four-wheel tractors with shredders. The removal of sediment would be completed as much as possible in a single season, with additional construction phased over several seasons as part of an ongoing adaptive management approach in accordance with the Routine Maintenance Agreement approved by the DFG. The excavated materials would be stored on site until it is dry. If the storage capacity of the site is exceeded the excess material will be transported to the District's Wastewater Treatment Plant approximately one mile from the project site for storage and classification. Excavated material would be disposed of appropriately based on the initial results of soil testing and as refined given the results of final soil classification conducted at the time of actual removal.

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## INSTALLATION OF NEW OUTLET

The new outlet at the north end of the Lake would be constructed at a depth approximately three feet lower than the existing outlet. The construction of this outlet would be the first phase of construction. The existing outlet would be maintained and will be operated as it is today during the wet season to maintain the overall surface area of the Lake and the total acreage of wetlands. New drain piping and a regulated gate opening at the new outlet will be installed and connected to the existing outflow structure that currently drains the Lake. The corroded 42-inch diameter corrugated metal pipe at the southeast corner of the Lake would also be replaced at this time. The metal pipe would be excavated from the manhole at the parking lot to the edge of the lake and replaced with new pipe of the same dimensions.

## STAGING AREA

Staging areas would be outside of Lake Dalwigk and would be utilized to store the limited construction equipment in areas near construction sites, primarily excavating and other equipment, and materials. In addition to equipment storage, staging areas would be utilized to store, dry, and classify dredged sediment material. Excess material would be transported to the Wastewater Treatment Facility or as needed to an appropriate disposal facility. Staging areas would be located in previously disturbed and currently maintained areas.

## CONSTRUCTION SCHEDULE

Construction of the Proposed Project is scheduled to begin in spring/summer of 2011 and the majority is anticipated to be completed in one construction season. Additional construction would be phased over several seasons as needed to meet the ongoing adaptive management approach for the operation and maintenance of flood capacity and wildlife habitat. Construction would begin with the installation of the new lower outlet. All construction activities would take place between 7:30 AM and 7:00 PM, Monday through Sunday. Work hours may be extended if approved by the City and adequate notification is provided to surrounding residents/property owners.

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## Project Name:

### **Bayfront Regional Flood Protection System Improvements and 5<sup>th</sup> Avenue Pump Station Renovation Project**

## Responsible Agency:

Please identify one agency that is involved in the project and is responsible for providing information for inclusion in the Bay Area IRWMP.

The primary agency involved in the Bayfront Regional Flood Protection System Improvements and 5<sup>th</sup> Avenue Pump Station Renovation Project (Project) and responsible for providing information for inclusion in the Bay Area IRWMP is the City of Redwood City (City).



**Flooded Broadway & Hoover Street after a rain event in Redwood City**

## Other Participating Agencies:

Please identify other agencies that are involved in the project, if applicable.

The City of Menlo Park is participating in the Project. Other agencies that are involved in the Project are the Town of Atherton, Town of Woodside, and County of San Mateo.

## Summary Description:

Please provide a one paragraph description of the project. If you would like to include additional information, please do so under "Detailed Description" at the end of this form.

The project is a multi-jurisdictional comprehensive improvement project that will relieve widespread and persistent flooding along the Bayfront Canal and Atherton Channel areas in Redwood City, City of Menlo Park, and unincorporated areas in the County of San Mateo. The Project consists of two components vital for improving the region's flood management: 1) upsizing the 5<sup>th</sup> Avenue Pump Station and 2) improving the regional flood protection system along the Bayfront Canal and Atherton Channel. The component of the Project to upgrade the existing 5<sup>th</sup> Avenue Pump Station will strengthen the pump station to address seismic safety issues and increase the pumping capacity of the station to handle larger storm events. The component of the Project to improve the regional flood protection system by constructing a sheet pile floodwall along the lower elevations of the Bayfront Canal and Atherton Channel will hold back stormwater from flooding developed land areas.

The implementation of the Project would reduce the regions flooding frequency and reduce flood damage costs.

## Proposition 50 Water Management Strategies Addressed:

Please select the water management strategies addressed by this project. Check all that apply.

Ecosystem Restoration

Environmental and habitat protection and improvement

- |  |   |
|--|---|
| <input type="checkbox"/> Water Supply Reliability                      | <input type="checkbox"/> Conjunctive use                |
| <input checked="" type="checkbox"/> Flood management                   | <input type="checkbox"/> Desalination                   |
| <input type="checkbox"/> Groundwater management                        | <input type="checkbox"/> Imported water                 |
| <input type="checkbox"/> Recreation and public access                  | <input type="checkbox"/> Land use planning              |
| <input checked="" type="checkbox"/> Storm water capture and management | <input type="checkbox"/> NPS pollution control          |
| <input type="checkbox"/> Water conservation                            | <input type="checkbox"/> Surface storage                |
| <input type="checkbox"/> Water quality protection and improvement      | <input checked="" type="checkbox"/> Watershed planning  |
| <input type="checkbox"/> Water recycling                               | <input type="checkbox"/> Water and wastewater treatment |
| <input type="checkbox"/> Wetlands enhancement and creation             | <input type="checkbox"/> Water transfers                |

### Primary Water Strategy:

Please list the primary water management strategy to facilitate project classification. Please select only ONE of the water management strategies listed above.

The primary water strategy for the Project is flood management.

### Project Benefits:

#### **Proposition 84 & 1E: Project Benefits as Eligibility Criteria**

Please select the benefits provided by this project. Check all that apply. *Need one or more.*  
(from page 17 of draft Guidelines)

- Water supply reliability, water conservation and water use efficiency
- Stormwater capture, storage, clean-up, treatment, and management
- Removal of invasive non-native species, the creation and enhancement of wetlands, and the acquisition, protection, and restoration of open space and watershed lands
- Non-point source pollution reduction, management and monitoring
- Groundwater recharge and management projects
- Contaminant and salt removal through reclamation, desalting, and other treatment technologies and conveyance of reclaimed water for distribution to users
- Water banking, exchange, reclamation and improvement of water quality
- Planning and implementation of multipurpose flood management programs
- Watershed protection and management
- Drinking water treatment and distribution
- Ecosystem and fisheries restoration and protection

#### **Proposition 1E Additional Eligibility Criteria:**

Please select the criteria met by this project. *All must apply.*  
(from page 18 of draft Guidelines)

- |  |   |
|--|---|
| <input checked="" type="checkbox"/> Designed to manage stormwater runoff to reduce flood damage.   | <input checked="" type="checkbox"/> Yield multiple benefits that may include one of the following elements ( <b>need one for eligibility</b> ): (from page 7 of draft 1E PSP) |
| <input checked="" type="checkbox"/> Consistent with the applicable Regional Water Quality Control Plans (Basin Plans) (default is "yes" for projects in the Bay Area IRWMP). | • Groundwater recharge <input type="checkbox"/>   |
|  | • Water quality improvement <input checked="" type="checkbox"/>   |
|  | • Ecosystem restoration and benefits <input type="checkbox"/>   |
|  | • Reduction of instream erosion and sedimentation <input type="checkbox"/>  |

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## **Purpose and Need:**

*Please provide a detailed description of the purpose and need for the project. Include discussion of the project's goals and objectives and of the critical impacts that will occur if the project is not implemented.*

The purpose of the Project is to increase the capacity of the pump station to handle stormwater that enters the system and pump it into the Bayfront Canal, which ultimately discharges into the Bay, and construct a sheetpile floodwall along the Bayfront Canal and Atherton Channel to holdback floodwater. The goals of the Project are to:

- Improve flood management,
- Protect public health and safety from damages due to flooding , and
- Protect property, businesses, and transportation from damages due to flooding.

The Project objectives are to reduce the flooding frequency in the region, reduce the risk of flood damages, and improve current flood management through improvements to the regional flood protection system along the Bayfront Canal and Atherton Channel and upgrading the 5th Avenue Pump Station.

The Project is needed to reduce the flooding frequency during heavy rains and high tides, to improve flood management, and to reduce flood damage costs to the region. During rain events, storm water flows downhill to the low-lying areas. Pumps are required to pump storm runoff from the low-lying areas to the Bayfront Canal for transport to the Bay. The drainage pump station at 5th Avenue is undersized and inadequate to eliminate ponding, which contributes to the flooding problem. In addition, the largest flow contributor to the Bayfront Canal is the Atherton Channel, which deposits into the Canal before a set of tide gates. This Channel receives storm runoff from the City of Menlo Park, the Town of Atherton and Woodside, and unincorporated areas of San Mateo County. During heavy rains and high tides the tide gates at the terminus of the Bayfront Canal prevents water from flowing into the Bay. The Canal does not have enough detention capacity, thus causing the canal to back up and flood property and streets. Implementation of this Project will provide immediate relief to the Friendly Acres and North Fair Oaks neighborhoods of the City, City of Menlo Park, and unincorporated regions in San Mateo County that regularly flood when Bay high tides coincide with storm events.

Without the Project, during heavy rain events, the region will continue to experience flooding of property, businesses, and streets, increasing the flood cost damages and endangering public health and safety.

## Project Status and Schedule:

*Please provide the actual or projected start and finish dates for each of the following project stages. If any stage does not apply to the project please enter N/A.*

Stage	Duration	Start Date	Finish Date
Planning	Component 1 - 10 months	Mar 2003	Dec 2003
	Component 2 - 10 months	Mar 2003	Dec 2003
Demonstration Project	N/A	N/A	N/A
Design	Component 1 - 10 months	Dec 2003	Sept 2004
	Component 2 - Prelim. Design - 3 months	Oct. 2003	Dec 2003
	Final Design - 10 months	Jan 2012	Sept 2012
Environmental Documentation / Permitting	Component 1 - 5 months	Sept 2011	Jan 2012
	Component 2 - Two years	Jan 2013	Jan 2015
Construction	Component 1 - One Year	Jan 2012	Jan 2013
	Component 2 - One Year	Jan 2015	Jan 2016

### Additional Notes:

The Project consists of two components which will have separate design, environmental permitting, and construction phases. Component 1 of the project consists of upsizing the 5<sup>th</sup> Avenue Pump Station. Component 2 of the project will consist of installing sheet piles along the lower elevation segments of the Bayfront Canal and Atherton Channel. The projected start and end dates for each component of the Project are listed in the time frames shown in the above table.

### Readiness to Proceed:

*Please clearly describe project readiness and realistic start date; include status of design, environmental review and securing required matching funds.*

The overall Project has been ready for implementation with the necessary studies and cost estimates completed in 2004 . The first component's planning and design tasks were completed in September 2004. The environmental review period for Component 1 will commence immediately after awarding of the grant. Following the environmental review, construction for Component 1 is projected to commence in early January 2012. The final design and environmental review period for Component 2 of the Project will commence in January 2012 with construction projected to commence by January 2015.

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The total matching funds that have been secured for the Project are \$8 million. Matching funds for the Project have been secured and will come from CIP accounts. The City has a CIP account for the 5<sup>th</sup> Avenue Pump Station and Bayfront Canal Drainage Improvements with \$6 million in funds; the City of Menlo Park has a CIP account for the Bayfront Canal improvements with \$2 million in funds.

## **Integration with Other Activities:**

*Please identify any linkages between the schedule of this project and the schedules of other projects, if applicable. Please discuss the integration of the project with other Bay Area IRWMP projects.*

This project integrates with other Bay Area IRWMP projects through meeting of the following IRWMP goals: contributes to the protection of public health, safety and property through the reduction of flooding and water quality impairments associated with flooding.

## **Cost and Financing:**

*Please identify the capital cost and operation and maintenance cost of the proposed project. Please indicate the base year (e.g. CCI) for all costs. Please identify the beneficiaries, potential funding/financing options for project implementation, and ongoing support and financing for operation and maintenance of the project once implemented.*

The total cost of the Project is estimated to be \$16 million (2011 dollars). The operation and maintenance costs of the Project are estimated to be \$50,000 a year (2011 dollars) primarily for the 5<sup>th</sup> Avenue Pump Station. The sheet pile floodwall will require none to very minimal maintenance.

All matching funds for the project have been secured by the City and the City of Menlo Park.

## **Benefits and Impacts:**

*Please provide a detailed discussion of the projected benefits and impacts of the project, both locally and for the region. Please include an evaluation of impacts/benefits to other resources, such as air quality or energy.*

Locally the Project will reduce the flooding frequency in Redwood City as well as in the surrounding region including the City of Menlo Park, and unincorporated regions of San Mateo County. The Project benefits consist of: reduced frequency of flooding events, reduced flood costs damages, improved flood management, protection of public health and safety, and reinforcement of flood protection infrastructure during seismic events.

## **Disadvantaged Communities / Environmental Justice:**

*Please include a specific discussion of how the project will benefit or impact disadvantaged communities or environmental justice goals.*

The Project will benefit several mobile home parks that are within the local flood zone and other surrounding low income communities, such as the Friendly Acres neighborhood in Redwood City, Haven Avenue area in Menlo Park, and the North Fair Oaks neighborhood in unincorporated San Mateo County. These disadvantaged communities are severely impacted by flooding and incur high flooding damage costs during heavy rains and high tides.

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## Environmental Compliance Strategy:

*Please provide a detailed description of how the project will comply with all applicable environmental review requirement, including CEQA and/or (if applicable) NEPA. For ongoing CEQA/NEPA work, indicate when required documentation would be completed. Also, include discussion of how compliance with local, county, State and federal permitting requirements will be achieved.*

Component 1 of the Project will involve an existing facility and will obtain a CEQA exemption within five months of when the grant is awarded. For Component 2 of the Project, CEQA compliance will commence in January 2012 during the final design stage. Any required permits as identified by the CEQA review will be obtained for Component 2 of the Project. A copy of the final environmental documents to the City will be available within 30 calendar days of approval of the documents.

## Statewide Priorities:

*Please select the statewide priorities that are addressed by this project. Check all that apply.*

### ***From Proposition 50 Guidelines (pg 5)***

- Reduce conflicts between water rights users
- Implement TMDLs
- Implement RWQCB's Watershed Management Initiatives
- Implement SWRCB's NPS Pollution Plan
- Assist in meeting Delta Water Quality Objectives
- Implement recommendations of the floodplain, desalination, and recycling task forces, or of the state species recovery plan
- Address environmental justice concerns
- Assist in meeting the CALFED Bay-Delta Program goals

### ***From Proposition 84 and Proposition 1E draft Guidelines (pg 13-14)***

- Drought Preparedness
- Use and Reuse Water More Efficiently
- Climate Change Response Actions
- Expand Environmental Stewardship
- Practice Integrated Flood Management
- Protect Surface Water and Groundwater Quality
- Improve Tribal Water and Natural Resources
- Ensure Equitable Distribution of Benefits

## Additional Notes:

This Project addresses anticipated climate change impacts, such as rising sea-level, through the construction of a sheet pile floodwall along the lower elevations of the Bayfront Canal and Atherton Channel .

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## **Stakeholder Involvement and Coordination:**

*Please describe any coordination with stakeholders, land use agencies, or other state and local agencies. Please include a list of proposed stakeholders, how they have/will participate in the planning and implementation of the project, and how their involvement will influence the implementation of the project. Discuss efforts to address environmental justice concerns.*

The Project is of high value to the region and has attracted the interest and participation of the City of Menlo Park, the Town of Atherton, the Town of Woodside, and the County of San Mateo. The City of Menlo Park will be providing a portion of the matching funds for the project. The Town of Atherton, Town of Woodside, and the County of San Mateo will be beneficiaries of the Project and are supporting the implementation of the project.

## **Documentation of Feasibility:**

*Please identify any studies that document the technical and economic feasibility of the proposed project. If study is still in progress please indicate this next to its citation. If no studies exist, please type "N/A".*

Design Development Report, December 2003, Winzler and Kelly. This report includes a detailed alternatives analysis for the Bayfront Canal drainage system including the floodwall protection along the Bayfront Canal.

Geotechnical Engineering Investigation Report and Biological Resources Constraints Analysis, 2003, Winzler and Kelly.

Feasibility Study of Increasing Existing Fifth Avenue Storm Drain Pump Station Capacity, BKF Engineers.

## **Detailed Project Description:**

*If desired, please provide a detailed description with additional information about the project.*

## Project Name:

**San Francisquito Creek Flood Protection and Ecosystem Restoration Capital Improvement Project, East Bayshore Road to San Francisco Bay**

## Responsible Agency:

*Please identify one agency that is involved in the project and is responsible for providing information for inclusion in the Bay Area IRWMP.*

San Francisquito Creek Joint Powers Authority

## Other Participating Agencies:

*Please identify other agencies that are involved in the project, if applicable.*

City of East Palo Alto, City of Palo Alto, San Mateo County Flood Control District, Santa Clara Valley Water District, U.S. Army Corps of Engineers.

## Summary Description:

*Please provide a one paragraph description of the project. If you would like to include additional information, please do so under "Detailed Description" at the end of this form.*

The project would increase stream flow capacity from the downstream face of East Bayshore Road to San Francisco Bay. It would reduce local flood risks during storm events, as well as provide the capacity needed for upstream flood protection projects being planned by the SFCJPA. Increasing the Creek's flow capacity from San Francisco Bay to Highway 101 would be achieved by widening the Creek channel within the reach to convey peak flows for 100-year storm events, removing an un-maintained levee-type structure downstream of Friendship Bridge to allow flood flows from the Creek channel into the Palo Alto Baylands Preserve north of the Creek, and configuring flood walls in the upper part of the reach for consistency with structure for Caltrans' enlargement of the Highway 101/East Bayshore Road Bridge over San Francisquito Creek. Project elements include flood walls in the upper project reach downstream of East Bayshore Road, levee setbacks and creek widening in the middle reach between East Palo Alto and the Palo Alto Municipal Golf Course, and an overflow terrace at a marsh elevation along the Baylands Preserve.

## Proposition 50 Water Management Strategies Addressed:

*Please select the water management strategies addressed by this project. Check all that apply.*

- |  |  |
|--|--|
| <input checked="" type="checkbox"/> Ecosystem Restoration                                | <input type="checkbox"/> Water Supply Reliability    |
| <input checked="" type="checkbox"/> Environmental and habitat protection and improvement | <input checked="" type="checkbox"/> Flood management |
|  | <input type="checkbox"/> Groundwater management      |



**Insert Project Photo**

**Select box then go to:  
Insert → Picture**

- |   |   |
|---|---|
| <input checked="" type="checkbox"/> Recreation and public access      | <input type="checkbox"/> Imported water                 |
| <input type="checkbox"/> Storm water capture and management           | <input type="checkbox"/> Land use planning              |
| <input type="checkbox"/> Water conservation                           | <input type="checkbox"/> NPS pollution control          |
| <input type="checkbox"/> Water quality protection and improvement     | <input type="checkbox"/> Surface storage                |
| <input type="checkbox"/> Water recycling                              | <input checked="" type="checkbox"/> Watershed planning  |
| <input checked="" type="checkbox"/> Wetlands enhancement and creation | <input type="checkbox"/> Water and wastewater treatment |
| <input type="checkbox"/> Conjunctive use                              | <input type="checkbox"/> Water transfers                |
| <input type="checkbox"/> Desalination                                 |   |

## Primary Water Strategy:

Please list the primary water management strategy to facilitate project classification. Please select only ONE of the water management strategies listed above.

Flood management

## Project Benefits:

### **Proposition 84 & 1E: Project Benefits as Eligibility Criteria**

Please select the benefits provided by this project. Check all that apply. *Need one or more.*  
(from page 17 of draft Guidelines)

- Water supply reliability, water conservation and water use efficiency
- Stormwater capture, storage, clean-up, treatment, and management
- Removal of invasive non-native species, the creation and enhancement of wetlands, and the acquisition, protection, and restoration of open space and watershed lands
- Non-point source pollution reduction, management and monitoring
- Groundwater recharge and management projects
- Contaminant and salt removal through reclamation, desalting, and other treatment technologies and conveyance of reclaimed water for distribution to users
- Water banking, exchange, reclamation and improvement of water quality
- Planning and implementation of multipurpose flood management programs
- Watershed protection and management
- Drinking water treatment and distribution
- Ecosystem and fisheries restoration and protection

### **Proposition 1E Additional Eligibility Criteria:**

Please select the criteria met by this project. *All must apply.*  
(from page 18 of draft Guidelines)

- |  |   |
|--|---|
| <input checked="" type="checkbox"/> Designed to manage stormwater runoff to reduce flood damage.   | <input checked="" type="checkbox"/> Yield multiple benefits that may include one of the following elements ( <b>need one for eligibility</b> ): (from page 7 of draft 1E PSP) |
| <input checked="" type="checkbox"/> Consistent with the applicable Regional Water Quality Control Plans (Basin Plans) (default is "yes" for projects in the Bay Area IRWMP). | • Groundwater recharge <input type="checkbox"/>   |
|  | • Water quality improvement <input type="checkbox"/>  |
|  | • Ecosystem restoration and benefits <input checked="" type="checkbox"/>  |
|  | • Reduction of instream erosion and sedimentation <input checked="" type="checkbox"/>   |

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## **Purpose and Need:**

*Please provide a detailed description of the purpose and need for the project. Include discussion of the project's goals and objectives and of the critical impacts that will occur if the project is not implemented.*

The project is being designed to provide protection against a 1% fluvial event coincident with a 1% tide, with accomodation for 26 inches of projected sea level rise and FEMA freeboard requirements on San Francisquito Creek between East Bayshore Road and San Francisco Bay. The project will protect more than 1100 properties from creek flooding, and when coupled with future tidal levee improvements, will remove these properties from the FEMA floodplain. This downstream most reach of San Francisquito Creek is at the highest risk of severe flooding in the system, due to undersized channel capacity and sub-standard levees. Flooding risk is exacerbated during high tides. The creek in this area runs through communities that have experienced severe damage during previous flood events. This downstream project is a necessary first step to provide comprehensive flood protection farther upstream. The project will improve drainage upstream, even before upstream projects are built.

## **Project Status and Schedule:**

*Please provide the actual or projected start and finish dates for each of the following project stages. If any stage does not apply to the project please enter N/A.*

<b>Stage</b>	<b>Duration</b>	<b>Start Date</b>	<b>Finish Date</b>
Planning	12 months	10/2008	10/2009
Demonstration Project			
Design	22 months	11/2009	8/2011
Environmental Documentation / Permitting	28 months	11/2009	3/2012
Construction	28 months	6/2012	10/2014

## **Additional Notes:**

## **Readiness to Proceed:**

*Please clearly describe project readiness and realistic start date; include status of design, environmental review and securing required matching funds.*

As of 2/25/11, the design consultant on the project has completed 60% design and PS&E, and is preparing its submittal for SFCJPA review. A Notice of Preparation of an Environmental Impact Report has been published, and CEQA scoping meetings were held on 9/29/10 and 9/30/10 in East Palo Alto and Palo Alto, respectively. Local funds identified to match State funding include revenues and cash reserves collected from Measure B and ad velorum taxes in Santa Clara County held by the Santa Clara Valley Water District, and special assessment taxes in San Mateo County held by the San Mateo County Flood Control District.

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## **Integration with Other Activities:**

*Please identify any linkages between the schedule of this project and the schedules of other projects, if applicable. Please discuss the integration of the project with other Bay Area IRWMP projects.*

This project is being planned in conjunction with the South Bay Shoreline Study (SBSS) of the Army Corps of Engineers. Many of the studies procured by the SBSS, including coastal hydraulic modeling of San Francisco Bay, are being incorporated in to the planning of the Project.

## **Cost and Financing:**

*Please identify the capital cost and operation and maintenance cost of the proposed project. Please indicate the base year (e.g. CCI) for all costs. Please identify the beneficiaries, potential funding/financing options for project implementation, and ongoing support and financing for operation and maintenance of the project once implemented.*

Costs:

Planning and Design: \$2.5M

Construction: \$25M

O&M: \$250K annually

Targeted Financing Sources:

Planning and Design: SCVWD Measure B, San Mateo County Flood Control District

Construction: Proposition 1E, SCVWD Measure B, City of East Palo Alto Redevelopment Agency

O&M: SCVWD Clean Safe Creeks Initiative

## **Benefits and Impacts:**

*Please provide a detailed discussion of the projected benefits and impacts of the project, both locally and for the region. Please include an evaluation of impacts/benefits to other resources, such as air quality or energy.*

The benefits of the project, as demonstrated in other sections of this project summary, include reducing flood risks, improving ecological resources, and providing opportunities for enhanced recreational experiences for the community.

Impacts to local properties and businesses will be mitigated through direct negotiations with the property owners. The primary impacts for these properties will be disruption of traffic and other nuisances associated with construction, and changes to operations to accommodate encroachment of new levees and floodwalls on adjacent lands. There are three public and two private properties on which the Project will encroach. The largest encroachment will be on to the Palo Alto Municipal Golf Course, owned by the City of Palo Alto. The SFCJPA is working with the City to reconfigure the Golf Course to mitigate for this encroachment. Other, smaller encroachments on public lands include the Palo Alto Baylands Athletic Center and property owned, but not used by, the US Postal Service. In addition, a private business and a private school will be impacted by encroachment. The SFCJPA and member agencies are currently in negotiations with the land owners to secure easements or land swaps to accommodate the Project.

Other impacts, such as those to riparian habitat and air quality during construction are being evaluated and will be documented in the Environmental Impact Report.

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## Disadvantaged Communities / Environmental Justice:

*Please include a specific discussion of how the project will benefit or impact disadvantaged communities or environmental justice goals.*

The City East Palo Alto, which is a member agency of the SFCJPA, will be the primary beneficiary of the Project. The Project will remove flooding risks from San Francisquito Creek for over 1000 properties (primarily residences) within the City. The Median Household Income in East Palo Alto is \$44,000 annually, which is approximately 58% of the MHI for the State of California, qualifying East Palo Alto as a Disadvantaged Community as defined by the California Department of Finance Population Research Unit.

## Environmental Compliance Strategy:

*Please provide a detailed description of how the project will comply with all applicable environmental review requirement, including CEQA and/or (if applicable) NEPA. For ongoing CEQA/NEPA work, indicate when required documentation would be completed. Also, include discussion of how compliance with local, county, State and federal permitting requirements will be achieved.*

ICF has been retained by the SFCJPA to prepare an Environmental Impact Report for the project. As of the submittal date, ICF has conducted several studies intended to ascertain potential impacts. Required documentation will be secured in early 2012.

## Statewide Priorities:

*Please select the statewide priorities that are addressed by this project. Check all that apply.*

### ***From Proposition 50 Guidelines (pg 5)***

- Reduce conflicts between water rights users
- Implement TMDLs
- Implement RWQCB's Watershed Management Initiatives
- Implement SWRCB's NPS Pollution Plan
- Assist in meeting Delta Water Quality Objectives
- Implement recommendations of the floodplain, desalination, and recycling task forces, or of the state species recovery plan
- Address environmental justice concerns
- Assist in meeting the CALFED Bay-Delta Program goals

### ***From Proposition 84 and Proposition 1E draft Guidelines (pg 13-14)***

- Drought Preparedness
- Use and Reuse Water More Efficiently
- Climate Change Response Actions
- Expand Environmental Stewardship
- Practice Integrated Flood Management
- Protect Surface Water and Groundwater Quality
- Improve Tribal Water and Natural Resources
- Ensure Equitable Distribution of Benefits

## Additional Notes:

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## **Stakeholder Involvement and Coordination:**

*Please describe any coordination with stakeholders, land use agencies, or other state and local agencies. Please include a list of proposed stakeholders, how they have/will participate in the planning and implementation of the project, and how their involvement will influence the implementation of the project. Discuss efforts to address environmental justice concerns.*

City of Palo Alto - Most of the lands on which the project will encroach belong to the City of Palo Alto, and are designated as park land. Since the project will not significantly alter land use, legal counsel to the City has determined that implementation of the project will not require a vote of the people to secure the land needed for the project. The City of Palo Alto is a Member Agency of the SFCJPA, and participates in project planning on the Creek through its Department of Public Works.

City of East Palo Alto - Residents of the City of East Palo Alto will ultimately be the primary beneficiaries of the Project, but will also experience the greatest impacts during construction activities. The City of East Palo Alto is a Member Agency of the SFCJPA, and participates in project planning on the Creek through its Department of Public Works.

USFWS - The US Fish and Wildlife Service manages the Palo Alto Baylands Preserve, which is owned by the City of Palo Alto, and as such, will play a major role in assessing the impacts of the Project on the Preserve. The Preserve constitutes a portion of the Don Edwards San Francisco Bay National Wildlife Refuge. USFWS land management staff attend regular site visits with SFCJPA staff, and advise on project planning to ensure that the Project meets the objectives of preserving and enhancing habitat values.

Save the Bay - Since 2004, Save The Bay, a non-profit organization, has been conducting small-scale restoration activities on San Francisquito Creek in conjunction with the USFWS and the City of Palo Alto Baylands Preserve. Staff from Save the Bay have participated in public workshops, and have been invited to advise the SFCJPA and its consultants on project planning to ensure that the Project makes accommodations to minimize impacts to, or assist future implementation of, their restoration efforts.

Acterra - As a local non-profit environmental advocacy and action organization, Acterra sponsors the San Francisquito Watershed Project, which is dedicated to fostering community involvement to restore and improve the natural habitat and functions of the San Francisquito Creek Watershed. The SFWP hosts regular community forums to discuss watershed activities. The SFCJPA has, and will continue to, utilize these community forums to provide project planning updates to, and solicit input from, all of the stakeholders interested in project planning. Regular attendees at the community forums include representatives from the Cities of Menlo Park, Palo Alto and East Palo Alto, the Santa Clara Valley Water District, San Mateo County, Stanford University, California Department of Water Resources, California Department of Fish and Game, USFWS, USGS, and other public and private entities.

## **Documentation of Feasibility:**

*Please identify any studies that document the technical and economic feasibility of the proposed project. If study is still in progress please indicate this next to its citation. If no studies exist, please type "N/A".*

San Francisquito Creek Flood Reduction Alternatives Analysis  
SFCJPA, July 2009

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Corps Feasibility Study - San Francisquito Creek Flood Damage Reduction and Ecosystem Restoration Project

USACE, SFCJPA, in progress. Congressional Authorization secured in 2004. 905(b) report indicating a federal interest in the project issued in 2005. Feasibility Study is 50% complete. SFCJPA has submitted a request for federal credit against expenditures on the project through Section 104 of the Water Resources Development Act, and has received positive feedback from both the San Francisco District and the South Pacific Division of the COE that the project is technically feasible, exceeds benefit/cost ratio requirements for federal projects, and is being planned in accordance with Corps standards.

### **Detailed Project Description:**

*If desired, please provide a detailed description with additional information about the project.*

The Project will provide flood protection against the 1% fluvial event coincident with the 1% tidal and NRC curve III SLR 50-year projections by degrading an abandoned levee between the Creek and Baylands Preserve to allow hydraulic relief and lower the starting water surface elevation in the channel, widening the channel and building new levees to Corps standards and complying with Corps ETL 1110-2-571, and building new floodwalls in areas where the channel is constrained.

The Project will create new habitat and improve existing habitat by widening the channel to allow for the creation of new marsh wetlands, and opening the Creek to the Baylands to improve connectivity of habitat areas.

The Project will create opportunities for recreational enhancements, such as improved public access, greater compliance with ADA standards, and additional marshland and wildlife viewing areas.

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## Project Name:

### **Cesar Chavez Street Flood and Stormwater Management Sewer Improvement Project**

## Responsible Agency:

Please identify one agency that is involved in the project and is responsible for providing information for inclusion in the Bay Area IRWMP.

San Francisco Public Utilities Commission (SFPUC)

## Other Participating Agencies:

Please identify other agencies that are involved in the project, if applicable.

San Francisco Department of Public Works (SFPDW)  
U.S. Environmental Protection Agency (EPA)

## Summary Description:

Please provide a one paragraph description of the project. If you would like to include additional information, please do so under "Detailed Description" at the end of this form.

The Upper Mission/Cesar Chavez neighborhood is located in the Islais Creek drainage basin, the largest drainage basin in the City of San Francisco. The areas surrounding Cesar Chavez and Mission Streets have the potential for flooding during heavy storms. The current alignment of Cesar Chavez Street used to be part of Islais Creek until it was filled in and a city street was built. The original brick sewer was installed in the 1880s with most of the sewers in the project area constructed 80 to 120 years ago when Cesar Chavez Street was constructed. During storm events, the amount of runoff has increased dramatically since the original sewer was constructed in the 1880s, due to the increase in impervious surfaces as a result of development, and additions of catch basins and drains, which funnel surface runoff directly into the sewer collection system. The Cesar Chavez Street Flood and Stormwater Management Sewer Improvement Project includes improvements to existing sewer pipelines in the Mission District and lower Bernal Heights area (project area) in the City and County of San Francisco (City) to improve reliability of the combined sewer system and to minimize potential flooding in the project area. The project includes installation of a new 72 to 84-inch diameter auxiliary sewer beneath Cesar Chavez Street between Hampshire Street and San Jose Avenue, west of US-101 and replacement or relining of adjacent existing sewer pipelines. The new auxiliary sewer would augment the existing sewer's collection and transport of stormwater, and the existing sewer running underneath Cesar Chavez Street would be retained and rehabilitated. The proposed project would improve operations of the system's flood control functions in the project area during heavy storms, a critical element of an overall flood protection and stormwater management effort in this watershed. This project is part of a series of improvements that will be carried out for Cesar Chavez Street. Once the improvements to the sewer system are completed, a number of streetscape improvements will be implemented along Valencia Street, between Mission Street and Cesar Chavez. These streetscape improvements will include low impact design (LID) stormwater



management features that will be used to increase the ecological function of the streetscape and decrease the rate and volume of stormwater entering the combined sewer.

### **Proposition 50 Water Management Strategies Addressed:**

*Please select the water management strategies addressed by this project. Check all that apply.*

- |   |  |
|---|--|
| <input type="checkbox"/> Ecosystem Restoration                                | <input type="checkbox"/> Wetlands enhancement and creation |
| <input type="checkbox"/> Environmental and habitat protection and improvement | <input type="checkbox"/> Conjunctive use                   |
| <input type="checkbox"/> Water Supply Reliability                             | <input type="checkbox"/> Desalination                      |
| <input checked="" type="checkbox"/> Flood management                          | <input type="checkbox"/> Imported water                    |
| <input type="checkbox"/> Groundwater management                               | <input type="checkbox"/> Land use planning                 |
| <input type="checkbox"/> Recreation and public access                         | <input type="checkbox"/> NPS pollution control             |
| <input checked="" type="checkbox"/> Storm water capture and management        | <input type="checkbox"/> Surface storage                   |
| <input type="checkbox"/> Water conservation                                   | <input type="checkbox"/> Watershed planning                |
| <input checked="" type="checkbox"/> Water quality protection and improvement  | <input type="checkbox"/> Water and wastewater treatment    |
| <input type="checkbox"/> Water recycling                                      | <input type="checkbox"/> Water transfers                   |

### **Primary Water Strategy:**

*Please list the primary water management strategy to facilitate project classification. Please select only ONE of the water management strategies listed above.*

Flood Management

### **Project Benefits:**

#### **Proposition 84 & 1E: Project Benefits as Eligibility Criteria**

*Please select the benefits provided by this project. Check all that apply. Need one or more.  
(from page 17 of draft Guidelines)*

- Water supply reliability, water conservation and water use efficiency
- Stormwater capture, storage, clean-up, treatment, and management
- Removal of invasive non-native species, the creation and enhancement of wetlands, and the acquisition, protection, and restoration of open space and watershed lands
- Non-point source pollution reduction, management and monitoring
- Groundwater recharge and management projects
- Contaminant and salt removal through reclamation, desalting, and other treatment technologies and conveyance of reclaimed water for distribution to users
- Water banking, exchange, reclamation and improvement of water quality
- Planning and implementation of multipurpose flood management programs
- Watershed protection and management
- Drinking water treatment and distribution
- Ecosystem and fisheries restoration and protection

#### **Proposition 1E Additional Eligibility Criteria:**

*Please select the criteria met by this project. All must apply.  
(from page 18 of draft Guidelines)*

- Designed to manage stormwater runoff to reduce flood damage.
- Consistent with the applicable Regional Water Quality Control Plans (Basin Plans)

(default is “yes” for projects in the Bay Area IRWMP).

- Groundwater recharge
- Water quality improvement
- Ecosystem restoration and benefits
- Reduction of instream erosion and sedimentation

Yield multiple benefits the may include one of the following elements (**need one for eligibility**): (from page 7 of draft IE PSP)

## Purpose and Need:

*Please provide a detailed description of the purpose and need for the project. Include discussion of the project’s goals and objectives and of the critical impacts that will occur if the project is not implemented.*

The purpose of the project is to provide an auxiliary sewer and improvements to the existing sewer to increase the reliability of the combined sewer system and to improve operations of the system's flood control functions in the project area. The primary objective of the proposed project is to improve operations of the system's flood control functions upstream of the Cesar Chavez sewer pipeline through the installation of an auxiliary sewer pipe, rehabilitation of the existing brick sewer along Cesar Chavez Street, and replacement of smaller sewer pipes with larger ones. Overall project objectives include: (1) Improving the sewer system's ability to contain flows from a 5-year storm; (2) Improving hydraulic capacity to minimize potential flooding; and (3) Maximizing hydraulic grade line (HGL) control.

If this project is not implemented, the risk of severe flooding that would impact a large area in the Cesar Chavez Street neighborhood would continue. Flooding from combined sewers can cause water quality impairments and public health impacts through exposure to polluted floodwaters. Because much of the drainage area in the vicinity of Cesar Chavez Street is steep, times of concentrations are short and peak flows tend to arrive coincidentally along the Cesar Chavez Street sewer to the east of San Jose Avenue. Numerous flooding complaints have been received and flooding was historically observed along Cesar Chavez Street, causing disruption to traffic and pedestrian access on the street and sidewalks. Flooding of properties at the Mission-Cesar Chavez Street occurred during the winter of 2003/2004, where residents and business owners had filed damage claims against the City & County of San Francisco.

## Project Status and Schedule:

*Please provide the actual or projected start and finish dates for each of the following project stages. If any stage does not apply to the project please enter N/A.*

Stage	Duration	Start Date	Finish Date
Planning		October 2005	March 2011
Demonstration Project		N/A	N/A
Design		October 2006	March 2011
Environmental Documentation / Permitting		December 2008	January 2011
Construction		April 2011	April 2013

## Additional Notes:

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## **Readiness to Proceed:**

*Please clearly describe project readiness and realistic start date; include status of design, environmental review and securing required matching funds.*

The project is ready for implementation. Final design for the project is completed. A CEQA Mitigated Negative Declaration was prepared and approved in January 2010. Bid solicitation is in progress and a construction contract is anticipated to be awarded in March 2011. Project construction is expected to proceed is scheduled to take place over 17 months, from May 2011 through September 2012, with final project closeout anticipated in Spring 2013.

The matching funds for the project are secured - a 50% match of the total project cost will be provided by SFPUC from their capital improvement budget.

## **Integration with Other Activities:**

*Please identify any linkages between the schedule of this project and the schedules of other projects, if applicable. Please discuss the integration of the project with other Bay Area IRWMP projects.*

This project is linked to the schedule for a streetscape improvement project on Cesar Chavez Street, led by the Department of Public Works (DPW). The streetscape improvement project will lead to an improvement of pedestrian safety and comfort, increase the amount of useable public space in the neighborhood, and implement on-street designs for sustainable stormwater management. Construction of the Cesar Chavez Street Flood and Stormwater Management Sewer Improvement Project is a critical component of the overall improvement plan for Cesar Chavez Street. The construction work for this project will be coordinated with the Cesar Chavez Streetscape Improvement Project. As the construction of this project completes approximately six blocks of sewer installation and rehabilitation work on Cesar Chavez Street, the streetscape improvement work will begin. The two projects were coordinated to minimize construction duration and disruption to the community.

This project integrates with other Bay Area IRWMP projects through meeting of the following IRWMP goals: contributes to the protection of public health, safety and property through the reduction of flooding and water quality impairments associated with flooding, and contributes to the protection and improvement of the quality of water resources through the reduction of combined sewer discharges to the San Francisco Bay, improving opportunities for beneficial uses.

## **Cost and Financing:**

*Please identify the capital cost and operation and maintenance cost of the proposed project. Please indicate the base year (e.g. CCI) for all costs. Please identify the beneficiaries, potential funding/financing options for project implementation, and ongoing support and financing for operation and maintenance of the project once implemented.*

CAPITAL COST TOTAL: \$25,900,000 (2010 Base Year)

Capital Cost Breakdown -

Planning Phase	\$355,000
Environmental	\$727,767
Design	\$1,856,910
Construction	\$22,960,323

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O&M COST: \$100,000

The funding beneficiary is SFPUC. SFPUC will fund 50% of the project implementation cost through its Wastewater Enterprise (WWE) capital improvement program (CIP) which is financed through wastewater service charges. SFPUC will be responsible for financing operation and maintenance of the project once implemented.

## **Benefits and Impacts:**

*Please provide a detailed discussion of the projected benefits and impacts of the project, both locally and for the region. Please include an evaluation of impacts/benefits to other resources, such as air quality or energy.*

### **Stormwater/Flood Management Benefits:**

This project will increase reliability of the combined sewer system to:

- Address increase storm activity associated with climate change and minimize potential flooding in the project area.
- Improve the sewer system's ability to contain flows from a City 5-year design storm, leading to the improvement of hydraulic capacity to minimize potential flooding and maximize hydraulic grade line control.
- Provide additional storage capacity for combined sewer flows upstream of the Islais Creek transport/storage (T/S) structure and the combined sewer discharge (CSD) outfall structures. By providing additional upstream storage capacity, the transport storage structure takes longer to fill during storm events and can capture greater volumes of combined flows; thereby, increasing the amount of flow that can be conveyed to the Southeast Water Pollution Control Plant (SEWPCP) for full secondary treatment and minimizing the amount of flow that will be discharged to the Bay with only the primary level of treatment.

### **Water Quality Benefits:**

San Francisco is the only coastal city in California with a combined sewer system that collects and treats all dry weather flow to full secondary treatment at one of its wastewater treatment plants. Wet weather flow receives either secondary or primary treatment at one of the City's treatment plants, or an equivalent of wet weather primary treatment within the transport storage (T/S) structures that surround the perimeter of the City. In the most prolonged intense storm events, when the T/S structures fill to capacity, the system may discharge flows from a series of combined discharge structures (CSDs). Water discharged from these structures receives the equivalent primary level of treatment.

The project will enhance stormwater quality because the increased storage capacity of the auxiliary sewer would be able to capture up to the 5-year design storm and transport these flows to the SEWPCP for secondary treatment, rather than route the flows through a CSD structure with wet weather primary treatment, which would eventually be discharged into waterways leading to the Bay.

The project is located within the Central Bayside Drainage Basin which includes CSD structures #18 through #35. The beneficial uses set by the Basin Plan for waters of the Central Bayside Drainage Basin include commercial and sport fishing, estuarine habitat, industrial service supply, fish migration, navigation, preservation of rare and endangered species, water contact recreation, noncontact water recreation, shellfish harvesting, and wildlife habitat. (SFPUC 2030 Sewer System Master Plan TM 406 - Regulatory Considerations for Bayside Discharges, Aug 2009). In recent years, new development and redevelopment in the Islais Creek basin have increased recreational uses. For example, recreational uses

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along Islais Creek now include organized kayaking and canoeing activities due to the development of Islais Landing Beach.

**Improve System Reliability:**

By installing an auxiliary sewer in this project and rehabilitating the existing brick sewers, the two trunk sewers can serve as a bypass for the other one in case one of them should be taken out of service for inspection, repair or rehabilitation. By providing a redundant sewer, the project will be improving overall system reliability.

**Reduced Street Maintenance Costs:**

As flood waters recede a significant volume of water is left behind as temporary ponding. The project will reduce ponding on streets and minimize effects of moisture in creating potholes and cracks which make up a significant portion of street maintenance costs.

**Disadvantaged Communities / Environmental Justice:**

*Please include a specific discussion of how the project will benefit or impact disadvantaged communities or environmental justice goals.*

The project area is located within the Mission District, which is a major commercial district in the City but also where some of the poorest communities reside. Households in the Mission District are on average much larger than the city as a whole: while city-wide the average household has 2.3 people, Mission households average 3.3 people. Family households are even larger, averaging 4.6 people in the Mission compared to 3.3 people city-wide (Census 2000). Mission residents are on average less affluent than in the rest of the city. While average per capita income in San Francisco as a whole is over \$34,000, in the Mission District, it is less than \$18,000, or slightly over half (Census 2000). A high proportion of households in San Francisco rent their dwelling – 65%. In the Mission, the proportion is even higher, 81%. One of the most critical water management needs for most disadvantaged communities in the Bay Area is relief from the public safety and pollution hazards associated with the inundation of communities by storm and flood waters. The back-up of water into streets, neighborhoods, residences and businesses can create significant pollution problems for lower-income areas because of damages to homes and businesses, and the high costs of clean up which many are unable to afford. This project will help to reduce polluted waters in these communities and lower damages to property caused by localized flooding.

**Environmental Compliance Strategy:**

*Please provide a detailed description of how the project will comply with all applicable environmental review requirement, including CEQA and/or (if applicable) NEPA. For ongoing CEQA/NEPA work, indicate when required documentation would be completed. Also, include discussion of how compliance with local, county, State and federal permitting requirements will be achieved.*

It is the intention of the SFPUC to avoid significant impacts through the adoption of all of the mitigation measures identified in the Final Mitigated Negative Declaration (MND), each of which is incorporated herein by reference and listed in the Mitigation Monitoring and Reporting Program (MMRP). The MMRP specifies the process by which all adopted mitigation measures are to be carried out, along with responsibilities for enforcement. All permits and approvals identified in the MND will be obtained prior to project construction.

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## Statewide Priorities:

Please select the statewide priorities that are addressed by this project. Check all that apply.

### **From Proposition 50 Guidelines (pg 5)**

- Reduce conflicts between water rights users
- Implement TMDLs
- Implement RWQCB's Watershed Management Initiatives
- Implement SWRCB's NPS Pollution Plan
- Assist in meeting Delta Water Quality Objectives
- Implement recommendations of the floodplain, desalination, and recycling task forces, or of the state species recovery plan
- Address environmental justice concerns
- Assist in meeting the CALFED Bay-Delta Program goals

### **From Proposition 84 and Proposition 1E draft Guidelines (pg 13-14)**

- Drought Preparedness
- Use and Reuse Water More Efficiently
- Climate Change Response Actions
- Expand Environmental Stewardship
- Practice Integrated Flood Management
- Protect Surface Water and Groundwater Quality
- Improve Tribal Water and Natural Resources
- Ensure Equitable Distribution of Benefits

### Additional Notes:

## Stakeholder Involvement and Coordination:

*Please describe any coordination with stakeholders, land use agencies, or other state and local agencies. Please include a list of proposed stakeholders, how they have/will participate in the planning and implementation of the project, and how their involvement will influence the implementation of the project. Discuss efforts to address environmental justice concerns.*

### Project Planning:

In October 2004, SFPUC requested the San Francisco Department of Public Works (DPW) Hydraulic Section to initiate an investigation of the City's combined sewer system serving the Cesar Chavez Street area. A detailed hydraulic study, Mission/Cesar Chavez Hydrologic/Hydraulic Study (HCE, 2007) was prepared to evaluate the existing sewer system and provide recommendations for analyzing potential alternatives to the current system.

SFPUC will coordinate with the following agencies on project implementation:

- San Francisco Department of Public Works
- San Francisco Municipal Transportation Agency Department of Parking and Traffic (SFMTA/DPT)
- Caltrans
- Bay Area Rapid Transit District (BART)

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Efforts to Address Environmental Justice Concerns:

This project will alleviate flooding in the Mission/Cesar Chavez neighborhood, which contains low-income housing and low-income residents.

### **Documentation of Feasibility:**

*Please identify any studies that document the technical and economic feasibility of the proposed project. If study is still in progress please indicate this next to its citation. If no studies exist, please type "N/A".*

San Francisco Planning Department, 2009. Mitigated Negative Declaration for Cesar Chavez Street Sewer Improvement Project.

San Francisco Department of Public Works, 2008. WW-410 Cesar Chavez Street Sewer Improvement Project, Phase I. Conceptual Engineering Report.

Hydroconsult Engineers, 2007. Mission/Cesar Chavez Hydrologic/Hydraulic Study.

### **Detailed Project Description:**

*If desired, please provide a detailed description with additional information about the project.*

Please refer to Summary Project Description and Project Map on the following page.

# Project Map



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## Project Name:

### Sunnydale Flood and Stormwater Management Sewer Improvement Project

## Responsible Agency:

Please identify one agency that is involved in the project and is responsible for providing information for inclusion in the Bay Area IRWMP.

San Francisco Public Utilities Commission (SFPUC)

## Other Participating Agencies:

Please identify other agencies that are involved in the project, if applicable.

Not Applicable.

## Summary Description:

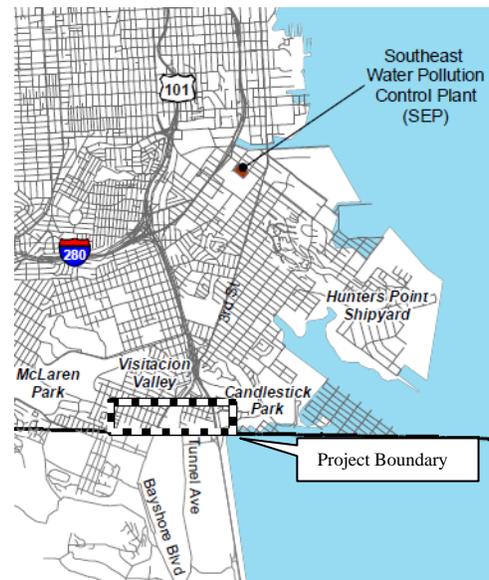
Please provide a one paragraph description of the project. If you would like to include additional information, please do so under "Detailed Description" at the end of this form.

The Sunnydale area of San Francisco is located in Visitacion Valley in southeastern San Francisco. The sewer system in this area currently transports combined sewer flows from an approximate 720-acre area (about 72 percent of the area is residential, 24 percent is open space, and 4 percent consists of paved roadways and parking areas), all through a single 6.5-foot diameter sewer that was constructed in 1913. During heavy rains, this area is at significant risk of flooding. The Sunnydale Flood and Stormwater Management Sewer Improvement Project includes the construction of new and replacement sewer facilities in the Visitacion Valley/Sunnydale neighborhood to improve the system's ability to contain and control substantial rainfall events. The Project is intended to be constructed in two phases. The first phase upgrades the downstream portions of the system and involves construction of a new 8-foot to 12-foot diameter sewer tunnel from the intersection of Sunnydale Avenue and Talbert Street to convey flows eastward to the Sunnydale Transport/Storage (T/S) structure, located adjacent to the San Francisco Bay near Harney Way and Alana Way. The new sewer tunnel would operate primarily in wet weather conditions and supplement the existing 6.5 foot diameter sewer that would continue to be used for dry weather conveyance. The second phase consists of sewer improvements upstream of the new tunnel west of Talbert Street. Phase II would include construction of new sewer pipelines and replacement of existing pipelines. Once both phases of the work are completed the entire Sunnydale area will be upgraded and will result in reduced flooding in the project area.

## Proposition 50 Water Management Strategies Addressed:

Please select the water management strategies addressed by this project. Check all that apply.

Ecosystem Restoration



- |   |  |
|---|--|
| <input type="checkbox"/> Environmental and habitat protection and improvement | <input type="checkbox"/> Wetlands enhancement and creation |
| <input type="checkbox"/> Water Supply Reliability                             | <input type="checkbox"/> Conjunctive use                   |
| <input checked="" type="checkbox"/> Flood management                          | <input type="checkbox"/> Desalination                      |
| <input type="checkbox"/> Groundwater management                               | <input type="checkbox"/> Imported water                    |
| <input type="checkbox"/> Recreation and public access                         | <input type="checkbox"/> Land use planning                 |
| <input checked="" type="checkbox"/> Storm water capture and management        | <input type="checkbox"/> NPS pollution control             |
| <input type="checkbox"/> Water conservation                                   | <input type="checkbox"/> Surface storage                   |
| <input checked="" type="checkbox"/> Water quality protection and improvement  | <input type="checkbox"/> Watershed planning                |
| <input type="checkbox"/> Water recycling                                      | <input type="checkbox"/> Water and wastewater treatment    |
|   | <input type="checkbox"/> Water transfers                   |

### Primary Water Strategy:

Please list the primary water management strategy to facilitate project classification. Please select only ONE of the water management strategies listed above.

Flood Management

### Project Benefits:

#### **Proposition 84 & 1E: Project Benefits as Eligibility Criteria**

Please select the benefits provided by this project. Check all that apply. *Need one or more.*

(from page 17 of draft Guidelines)

- Water supply reliability, water conservation and water use efficiency
- Stormwater capture, storage, clean-up, treatment, and management
- Removal of invasive non-native species, the creation and enhancement of wetlands, and the acquisition, protection, and restoration of open space and watershed lands
- Non-point source pollution reduction, management and monitoring
- Groundwater recharge and management projects
- Contaminant and salt removal through reclamation, desalting, and other treatment technologies and conveyance of reclaimed water for distribution to users
- Water banking, exchange, reclamation and improvement of water quality
- Planning and implementation of multipurpose flood management programs
- Watershed protection and management
- Drinking water treatment and distribution
- Ecosystem and fisheries restoration and protection

#### **Proposition 1E Additional Eligibility Criteria:**

Please select the criteria met by this project. *All must apply.*

(from page 18 of draft Guidelines)

- Designed to manage stormwater runoff to reduce flood damage.
- Consistent with the applicable Regional Water Quality Control Plans (Basin Plans) (default is “yes” for projects in the Bay Area IRWMP).
- Yield multiple benefits that may include one of the following elements (**need one for eligibility**): (from page 7 of draft 1E PSP)
  - Groundwater recharge
  - Water quality improvement
  - Ecosystem restoration and benefits
  - Reduction of instream erosion and sedimentation

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## **Purpose and Need:**

*Please provide a detailed description of the purpose and need for the project. Include discussion of the project's goals and objectives and of the critical impacts that will occur if the project is not implemented.*

The project would involve the construction of new and replacement sewer facilities to alleviate the risk of local flooding in the Visitacion Valley/Sunnydale neighborhood in San Francisco. The current wastewater collection system, converges into a single 6.5-foot diameter sewer constructed in 1913. The project is intended to address stormwater containment and control capabilities in the low-lying areas from Visitacion Avenue southward to the San Mateo County line, and from Schwerin Street eastward to Bayshore Boulevard. The proposed project has been designed to contain flows from a 5-year design storm. The primary objective of the project is to address potential flooding in the Sunnydale/Visitacion neighborhood in San Francisco through the installation of new and replacement sewer facilities. Other project objectives include providing a dry weather (sanitary) flow bypass for future repair and rehabilitation work on the existing 6.5-foot diameter sewer and improving the reliability of the combined sewer system.

If this project is not implemented, the risk of public health and property damage from potential flooding in economically challenged Visitacion Valley community will not be alleviated.

## **Project Status and Schedule:**

*Please provide the actual or projected start and finish dates for each of the following project stages. If any stage does not apply to the project please enter N/A.*

<b>Stage</b>	<b>Duration</b>	<b>Start Date</b>	<b>Finish Date</b>
Planning		June 2005	February 2011
Demonstration Project		N/A	N/A
Design		July 2007	June 2012
Environmental Documentation / Permitting		April 2009	July 2010
Construction		September 2010	January 2014

## **Additional Notes:**

## **Readiness to Proceed:**

*Please clearly describe project readiness and realistic start date; include status of design, environmental review and securing required matching funds.*

The project is ready for implementation. Phase I of the Project is fully designed and under construction by the grant implementation start date of September 1, 2011. Phase II of the project will be 65% designed by the start date and 95% of the design will be completed by December 2011. 100% design completion is expected by January 2012. Phase II construction is expected to begin July 2012 and to be completed by

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January 2014. Environmental review for the project has been completed (San Francisco Planning Department, 2010 Mitigated Negative Declaration for Sunnydale Sewer System Improvement Project, Amended April 5, 2010).

The matching funds for the project are secured - a 50% match of the total project cost will be provided by SFPUC from their capital improvement budget.

### **Integration with Other Activities:**

*Please identify any linkages between the schedule of this project and the schedules of other projects, if applicable. Please discuss the integration of the project with other Bay Area IRWMP projects.*

This project is not linked to the schedules of other projects.

This project integrates with other Bay Area IRWMP projects through meeting of the following IRWMP goals: contributes to the protection of public health, safety and property through the reduction of flooding and water quality impairments associated with flooding, and contributes to the protection and improvement of the quality of water resources through the reduction of combined sewer discharges to the San Francisco Bay, improving opportunities for beneficial uses.

### **Cost and Financing:**

*Please identify the capital cost and operation and maintenance cost of the proposed project. Please indicate the base year (e.g. CCI) for all costs. Please identify the beneficiaries, potential funding/financing options for project implementation, and ongoing support and financing for operation and maintenance of the project once implemented.*

CAPITAL COST TOTAL: \$63,900,000 (2010 Base Year)

#### Phase I

Planning	\$297,544
Environmental	\$408,000
Land Acquisition	\$2,950,000
Design	\$3,761,512
Construction	\$45,744,800

#### Phase II

Planning	\$100,000
Design	\$600,000
Construction	\$10,000,000

O&M Cost: \$10,000 per year for inspections

The funding beneficiary is SFPUC. SFPUC will fund 50% of the project implementation cost through its Wastewater Enterprise (WWE) capital improvement program (CIP) which is financed by municipal bonds and repaid through wastewater service charges. SFPUC will be responsible for financing operation and maintenance of the project once implemented.

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## **Benefits and Impacts:**

*Please provide a detailed discussion of the projected benefits and impacts of the project, both locally and for the region. Please include an evaluation of impacts/benefits to other resources, such as air quality or energy.*

### **Stormwater/Flood Management Benefits**

This project will increase reliability of the combined sewer system to:

- Address increase storm activity associated with climate change and minimize potential flooding in the project area.
- Improve the sewer system's ability to contain flows from a City 5-year design storm, leading to the improvement of hydraulic capacity to minimize potential flooding and maximize hydraulic grade line control.
- Provide additional storage capacity for combined sewer flows upstream of the Sunnydale transport/storage (T/S) structure and the Sunnydale combined sewer discharge (CSD) outfall structure. By providing additional upstream storage capacity, the transport storage structure takes longer to fill during storm events and can capture greater volumes of combined flows; thereby, increasing the amount of flow that can be conveyed to the Southeast Water Pollution Control Plant (SEWPCP) for full secondary treatment and minimizing the amount of flow that will be discharged to Candlestick Cove and the Bay with primary level of treatment.

### **Water Quality Benefits:**

San Francisco is the only coastal city in California with a combined sewer system that collects and treats all dry weather flow to full secondary treatment at one of its wastewater treatment plants. Wet weather flow receives either secondary or primary treatment at one of the City's treatment plants, or an equivalent of wet weather primary treatment within the transport storage (T/S) structures that surround the perimeter of the City. In the most prolonged intense storm events, when the T/S structures fill to capacity, the system may discharge flows from a series of combined discharge structures (CSDs). Water discharged from these structures receives the equivalent primary level of treatment.

The project will enhance stormwater quality because the increased storage capacity of the auxiliary sewer would be able to capture up to the 5-year design storm and transport these flows to the SEWPCP for secondary treatment, rather than route the flows through a CSD structure with wet weather primary treatment, which would eventually be discharged into waterways leading to the Bay.

The project is located within the South Basin which includes CSD structures #37 through #43. The beneficial uses set by the Basin Plan for waters of the South Basin include commercial and sport fishing, estuarine habitat, industrial service supply, fish migration, navigation, preservation of rare and endangered species, water contact recreation, noncontact water recreation, shellfish harvesting, and wildlife habitat. (SFPUC 2030 Sewer System Master Plan TM 406 - Regulatory Considerations for Bayside Discharges, Aug 2009). Candlestick Point Recreation Area (CSD Structures #42-#43), California's first urban state park, has a number of water contact sports such as fishing and board sailing. The fishing pier located at this Park is considered this is one of the better fishing piers in the area because of the better than average fishing offered. Primary species include several varieties of perch, kingfish (white croaker), starry flounder, sand sole, California halibut, striped bass, white sturgeon, California skate, big skate, sting rays (bat rays), leopard sharks, and lots of small brown smoothhound shark and staghorn sculpin. Providing secondary treatment to a larger volume of flows and reducing the volume of flows that are discharged through the CSD structures with primary level of treatment will help further protect these important beneficial uses.

### **Improve System Reliability:**

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The project will serve as a flow bypass for dry weather flows and enable future repair and rehabilitation work on the existing sanitary sewer, therefore improving overall system reliability.

**Reduced Street Maintenance Costs:**

As flood waters recede a significant volume of water is left behind as temporary ponding. The project will reduce ponding on streets and minimize effects of moisture in creating potholes and cracks which make up a significant portion of street maintenance costs.

**Disadvantaged Communities / Environmental Justice:**

*Please include a specific discussion of how the project will benefit or impact disadvantaged communities or environmental justice goals.*

The project area is located in the Visitacion Valley/Sunnydale neighborhood, which is one of San Francisco’s distressed public housing neighborhoods. This neighborhood has been physically, economically and socially isolated from the mainstream of San Francisco for decades. Less than a third of Sunnydale’s residents have graduated from high school and the median household income is just \$12,750 a year (Mercy Housing, 2010. Master Plan for Sunnydale Hope SF). One of the most critical water management needs for most disadvantaged communities in the Bay Area is relief from the public safety and pollution hazards associated with the inundation of communities by storm and flood waters. The back-up of water into streets, neighborhoods, residences and businesses can create significant pollution problems for lower-income areas because of damages to homes and businesses, and the high costs of clean up which many are unable to afford. This project will help to reduce polluted waters in these communities and lower damages to property caused by localized flooding.

**Environmental Compliance Strategy:**

*Please provide a detailed description of how the project will comply with all applicable environmental review requirement, including CEQA and/or (if applicable) NEPA. For ongoing CEQA/NEPA work, indicate when required documentation would be completed. Also, include discussion of how compliance with local, county, State and federal permitting requirements will be achieved.*

It is the intention of the SFPUC to avoid significant impacts through the adoption of all of the mitigation measures identified in the Mitigated Negative Declaration (MND), each of which is incorporated herein by reference and listed in the Mitigation Monitoring and Reporting Program (MMRP). The MMRP specifies the process by which all adopted mitigation measures are to be carried out, along with responsibilities for enforcement. All permits and approvals identified in the MND have been obtained prior to project construction.

**Statewide Priorities:**

*Please select the statewide priorities that are addressed by this project. Check all that apply.*

**From Proposition 50 Guidelines (pg 5)**

- Reduce conflicts between water rights users
- Implement TMDLs
- Implement RWQCB’s Watershed Management Initiatives
- Implement SWRCB’s NPS Pollution Plan
- Assist in meeting Delta Water Quality Objectives
- Implement recommendations of the floodplain, desalination, and recycling task forces, or of the state species recovery plan

- 
- Address environmental justice concerns
  - Assist in meeting the CALFED Bay-Delta Program goals

***From Proposition 84 and Proposition 1E draft Guidelines (pg 13-14)***

- Drought Preparedness
- Use and Reuse Water More Efficiently
- Climate Change Response Actions
- Expand Environmental Stewardship
- Practice Integrated Flood Management
- Protect Surface Water and Groundwater Quality
- Improve Tribal Water and Natural Resources
- Ensure Equitable Distribution of Benefits

**Additional Notes:**

**Stakeholder Involvement and Coordination:**

*Please describe any coordination with stakeholders, land use agencies, or other state and local agencies. Please include a list of proposed stakeholders, how they have/will participate in the planning and implementation of the project, and how their involvement will influence the implementation of the project. Discuss efforts to address environmental justice concerns.*

SFPUC will coordinate with the following agencies on project implementation:

- Bay Conservation and Development Commission (BCDC) – Permit No. M09-2 (for construction of the proposed tunnel to the existing Sunnydale T/S structure, which would be within 100 feet of the Bay shoreline).
- Caltrans – Encroachment Permit 0408-NTN1683 (for construction of tunnel under US-101).
- California Environmental Protection Agency’s Department of Toxic Substances Control (DTSC) – Review and approval of Waste Disposal Management Plan addressing construction activities and on-site contamination.
- California Division of Occupational Safety and Health – Permits related to trenchless installation work for classification of site.
- Peninsula Corridor Joint Powers Board – Construction and Maintenance Agreement #800468 and Right-of-Entry Permit (for construction under Caltrain tracks).
- San Francisco Department of Public Works

Efforts to Address Environmental Justice Concerns:

This project will alleviate flooding in San Francisco’s Visitacion Valley/Sunnydale area, which is an economically challenged neighborhood containing low-income housing and low-income residents.

**Documentation of Feasibility:**

*Please identify any studies that document the technical and economic feasibility of the proposed project. If study is still in progress please indicate this next to its citation. If no studies exist, please type “N/A”.*

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San Francisco Department of Public Works, 2011. Sunnydale Avenue Sewer System Improvements, Phase II. Draft Conceptual Engineering Report. February 2011 (in progress).

San Francisco Planning Department, 2010. Mitigated Negative Declaration (MND). April 5, 2010.

San Francisco Planning Department, 1999. MND. February 27, 1999.

San Francisco Department of Public Works, 1998. Sunnydale Sewer Improvements - Project Planning Report.

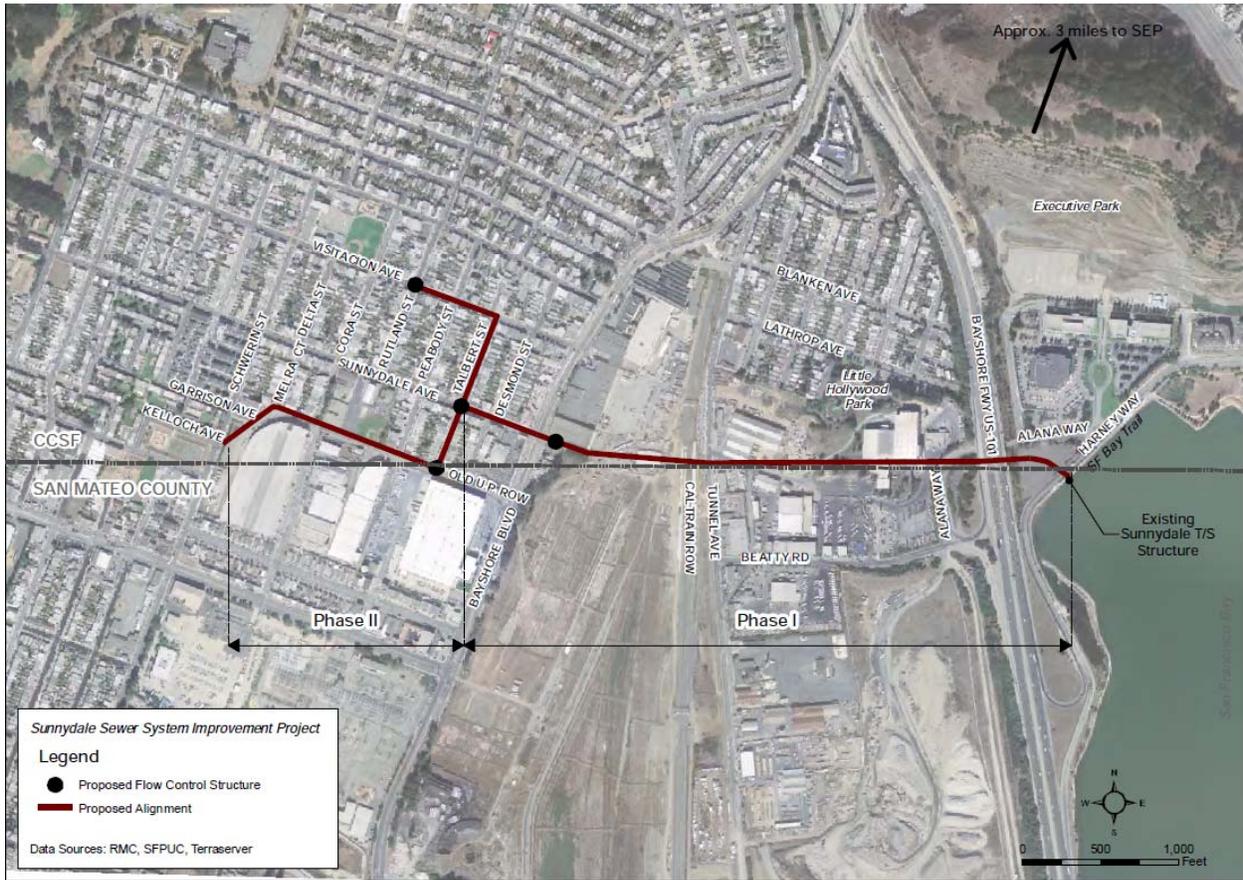
Baseline, 1995. Sunnydale Sewer Improvement Project Background Studies.

### **Detailed Project Description:**

*If desired, please provide a detailed description with additional information about the project.*

Please refer to the Project Map on the following page.

Project Map



IRWMP Project Template Updated\_06.07.10a.doc

## Project Name:

**Phoenix Lake IRWM Retrofit**

## Responsible Agency:

Please identify one agency that is involved in the project and is responsible for providing information for inclusion in the Bay Area IRWMP.

Marin County Flood Control and Water Conservation District, Flood Zone 9 (FZ9)

## Other Participating Agencies:

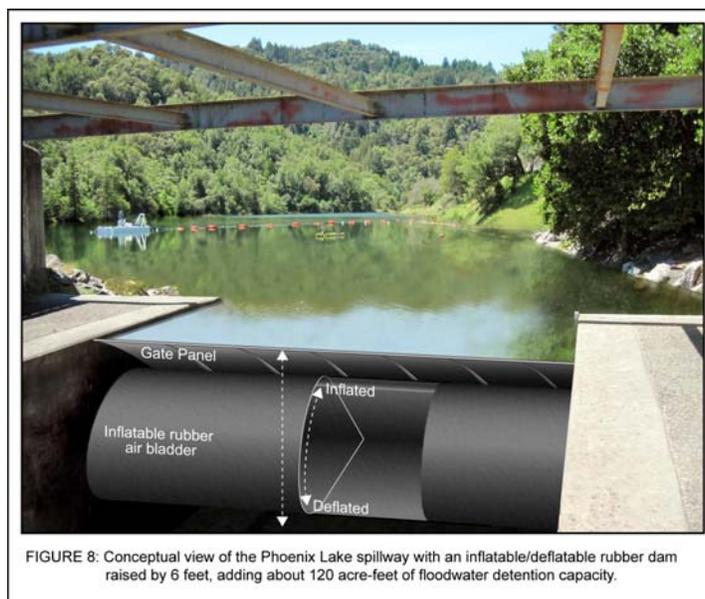
Please identify other agencies that are involved in the project, if applicable.

Marin Municipal Water District (MMWD)

## Summary Description:

Please provide a one paragraph description of the project. If you would like to include additional information, please do so under "Detailed Description" at the end of this form.

Located in central Marin County and encompassing the City of Larkspur, the Towns of Ross, San Anselmo, and Fairfax and the unincorporated communities in the 28 square mile watershed, the Phoenix Lake IRWM Retrofit is an important component of the greater Ross Valley Watershed Flood Reduction Program. Funding for the Program will derive from a drainage fee (\$40 million over 20 years) which was approved by Flood Zone 9 voters in 2006 following the disastrous flood of December 31, 2005. The Program expressly integrates restoration of creek ecological function and other public riparian resource enhancements with the primary objective of flood reduction. The guiding planning document for the Program, the Ross Valley Flood Reduction and Creek Management Master Plan Study (Stetson Engineers, et al., January 2011 (draft)), identifies five flood detention basins for capturing and attenuating flood flows and over 160 in-channel improvements aimed at increasing flood conveyance capacity while simultaneously improving the ecological function of Corte Madera Creek and its tributaries. These detention basins and in-channel capacity improvements work together to provide 100-year flood protection to homes and businesses in flood-prone Ross Valley. Phoenix Lake, an existing water supply reservoir owned and operated by Marin Municipal Water District, is the keystone project of the Program owing to its sizable attenuation capacity and significant effect in reducing flood flows. Originally built in 1906 for municipal water supply, the 100-year old Phoenix Lake dam requires major retrofit in order to function as a dual-purpose water supply-flood detention basin. The earthen embankment dam requires structural strengthening to improve seismic stability; the spillway crest needs to be raised six feet for added attenuation capacity and drought reserve water supply; and the intake/outlet works of the low-level drain pipeline requires modification to enable rapid lake drawdown in advance of a forecasted flood. Concomitant with these improvements are installation of a "Solar Bee ©" epilimnetic circulation device to improve lake water quality (i.e., water clarity and dissolved oxygen through algal reduction) and reduce invasive shoreline aquatic vegetation; instream flow release of deeper, cooler water from the hypolimnion by way of the modified intake of the low-level drain pipeline to improve



downstream water quality and aquatic habitat for target salmonids and other cold water species; and improvements to parking, roads, and lakeside trails to reduce erosion and sediment delivery to the lake, improve public access and overall enjoyment of the lake. The Master Plan Study provides engineering analysis, preliminary designs, and costs for the Phoenix Lake IRWM Retrofit.

### **Proposition 50 Water Management Strategies Addressed:**

*Please select the water management strategies addressed by this project. Check all that apply.*

- |  |   |
|--|---|
| <input checked="" type="checkbox"/> Ecosystem Restoration                                | <input checked="" type="checkbox"/> Wetlands enhancement and creation |
| <input checked="" type="checkbox"/> Environmental and habitat protection and improvement | <input type="checkbox"/> Conjunctive use                              |
| <input checked="" type="checkbox"/> Water Supply Reliability                             | <input type="checkbox"/> Desalination                                 |
| <input checked="" type="checkbox"/> Flood management                                     | <input type="checkbox"/> Imported water                               |
| <input type="checkbox"/> Groundwater management  | <input type="checkbox"/> Land use planning                            |
| <input checked="" type="checkbox"/> Recreation and public access                         | <input checked="" type="checkbox"/> NPS pollution control             |
| <input checked="" type="checkbox"/> Storm water capture and management                   | <input checked="" type="checkbox"/> Surface storage                   |
| <input checked="" type="checkbox"/> Water conservation                                   | <input checked="" type="checkbox"/> Watershed planning                |
| <input checked="" type="checkbox"/> Water quality protection and improvement             | <input checked="" type="checkbox"/> Water and wastewater treatment    |
| <input type="checkbox"/> Water recycling   | <input type="checkbox"/> Water transfers                              |

### **Primary Water Strategy:**

*Please list the primary water management strategy to facilitate project classification. Please select only ONE of the water management strategies listed above.*

Flood Management

### **Project Benefits:**

#### **Proposition 84 & 1E: Project Benefits as Eligibility Criteria**

*Please select the benefits provided by this project. Check all that apply. **Need one or more.***

*(from page 17 of draft Guidelines)*

- Water supply reliability, water conservation and water use efficiency
- Stormwater capture, storage, clean-up, treatment, and management
- Removal of invasive non-native species, the creation and enhancement of wetlands, and the acquisition, protection, and restoration of open space and watershed lands
- Non-point source pollution reduction, management and monitoring
- Groundwater recharge and management projects
- Contaminant and salt removal through reclamation, desalting, and other treatment technologies and conveyance of reclaimed water for distribution to users
- Water banking, exchange, reclamation and improvement of water quality
- Planning and implementation of multipurpose flood management programs
- Watershed protection and management
- Drinking water treatment and distribution
- Ecosystem and fisheries restoration and protection

**Proposition 1E Additional Eligibility Criteria:**

*Please select the criteria met by this project. All must apply.  
(from page 18 of draft Guidelines)*

- |  |   |
|--|---|
| <ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> Designed to manage stormwater runoff to reduce flood damage.</li> <li><input checked="" type="checkbox"/> Consistent with the applicable Regional Water Quality Control Plans (Basin Plans) (default is “yes” for projects in the Bay Area IRWMP).</li> </ul> | <ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> Yield multiple benefits the may include one of the following elements (<b>need one for eligibility</b>): (from page 7 of draft 1E PSP)           <ul style="list-style-type: none"> <li>• Groundwater recharge <input type="checkbox"/></li> <li>• Water quality improvement <input checked="" type="checkbox"/></li> <li>• Ecosystem restoration and benefits <input checked="" type="checkbox"/></li> <li>• Reduction of instream erosion and sedimentation <input checked="" type="checkbox"/></li> </ul> </li> </ul> |
|--|---|

**Purpose and Need:**

*Please provide a detailed description of the purpose and need for the project. Include discussion of the project’s goals and objectives and of the critical impacts that will occur if the project is not implemented.*

There is a need to reduce the frequency and severity of flooding in Ross Valley for the protection of property and public safety. The current capacity of Corte Madera Creek (below Phoenix Lake and the Ross Creek confluence) is about 3,600 cfs, which corresponds to about the 17 percent-annual-chance flood (i.e., 6-year flood). Several times in recent history the Ross Valley has been flooded by overflow from Corte Madera Creek with varying degrees of severity. Prior to establishment in 1951 of the USGS streamflow gaging station on Corte Madera Creek in Ross, flooding was reported in 1914, 1925, 1937, and 1942. Since the Corte Madera Creek streamflow gage in Ross has been in operation, flood flows have been recorded in 1951, 1955, 1958, 1967, 1969, 1970, 1982, 1983, 1986, 1994, and 2005. Of these, the two most severe floods occurred in 1982 and 2005, with peak discharges of approximately 7,200 cfs and 6,800 cfs; the percent-annual-chances of which were approximately 0.6 percent and 1 percent, respectively. Historical flooding has caused extensive property damage and economic hardship to residents, businesses, and local governments, and has threatened the lives of those living in the floodplain, with at least one recorded death occurring in the 1955 flood and at least one rescue of a stranded motorist reported by the Ross Valley Fire Department during the 2005 flood.

In accordance with its Congressional authorization, the Army Corps of Engineers has plans to increase creek conveyance capacity below the Ross Creek confluence to about 5,400 cfs, or about the 4 percent-annual-chance flood (i.e., 25-year flood). This is considered a major improvement but the Ross Valley community desires a further reduction in the flood hazard. In order to increase the effectiveness of the Corps' design and achieve a more appropriate 1 percent-annual-chance level of flood protection (i.e., 100-year flood protection), the 100-year flood discharge at the Ross Creek confluence needs to be reduced by 1,400 cfs, from 6,800 cfs down to 5,400 cfs. This reduction is achievable through detention basins, and retrofit of Phoenix Lake is key since this basin could reduce the 100-year flood discharge by about 650 cfs, or nearly half of the total amount needed. Without the Phoenix Lake IRWM Retrofit, public safety and property downstream of the Ross Creek confluence in the communities of Ross, Kentfield, Larkspur and Greenbrae would remain at-risk of flooding.

There is a need to restore the ecological health and function of Corte Madera Creek and its tributaries. The Basin Plan for the San Francisco Bay Region (SFBRWQCB, 2010) designates beneficial uses for Ross Creek and Corte Madera Creek, which include COLD, MIGR, RARE, SPWN and others. The creek provides important habitat for threatened and endangered species and is considered an "anchor stream" in

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the NMFS recovery plans for coho salmon and steelhead trout. Although overall ecosystem functions of the creek are still essentially intact, the freshwater aquatic and creek riparian habitats have been reduced and degraded by human activities and the ongoing presence of development. By the late 1800s, cattle grazing, deforestation, and dredging for navigation began directly modifying creek corridors and increasing the severity of rainfall and sediment-laden runoff. Railroad prisms, bridges, and other permanent infrastructure were installed flanking and spanning the creeks, often creating grade breaks or otherwise altering the creek bed making it difficult for fish to pass through. In the 1900s, encroachment by urban development gradually filled in along the edges of the creek corridors eliminating portions of the riparian canopy and natural creek bank vegetation and encouraging invasion by non-native vegetation. With construction of Phoenix Lake in 1906, baseflow water temperatures in Ross Creek and farther downstream warmed during the dry season as historical seepage of cool groundwater into upper Ross Creek was replaced by spillway overflow from the warmer (and lighter) upper layer of the newly formed lake. All of these factors have contributed to today's aquatic and riparian habitat conditions below Phoenix Lake that can be characterized as sub-optimal. The Phoenix Lake IRWM Retrofit includes modification of the intake/outlet works of the low-level drain pipeline. This modification will enable instream flow release of cooler water from the lake hypolimnion and improve downstream water quality and aquatic habitat for target salmonids and other coldwater species, consistent with the Basin Plan's designated beneficial uses of the creek. Without the Phoenix Lake IRWM Retrofit, aquatic habitat conditions will continue to be sub-optimal and recovery of target salmonids and other species will continue to be challenged.

There is a need to provide more reliability and flexibility to MMWD's water supply. The Phoenix Lake IRWM Retrofit will restore the spillway crest to its pre-1985 elevation 180 ft, thereby increasing the storage capacity of the lake and adding up to about 120 acre-feet of drought reserve supply to the MMWD system. The Phoenix Lake IRWM Retrofit also includes installation of a "Solar Bee ©" epilimnetic circulation device. This device will reduce growth of floating algae, thereby improving the water quality, lake clarity, and reducing treatment costs during the summertime when lake supply is most needed. Without the Phoenix Lake IRWM Retrofit, MMWD will continue to explore other options to achieve its water supply reliability and flexibility goals.

Finally, there is a need to enhance opportunities for public enjoyment of the lake. Related to this need is the need to reduce lake sedimentation. Comparison of the original lake bathymetric contours with recent contours surveyed in 2009 indicates that the lake has lost about 100 acre-feet to sedimentation, or about 25% of its original storage capacity since 1906. The Phoenix Lake IRWM Retrofit will implement necessary improvements to parking facilities, roads, and trails, as well as culverts where these features cross over tributary drainages. These improvements will aim to enhance public access, safety, and reduce erosion and the delivery of sediment to lake. Without the Phoenix Lake IRWM Retrofit, lake sedimentation will continue at historical rates and opportunities for public enjoyment of the lake will remain at current levels.

## **Project Status and Schedule:**

*Please provide the actual or projected start and finish dates for each of the following project stages. If any stage does not apply to the project please enter N/A.*

Stage	Duration	Start Date	Finish Date
Planning	N/A	N/A	N/A
Demonstration Project	N/A	N/A	N/A
Design	12 months	January 2012	December 2012
Environmental Documentation / Permitting	22 months	June 2012	March 2014
Construction	7 months	April 2014	October 2014

**Additional Notes:**

Planning has already been completed and is documented in the Ross Valley Flood Reduction and Creek Management Master Plan Study (Stetson Engineers, et al., January 2011 (draft)).

A Demonstration Project will not be needed.

**Readiness to Proceed:**

*Please clearly describe project readiness and realistic start date; include status of design, environmental review and securing required matching funds.*

This project is well-developed and is ready to proceed. The primary reason for the project's high state of readiness is attributable to the fact that Phoenix Lake is an existing lake, formed by an earthen embankment dam on Ross Creek (tributary to Corte Madera Creek), that was built by MMWD in 1906. MMWD holds senior water rights to flows in Ross Creek/Corte Madera Creek. For these two reasons, many of the regulatory and technical challenges otherwise associated with constructing an entirely new facility will be avoided. The main challenge that remains will be obtaining approval from DWR-DSOD for dam modifications and flood detention operations. This can be achieved through engineering design of necessary modifications to the dam embankment and spillway to provide seismic stability and adequate flood passage capacity. Other challenges that may remain will be obtaining applicable environmental regulatory permits that may be required, including Army Corps 404 permit (and associated ESA Section 7 consultation), Regional Board 401 Certification, and Fish and Game Stream/Lake Alteration Agreement.

Planning and feasibility design and cost estimates for the Phoenix Lake IRWM Retrofit have been completed and are documented in the Ross Valley Flood Reduction and Creek Management Master Plan Study (Stetson Engineers, et al., January 2011 (draft)).

Flood Zone 9 and MMWD are working together to prepare a mutually acceptable Memorandum of Understanding for joint use of Phoenix Lake for flood control and water supply operations. The MOU is scheduled for consideration for approval by the respective Boards in early April 2011.

Required matching funds will be derived from a drainage fee that is being levied on properties within the Ross Valley Flood Zone 9. Levy of the drainage fee was approved by Flood Zone 9 voters in 2006 following the disastrous flood of December 31, 2005. The drainage fee will generate at least \$40 million over a 20 year period.

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## **Integration with Other Activities:**

*Please identify any linkages between the schedule of this project and the schedules of other projects, if applicable. Please discuss the integration of the project with other Bay Area IRWMP projects.*

The Phoenix Lake IRWM Retrofit can be implemented and operated as a stand-alone project with independent utility, function, and benefits. It can substantially reduce flooding in Ross, Kentfield, Greenbrae, and Larkspur; improve water supply reliability and water quality of the MMWD system; deliver more reliable, cooler instream flows to Ross Creek and Corte Madera Creek and thereby improve downstream aquatic and riparian habitat during the dry season; improve lake clarity; reduce growth of invasive shoreline vegetation; reduce lake sedimentation; and, enhance overall public access and enjoyment of the lake.

However, it should be pointed out that the benefits of this project will be enhanced, synergistically, through completion of the Army Corps of Engineers' project farther downstream in Corte Madera Creek. The Army Corps project is scheduled for completion in 2015. The Army Corps project is planned to include, at a minimum, removal of an existing timber bulkhead/fish ladder, which historically has acted as an impediment to fish passage and migration, and other in-channel improvements aimed at increasing the capacity of Corte Madera Creek to 5,400 cfs. These improvements will enhance fish passage and allow migrating coho and steelhead better access into Ross Creek below Phoenix Lake. Working in concert, projects identified in the Ross Valley Watershed Flood Reduction Program, including the keystone Phoenix Lake IRWM Retrofit, and the Army Corps project can provide a 100-year level of flood protection to Ross Valley and substantially restore the ecological function of Corte Madera Creek and its tributaries.

## **Cost and Financing:**

*Please identify the capital cost and operation and maintenance cost of the proposed project. Please indicate the base year (e.g. CCI) for all costs. Please identify the beneficiaries, potential funding/financing options for project implementation, and ongoing support and financing for operation and maintenance of the project once implemented.*

The capital cost of the Phoenix Lake IRWM Retrofit is estimated at \$20 million based on 2011 dollars.

Project beneficiaries will be the citizens of Ross Valley Flood Zone 9, water users and customers of MMWD, and members of the public who use and enjoy the Phoenix Lake recreational area.

Cost sharing arrangements between FZ9 and MMWD for project implementation and operations and maintenance of the project once implemented will be outlined in the forthcoming MOU. Funding options for FZ9 include borrowing against the future revenues that will be generated by the Ross Valley Watershed flood drainage fee. Funding options for MMWD include revenues from water sales.

## **Benefits and Impacts:**

*Please provide a detailed discussion of the projected benefits and impacts of the project, both locally and for the region. Please include an evaluation of impacts/benefits to other resources, such as air quality or energy.*

The Phoenix Lake IRWM Retrofit will offer a broad range of benefits to the citizens of Ross Valley and the region.

Flood Management: The project will provide public safety and a reasonable degree of protection from flood damage to properties in Ross, Kentfield, Larkspur, Greenbrae by reducing flood flows. During the

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100-year flood event, the project can reduce flood flows by about 650 cfs. In conjunction with other Ross Valley Watershed Flood Reduction Program projects and the Army Corps of Engineers' Corte Madera Creek project, the project can provide a 100-year level of flood protection to these communities.

**Water Supply:** The project will add about 120 acre-feet of storage to Phoenix Lake for use by MMWD for drought reserve supply.

**Water Quality:** The project will improve water quality in Phoenix Lake by reducing the growth of algae and invasive shoreline vegetation. These improvements in water quality will enhance aquatic habitat conditions in the lake and reduce the cost of water treatment to MMWD.

**Aquatic and Riparian Habitat:** The project will improve instream flow conditions below Phoenix Lake Dam by releasing cooler water from the lower level of the lake. These cool water releases will improve summer rearing habitat for salmonids and other coldwater species of concern. During the wet season, the project's reduction in flood flows will also provide a degree of protection from scour to salmonid spawning sites.

**Public Enjoyment:** The project will enhance access and utilization and overall enjoyment of the lake area by improving parking, roads, and trails. The aesthetic appeal of the lake and, possibly, lake fishing will be enhanced by the reduction in algal and invasive aquatic weed growth and improved lake water clarity.

The Phoenix Lake IRWM Retrofit is expected to have some impacts, but these impacts are mostly associated with construction and, as such, are expected to be temporary.

**Lake Emptying and Drying:** In order to strengthen the earthen dam and modify the intake/outlet works of the drain pipeline, the lake will need to be temporarily emptied. Using the existing pump station, the water can be pumped to other MMWD reservoirs to minimize water loss. Aquatic organisms living in the lake will be saved or relocated to the extent practical. Birds and other wildlife that depend on the lake for forage will be temporarily impacted. MMWD's other nearby lakes, including Lagunitas, Bon Tempe, and Alpine Lakes, may offer temporary replacement for forage.

**Interruption in Public Use:** Construction is planned for summer 2014. Summertime is the peak period of use by hikers and fishermen. During the construction period, the lake area will be off limits to the public. Public use can resume in fall 2014.

**Construction Disturbance:** The Town of Ross and other nearby communities may experience disturbances arising from increased truck traffic and other construction-related activities.

The project is not energy intensive, so its impacts on air quality and energy resources is expected to be minimal.

## **Disadvantaged Communities / Environmental Justice:**

*Please include a specific discussion of how the project will benefit or impact disadvantaged communities or environmental justice goals.*

The Phoenix Lake IRWM Retrofit is located near the Town of Ross in Marin County. Based on the socio-economic status of the Town of Ross and the greater Ross Valley area, the project will not provide significant benefit to disadvantaged communities nor significantly advance environmental justice goals. It should be noted, however, that Phoenix Lake is a public recreation facility that is visited and enjoyed by

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individuals from throughout the SF Bay area covering the full spectrum of the economic status, including disadvantaged and low-income groups.

## **Environmental Compliance Strategy:**

*Please provide a detailed description of how the project will comply with all applicable environmental review requirement, including CEQA and/or (if applicable) NEPA. For ongoing CEQA/NEPA work, indicate when required documentation would be completed. Also, include discussion of how compliance with local, county, State and federal permitting requirements will be achieved.*

The Phoenix Lake IRWM Retrofit will be subject to environmental review under the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA). FZ9 and the Army Corps of Engineers will be the lead agencies under CEQA and NEPA, respectively. A joint Environmental Impact Report/Environmental Impact Statement (EIR/EIS) or Negative Declaration/Finding of No Significant Impact, whatever the case may turn out to be, will likely be the best way to satisfy both CEQA and NEPA requirements. A Joint EIR/EIS, or Negative Declaration/FONSI, is a single document that analyzes the environmental impacts of an individual project.

The Phoenix Lake IRWM Retrofit will also be subject to the regulatory permitting authority of several federal and state agencies. The following list identifies the required permits/approvals that are anticipated.

List of Approvals and Permits Required for the Master Plan (Agency; Trigger; Approval; Submittal)

1. US Army Corps of Engineers (USACE); Discharge of fill within ordinary high water mark in creek/lake and adjacent wetlands; Section 404 Permit (Nationwide Permit or an Individual Permit); Application
2. National Marine Fisheries Service (NOAA Fisheries) and US Fish and Wildlife Service; Potential effects on federally-listed threatened or endangered species; Biological Opinion(s) through ESA Section 7 Consultation with USACE; Biological Assessment
3. NEPA Lead Agency (USACE); Federal discretionary action via Army Corps Section 404 Permit; Record of Decision; Environmental Impact Statement
4. San Francisco Bay Regional Water Quality Control Board (RWQCB); Section 404 Permit through USACE; Section 401 Water Quality Certification through Section 404 Permit with USACE; Application
5. California Department of Fish and Game (CDFG); Alteration of lake and streambed and potential effects on State-listed threatened or endangered species; 1600 Lake and Streambed Alteration Agreement; CEQA document
6. State Historic Preservation Officer (SHPO); SHPO review and concurrence of inventory/evaluation report; CEQA/NEPA document
7. CEQA Lead Agency (Marin County); Certification; Environmental Impact Report
8. California Department of Water Resources, Division of Safety of Dams; Modification of existing dam; Permit; Application

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Regulatory permitting will proceed concurrently with CEQA/NEPA environmental review. This approach offers flexibility and expands opportunities for mitigating impacts associated with the project. It will also streamline the environmental review and permitting processes.

The Phoenix Lake IRWM Retrofit is located in unincorporated lands owned and within the jurisdiction of MMWD. As such no local building permits will be required. However, all project design plans will require review and approval of MMWD.

## **Statewide Priorities:**

*Please select the statewide priorities that are addressed by this project. Check all that apply.*

### ***From Proposition 50 Guidelines (pg 5)***

- Reduce conflicts between water rights users
- Implement TMDLs
- Implement RWQCB's Watershed Management Initiatives
- Implement SWRCB's NPS Pollution Plan
- Assist in meeting Delta Water Quality Objectives
- Implement recommendations of the floodplain, desalination, and recycling task forces, or of the state species recovery plan
- Address environmental justice concerns
- Assist in meeting the CALFED Bay-Delta Program goals

### ***From Proposition 84 and Proposition 1E draft Guidelines (pg 13-14)***

- Drought Preparedness
- Use and Reuse Water More Efficiently
- Climate Change Response Actions
- Expand Environmental Stewardship
- Practice Integrated Flood Management
- Protect Surface Water and Groundwater Quality
- Improve Tribal Water and Natural Resources
- Ensure Equitable Distribution of Benefits

## **Additional Notes:**

## **Stakeholder Involvement and Coordination:**

*Please describe any coordination with stakeholders, land use agencies, or other state and local agencies. Please include a list of proposed stakeholders, how they have/will participate in the planning and implementation of the project, and how their involvement will influence the implementation of the project. Discuss efforts to address environmental justice concerns.*

Design and operation of the Phoenix Lake IRWM Retrofit will be coordinated with several stakeholders, resource agencies, and municipalities in the area.

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First and foremost, FZ9 and MMWD will coordinate joint use of Phoenix Lake. FZ9 and MMWD are working together to prepare a mutually acceptable Memorandum of Understanding for joint use of Phoenix Lake for flood control and water supply operations. The MOU is scheduled for consideration for approval by the respective Boards in April 2011.

The Marin County Flood Control District Flood Zone 9 has created this watershed-wide plan with the cooperation and participation of many of the stakeholders including citizen action groups the Flood Mitigation League of Ross Valley, Friends of Corte Madera Creek, Town of San Anselmo Flood Committee and representatives of the Public Works and Planning departments of the affected municipalities.

Friends of Corte Madera Creek Watershed has traditionally served as the primary non-governmental organization with interest in projects situated in the watershed. It is expected that Friends will continue in this role for the Phoenix Lake IRWM Retrofit. Friends of the Corte Madera Creek Watershed, an all-volunteer, non-profit organization, was founded in 1995 to protect the remaining natural ecosystems of the area, especially those relating to urbanized creeks and wetlands, and where possible to increase the diversity of these ecosystems. Friends recognizes that all activities – human and natural – within a watershed are interconnected, so that a wide range of issues must be addressed to meet their goals. Members of Friends are active participants in the FZ9 Technical Work Group (TWG) for the Ross Valley Watershed Flood Reduction Program. Through their active involvement in the TWG, members of Friends are reviewing, commenting and becoming directly involved in the formulation of the Phoenix Lake IRWM Retrofit. It is worth noting that Friends has provided to FZ9 water temperature data that its members have gathered through an extensive, multi-year monitoring program of Phoenix Lake and Ross Creek. FZ9 is using this data in developing this project.

The Town of Ross, which is located immediately downstream of Phoenix Lake, has promoted use of Phoenix Lake for flood detention in the past. A representative of the Town of Ross currently serves on the TWG, and the Town's continued participation and active involvement in the formulation of the Phoenix Lake IRWM Retrofit is expected.

The County of Marin Board of Supervisors formed the FZ9 Advisory Committee to advise the Board on FZ9 matters. The Committee is composed of seven members consisting of one member each from the Towns of Fairfax, San Anselmo, Ross, and Larkspur and the unincorporated communities of Sleepy Hollow, Kentfield and Greenbrae. The Committee reviews and advises the Board on actions concerning proposed project plans. The Phoenix Lake IRWM Retrofit will be developed with full oversight of the Committee.

General public and resource agency involvement and addressing of environmental justice issues will also occur during CEQA/NEPA environmental review.

## **Documentation of Feasibility:**

*Please identify any studies that document the technical and economic feasibility of the proposed project. If study is still in progress please indicate this next to its citation. If no studies exist, please type "N/A".*

The feasibility of the Phoenix Lake IRWM Retrofit is documented in the Ross Valley Flood Reduction and Creek Management Master Plan Study (Stetson Engineers, et al., January 2011 (draft).

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## Detailed Project Description:

*If desired, please provide a detailed description with additional information about the project.*

Phoenix Lake is owned, operated, and maintained by the Marin Municipal Water District (MMWD) primarily for the purpose of water supply reserve for use during shortages, but also serves as wildlife habitat and a public recreation and enjoyment area. The lake is formed by an earthen embankment dam across Ross Creek that was built in 1906, enlarged in 1909, and strengthened in 1969. The watershed above Phoenix Lake encompasses about 1,400 acres. When full at elevation 174 ft, the lake covers 25 acres and holds approximately 300 acre-feet of water.

The dam is penetrated by a gated, 30-inch diameter, low-level, drain pipeline that has a discharge capacity of 115 cubic feet per second (51,600 gallons per minute) when the lake is full. The spillway is situated on the right side of the dam (looking upstream). In 1985 the spillway was modified by lowering the crest by six feet, from elevation 180 feet down to elevation 174 feet. This modification effectively lowered the normal lake water level and reduced the lake storage capacity by about 120 acre-feet, from 420 acre-feet to its present day capacity of 300 acre-feet.

Phoenix Lake currently functions as a de facto detention basin. During heavy storms, the lake water level rises above the spillway crest. This resulting “surcharge” storage attenuates stormflow and reduces the peak flow in Ross Creek immediately downstream as well as Corte Madera Creek below the Ross Creek confluence. The attenuation effect could be enhanced through changes in lake operations, raising of the spillway crest, and the modification of the intake/outlet works on the low-level drain pipeline. Close monitoring of watershed saturation conditions coupled with storm forecasting could provide early warning of possible flooding. Under these conditions, drawing the lake level down ahead of a forecasted storm will provide storage space in the lake to detain floodwaters. By installing a 6-foot high inflatable/deflatable rubber dam across the spillway, the lake level will be raised to its pre-1985 elevation of 180 feet during floods when additional storage capacity and attenuation are needed. The lake level will also be raised in the spring after the flood season has passed to capture additional water for summertime drought reserve water supply.

Phoenix Lake IRWM Retrofit improvements mainly include 1) modifying the intake/outlet works of the existing low-level drain pipeline (a 30” pipe with an intake elevation at 130 ft NGVD29) to have two water level-control gates, one at elevation 140 ft and the other at elevation 160 ft; 2) installing a 6-foot high inflatable/deflatable rubber dam across the spillway; 3) creating about 10-14 acre-ft of additional (dead) storage below elevation 140 ft by excavating the lake bottom near the existing low-level intake; 4) stabilizing the dam embankment; 5) installing emergency generators; 6) installing a "Solar Bee ©" epilimnetic circulation device designed to reduce growth of algae and invasive aquatic vegetation, thereby improving the water quality and reducing treatment costs during the summer when lake supply is most needed; and 7) improvements to near-lake parking, roads, and trails to reduce lake sedimentation and enhance overall public access and enjoyment of the lake.

Manipulation of lake levels for flood detention will be limited to the wet season which allows enough time for lake levels to return to normal by late spring. Flood detention operations will affect fishing opportunities and lake aesthetics during the wet season, but public use of the lake is minimal during this time.

Detention operations in Phoenix Lake basin will be primarily triggered by forecasts of potential flooding in Ross Creek and Corte Madera Creek in Ross. Phoenix Lake will be operated prior to a forecasted potential flood; during a flood, it will operate passively, i.e., on its own. Operations will follow a two-step procedure. The first step is initial drawdown of the lake and the second step is final drawdown of the

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lake and maintained opening of the low-level outlet. The first step can occur at any time during the raining season. Watershed moisture conditions will be continually monitored by tracking soil moisture content, groundwater levels, discharges from seeps and springs, and base flows in creeks. When this monitoring indicates watershed moisture approaching saturation, then the lake will be gradually drawn down to elevation 160 ft, 14 ft below the existing spillway crest (Note: 24-hours is required for Step 1 drawdown), and maintained at that level using the newly modified 160 ft-elevation lake level-control intake. The second step will be triggered by a forecast of potential flooding issued by the National Weather Service, in which case the low level outlet will be opened and the lake will be further drawn down 20 ft (Note: 24-hours is required for Step 2 drawdown), to elevation 140 ft and maintained at that level using the newly modified 140 ft-elevation lake level control intake. The low-level outlet will remain open thereafter, continuing on its own to pass lake to Ross Creek below. The lake will begin to fill, passively, during the storm as inflow into the lake exceeds outflow through the low-level outlet. As the lake level rises and approaches the spillway the rubber dam will be inflated raising the spillway level by 6 ft and adding 120 acre-feet of attenuation capacity to the lake. During an extreme flood event, if the lake level rises above the rubber dam, water will flow over the rubber dam and through the spillway.

After the storm passes and flows in the creek subside, floodwaters temporarily stored in the detention basins will be released back to the creek, safely and in a controlled and coordinated fashion, at a rate that, when combined with the natural creek flow, is contained in the channel. As soon as is safe and practical Phoenix Lake will be drawn back down to its pre-flood, ready, condition at elevation 160 ft.

Review of the historical peak flood flows recorded at the streamflow gage in Ross indicates that, had Phoenix Lake been used for flood detention since February 1951 when the gage was installed, the lake would have been operated to receive flood flows during five events, as given in the table below. The lake would have been completely filled during two of these events.

Table of Hypothetical Historical Years of Phoenix Lake Use for Flood Detention

Flood Event	Filling of Detention Basin
1955	Partly full
1982	Full
1986	Partly full
1994	Partly full
2006	Full

As the lake refills in the spring by baseflows and freshet flows the rubber dam will be inflated and the lake will be refilled to elevation 180 ft, which is 6 ft higher than its existing full pool level and 120 acre-ft greater in terms of storage. The added storage will be available to MMWD for municipal use during the summertime if needed for drought reserve supply.

## Project Name:

**Quartermaster Reach**

## Responsible Agency:

Please identify one agency that is involved in the project and is responsible for providing information for inclusion in the Bay Area IRWMP.

Golden Gate National Parks Conservancy

## Other Participating Agencies:

Please identify other agencies that are involved in the project, if applicable.

Presidio Trust  
National Park Service-GGNRA

## Summary Description:

Please provide a one paragraph description of the project. If you would like to include additional information, please do so under "Detailed Description" at the end of this form.

The Quartermaster Reach project will significantly enhance a highly-urbanized stretch of the Presidio of San Francisco by restoring brackish marsh habitat on 9.5 acres of unused asphalt and hard packed dirt. The project will provide an ecological corridor and pedestrian trail through Quartermaster Reach that will connect a recently restored 450-foot stretch of stream and native habitat to the south (known as Thompson Reach) to Crissy Field Marsh, and reveal and interpret missing historic elements in the site. The opportunity to restore Quartermaster Reach has been created by the reconstruction of Doyle Drive, which will dramatically transform the entire northern edge of the Presidio and reconnect the interior of the park to the northern waterfront at Crissy Field. The project is on Presidio Trust and National Park Service lands and is protected in perpetuity.

## Proposition 50 Water Management Strategies Addressed:

Please select the water management strategies addressed by this project. Check all that apply.

- |  |   |
|--|---|
| <input checked="" type="checkbox"/> Ecosystem Restoration                                | <input checked="" type="checkbox"/> Wetlands enhancement and creation |
| <input checked="" type="checkbox"/> Environmental and habitat protection and improvement | <input type="checkbox"/> Conjunctive use                              |
| <input type="checkbox"/> Water Supply Reliability  | <input type="checkbox"/> Desalination                                 |
| <input type="checkbox"/> Flood management  | <input type="checkbox"/> Imported water                               |
| <input checked="" type="checkbox"/> Groundwater management                               | <input checked="" type="checkbox"/> Land use planning                 |
| <input checked="" type="checkbox"/> Recreation and public access                         | <input type="checkbox"/> NPS pollution control                        |
| <input checked="" type="checkbox"/> Storm water capture and management                   | <input type="checkbox"/> Surface storage                              |
| <input type="checkbox"/> Water conservation  | <input checked="" type="checkbox"/> Watershed planning                |
| <input checked="" type="checkbox"/> Water quality protection and improvement             | <input type="checkbox"/> Water and wastewater treatment               |
| <input type="checkbox"/> Water recycling   | <input type="checkbox"/> Water transfers                              |



## Primary Water Strategy:

Please list the primary water management strategy to facilitate project classification. Please select only ONE of the water management strategies listed above.

Ecosystem Restoration

## Project Benefits:

### **Proposition 84 & 1E: Project Benefits as Eligibility Criteria**

Please select the benefits provided by this project. Check all that apply. **Need one or more.**  
(from page 17 of draft Guidelines)

- Water supply reliability, water conservation and water use efficiency
- Stormwater capture, storage, clean-up, treatment, and management
- Removal of invasive non-native species, the creation and enhancement of wetlands, and the acquisition, protection, and restoration of open space and watershed lands
- Non-point source pollution reduction, management and monitoring
- Groundwater recharge and management projects
- Contaminant and salt removal through reclamation, desalting, and other treatment technologies and conveyance of reclaimed water for distribution to users
- Water banking, exchange, reclamation and improvement of water quality
- Planning and implementation of multipurpose flood management programs
- Watershed protection and management
- Drinking water treatment and distribution
- Ecosystem and fisheries restoration and protection

### **Proposition 1E Additional Eligibility Criteria:**

Please select the criteria met by this project. **All must apply.**  
(from page 18 of draft Guidelines)

- |  |   |
|--|---|
| <ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> Designed to manage stormwater runoff to reduce flood damage.</li> <li><input checked="" type="checkbox"/> Consistent with the applicable Regional Water Quality Control Plans (Basin Plans) (default is “yes” for projects in the Bay Area IRWMP).</li> </ul> | <ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> Yield multiple benefits the may include one of the following elements (<b>need one for eligibility</b>): (from page 7 of draft 1E PSP)           <ul style="list-style-type: none"> <li>• Groundwater recharge <input type="checkbox"/></li> <li>• Water quality improvement <input checked="" type="checkbox"/></li> <li>• Ecosystem restoration and benefits <input checked="" type="checkbox"/></li> <li>• Reduction of instream erosion and sedimentation <input checked="" type="checkbox"/></li> </ul> </li> </ul> |
|--|---|

## Purpose and Need:

Please provide a detailed description of the purpose and need for the project. Include discussion of the project’s goals and objectives and of the critical impacts that will occur if the project is not implemented.

Purpose and Need:

Nearly a decade ago the National Park Service (NPS), Golden Gate National Parks Conservancy (Parks Conservancy) and thousands of members of our community came together to transform the northern

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waterfront of the Presidio into the new parkland we know today as Crissy Field. With the Quartermaster Reach project, the Presidio Trust, NPS, and the Parks Conservancy will create a new green gateway to the Presidio.

Quartermaster Reach is an essential part of the Tennessee Hollow watershed vision of a headwaters-to-bay ecological corridor at the Presidio. The project will transform 9.5 acres of unused asphalt and hard packed dirt into a rich natural area that reintroduces and interprets a unique natural ecosystem of brackish marsh and historic features missing from the Presidio landscape. The project will provide an ecological corridor and pedestrian trail through Quartermaster Reach that will connect a recently restored 450-foot stretch of stream and native habitat to the south (known as Thompson Reach) to Crissy Field Marsh, and reveal and/or interpret missing historic elements in the site.

The transformation of the site will enhance pedestrian and recreational access, creating daily opportunities to view wildlife and learn about the park's natural history.

#### Goals & Objectives:

- Daylight the stream and provide increased tidal exchange between Crissy Field Marsh and the Quartermaster Reach;
- Maximize native habitat and create a connected wildlife corridor from the Thompson Reach to Crissy Field Marsh, providing improved passage and habitat conditions for fish and other wildlife;
- Provide a rich diversity of riparian, brackish marsh, and other native plant habitats that require minimal long term intervention;
- Re-establish natural processes to the extent possible;
- Protect groundwater resources;
- Avoid excessive scour in stream and marsh channels;
- Provide capacity for storm water runoff from the adjacent watershed;
- Enhance public use, access, and experience of the project site while maintaining visitor safety and protecting natural resources;
- Reintroduce or interpret missing historic elements to enhance the now deteriorated association, setting, and feeling of the site consistent with the other objectives of the project; and
- Be feasible to implement concurrent with the Doyle Drive project.

Critical impacts that will occur if the project is not implemented:

Coordination between the Doyle Drive reconstruction and the Quartermaster Reach restoration will result in considerable cost savings. This opportunity will be lost if the Quartermaster Reach project cannot proceed in conjunction with the proposed Doyle Drive project schedule. The Doyle Drive project will dramatically transform the entire northern edge of the Presidio and reconnect the interior of the park to the northern waterfront at Crissy Field. Excavation within the project site will be completed as part of Doyle Drive construction.

### **Project Status and Schedule:**

*Please provide the actual or projected start and finish dates for each of the following project stages. If any stage does not apply to the project please enter N/A.*

Stage	Duration	Start Date	Finish Date
Planning	1 years	01/2011	12/2011
Demonstration Project	n/a	n/a	n/a
Design	2 years	01/2011	12/2012
Environmental Documentation / Permitting	1 year	1/2013	12/2013
Construction	2 years	01/2014	12/2015

**Additional Notes:**

**Readiness to Proceed:**

*Please clearly describe project readiness and realistic start date; include status of design, environmental review and securing required matching funds.*

Pending the availability of funding, the project would be substantially implemented in 2014, with ongoing stewardship thereafter.

**Integration with Other Activities:**

*Please identify any linkages between the schedule of this project and the schedules of other projects, if applicable. Please discuss the integration of the project with other Bay Area IRWMP projects.*

Critical first steps in the transformation of the site, such as asphalt removal, utility work, and rough grading of Quartermaster Reach will be completed between 2011 and 2014 in conjunction with the reconstruction of Doyle Drive.

**Cost and Financing:**

*Please identify the capital cost and operation and maintenance cost of the proposed project. Please indicate the base year (e.g. CCI) for all costs. Please identify the beneficiaries, potential funding/financing options for project implementation, and ongoing support and financing for operation and maintenance of the project once implemented.*

Approximately \$8.5 million is being sought from an array of public and private sources to fund this project. More detailed budget information is in draft form and will be available soon.

Once completed, the Presidio Trust will maintain the project in cooperation with the Parks Conservancy, the NPS and community volunteers.

**Benefits and Impacts:**

*Please provide a detailed discussion of the projected benefits and impacts of the project, both locally and for the region. Please include an evaluation of impacts/benefits to other resources, such as air quality or energy.*

1) Significant enhancement of a currently-derelict and underutilized portion of the Presidio that will become the gateway to the park after Doyle Drive is completed;

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- 2) Restoration of more than 9 acres of natural area, including over 5 acres of native salt marsh, brackish marsh, dune swale, and other wetland habitats, and 3 acres of coastal scrub;
  - 3) Daylighting and restoration of the buried stream between Crissy Field marsh and the Thompson's Reach stretch of Tennessee Hollow;
  - 4) Reintroduction and interpretation of significant missing historic features, including 19th century railroad lines and buildings associated with the former Quartermaster pier and depot;
  - 5) A new pedestrian trail between Lincoln Boulevard and Mason Street, providing a programmatic pathway for new site interpretation and educational programs focused on the site's natural and cultural history;
  - 6) A plan that leverages the new design for Doyle Drive, which was developed to accommodate the restoration of Quartermaster Reach; and
  - 7) New "green" infrastructure that will naturally clean stormwater and improve the quality of water flowing into the Crissy Field marsh and San Francisco Bay.

## **Disadvantaged Communities / Environmental Justice:**

*Please include a specific discussion of how the project will benefit or impact disadvantaged communities or environmental justice goals.*

The Presidio Trust, NPS and Parks Conservancy are committed to engaging disadvantaged communities that have been underrepresented in our national parks. The Parks Conservancy specifically reaches out to the diverse communities of the San Francisco Bay region, offering rich park experiences, educational programs for youth, and many ways for people to become involved as volunteers. In this way, we are creating new "park advocates and stewards" who will continue our work for years to come and contribute to the betterment of the parks, our environment, and our communities. Golden Gate National Parks programs continually reach out to underserved communities, especially youth, to utilize the watershed as an outdoor classroom and engage the community in restoration activities.

Through this project, a diverse cross-section of the population of the San Francisco Bay Area will benefit from increased opportunities to contribute to the restoration of habitat and natural processes, and to learn more about the cultural history related to the Presidio of San Francisco.

## **Environmental Compliance Strategy:**

*Please provide a detailed description of how the project will comply with all applicable environmental review requirement, including CEQA and/or (if applicable) NEPA. For ongoing CEQA/NEPA work, indicate when required documentation would be completed. Also, include discussion of how compliance with local, county, State and federal permitting requirements will be achieved.*

This proposed project is derived from a thorough planning process, and is consistent with the Presidio Trust Management Plan (PTMP). The Presidio Trust carried out a full Environmental Assessment, which was made available for public review from July 1, 2010 to ending August 1, 2010, after which the Trust made its final determination to move forward to implement the project and not prepare an EIS.

## **Statewide Priorities:**

*Please select the statewide priorities that are addressed by this project. Check all that apply.*

***From Proposition 50 Guidelines (pg 5)***

- Reduce conflicts between water rights users
- Implement TMDLs
- Implement RWQCB's Watershed Management Initiatives

- 
- Implement SWRCB's NPS Pollution Plan
  - Assist in meeting Delta Water Quality Objectives
  - Implement recommendations of the floodplain, desalination, and recycling task forces, or of the state species recovery plan
  - Address environmental justice concerns
  - Assist in meeting the CALFED Bay-Delta Program goals

***From Proposition 84 and Proposition 1E draft Guidelines (pg 13-14)***

- Drought Preparedness
- Use and Reuse Water More Efficiently
- Climate Change Response Actions
- Expand Environmental Stewardship
- Practice Integrated Flood Management
- Protect Surface Water and Groundwater Quality
- Improve Tribal Water and Natural Resources
- Ensure Equitable Distribution of Benefits

**Additional Notes:**

**Stakeholder Involvement and Coordination:**

*Please describe any coordination with stakeholders, land use agencies, or other state and local agencies. Please include a list of proposed stakeholders, how they have/will participate in the planning and implementation of the project, and how their involvement will influence the implementation of the project. Discuss efforts to address environmental justice concerns.*

The Regional Water Quality Control Board (RWQCB) has designated the Tennessee Hollow creek corridor as a "Freshwater Ecological Protection Zone" (Water Board Order No. 96-070 and R2-2003-0080).

This project is consistent with the San Francisco Estuary Partnership's Comprehensive Conservation and Management Plan (CCMP). This project is also aligned with both the FY 2011-2015 and the FY 2006-2011 EPA Strategic Plans.

The "Baylands Ecosystem Habitat Goals: A report of habitat recommendations prepared by the San Francisco Bay Area Wetlands Ecosystem Goals Project," published in 1999, states that "We support the development of tidal marshes in association with Crissy Field in San Francisco, and any other similar projects within the city."

**Documentation of Feasibility:**

*Please identify any studies that document the technical and economic feasibility of the proposed project. If study is still in progress please indicate this next to its citation. If no studies exist, please type "N/A".*

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The technical soundness of the project's restoration design is demonstrated through the analyses in the Environmental Assessment that was released in September 2010, which finds the proposed actions are also the environmentally preferred actions.

### **Detailed Project Description:**

*If desired, please provide a detailed description with additional information about the project.*

The project site encompasses approximately 9.5 acres along the western edge of the Letterman District in the northeastern portion of the Presidio. It is bounded by Halleck Street to the west, Crissy Field Marsh to the north, Thompson Reach to the south, and a series of buildings and parking lots to the east. The site is within the Doyle Drive construction corridor and is at the northern (lowest) end of the 271-acre Tennessee Hollow watershed. The project site is referred to as Quartermaster Reach in recognition of past U.S. Army activities in the area.

IRWMP Project Template Updated\_06.07.10a.doc

## Project Name:

**Multi-Benefit Flood and Runoff Management for Sonoma Valley**

**Insert Project Photo**

## Responsible Agency:

**Select box then go to:  
Insert → Picture**

*Please identify one agency that is involved in the project and is responsible for providing information for inclusion in the Bay Area IRWMP.*

Sonoma Ecology Center

## Other Participating Agencies:

*Please identify other agencies that are involved in the project, if applicable.*

City of Sonoma, Sonoma County Water Agency

## Summary Description:

*Please provide a one paragraph description of the project. If you would like to include additional information, please do so under "Detailed Description" at the end of this form.*

This project addresses long-standing flooding, water supply, and water quality needs in the Sonoma Creek watershed, including the City of Sonoma, a Phase II stormwater municipality. The proposed activities continue many years of work toward achieving water management goals in the watershed. Aimed at reducing long-term environmental effects of ditching, draining, and paving, the project will reduce volume and velocity of storm runoff delivered to streams; enhance riparian corridors and increase canopy coverage; implement run-off best management practices (BMPs) on residential, vineyard, and horse properties, both in the upper watershed and along streams; reduce suspended sediment loads; and increase information sharing with our citizen and agency community.

## Proposition 50 Water Management Strategies Addressed:

*Please select the water management strategies addressed by this project. Check all that apply.*

- |  |  |
|--|--|
| <input checked="" type="checkbox"/> Ecosystem Restoration                                | <input type="checkbox"/> Wetlands enhancement and creation |
| <input checked="" type="checkbox"/> Environmental and habitat protection and improvement | <input type="checkbox"/> Conjunctive use                   |
| <input checked="" type="checkbox"/> Water Supply Reliability                             | <input type="checkbox"/> Desalination                      |
| <input checked="" type="checkbox"/> Flood management                                     | <input type="checkbox"/> Imported water                    |
| <input checked="" type="checkbox"/> Groundwater management                               | <input type="checkbox"/> Land use planning                 |
| <input type="checkbox"/> Recreation and public access                                    | <input type="checkbox"/> NPS pollution control             |
| <input checked="" type="checkbox"/> Storm water capture and management                   | <input type="checkbox"/> Surface storage                   |
| <input type="checkbox"/> Water conservation  | <input type="checkbox"/> Watershed planning                |
| <input checked="" type="checkbox"/> Water quality protection and improvement             | <input type="checkbox"/> Water and wastewater treatment    |
| <input type="checkbox"/> Water recycling   | <input type="checkbox"/> Water transfers                   |

## Primary Water Strategy:

Please list the primary water management strategy to facilitate project classification. Please select only ONE of the water management strategies listed above.

Storm water capture and management

## Project Benefits:

### **Proposition 84 & 1E: Project Benefits as Eligibility Criteria**

Please select the benefits provided by this project. Check all that apply. **Need one or more.**  
(from page 17 of draft Guidelines)

- Water supply reliability, water conservation and water use efficiency
- Stormwater capture, storage, clean-up, treatment, and management
- Removal of invasive non-native species, the creation and enhancement of wetlands, and the acquisition, protection, and restoration of open space and watershed lands
- Non-point source pollution reduction, management and monitoring
- Groundwater recharge and management projects
- Contaminant and salt removal through reclamation, desalting, and other treatment technologies and conveyance of reclaimed water for distribution to users
- Water banking, exchange, reclamation and improvement of water quality
- Planning and implementation of multipurpose flood management programs
- Watershed protection and management
- Drinking water treatment and distribution
- Ecosystem and fisheries restoration and protection

### **Proposition 1E Additional Eligibility Criteria:**

Please select the criteria met by this project. **All must apply.**  
(from page 18 of draft Guidelines)

- |  |   |
|--|---|
| <ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> Designed to manage stormwater runoff to reduce flood damage.</li> <li><input checked="" type="checkbox"/> Consistent with the applicable Regional Water Quality Control Plans (Basin Plans) (default is “yes” for projects in the Bay Area IRWMP).</li> </ul> | <ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> Yield multiple benefits the may include one of the following elements (<b>need one for eligibility</b>): (from page 7 of draft 1E PSP)           <ul style="list-style-type: none"> <li>• Groundwater recharge <input type="checkbox"/></li> <li>• Water quality improvement <input checked="" type="checkbox"/></li> <li>• Ecosystem restoration and benefits <input checked="" type="checkbox"/></li> <li>• Reduction of instream erosion and sedimentation <input checked="" type="checkbox"/></li> </ul> </li> </ul> |
|--|---|

## Purpose and Need:

Please provide a detailed description of the purpose and need for the project. Include discussion of the project’s goals and objectives and of the critical impacts that will occur if the project is not implemented.

Several interdependent water management problems in Sonoma Creek watershed highlight the need for an integrated, multi-benefit approach. These problems include declining imported water supplies, declining groundwater supplies, increasing groundwater quality problems, expectations of increased frequency of severe storms and also increased frequency and duration of droughts, continued vulnerability

to flooding, a much-reduced population of steelhead and salmon, excessive runoff, and a history of channelization, paving, and draining. A small number of solutions address most of these problems simultaneously: harvesting stormwater and runoff for infiltration and groundwater recharge, increasing the resilience of stream banks, and where possible increasing water storage in various forms. This project undertakes these solutions. If this project is not implemented, flood damage can be expected to increase, along with water quality and water supply problems, including fisheries concerns.

## **Project Status and Schedule:**

*Please provide the actual or projected start and finish dates for each of the following project stages. If any stage does not apply to the project please enter N/A.*

<b>Stage</b>	<b>Duration</b>	<b>Start Date</b>	<b>Finish Date</b>
Planning	3 months	1/1/2012	4/1/2012
Demonstration Project	N/A	N/A	N/A
Design	4 months	3/1/2012	7/1/2012
Environmental Documentation / Permitting	4 months	6/1/2012	10/1/2012
Construction	3 years	10/1/2012	9/30/2015

### **Additional Notes:**

## **Readiness to Proceed:**

*Please clearly describe project readiness and realistic start date; include status of design, environmental review and securing required matching funds.*

This project is ready to begin as soon as funding is available.

The City of Sonoma, just beginning its work to meet Phase II requirements, is prevented by budget constraints from building a large, multi-benefit system integrating best management practices that will substantially reduce the volume and speed of storm runoff delivered to Sonoma Creek and tributaries from city properties, as well as removing pollutants from runoff. Through this partnership, the city will work with SEC to plan and design a system that integrates with TMDL implementation activities already under way in the larger watershed that are meeting the same objectives to prevent flooding, reduce surface water pollution, and keep streams free of residual contaminants.

Most proposed Sonoma Ecology Center actions are permitted under existing Department of Fish & Game 1600 permits. Remaining actions (infiltration installations) are expected to be permitted during 2011.

## **Integration with Other Activities:**

*Please identify any linkages between the schedule of this project and the schedules of other projects, if applicable. Please discuss the integration of the project with other Bay Area IRWMP projects.*

This project will be greatly leveraged by several existing and planned projects, of which three are particularly relevant. A pending EPA-funded project titled Multi-Benefit Water Quality Management for

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Sonoma Creek Watershed includes a stormwater planning partnership between Sonoma Ecology Center and the City of Sonoma, and many of the same implementation actions to slow runoff and improve streambank resilience. An existing watershed planning study by Sonoma County Water Agency is examining long-term trade-offs and opportunities for balancing water supply, flood reduction, and habitat quality in the watershed. An existing Watershed Coordinator grant to Sonoma Ecology Center provides solid connections to a growing network of over 400 landowners who receive technical assistance, education, and project implementation from Sonoma Ecology Center.

This project will work in tandem with other Bay Area IRWMP projects: Nathanson Creek Preserve, which runs through the City of Sonoma; Annadel State Park Erosion Control; Jack London Lake Restoration and Sedimentation Reduction; and State Lands Road and Trails Plan, Sonoma Creek Watershed. These projects increase riparian resilience and reduce the erosion caused by excessive runoff, approaches also taken by the project proposed here.

## **Cost and Financing:**

*Please identify the capital cost and operation and maintenance cost of the proposed project. Please indicate the base year (e.g. CCI) for all costs. Please identify the beneficiaries, potential funding/financing options for project implementation, and ongoing support and financing for operation and maintenance of the project once implemented.*

Total cost: \$800,000.

Prop 1E funding request: \$375,000.

Capital cost: \$500,000. Operation and maintenance cost: \$300,000. Base year: 2009.

Beneficiaries: Residents, visitors, and commuters in or passing through Sonoma Valley, including users of Highway 121 across lower Sonoma Valley; aquatic species such as steelhead, Chinook salmon, federally endangered California freshwater shrimp; riparian-dependent birds and terrestrial animals; agricultural and residential groundwater users.

Potential funding/financing options for implementation: The City, the Sonoma County Water Agency, and the Valley of the Moon Water District are investigating funding options for a range of water management needs, most recently researching the feasibility of a Proposition 218 election for watershed protection.

Ongoing support and financing: Many of the implementation actions funded under this project are designed to be self-maintaining (such as vegetated infiltration structures) or maintained by landowners (e.g. downspout dissipators).

## **Benefits and Impacts:**

*Please provide a detailed discussion of the projected benefits and impacts of the project, both locally and for the region. Please include an evaluation of impacts/benefits to other resources, such as air quality or energy.*

- Reduce flooding along the length of Sonoma Valley.
- Reduce sediment aggradation in Schellville area, reducing localized flooding.
- Recharge groundwater. Improved permeability along streams and in uplands enhances recharge, providing local water supply, thus reducing demand for imported water from the Russian River and reducing deliveries to the local water treatment plant. Enhanced recharge also stabilizes the groundwater level, helping maintain valley-bottom trees important to ecosystem health, such as valley oaks.
- Improve instream water quality at all times of year.

- Increase base flows.
- Provide cleaner water in more moderate flows to the many marsh restoration projects in the north bay.
- Reduce streambank losses, including losses of property and infrastructure.
- Counteract the effects of climate change.
- Enhance habitat for federally endangered California freshwater shrimp.
- Assist recovery of steelhead and chinook populations.
- Increase numbers and diversity of birds associated with riparian habitat.

## Disadvantaged Communities / Environmental Justice:

*Please include a specific discussion of how the project will benefit or impact disadvantaged communities or environmental justice goals.*

We plan a detailed analysis of benefits to disadvantaged communities in Sonoma Valley.

## Environmental Compliance Strategy:

*Please provide a detailed description of how the project will comply with all applicable environmental review requirement, including CEQA and/or (if applicable) NEPA. For ongoing CEQA/NEPA work, indicate when required documentation would be completed. Also, include discussion of how compliance with local, county, State and federal permitting requirements will be achieved.*

City of Sonoma actions are covered by the City's stormwater plan and general plan. Sonoma Ecology Center actions are covered by existing Department of Fish & Game 1600 permits.

## Statewide Priorities:

*Please select the statewide priorities that are addressed by this project. Check all that apply.*

### ***From Proposition 50 Guidelines (pg 5)***

- Reduce conflicts between water rights users
- Implement TMDLs
- Implement RWQCB's Watershed Management Initiatives
- Implement SWRCB's NPS Pollution Plan
- Assist in meeting Delta Water Quality Objectives
- Implement recommendations of the floodplain, desalination, and recycling task forces, or of the state species recovery plan
- Address environmental justice concerns
- Assist in meeting the CALFED Bay-Delta Program goals

### ***From Proposition 84 and Proposition 1E draft Guidelines (pg 13-14)***

- Drought Preparedness
- Use and Reuse Water More Efficiently
- Climate Change Response Actions
- Expand Environmental Stewardship
- Practice Integrated Flood Management
- Protect Surface Water and Groundwater Quality
- Improve Tribal Water and Natural Resources
- Ensure Equitable Distribution of Benefits

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## Additional Notes:

## Stakeholder Involvement and Coordination:

*Please describe any coordination with stakeholders, land use agencies, or other state and local agencies. Please include a list of proposed stakeholders, how they have/will participate in the planning and implementation of the project, and how their involvement will influence the implementation of the project. Discuss efforts to address environmental justice concerns.*

A key forum for stakeholders affected by this and related projects is the Basin Advisory Panel for the Sonoma Valley Groundwater Management Program. Sonoma Ecology Center, the City, the Sonoma County Water Agency, the Valley of the Moon Water District, the Southern Sonoma County RCD, several agricultural and residential landowners, and several citizen interest groups are all members of this active Panel, whose vision has always reached beyond groundwater to holistic water management for the watershed. This project's intent, its conceptual and detailed plans, and its achievements will be shared regularly with the Panel.

Because most of the land along streams in Sonoma Valley is privately owned, with few easements or other controls by public entities, long-term relationships with landowners are essential to making improvement in watershed function. SEC fosters a network of streamside landowners, called Stream Stewards, who number about 400 and with whom we design and implement habitat and water projects along Sonoma Creek and tributaries. SEC's Watershed Coordinator will provide a necessary liaison between the project, the existing network of Stream Stewards (riparian landowners), and upland landowners newly engaged through this project. This information-sharing, communications pathway is essential to maintaining trust, buy-in, and long-term maintenance of any habitat or water quality installation. SEC's innovative program of job training and education for diverse high school youth, called Enviro-Leaders, will include 1 to 4 of this project's implementation sites in the hands-on portion of the program. This includes providing stipends to ten Enviro-Leaders as well as funding for bi-lingual staff to translate English language materials to Spanish for our increasingly environmentally active Hispanic community members.

SEC's key staff on this project have been working successfully on the issues addressed by this project, in Sonoma Valley, for between 3 and 12 years. Staff are deeply familiar with the opportunities and constraints particular to this watershed, with landowners in key locations, with the causes and dynamics of water quality problems, with the entities who affect and regulate water and water-related resources, and with the complex process of implementing successful on-the-ground projects.

## Documentation of Feasibility:

*Please identify any studies that document the technical and economic feasibility of the proposed project. If study is still in progress please indicate this next to its citation. If no studies exist, please type "N/A".*

N/A

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## **Detailed Project Description:**

*If desired, please provide a detailed description with additional information about the project.*

IRWMP Project Template Updated\_06.07.10a.doc

## Project Name:

**Stivers Lagoon Marsh Complex Restoration**

## Responsible Agency:

Please identify one agency that is involved in the project and is responsible for providing information for inclusion in the Bay Area IRWMP.

Alameda Flood Control and Water Conservation District

## Other Participating Agencies:

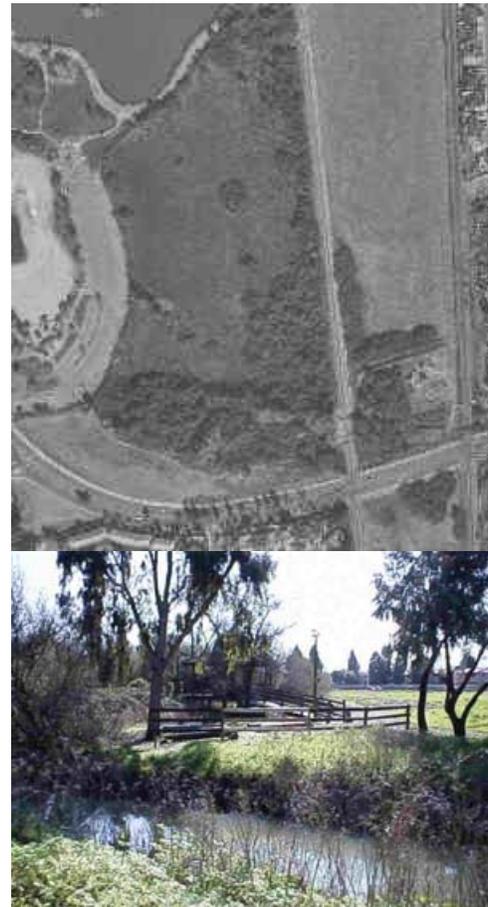
Please identify other agencies that are involved in the project, if applicable.

Math Science Nucleus  
City of Fremont

## Summary Description:

Please provide a one paragraph description of the project. If you would like to include additional information, please do so under "Detailed Description" at the end of this form.

The primary objectives of the restoration at Stivers Lagoon marsh complex are 1) to restore, preserve and enhance the freshwater marsh habitat values; 2) to maintain it as a conservation area for environmental education uses; and 3) to incorporate the marsh into the overall water and flood management system for the Laguna Creek Watershed in southern Alameda County.



## Proposition 50 Water Management Strategies Addressed:

Please select the water management strategies addressed by this project. Check all that apply.

- |  |   |
|--|---|
| <input checked="" type="checkbox"/> Ecosystem Restoration                                | <input checked="" type="checkbox"/> Wetlands enhancement and creation |
| <input checked="" type="checkbox"/> Environmental and habitat protection and improvement | <input type="checkbox"/> Conjunctive use                              |
| <input type="checkbox"/> Water Supply Reliability  | <input type="checkbox"/> Desalination                                 |
| <input checked="" type="checkbox"/> Flood management                                     | <input type="checkbox"/> Imported water                               |
| <input type="checkbox"/> Groundwater management  | <input checked="" type="checkbox"/> Land use planning                 |
| <input checked="" type="checkbox"/> Recreation and public access                         | <input type="checkbox"/> NPS pollution control                        |
| <input checked="" type="checkbox"/> Storm water capture and management                   | <input type="checkbox"/> Surface storage                              |
| <input type="checkbox"/> Water conservation  | <input checked="" type="checkbox"/> Watershed planning                |
| <input checked="" type="checkbox"/> Water quality protection and improvement             | <input type="checkbox"/> Water and wastewater treatment               |
| <input type="checkbox"/> Water recycling   | <input type="checkbox"/> Water transfers                              |

## Primary Water Strategy:

Please list the primary water management strategy to facilitate project classification. Please select only ONE of the water management strategies listed above.

Environmental and habitat protection and improvement

## Project Benefits:

### **Proposition 84 & 1E: Project Benefits as Eligibility Criteria**

Please select the benefits provided by this project. Check all that apply. **Need one or more.**  
(from page 17 of draft Guidelines)

- Water supply reliability, water conservation and water use efficiency
- Stormwater capture, storage, clean-up, treatment, and management
- Removal of invasive non-native species, the creation and enhancement of wetlands, and the acquisition, protection, and restoration of open space and watershed lands
- Non-point source pollution reduction, management and monitoring
- Groundwater recharge and management projects
- Contaminant and salt removal through reclamation, desalting, and other treatment technologies and conveyance of reclaimed water for distribution to users
- Water banking, exchange, reclamation and improvement of water quality
- Planning and implementation of multipurpose flood management programs
- Watershed protection and management
- Drinking water treatment and distribution
- Ecosystem and fisheries restoration and protection

### **Proposition 1E Additional Eligibility Criteria:**

Please select the criteria met by this project. **All must apply.**  
(from page 18 of draft Guidelines)

- |  |  |
|--|--|
| <ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> Designed to manage stormwater runoff to reduce flood damage.</li> <li><input checked="" type="checkbox"/> Consistent with the applicable Regional Water Quality Control Plans (Basin Plans) (default is “yes” for projects in the Bay Area IRWMP).</li> </ul> | <ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> Yield multiple benefits the may include one of the following elements (<b>need one for eligibility</b>): (from page 7 of draft 1E PSP)           <ul style="list-style-type: none"> <li>• Groundwater recharge <input type="checkbox"/></li> <li>• Water quality improvement <input type="checkbox"/></li> <li>• Ecosystem restoration and benefits <input checked="" type="checkbox"/></li> <li>• Reduction of instream erosion and sedimentation <input checked="" type="checkbox"/></li> </ul> </li> </ul> |
|--|--|

## Purpose and Need:

Please provide a detailed description of the purpose and need for the project. Include discussion of the project’s goals and objectives and of the critical impacts that will occur if the project is not implemented.

The purpose of this proposal is to balance environmental, flood control and community values; reduce long-term maintenance cost; improve channel aesthetics, public use and habitat values; and improves channel hydraulics and hydrology in the Stivers Lagoon marsh complex.

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Stivers Lagoon marsh complex is a natural part of a constructed flood control area (Lake Elizabeth). The marsh has been significantly impacted by channelization of Mission Creek which is slowly converting from riparian to upland habitat. The silt buildup needs to be addressed to restore the complex so it protects homes and businesses downstream in the Laguna Creek Watershed. New acreage has been added because of the removal of one railroad line and the merging of BART line near the remaining railroad. BART has built a subway under Lake Elizabeth which daylight at Stivers Lagoon. San Francisco Public Utility Company is doing significant work in the area as they continue to retrofit their pipes over the Hayward Fault. Two major studies were done in the 1990's but a new re-evaluation and planning of this complex (now about 60 acres) for increased habitat and flood attenuation through restoration is required.

Stivers Lagoon marsh area (see aerial photo) will require excavation of a shelf from the east bank of the existing siltation pond to an elevation that allows for marsh development to increase wetland habitat. The excavation of a bench along the west side of Mission Creek would allow for riparian vegetation development and increase wetland habitat. The excavation of a deep, long pond beginning at the existing pond would improve the diversity of wetland habitat. The control of Fuller's teasel (*Dipsacus fullorum*) and bristly ox-tongue (*Picris echinoides*) by mowing and mulching would reduce the unwanted species and indirectly provide more habitats for obligate wetland vegetation. The transplanting of rhizome sections in the new pond would diversity wildlife habitat and could restore nesting habitat for the tricolored blackbird, a species that historically used the Stivers Lagoon marsh area.

The enlargement and enhancement of the ponds around the kiosk (see photo) would promote a diversity of habitat types that would improve public recreation and education opportunities. To improve access to existing viewpoints, and provide access to proposed restoration areas, the project proposes the construction of a pedestrian bridge across Mission Creek and approximately 200 feet of new wooden catwalk to connect with the north end of the existing catwalk, which needs to be replaced, and create a circular path. This proposed path would cross through the freshwater marsh habitat near the kiosk, riparian habitat along Mission Creek, and open water habitat of proposed long pond on the south end. Improved access would allow for human exposure to a variety of habitat types without inviting human activity into the central part of the marsh that could decrease value for wildlife. The improvement of public access as proposed would also require the repair and maintenance of approximately 1200 of existing trail through mixed riparian habitat and 300 feet of existing trail through mixed riparian habitat parallel to the railroad tracks and construction of approximately 1000 feet of new path across the marsh/riparian woodland to meet the north end of the existing catwalk.

If the marsh is not restored, it will become an upland area and would not provide flood protection. The habitat that is remaining will transition to an upland and not provide the diversity of habitats as has been historic in this area. Since this is the largest marsh in the area, these habitats will be lost forever.

## **Project Status and Schedule:**

*Please provide the actual or projected start and finish dates for each of the following project stages. If any stage does not apply to the project please enter N/A.*

Stage	Duration	Start Date	Finish Date
Planning	1-1.5 yr	2011	2012
Demonstration Project			
Design	1	2012	2013
Environmental Documentation / Permitting	1	2012	2013
Construction	1-2	2013	2015

Additional Notes:

**Readiness to Proceed:**

*Please clearly describe project readiness and realistic start date; include status of design, environmental review and securing required matching funds.*

Two major documents have been created in the 1990's with plans for restoration, however new conditions necessitates a review of the plans and to add the new acreage from the BART construction. This revision should take about 1 year, building on the information from the two studies. The area is currently used for environmental education and the planning would include new trails not only for school children but for the general public. This area receives about 1 million visitors yearly, and with a new waterpark adjacent to Stivers Lagoon, this would expose the public to a nature area.

A demonstration project would not be necessary because the area is already used for environmental education and the problems have been well documented. With funds available the Flood Control District with its partners (City of Fremont and Math Science Nucleus) is ready to begin with the preliminary work to complete this 3- 4-year project

**Integration with Other Activities:**

*Please identify any linkages between the schedule of this project and the schedules of other projects, if applicable. Please discuss the integration of the project with other Bay Area IRWMP projects.*

Revegetation plans are proposed as part of the BART project in the parcel adjacent to the proposed Stivers Lagoon Marsh restoration plans. These plans should be coordinated to ensure that revegetation efforts in the adjacent area promote and does not degrade existing and proposed vegetation communities and wildlife habitat in Stivers Lagoon marsh complex. In addition, the SFPUC retrofitting and replacement of pipes in southern part of Stivers Lagoon need to be coordinated and determined if there is a major impact to the groundwater in this area. The marsh and adjacent lake Elizabeth complex help manage flooding downstream.

This complex is also part of the "Fremont Learning Corridor" that is a project with City of Fremont, Fremont Unified School District, and Math Science Nucleus. It is looking at ways to preserve the greenbelts within the trace of the Hayward Fault (which is creeping at about 5 mm per year). See the following link for a complete discussion: <http://msnucleus.org/corridor%20plan.pdf>

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## **Cost and Financing:**

*Please identify the capital cost and operation and maintenance cost of the proposed project. Please indicate the base year (e.g. CCI) for all costs. Please identify the beneficiaries, potential funding/financing options for project implementation, and ongoing support and financing for operation and maintenance of the project once implemented.*

Stivers Lagoon is part of Alameda County Flood Control and Water Conservation District that maintains the waterways in the area. City of Fremont currently maintains the trails. The Math Science Nucleus is currently under contract with the City to help develop a plan to use high school students for trail maintenance and monitoring using service learning, community service, and Eagle scouts. The program is modeled after a successful program MSN manages for Alameda County Flood Control and Water Conservation District at Tule Ponds at Tyson Lagoon (<http://www.ms-nucleus.org/watersheds/tule/tule.html>)

Cost for the project would need to be re-evaluated because of the addition of the 10-20 additional acreage from the land acquisition near the BART tracks which is currently under construction. Planning including design (trails, signage), permits, and scientific assessment of habitat and species would tentatively estimated \$300,000 - \$500,000. Construction estimates would range from \$1 -2 million dollars (pathway construction \$700,000 and excavation and restoration \$600,000.00). Cost sharing would have to be determined from both Alameda County Flood Control and Water Conservation District and the City of Fremont. Math Science Nucleus would oversee the environmental trails and education and will use a multiple of strategies for long term community based restoration which would require about \$50,000 - \$100,000 per year maintenance, but would include educational programming. Grant funds will be sought to continue scientific monitoring using high school and college students under the Math Science Nucleus.

## **Benefits and Impacts:**

*Please provide a detailed discussion of the projected benefits and impacts of the project, both locally and for the region. Please include an evaluation of impacts/benefits to other resources, such as air quality or energy.*

During storm events Mission Creek bring in sediment laden water. Lake Elizabeth receives significant sediment deposit on average of 0.5feet per year. This same process of deposition is occurring in Stivers Lagoon marsh complex although at a much slower rate. The design of the entire area (lake, marsh and channel) was to function as a flood detention as well as sedimentation basin. The sedimentation basin worked so well that the 2.5 acre basin filled up within 10 years of its construction. Over time, this ongoing deposition of sediment in the basin has resulted in changing the fresh water marsh vegetation to upland species. The adjacent lake has to be desilting periodically to maintain the design storage capacity. This project would find solutions to maintain the structure and function of the complexities of the habitats while providing the necessary flood storage.

An integral part for this project is community involvement through the education components managed by the Math Science Nucleus.

This project will also allow monitoring of the impact of the BART system to the overall wildlife and habitat and to develop strategies to address such impacts as noise on resident raptors. The effort would be led by Math Science as part of the education program. Importantly, this project will use the lake, creek, and marsh habitats to manage flooding dangers in high density residential communities downstream.

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## Disadvantaged Communities / Environmental Justice:

*Please include a specific discussion of how the project will benefit or impact disadvantaged communities or environmental justice goals.*

This lake, creek, and marsh complex provides flood control for over 75,000 people downstream. Lake Elizabeth area has over 1 million visitors per year especially from other cities in Alameda County who are not fortunate to have well maintained parks. Because of proximity to the Fremont BART station, events in the park attract lots of people. This proposal will balance environmental concerns with community values. Through the education program kids from disadvantaged communities would be exposed to opportunities to learn about the environment

## Environmental Compliance Strategy:

*Please provide a detailed description of how the project will comply with all applicable environmental review requirement, including CEQA and/or (if applicable) NEPA. For ongoing CEQA/NEPA work, indicate when required documentation would be completed. Also, include discussion of how compliance with local, county, State and federal permitting requirements will be achieved.*

The Stivers Lagoon marsh complex restoration would provide additional visual amenities by adding diversity in shoreline vegetation treatment, and enhanced wildlife habitat that would naturally integrate with the visual character of the site. The project as envisioned would be self mitigating. Applicable environmental reports prepared by the City of Fremont (listed under Documentation) will be reviewed and revised as necessary. The project would require permits from the various regulatory agencies- Department of Fish Game, Regional Water Quality Control Board and Army Corps of Engineers.

## Statewide Priorities:

*Please select the statewide priorities that are addressed by this project. Check all that apply.*

### ***From Proposition 50 Guidelines (pg 5)***

- Reduce conflicts between water rights users
- Implement TMDLs
- Implement RWQCB's Watershed Management Initiatives
- Implement SWRCB's NPS Pollution Plan
- Assist in meeting Delta Water Quality Objectives
- Implement recommendations of the floodplain, desalination, and recycling task forces, or of the state species recovery plan
- Address environmental justice concerns
- Assist in meeting the CALFED Bay-Delta Program goals

### ***From Proposition 84 and Proposition 1E draft Guidelines (pg 13-14)***

- Drought Preparedness
- Use and Reuse Water More Efficiently
- Climate Change Response Actions
- Expand Environmental Stewardship
- Practice Integrated Flood Management
- Protect Surface Water and Groundwater Quality
- Improve Tribal Water and Natural Resources
- Ensure Equitable Distribution of Benefits

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### Additional Notes:

Upstream from the Stivers Lagoon marsh area, a successful restoration of Mission Creek was completed in 2004 to increase natural meandering to reduce major erosion of the river bank. This project was another successful partnership among Alameda County Flood Control and Water Conservation District, Math Science Nucleus, City of Fremont, Fremont Unified School District, Union Sanitary District, and other community non profits. It is being maintained by Alameda County Flood Control and Water Conservation District and used as field laboratory for the nearby schools and the Math Science education program

### Stakeholder Involvement and Coordination:

*Please describe any coordination with stakeholders, land use agencies, or other state and local agencies. Please include a list of proposed stakeholders, how they have/will participate in the planning and implementation of the project, and how their involvement will influence the implementation of the project. Discuss efforts to address environmental justice concerns.*

Upstream from the Stivers Lagoon marsh area, a successful restoration of Mission Creek was completed in 2004 to increase natural meandering to reduce major erosion of the river bank. This project was another successful partnership among Alameda County Flood Control and Water Conservation District, Math Science Nucleus, City of Fremont, Fremont Unified School District, Union Sanitary District, and other community non profits. It is being maintained by Alameda County Flood Control and Water Conservation District and used as field laboratory for the nearby schools and the Math Science education program

### Documentation of Feasibility:

*Please identify any studies that document the technical and economic feasibility of the proposed project. If study is still in progress please indicate this next to its citation. If no studies exist, please type "N/A".*

Lake Elizabeth/Stivers Lagoon Marsh Design and Improvement Program (Environmental Impact Report), Environmental Science Associates, 1993

Laguna Creek Basin, Reconnaissance Study and Water Quality Enhancement Plan, Jones and Stokes Associates, 1999

### Detailed Project Description:

*If desired, please provide a detailed description with additional information about the project.*

The goals of this project will be accomplished by improving stormwater through a focused watershed management approach; increase public stewardship through public information and participation programs and initiate habitat quality through monitoring and special studies.

---

The original lagoon was approximately 200 acres in size and served as an Ohlone Village over 500 years ago. Stivers Lagoon is part of the Laguna Creek Watershed, whose headwaters begins at the elevation of 2500 feet and drop to sea level within 5 miles. This steep decent is a result of uplifting caused by faulting.

Movement along the Hayward fault zone caused a depression to form in this area. Since large reservoirs of ground water can be found underneath (called the Niles Cone Aquifer), water easily percolates upward in this area to cause a natural pooling of water that existed before present day man-made Lake Elizabeth. Storm waters and springs along the hillsides also bring water into this region.

The area had an open lake as well as a fresh water marsh. As this area became more populated this natural waterway was changed. Areas of the original lake and marsh were filled confining the flow to the existing configuration.

For more information on the history, fauna and flora of this area go to the following link on the Math Science Nucleus' website, which documents our work over the last 15 years.  
<http://msnucleus.org/watersheds/stivers/stivergen.html>

IRWMP Project Template Updated\_06.07.10a.doc

## Project Name:

**Sabercat Historical Park Master Plan**

**Insert Project Photo**

## Responsible Agency:

*Please identify one agency that is involved in the project and is responsible for providing information for inclusion in the Bay Area IRWMP.*

**Select box then go to:  
Insert → Picture**

City of Fremont

## Other Participating Agencies:

*Please identify other agencies that are involved in the project, if applicable.*

Alameda County Flood Control and Water Conservation District

## Summary Description:

*Please provide a one paragraph description of the project. If you would like to include additional information, please do so under "Detailed Description" at the end of this form.*

This newly acquired parcel is adjacent to a larger open space area owned by the City. The area is one of the last natural riparian corridors and the largest open space area within the City. The project site is historically and paleontologically important due to a large and very significant fossil find from the 1940's. This find included mammoths, saber toothed cats, mastodons, wolves, giant sloths, short-faced cave bears, camelops, western horses, and others. The proposed project would develop a master plan for the entire site and would identify opportunities to restore the creek and preserve the fossils located at this site. The plan would include trail and access improvements, education and outreach elements such as interpretative signs or a classroom and watershed improvements such as habitat and creek restoration.

## Proposition 50 Water Management Strategies Addressed:

*Please select the water management strategies addressed by this project. Check all that apply.*

- |  |   |
|--|---|
| <input checked="" type="checkbox"/> Ecosystem Restoration                                | <input checked="" type="checkbox"/> Wetlands enhancement and creation |
| <input checked="" type="checkbox"/> Environmental and habitat protection and improvement | <input type="checkbox"/> Conjunctive use                              |
| <input type="checkbox"/> Water Supply Reliability  | <input type="checkbox"/> Desalination                                 |
| <input checked="" type="checkbox"/> Flood management                                     | <input type="checkbox"/> Imported water                               |
| <input type="checkbox"/> Groundwater management  | <input type="checkbox"/> Land use planning                            |
| <input checked="" type="checkbox"/> Recreation and public access                         | <input type="checkbox"/> NPS pollution control                        |
| <input type="checkbox"/> Storm water capture and management                              | <input type="checkbox"/> Surface storage                              |
| <input type="checkbox"/> Water conservation  | <input checked="" type="checkbox"/> Watershed planning                |
| <input checked="" type="checkbox"/> Water quality protection and improvement             | <input type="checkbox"/> Water and wastewater treatment               |
| <input type="checkbox"/> Water recycling   | <input type="checkbox"/> Water transfers                              |

## Primary Water Strategy:

Please list the primary water management strategy to facilitate project classification. Please select only ONE of the water management strategies listed above.

Environmental and habitat protection and improvement

## Project Benefits:

### **Proposition 84 & 1E: Project Benefits as Eligibility Criteria**

Please select the benefits provided by this project. Check all that apply. **Need one or more.**  
(from page 17 of draft Guidelines)

- Water supply reliability, water conservation and water use efficiency
- Stormwater capture, storage, clean-up, treatment, and management
- Removal of invasive non-native species, the creation and enhancement of wetlands, and the acquisition, protection, and restoration of open space and watershed lands
- Non-point source pollution reduction, management and monitoring
- Groundwater recharge and management projects
- Contaminant and salt removal through reclamation, desalting, and other treatment technologies and conveyance of reclaimed water for distribution to users
- Water banking, exchange, reclamation and improvement of water quality
- Planning and implementation of multipurpose flood management programs
- Watershed protection and management
- Drinking water treatment and distribution
- Ecosystem and fisheries restoration and protection

### **Proposition 1E Additional Eligibility Criteria:**

Please select the criteria met by this project. **All must apply.**  
(from page 18 of draft Guidelines)

- |  |  |
|--|--|
| <ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> Designed to manage stormwater runoff to reduce flood damage.</li> <li><input checked="" type="checkbox"/> Consistent with the applicable Regional Water Quality Control Plans (Basin Plans) (default is “yes” for projects in the Bay Area IRWMP).</li> </ul> | <ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> Yield multiple benefits the may include one of the following elements (<b>need one for eligibility</b>): (from page 7 of draft 1E PSP)           <ul style="list-style-type: none"> <li>• Groundwater recharge <input type="checkbox"/></li> <li>• Water quality improvement <input type="checkbox"/></li> <li>• Ecosystem restoration and benefits <input checked="" type="checkbox"/></li> <li>• Reduction of instream erosion and sedimentation <input checked="" type="checkbox"/></li> </ul> </li> </ul> |
|--|--|

## Purpose and Need:

Please provide a detailed description of the purpose and need for the project. Include discussion of the project’s goals and objectives and of the critical impacts that will occur if the project is not implemented.

This project will provide the planning necessary for preserving this historical and environmentally significant area and using it to its maximum potential.

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## **Project Status and Schedule:**

*Please provide the actual or projected start and finish dates for each of the following project stages. If any stage does not apply to the project please enter N/A.*

<b>Stage</b>	<b>Duration</b>	<b>Start Date</b>	<b>Finish Date</b>
Planning		July 2011	June 2012
Demonstration Project			
Design			
Environmental Documentation / Permitting			
Construction			

### **Additional Notes:**

## **Readiness to Proceed:**

*Please clearly describe project readiness and realistic start date; include status of design, environmental review and securing required matching funds.*

Project is in its initial stages.

## **Integration with Other Activities:**

*Please identify any linkages between the schedule of this project and the schedules of other projects, if applicable. Please discuss the integration of the project with other Bay Area IRWMP projects.*

Creek restoration project currently underway in adjacent parcel and environmental education through the Math Science Nucleus.

## **Cost and Financing:**

*Please identify the capital cost and operation and maintenance cost of the proposed project. Please indicate the base year (e.g. CCI) for all costs. Please identify the beneficiaries, potential funding/financing options for project implementation, and ongoing support and financing for operation and maintenance of the project once implemented.*

Estimated cost of master plan is \$450,000.

## **Benefits and Impacts:**

*Please provide a detailed discussion of the projected benefits and impacts of the project, both locally and for the region. Please include an evaluation of impacts/benefits to other resources, such as air quality or energy.*

This project will provide the planning necessary for preserving this historical and environmentally significant area and using it to its maximum potential.

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## Disadvantaged Communities / Environmental Justice:

*Please include a specific discussion of how the project will benefit or impact disadvantaged communities or environmental justice goals.*

The location of the project within the City limits means easy access to all groups including disadvantaged communities directly or indirectly through the local schools, where students can be engaged in environmental education and service learning.

## Environmental Compliance Strategy:

*Please provide a detailed description of how the project will comply with all applicable environmental review requirement, including CEQA and/or (if applicable) NEPA. For ongoing CEQA/NEPA work, indicate when required documentation would be completed. Also, include discussion of how compliance with local, county, State and federal permitting requirements will be achieved.*

The project will comply with CEQA. Any required environmental documents will be adopted with the final planning document for the project.

## Statewide Priorities:

*Please select the statewide priorities that are addressed by this project. Check all that apply.*

### ***From Proposition 50 Guidelines (pg 5)***

- Reduce conflicts between water rights users
- Implement TMDLs
- Implement RWQCB's Watershed Management Initiatives
- Implement SWRCB's NPS Pollution Plan
- Assist in meeting Delta Water Quality Objectives
- Implement recommendations of the floodplain, desalination, and recycling task forces, or of the state species recovery plan
- Address environmental justice concerns
- Assist in meeting the CALFED Bay-Delta Program goals

### ***From Proposition 84 and Proposition 1E draft Guidelines (pg 13-14)***

- Drought Preparedness
- Use and Reuse Water More Efficiently
- Climate Change Response Actions
- Expand Environmental Stewardship
- Practice Integrated Flood Management
- Protect Surface Water and Groundwater Quality
- Improve Tribal Water and Natural Resources
- Ensure Equitable Distribution of Benefits

## Additional Notes:

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## **Stakeholder Involvement and Coordination:**

*Please describe any coordination with stakeholders, land use agencies, or other state and local agencies. Please include a list of proposed stakeholders, how they have/will participate in the planning and implementation of the project, and how their involvement will influence the implementation of the project. Discuss efforts to address environmental justice concerns.*

Stakeholder involvement and coordination will take place during the project planning phase.

## **Documentation of Feasibility:**

*Please identify any studies that document the technical and economic feasibility of the proposed project. If study is still in progress please indicate this next to its citation. If no studies exist, please type "N/A".*

N/A

## **Detailed Project Description:**

*If desired, please provide a detailed description with additional information about the project.*

IRWMP Project Template Updated\_06.07.10a.doc

## Project Name:

**Grimmer Greenbelt Gateway (Line G Channel Enhancement)**

**Insert Project Photo**

## Responsible Agency:

**Select box then go to:  
Insert → Picture**

*Please identify one agency that is involved in the project and is responsible for providing information for inclusion in the Bay Area IRWMP.*

Alameda County Flood Control and Water Conservation District

## Other Participating Agencies:

*Please identify other agencies that are involved in the project, if applicable.*

City of Fremont, The Redevelopment Agency of the City of Fremont

## Summary Description:

*Please provide a one paragraph description of the project. If you would like to include additional information, please do so under "Detailed Description" at the end of this form.*

The Grimmer Greenbelt Gateway project, also described as line G channel enhancement, represents an opportunity to improve water quality and flood control capacity by modifying the creek channel cross section with flatter bank slopes and a meandering flowline, enhancing the low flow channel and revegetating the stream bed and banks with California native plants. It would also create an attractive pedestrian and bicycle connection, including a bridge over the channel, along the portion of Laguna Creek running along side Grimmer Boulevard between Fremont Boulevard and Central Park. The connection would transform the existing utilitarian trapezoidal earthen channel by creating a park like setting along a meandering landscaped bike path and pedestrian promenade built into the side of the creek embankment. This new linear park would bring residents of the nearby neighborhood into Fremont's largest park while decreasing automobile traffic and greenhouse gas emissions.

## Proposition 50 Water Management Strategies Addressed:

*Please select the water management strategies addressed by this project. Check all that apply.*

- |  |  |
|--|--|
| <input checked="" type="checkbox"/> Ecosystem Restoration                                | <input type="checkbox"/> Water recycling                   |
| <input checked="" type="checkbox"/> Environmental and habitat protection and improvement | <input type="checkbox"/> Wetlands enhancement and creation |
| <input type="checkbox"/> Water Supply Reliability  | <input type="checkbox"/> Conjunctive use                   |
| <input checked="" type="checkbox"/> Flood management                                     | <input type="checkbox"/> Desalination                      |
| <input type="checkbox"/> Groundwater management  | <input type="checkbox"/> Imported water                    |
| <input checked="" type="checkbox"/> Recreation and public access                         | <input checked="" type="checkbox"/> Land use planning      |
| <input type="checkbox"/> Storm water capture and management                              | <input type="checkbox"/> NPS pollution control             |
| <input type="checkbox"/> Water conservation  | <input type="checkbox"/> Surface storage                   |
| <input checked="" type="checkbox"/> Water quality protection and improvement             | <input checked="" type="checkbox"/> Watershed planning     |
|  | <input type="checkbox"/> Water and wastewater treatment    |

- Water transfers

## Primary Water Strategy:

Please list the primary water management strategy to facilitate project classification. Please select only ONE of the water management strategies listed above.

environmental and habitat protection and improvement

## Project Benefits:

### **Proposition 84 & 1E: Project Benefits as Eligibility Criteria**

Please select the benefits provided by this project. Check all that apply. **Need one or more.**  
(from page 17 of draft Guidelines)

- Water supply reliability, water conservation and water use efficiency
- Stormwater capture, storage, clean-up, treatment, and management
- Removal of invasive non-native species, the creation and enhancement of wetlands, and the acquisition, protection, and restoration of open space and watershed lands
- Non-point source pollution reduction, management and monitoring
- Groundwater recharge and management projects
- Contaminant and salt removal through reclamation, desalting, and other treatment technologies and conveyance of reclaimed water for distribution to users
- Water banking, exchange, reclamation and improvement of water quality
- Planning and implementation of multipurpose flood management programs
- Watershed protection and management
- Drinking water treatment and distribution
- Ecosystem and fisheries restoration and protection

### **Proposition 1E Additional Eligibility Criteria:**

Please select the criteria met by this project. **All must apply.**  
(from page 18 of draft Guidelines)

- |   |   |
|---|---|
| <p><input checked="" type="checkbox"/> Designed to manage stormwater runoff to reduce flood damage.</p> <p><input checked="" type="checkbox"/> Consistent with the applicable Regional Water Quality Control Plans (Basin Plans) (default is “yes” for projects in the Bay Area IRWMP).</p> | <p><input checked="" type="checkbox"/> Yield multiple benefits the may include one of the following elements (<b>need one for eligibility</b>): (from page 7 of draft 1E PSP)</p> <ul style="list-style-type: none"> <li>• Groundwater recharge <input type="checkbox"/></li> <li>• Water quality improvement <input checked="" type="checkbox"/></li> <li>• Ecosystem restoration and benefits <input checked="" type="checkbox"/></li> <li>• Reduction of instream erosion and sedimentation <input checked="" type="checkbox"/></li> </ul> |
|---|---|

## Purpose and Need:

Please provide a detailed description of the purpose and need for the project. Include discussion of the project’s goals and objectives and of the critical impacts that will occur if the project is not implemented.

The project represents an opportunity to improve water quality and flood control capacity by modifying the creek channel cross section with flatter bank slopes and meandering flowline, enhancing the low flow channel and revegetating the stream bed and banks with California native plants. The project will

improve flood control capacity and will also transform an underutilized area into a recreational asset that will be a gateway to Central Park, one of the City's primary recreation areas. Completion of the project would have the added benefit of establishing momentum behind the Laguna Creek Basin Reconnaissance Study and Water Quality Enhancement Plan, adopted by the Fremont City Council in July of 2000, which aims to enhance public stewardship of Laguna Creek. The City hopes that this project will lead eventually to the daylighting of the entire length of the creek, significant portions of which are currently covered by suburban development.

## **Project Status and Schedule:**

*Please provide the actual or projected start and finish dates for each of the following project stages. If any stage does not apply to the project please enter N/A.*

<b>Stage</b>	<b>Duration</b>	<b>Start Date</b>	<b>Finish Date</b>
Planning	15 mo	Jan. 2010	Mar. 2011
Demonstration Project	na		
Design	10 mo	Apr 2011	Jan 2012
Environmental Documentation / Permitting	8 mo	Jun 2011	Jan 2012
Construction	7 mo	Apr 2012	Oct 2012

### **Additional Notes:**

## **Readiness to Proceed:**

*Please clearly describe project readiness and realistic start date; include status of design, environmental review and securing required matching funds.*

The preliminary design phase will conclude in March 2011. The Alameda County Flood Control and Water Conservation District and the City of Fremont are prepared to moved forward with the project design phase. Environmental review will begin after project design commences.

## **Integration with Other Activities:**

*Please identify any linkages between the schedule of this project and the schedules of other projects, if applicable. Please discuss the integration of the project with other Bay Area IRWMP projects.*

This project is part of the Languna Creek Watershed and directly adjacent to the Stiver Lagoon Rewetting project which has been submitted as another potential project.

## **Cost and Financing:**

*Please identify the capital cost and operation and maintenance cost of the proposed project. Please indicate the base year (e.g. CCI) for all costs. Please identify the beneficiaries, potential funding/financing options for project implementation, and ongoing support and financing for operation and maintenance of the project once implemented.*

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The project's capital cost has been initially scoped at \$2.5 million. A more refined budget estimate will be prepared as part of the project design phase. Operation and maintenance of the project site would be addressed in the City's annual budget process.

### **Benefits and Impacts:**

*Please provide a detailed discussion of the projected benefits and impacts of the project, both locally and for the region. Please include an evaluation of impacts/benefits to other resources, such as air quality or energy.*

This project would enhance flood capacity and water quality by improving the channel alignment. It would also provide public access and a recreational amenity.

### **Disadvantaged Communities / Environmental Justice:**

*Please include a specific discussion of how the project will benefit or impact disadvantaged communities or environmental justice goals.*

The project is within a redevelopment area and adjacent to a high density, low - moderate income housing.

### **Environmental Compliance Strategy:**

*Please provide a detailed description of how the project will comply with all applicable environmental review requirement, including CEQA and/or (if applicable) NEPA. For ongoing CEQA/NEPA work, indicate when required documentation would be completed. Also, include discussion of how compliance with local, county, State and federal permitting requirements will be achieved.*

### **Statewide Priorities:**

*Please select the statewide priorities that are addressed by this project. Check all that apply.*

#### ***From Proposition 50 Guidelines (pg 5)***

- Reduce conflicts between water rights users
- Implement TMDLs
- Implement RWQCB's Watershed Management Initiatives
- Implement SWRCB's NPS Pollution Plan
- Assist in meeting Delta Water Quality Objectives
- Implement recommendations of the floodplain, desalination, and recycling task forces, or of the state species recovery plan
- Address environmental justice concerns
- Assist in meeting the CALFED Bay-Delta Program goals

#### ***From Proposition 84 and Proposition 1E draft Guidelines (pg 13-14)***

- Drought Preparedness
- Use and Reuse Water More Efficiently
- Climate Change Response Actions
- Expand Environmental Stewardship
- Practice Integrated Flood Management
- Protect Surface Water and Groundwater Quality
- Improve Tribal Water and Natural Resources

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Ensure Equitable Distribution of Benefits

Additional Notes:

**Stakeholder Involvement and Coordination:**

*Please describe any coordination with stakeholders, land use agencies, or other state and local agencies. Please include a list of proposed stakeholders, how they have/will participate in the planning and implementation of the project, and how their involvement will influence the implementation of the project. Discuss efforts to address environmental justice concerns.*

Stakeholder involvement and coordination will take place during the project design phase.

**Documentation of Feasibility:**

*Please identify any studies that document the technical and economic feasibility of the proposed project. If study is still in progress please indicate this next to its citation. If no studies exist, please type "N/A".*

This project was identified as a watershed improvement opportunity in the Laguna Creek Basin Reconnaissance Study and Water Quality Enhancement Plan, adopted by the Fremont City Council in July of 2000. This planning document was designed to identify creek restoration opportunities to improve water quality as well as enhance public stewardship of Laguna Creek.

**Detailed Project Description:**

*If desired, please provide a detailed description with additional information about the project.*

IRWMP Project Template Updated\_06.07.10a.doc

# Bay Area IRWMP Project Information Sheet\* version 06.07.2010

## Project Name:

Arroyo de la Laguna, Verona Reach Phase I

## Responsible Agency:

Urban Creeks Council

*Please identify one agency that is involved in the project and is responsible for providing information for inclusion in the Bay Area IRWMP.*

## Other Participating Agencies:

Zone 7 Water Agency

*Please identify other agencies that are involved in the project, if applicable.*



## Summary Description:

*Please provide a one paragraph description of the project. If you would like to include additional information, please do so under “Detailed Description” at the end of this form.*

***This project description is an update of an existing project already included in the IRWMP (appendix E-1: R.10-4 Arroyo de la Laguna (ADLL) Improvement Project 4).*** The proposed project differs from the original in that the bank stabilization extends over a larger area and the trail component has been removed due to stakeholder concerns. The proposed project will reduce erosion and restore habitat along approximately 2,500 linear feet of Arroyo de la Laguna, i.e. about half the reach from Castlewood Bridge to Verona Bridge (the so-called “Verona Reach”). The arroyo is important coldwater habitat and a potential steelhead migration corridor once downstream barriers are removed. At present the target reach is eroding at a rate of 2,000 cubic yards/year, as determined in the 2011 WARSSS report completed by the project proponents. The eroded sediments and debris degrade aquatic habitat, impede passage of floodwaters, and contribute to siltation problems in the Alameda Creek Flood Control Channel downstream.

The project proponents have been working with the owners of the 28 properties along the mile-long Verona Reach for nearly two years and have secured their agreement to undertake restoration and bank stabilization activities. In 2010, a grant was issued from the Zone 7 Board of Directors for a design along the reach and this grant was supported by 20 key landowners. The proposed design for restoration will adjust the alignment of the stream to reduce shear stress on the bed and banks using biotechnical methods such as rock weirs, wood toe mats, brush layering and brush mattresses, along with slope re-contouring and replanting. Invasive species will be removed and replaced with native riparian vegetation. Once completed, the project will improve habitat, abate flooding and reduce maintenance costs downstream.

## Proposition 50 Water Management Strategies Addressed:

*Please select the water management strategies addressed by this project. Check all that apply.*

### **Ecosystem Restoration**

### **Environmental and habitat protection and improvement**

Water Supply Reliability

# Bay Area IRWMP Project Information Sheet\* version 06.07.2010

## **Flood management**

Groundwater management  
Recreation and public access

## **Storm water capture and management**

Water conservation

## **Water quality protection and improvement**

Water recycling

## **Wetlands enhancement and creation**

Conjunctive use

Desalination

Imported water

Land use planning

NPS pollution control

Surface storage

Watershed planning

Water and wastewater treatment

Water transfers

## **Primary Water Strategy:**

*Please list the primary water management strategy to facilitate project classification. Please select only ONE of the water management strategies listed above.*

Flood management

## **Project Benefits:**

### **Proposition 84 & 1E: Project Benefits as Eligibility Criteria**

*Please select the benefits provided by this project. Check all that apply. Need one or more.*

*(from page 17 of draft Guidelines)*

Water supply reliability, water conservation and water use efficiency

**Stormwater capture, storage, clean-up, treatment, and management**

**Removal of invasive non-native species, the creation and enhancement of wetlands, and the acquisition, protection, and restoration of open space and watershed lands**

Non-point source pollution reduction, management and monitoring

Groundwater recharge and management projects

Contaminant and salt removal through reclamation, desalting, and other treatment technologies and conveyance of reclaimed water for distribution to users

Water banking, exchange, reclamation and improvement of water quality

**Planning and implementation of multipurpose flood management programs**

**Watershed protection and management**

Drinking water treatment and distribution

**Ecosystem and fisheries restoration and protection**

### **Proposition 1E Additional Eligibility Criteria:**

*Please select the criteria met by this project. All must apply.*

*(from page 18 of draft Guidelines)*

**Designed to manage stormwater runoff to reduce flood damage.**

**Consistent with the applicable Regional Water Quality Control Plans (Basin Plans)**

# Bay Area IRWMP Project Information Sheet\* version 06.07.2010

Yield multiple benefits the may include one of the following elements (**need one for eligibility**): (from page 7 of draft 1E PSP)

- Groundwater recharge
- **Water quality improvement**
- Ecosystem restoration and benefits
- Reduction of instream erosion and sedimentation

## Purpose and Need:

Please provide a detailed description of the purpose and need for the project. Include discussion of the project's goals and objectives and of the critical impacts that will occur if the project is not implemented.

Over the past several decades a rapid increase in the amount of impervious surface within the cities of Dublin, Pleasanton, Livermore and San Ramon has resulted in dramatically altered and 'flashy' stormwater flows within Arroyo de la Laguna (ADLL). These altered flows have contributed to slope instability and massive erosion (both vertical and lateral) along ADLL, which threatens homes, roads, and the railroad; degrades terrestrial and aquatic habitat; and increases sedimentation and debris downstream in the arroyo and Alameda Creek. Sediment accumulation under the Highway 84 bridge exacerbates existing flooding at the Sunol Glen School and adjacent private properties.

Erosion along this reach has had significant environmental and economic impacts as well. In 1995 and 1998, el Niño events caused significant bed incision and lateral bank instability and erosion on the Verona Reach and downstream. Landowners and Alameda County responded to these events by installing riprap and other hard erosion control measures at numerous locations along the length of ADLL, including portions of the Verona Reach.

The goal of the project is to manage increased stormwater flows to reduce flood damage to public and private property along the Verona Reach, while enhancing aquatic and riparian habitat and reducing management costs for sediment and debris removal downstream. If the project is not implemented, erosion will continue to cause damage and costly maintenance to property (public and private), transportation corridors, impair riparian and aquatic habitats, and exacerbate flooding, siltation and debris accumulation problems downstream.

## Project Status and Schedule:

Please provide the actual or projected start and finish dates for each of the following project stages. If any stage does not apply to the project please enter N/A.

Stage	Duration	Start Date	Finish Date
Planning	3 yrs	06/09	06/12
Demonstration Project	N/A		
Design	2 yrs	04/10	03/12
Environmental Documentation / Permitting	6 mos	09/11	06/12
Construction	3 mos	07/12	10/12

## Readiness to Proceed:

Please clearly describe project readiness and realistic start date; include status of design, environmental review and securing required matching funds.

# Bay Area IRWMP Project Information Sheet\* version 06.07.2010

Project Proponents initiated planning in July 2009 and completed a 30% conceptual design for the Phase I section of the Verona Reach in February 2011. We have secured landowner support for the conceptual design. Next step will be to complete the design phase. We believe this can be accomplished within six months. Environmental review and permitting will commence as soon as design reaches 60% completion. Construction is scheduled to begin in July 2012.

## Integration with Other Activities:

*Please identify any linkages between the schedule of this project and the schedules of other projects, if applicable. Please discuss the integration of the project with other Bay Area IRWMP projects.*

The project timing takes advantage of the fact that Castlewood Country Club, which owns the east bank along the entire reach of the project, is redesigning that portion of its golf course and is eager to work with us. The project proponents have reached tentative agreement to shift the stream channel slightly to the east, which will permit stabilization of the massively eroded west banks. Integrating the project planning process with that of the country club will ensure that the stream channel design will meet the club's requirements and, more importantly, that the club's design will accommodate the needs of the creek channel realignment. Failure to act while the country club is still in its planning phase will mean missing the opportunity to influence the club's redesign, which may jeopardize project success.

Project proponents are also coordinating with the Alameda County RCD and the Natural Resources Conservation Service, who are jointly undertaking similar activities just downstream of the Verona bridge on San Francisco Public Utilities Commission property.

## Cost and Financing:

*Please identify the capital cost and operation and maintenance cost of the proposed project. Please indicate the base year (e.g. CCI) for all costs. Please identify the beneficiaries, potential funding/financing options for project implementation, and ongoing support and financing for operation and maintenance of the project once implemented.*

Beneficiaries of this project include the streamside landowners (private homeowners and the country club); Alameda County Water Agency; Alameda County Flood Control and Water Conservation District; and uncountable non-human organisms both aquatic and terrestrial.

Estimated total design cost is approximately \$313,000, of which \$184,000 has already been secured and spent. Construction cost is estimated at \$2.765 million, for a total capital budget of \$3.078 million. Zone 7 has already provided \$184,000 toward this project and committed to provide an additional \$1.5 million in capital funding to match a potential Prop 1E grant.

Maintenance costs are expected to be roughly \$5,000/acre in the five to seven years immediately after construction as the newly installed plantings mature, for a total cost of about \$40,000/year to maintain the ~8 acre site in the first years. That figure will decline over time to probably half the original cost, i.e. \$20,000 per year to maintain the site. Sources of maintenance costs are also still being explored. Project proponents are working with stakeholders to establish a long-term maintenance fund. The exact sources of funding and mechanisms by which funds will be collected are being determined.

## Benefits and Impacts:

*Please provide a detailed discussion of the projected benefits and impacts of the project, both locally and for the region. Please include an evaluation of impacts/benefits to other resources, such as air quality or energy.*

The project is expected to provide the following **benefits**:

- **Water quality enhancement.** Sediment from this reach impairs water quality downstream and undermines the potential success of efforts underway to restore anadromous fish passage to the

# Bay Area IRWMP Project Information Sheet\* version 06.07.2010

Alameda Creek watershed. In addition, enhanced riparian vegetation will provide shade for water surfaces which will help control stream temperatures.

- **Habitat improvement.** The project will enhance both aquatic and riparian habitat. Riparian habitats in particular are being destroyed by erosion along this reach.
- **Flood risk abatement.** Sediment and debris originating in this reach accumulate under the Highway 84 bridge and at various points downstream, exacerbating existing flooding problems.
- **Reduced sediment and debris management costs.** The San Francisco Public Utilities Commission, Alameda County Flood Control and Water Conservation District, and the Alameda County Water Agency currently spend considerable sums each year to remove sediments and clear debris from waterways under their jurisdiction. Addressing these problems at their source will ultimately prove to be a cost-effective strategy for dealing with them.
- **Protection of private property and critical public infrastructure.** Erosion along this reach has already resulted in the loss of at a historic structure and threatens numerous homes as well as Foothill Road, an important county thoroughfare.

Project **impacts** are expected to be temporary, and include the following:

- **Impacts to air quality.** Construction activities, particularly the operation of heavy equipment, will result in air quality impacts during the construction phase of the project.
- **Increased traffic.** A modest increase in traffic along roadways adjacent to the project site is anticipated during the construction phase. This will cause inconvenience to drivers and might result in a higher incidence of roadkills.
- **Increased noise.** Construction activities, particularly the operation of heavy machinery, will generate noise during daylight hours. This is likely to disturb human and animal populations near the construction site.
- **Loss of riparian vegetation.** Some existing vegetation, including some native plants and some mature native and non-native trees, will be lost during construction. Existing habitat functionality will be impaired while new plantings mature.
- **Impacts to aquatic communities.** Informal sampling has shown that ADLL hosts healthy populations of native and non-native fish and benthic macroinvertebrates. Construction activities will likely have a deleterious impact on those communities, though we expect them to rebound quickly after construction is finished.

## Disadvantaged Communities / Environmental Justice:

*Please include a specific discussion of how the project will benefit or impact disadvantaged communities or environmental justice goals.*

N/A

## Environmental Compliance Strategy:

*Please provide a detailed description of how the project will comply with all applicable environmental review requirement, including CEQA and/or (if applicable) NEPA. For ongoing CEQA/NEPA work, indicate when required documentation would be completed. Also, include discussion of how compliance with local, county, State and federal permitting requirements will be achieved.*

Project proponents have completed 30% design drawings which identify areas of potential environmental impact and enhancement. At this time, the project appears to be self-mitigating. CEQA will be initiated at the 60% design stage, which we expect to reach before the end of summer 2011.

We have met with representatives from the Department of Fish and Game and the Water Board to tour the site and allow for initial feedback on project concepts. We will begin formal permit applications in the fall of 2011.

# Bay Area IRWMP Project Information Sheet\* version 06.07.2010

## Statewide Priorities:

*Please select the statewide priorities that are addressed by this project. Check all that apply.*

### *From Proposition 50 Guidelines (pg 5)*

Reduce conflicts between water rights users

Implement TMDLs

**Implement RWQCB's Watershed Management Initiatives**

Implement SWRCB's NPS Pollution Plan

Assist in meeting Delta Water Quality Objectives

Implement recommendations of the floodplain, desalination, and recycling task forces, or of the state species recovery plan

Address environmental justice concerns

**Assist in meeting the CALFED Bay-Delta Program goals**

### *From Proposition 84 and Proposition 1E draft Guidelines (pg 13-14)*

Drought Preparedness

Use and Reuse Water More Efficiently

Climate Change Response Actions

**Expand Environmental Stewardship**

**Practice Integrated Flood Management**

**Protect Surface Water and Groundwater Quality**

Improve Tribal Water and Natural Resources

Ensure Equitable Distribution of Benefits

## Additional Notes:

## Stakeholder Involvement and Coordination:

*Please describe any coordination with stakeholders, land use agencies, or other state and local agencies. Please include a list of proposed stakeholders, how they have/will participate in the planning and implementation of the project, and how their involvement will influence the implementation of the project. Discuss efforts to address environmental justice concerns.*

Project proponents have been helping to educate and organize landowners - homeowners as well as the Castlewood Country Club - along this reach since summer 2009. That effort has resulted in a number of important outcomes:

1. The creation of an informal "Friends of Verona Reach" group which has helped establish regular communication on creek-related issues among the landowners along the reach.
2. A community meeting at which alternative design approaches were explored and vetted, and a preferred approach decided on.
3. Agreement by the country club to integrate its planned redesign of the 18<sup>th</sup> hole of its golf course with the redesign of the creek channel.

Since the Verona Reach is entirely in private ownership, no agency has actual jurisdiction over the Reach. A number of agencies both upstream and down, however, have a stake in what is happening there. In order to provide a forum to address agency needs and concerns regarding ADLL, Zone 7 has convened an agency stakeholders group, the ADLL Agency Collaborative, to facilitate joint problem-solving. The Collaborative includes representatives of the following agencies:

- Alameda County Resource Conservation District
- Alameda County Flood Control and Water Conservation District
- Natural Resources Conservation Service

# Bay Area IRWMP Project Information Sheet\* version 06.07.2010

- Alameda County Water Agency
- San Francisco Public Utilities Commission
- Zone 7 Water Agency

The members have agreed that the upstream cities (Dublin, Pleasanton, Livermore and San Ramon) will be invited to participate as well. The collaborative had its first meeting on November 30, 2010 and is scheduled to have its second meeting on March 7, 2011.

## **Documentation of Feasibility:**

*Please identify any studies that document the technical and economic feasibility of the proposed project. If study is still in progress please indicate this next to its citation. If no studies exist, please type "N/A".*

Zone 7 Water Agency's Stream Management Master Plan (SMMP), completed in 2006, identified the project site as a priority for streambank stabilization and restoration. A preliminary scope of work and cost estimate was included in the SMMP.

The project proponents carried out a Watershed Assessment of River Stability and Sediment Supply (WARSSS) analysis of the project reach in the fall of 2010. The WARSSS report (from which is derived the estimates of sediment loss for this reach) identifies erosion hotspots and their causal factors. The WARSSS analysis forms the basis for the 30% design solution.

## **Detailed Project Description:**

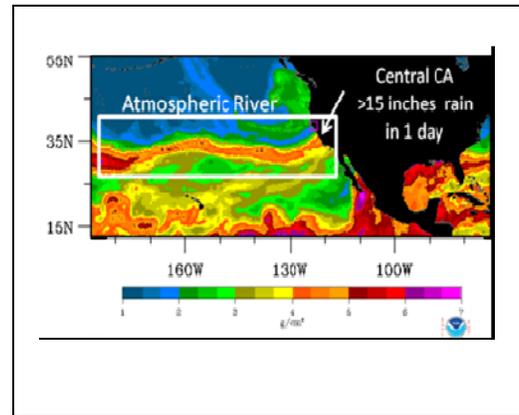
*If desired, please provide a detailed description with additional information about the project.*

## Project Name:

**Improving Quantitative Precipitation Information for the San Francisco Bay Region**

## Responsible Agency:

*Please identify one agency that is involved in the project and is responsible for providing information for inclusion in the Bay Area IRWMP.*



City and County of San Francisco - Dept of Public Works, Bureau of Engineering

## Other Participating Agencies:

*Please identify other agencies that are involved in the project, if applicable.*

Bay Areas Flood Protection Agencies Association (BAFPAA), Contra Costa Flood Control and Water Conservation District, Sonoma County Water Agency, Marin County Department Public Works

## Summary Description:

*Please provide a one paragraph description of the project. If you would like to include additional information, please do so under "Detailed Description" at the end of this form.*

Public utility and water resource managers in the San Francisco Bay region require accurate and timely quantitative precipitation information (QPI) in order to make appropriate decisions regarding storm water management and flood mitigation. Improving QPI for the San Francisco Bay Region can be achieved by teaming with the NOAA's National Weather Service (NWS) and the Hydrometeorology Testbed (HMT; <http://hmt.noaa.gov/>) project. The HMT has demonstrated that installing additional advanced radars and other precipitation sensors, high resolution numerical weather modeling and information systems technology can improve current NWS capabilities for tracking and forecasting precipitation coming from atmospheric rivers over the ocean and across steep terrain. These advances in QPE and QPF monitoring and forecasting methods could be deployed in concert with current NWS watch and warning systems in a region-wide strategy which would support the many water jurisdictions dealing with storm runoff, river flooding and water supply management issues.

## Proposition 50 Water Management Strategies Addressed:

*Please select the water management strategies addressed by this project. Check all that apply.*

- |  |  |
|--|--|
| <input checked="" type="checkbox"/> Ecosystem Restoration                                | <input checked="" type="checkbox"/> Storm water capture and management       |
| <input checked="" type="checkbox"/> Environmental and habitat protection and improvement | <input checked="" type="checkbox"/> Water conservation                       |
| <input checked="" type="checkbox"/> Water Supply Reliability                             | <input checked="" type="checkbox"/> Water quality protection and improvement |
| <input checked="" type="checkbox"/> Flood management                                     | <input type="checkbox"/> Water recycling                                     |
| <input type="checkbox"/> Groundwater management  | <input type="checkbox"/> Wetlands enhancement and creation                   |
| <input checked="" type="checkbox"/> Recreation and public access                         | <input type="checkbox"/> Conjunctive use                                     |
|  | <input type="checkbox"/> Desalination  |

- |   |  |
|---|--|
| <input type="checkbox"/> Imported water                   | <input checked="" type="checkbox"/> Watershed planning             |
| <input type="checkbox"/> Land use planning                | <input checked="" type="checkbox"/> Water and wastewater treatment |
| <input checked="" type="checkbox"/> NPS pollution control | <input type="checkbox"/> Water transfers                           |
| <input checked="" type="checkbox"/> Surface storage       |  |

### Primary Water Strategy:

Please list the primary water management strategy to facilitate project classification. Please select only ONE of the water management strategies listed above.

Storm water capture and management

### Project Benefits:

#### **Proposition 84 & 1E: Project Benefits as Eligibility Criteria**

Please select the benefits provided by this project. Check all that apply. *Need one or more.*  
(from page 17 of draft Guidelines)

- Water supply reliability, water conservation and water use efficiency
- Stormwater capture, storage, clean-up, treatment, and management
- Removal of invasive non-native species, the creation and enhancement of wetlands, and the acquisition, protection, and restoration of open space and watershed lands
- Non-point source pollution reduction, management and monitoring
- Groundwater recharge and management projects
- Contaminant and salt removal through reclamation, desalting, and other treatment technologies and conveyance of reclaimed water for distribution to users
- Water banking, exchange, reclamation and improvement of water quality
- Planning and implementation of multipurpose flood management programs
- Watershed protection and management
- Drinking water treatment and distribution
- Ecosystem and fisheries restoration and protection

#### **Proposition 1E Additional Eligibility Criteria:**

Please select the criteria met by this project. *All must apply.*  
(from page 18 of draft Guidelines)

- |  |  |
|--|--|
| <input checked="" type="checkbox"/> Designed to manage stormwater runoff to reduce flood damage.   | <input checked="" type="checkbox"/> Yield multiple benefits the may include one of the following elements ( <b>need one for eligibility</b> ): (from page 7 of draft 1E PSP) |
| <input checked="" type="checkbox"/> Consistent with the applicable Regional Water Quality Control Plans (Basin Plans) (default is “yes” for projects in the Bay Area IRWMP). | • Groundwater recharge <input type="checkbox"/>  |
|  | • Water quality improvement <input checked="" type="checkbox"/>  |
|  | • Ecosystem restoration and benefits <input checked="" type="checkbox"/>   |
|  | • Reduction of instream erosion and sedimentation <input type="checkbox"/>   |

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## Purpose and Need:

*Please provide a detailed description of the purpose and need for the project. Include discussion of the project's goals and objectives and of the critical impacts that will occur if the project is not implemented.*

Public utility and water resource managers require accurate and timely quantitative precipitation information (QPI) in order to make appropriate decisions regarding infrastructure and resources. Water, wastewater and drainage utilities in the San Francisco Bay Region are often negatively impacted by both long and short-duration heavy rainfall events. These negative impacts result from a combination of inadequate quantitative precipitation estimation (QPE) of current conditions and short-term quantitative precipitation forecasts (QPF) at sufficient spatial and temporal resolution. These are critical information needs for water resource managers to take appropriate action during and in advance of heavy rainfall events. Two comments by area water managers highlight the needs:

Comment 1 from Greg Braswell of San Francisco Public Utilities at AGU fall meeting (Dec 2010): "One consequence of extreme rainfall in the region is that the associated runoff can overwhelm the water treatment system, leading to discharge of untreated water into the ocean or Bay. These events trigger major fines, \$25 per gallon in some cases. With adequate lead time and accuracy in QPI, water system managers have the potential to reduce or even eliminate some of these adverse events, thereby improving water quality and reducing major fines."

Comment 2 from Chris Delaney of Sonoma County Water Agency at HMT-West Annual meeting (Oct 2010): "Provision of reliable water supply, protection against flooding and restoration of salmon runs in the Russian River basin depend on accurate information regarding precipitation amount and timing, as well as antecedent conditions, such as soil moisture and ground water levels. With better QPI, decisions regarding water releases from dams in the watershed can be optimized to meet the competing demands for this major resource."

## Project Status and Schedule:

*Please provide the actual or projected start and finish dates for each of the following project stages. If any stage does not apply to the project please enter N/A.*

Stage	Duration	Start Date	Finish Date
Planning	3 months	1 April 2011	30 June 2011
Demonstration Project	1 yr	1 July 2011	30 June 2012
Design	3 months	1 July 2012	30 Sept 2012
Environmental Documentation / Permitting	3 months	each phase	each phase
Construction	3 months	each phase	each phase

### Additional Notes:

The plan outlined herein is based on a 4-phased approach accomplished over 5 years. The phases build successively from prototype solutions (Phase 1), with observations concentrated near-shore that can be implemented relatively quickly to demonstrate the concept feasibility, to solutions that incorporate observations from farther offshore (Phases 2, 3 and 4). These more sophisticated solutions employ more advanced implementations of HMT-MAPS, including new approaches to assimilate the observational data

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and provide Nowcast/QPF information at high spatial and temporal resolution. A 1/4 to 1/2 year time period, subsequent to the implementation of each phase, will be used to quantify the added value of the observations and products associated with each solution.

## **Readiness to Proceed:**

*Please clearly describe project readiness and realistic start date; include status of design, environmental review and securing required matching funds.*

The proposed 4-phase project involves leveraging of existing NWS and HMT observational and forecasting facilities, and extension of these through additional sensor deployments, data assimilation, predictive modeling and system integration. Phase 1 of the project has been designed and is ready to deploy immediately; follow-on phases would proceed in a sequential manner give success of previous phases. Matching funds of approximately \$50M are represented by the substantial existing investments by the NOAA NWS and HMT.

## **Integration with Other Activities:**

*Please identify any linkages between the schedule of this project and the schedules of other projects, if applicable. Please discuss the integration of the project with other Bay Area IRWMP projects.*

This project can move forward independent of the other IRWMP projects' schedules.

## **Cost and Financing:**

*Please identify the capital cost and operation and maintenance cost of the proposed project. Please indicate the base year (e.g. CCI) for all costs. Please identify the beneficiaries, potential funding/financing options for project implementation, and ongoing support and financing for operation and maintenance of the project once implemented.*

Leveraging of NOAA assets and CA-DWR investments that are currently in place and planned as part of HMT-West, high quality QPI for the area can be achieved at reasonable cost through a combination of state-of-the-art observations, data assimilation, modeling, and decision support efforts (MAPS). The plan outlined herein is based on a 4-phased approach accomplished over 5 years. The phases build successively from prototype solutions (Phase 1), with observations concentrated near-shore that can be implemented relatively quickly to demonstrate the concept feasibility, to solutions that incorporate observations from farther offshore (Phases 2, 3 and 4). These more sophisticated solutions employ more advanced implementations of HMT-MAPS, including new approaches to assimilate the observational data and provide Nowcast/QPF information at high spatial and temporal resolution. A 0.5.-1.0 year time period, subsequent to the implementation of each phase, will be used to quantify the added value of the observations and products associated with each solution. The estimated costs for these efforts over 5 years are:

- Phase 1 – Russian River Basin and City of San Francisco Initial Prototyping (\$3M , 1 year)
- Phase 2 - North Bay and Initial Offshore/Upwind Sampling (+\$8M/\$12M; \$2m/yr for 4 years)
- Phase 3 – Regional Offshore/Upwind Sampling (+\$12M/\$24M; \$4m/yr for 3 years)
- Phase 4 – Offshore observing platforms (+\$16M/\$40M; \$4M/yr for 4 years)

This plan takes advantage of more than a decade of research, prototyping and implementation of a statewide network. These past and ongoing investments (exceeding \$50M over 10 years) have created the knowhow and expertise to recommend the solutions described herein, to do so with confidence in their feasibility and ultimately their execution. Implementing these solutions would create a 21st Century

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capability for this key region, helping to meet a range of critical demands for water information, and serving as a model for other, similar regions.

The NOAA HMT team would be joined by the NWS Office of Hydrologic Development in developing and deploying the San Francisco Bay QPI system. The OHD will provide expertise in various aspects of radar-rainfall sensing, multi-sensor data assimilation, ensemble forecasting and verification. The OHD is also leading efforts for development of a National Water Center which will serve as a research and development nexus for next-generation hydrometeorological monitoring, modeling and decision support services for the nation.

## **Benefits and Impacts:**

*Please provide a detailed discussion of the projected benefits and impacts of the project, both locally and for the region. Please include an evaluation of impacts/benefits to other resources, such as air quality or energy.*

Benefits are related to water management responses for a spectrum of weather and climate forecast time frames. The time frames range from real-time (current) updates on weather and river flow conditions, to short- and near-term seasonal forecasts, and ultimately to long-term climatic-type forecasts. Depending on the water management purpose there are various actions which might be taken to maximize performance and/or to mitigate adverse impacts of too much or too little water. The two comments cited in Purpose and Need section emphasize benefits for the 1) City of San Francisco for optimizing the combined sewer system to minimize overflows and associated penalties, and 2) Sonoma County Water Agency for managing trade-offs between water supplies and endangered fisheries. These

Another example of benefits is associated with increased lead time. A flood warning system yields direct and indirect, tangible and intangible benefits due to increased mitigation time available prior to the onset of flooding. The direct tangible benefit - the inundation damage reduction - can be computed with standard expected damage computation procedures, using modified depth-damage functions that include mitigation time as an independent variable and accounting for improvements to the efficiency of response due to the implementation of the flood warning system. A study by for the Central Valley Flood Study described how these damage reduction benefits are estimated. An example is the benefits expected with increasing flood forecast lead time from 12 hours to 24 hours which would allow a homeowner to move belongings and avoid \$5000 in damages to contents. Projecting over 10,000 homes and assuming 80% participation, the total benefits would be \$40 million.

Beyond the short term, a wide variety of water management actions can be informed by better precipitation monitoring and forecasting. For reservoir operations there is a competition between storage space reserved for flood storage and use of that storage for conservation purposes to supply municipal, irrigation, hydropower and environmental enhancement purposes. There are fundamental trade-offs between competing purposes, and considerations of timing of storage and releases play an important role in efforts to maximize aggregate benefits across all water users.

## **Disadvantaged Communities / Environmental Justice:**

*Please include a specific discussion of how the project will benefit or impact disadvantaged communities or environmental justice goals.*

Provision of timely and accurate precipitation information on current and forecast conditions supports efforts by flood mitigation authorities to provide warnings and response resources to disadvantaged communities which routinely bear the brunt of severe floods.

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## Environmental Compliance Strategy:

*Please provide a detailed description of how the project will comply with all applicable environmental review requirement, including CEQA and/or (if applicable) NEPA. For ongoing CEQA/NEPA work, indicate when required documentation would be completed. Also, include discussion of how compliance with local, county, State and federal permitting requirements will be achieved.*

Physical sites for the equipment used in the project have not been identified and environmental assessments cannot be done at this time.

## Statewide Priorities:

*Please select the statewide priorities that are addressed by this project. Check all that apply.*

### ***From Proposition 50 Guidelines (pg 5)***

- Reduce conflicts between water rights users
- Implement TMDLs
- Implement RWQCB's Watershed Management Initiatives
- Implement SWRCB's NPS Pollution Plan
- Assist in meeting Delta Water Quality Objectives
- Implement recommendations of the floodplain, desalination, and recycling task forces, or of the state species recovery plan
- Address environmental justice concerns
- Assist in meeting the CALFED Bay-Delta Program goals

### ***From Proposition 84 and Proposition 1E draft Guidelines (pg 13-14)***

- Drought Preparedness
- Use and Reuse Water More Efficiently
- Climate Change Response Actions
- Expand Environmental Stewardship
- Practice Integrated Flood Management
- Protect Surface Water and Groundwater Quality
- Improve Tribal Water and Natural Resources
- Ensure Equitable Distribution of Benefits

## Additional Notes:

NA

## Stakeholder Involvement and Coordination:

*Please describe any coordination with stakeholders, land use agencies, or other state and local agencies. Please include a list of proposed stakeholders, how they have/will participate in the planning and implementation of the project, and how their involvement will influence the implementation of the project. Discuss efforts to address environmental justice concerns.*

The proposed San Francisco bay QPI project has been developed through a collaboration between the various Bay area water management agencies and NOAA's NWS and HMT. A group effort has been coordinated by the Bay Area Flood Protection Agency Association (BAFPAA) which involves all of the major storm water management and flood mitigation agencies in the bay region. Given the BAFPAA

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initiative and petition, then the Bay Area Integrated Water Management Plan (BAIRWMP: <http://bairwmp.org/> ) has expressed support for the proposal and has become the sponsoring organization of the request.

## **Documentation of Feasibility:**

*Please identify any studies that document the technical and economic feasibility of the proposed project. If study is still in progress please indicate this next to its citation. If no studies exist, please type "N/A".*

Improving QPI for the San Francisco Bay Region, including the City of San Francisco, Marin, and Sonoma Counties, can be achieved using a combination of observations, data assimilation, modeling, nowcasting, and smart tool components. The approach is referred to as Monitoring, Assimilation, Prediction, and System Integration (MAPS). This effort can leverage existing HMT, HMT-West Legacy network and tools sponsored by CA DWR, and proposed new instrumentation and modeling efforts for the Russian River Watershed, including gap-filling radar. Extending the scope of current and planned HMT activities to include the City of San Francisco, Marin County, and other parts of the San Francisco Bay Region would be straightforward and could be implemented at reasonable cost and in a timely fashion.

## **Detailed Project Description:**

*If desired, please provide a detailed description with additional information about the project.*

The phases are intended to be implemented sequentially (although some tasks could be performed in parallel) with each phase involving components to incrementally improve QPI. Phase 1 represents a prototype solution based on existing equipment and resources. It is designed to be implemented quickly and at relatively low cost. Phases 2 and 3 represent more robust solutions but require a longer time line and higher cost due to the necessary procurement of new radar equipment, and evaluation of new tools (data assimilation, down-scaling of forecast model time and space scales, and nowcasting of precipitation fields). Each phase would include an evaluation period subsequent to the implementation phase to analyze the results and quantify the added value of the observations/products/services (described below). Analysis of the data and results will be accomplished using verification tools and techniques developed through the ongoing collaboration of the multi-agency Developmental Testbed Center (DTC) and HMT (<http://verif.rap.ucar.edu/eval/hmt/2011/>). Sensitivity analyses of the results will also be performed using the Multi-sensor Precipitation Estimator (MPE; OHD 2010) and Q2 QPE algorithms. The results of the evaluations would be summarized in a document to be presented to the regional stakeholders and would include recommendations for future work. As noted above, all proposed phases leverage surface rain gauge/disdrometer, soil moisture, GPS integrated water vapor, 915 MHz wind profiler, and existing scanning radar assets that are already in place and/or planned for Sonoma County as outlined in White et al. (2010) and summarized below.

### Phase 1-A: Sonoma County Plan Proposal Overview (\$1.1 million)

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The Sonoma County plan involves integration of local TV station radar imagery as a component of the HMT-MAPS. Filling the gaps in the weather radar coverage is expected to provide improved nowcasting of rainfall occurrence and increase forecast lead times out to 3 hours.

Monitoring:

- 
- o Calibrate KPIX and KGO TV station radars and stream data into NWS forecast office to support operational forecasting.
  - o Install 4 surface disdrometers in the Russian River Watershed to determine the optimal radar reflectivity-rainfall (i.e., Z-R) relation(s) to apply to the TV radar data during precipitation events.

Assimilation:

- o Incorporate TV radar data into operational NWS MPE and interface with NWS Flash Flood Monitoring and Prediction (FFMP) architecture, which currently ingest gridded precipitation fields – extend for advanced QPE/QPF.
- o Create reforecast database using an operational forecast model that would enable implementation of a modern precipitation forecasting method downscaled to the Russian River watershed.

Prediction:

- o Link precipitation grids to hydrologic runoff models (i.e. the NOAA OHD distributed model and the USACE HEC model). Demonstrate this linkage for selected events and prototype for real-time operations. Expected increase in lead time is 3 hours.

System Integration:

- o Create research infusion team to implement key IWRSS/HMT findings into NWS operations; Options for data and models interoperability
  - HEC CWMS to CHPS interoperability
  - USACE SF District reservoir operations
  - SCWA water management database, models and DSS tools
  - DWR CDEC interface.
- o Develop detailed multi-year scoping and feasibility plan to address long-term information requirements in the Russian River watershed; and SCWA water management
  - Hydrologic Index for Rule 1610 operations (drought threshold)
  - Flood mitigation – (short-term (flash flood), mid-term forecasts)
  - Conjunctive use model – with USGS

Phase 1-B Solution –“San Francisco Bay Initial Prototyping” (\$1.9 million)

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In addition to the assets proposed for Sonoma County this solution includes:

Monitoring:

- o Evaluate current capabilities using available data like KPIX with NEXRAD and MPE and gages. Determine the limitations of these. Create HRAP (or smaller) grids of QPE and allow users to evaluate for use in urban drainage design studies.
- o Deployment for one winter season of NOAA ESRL’s X-band dual-polarimetric radar near San Francisco (Mt. Pise is a possible location);
- o Deployment for one winter season of an atmospheric river observatory near Half Moon Bay.
- o Deployment of a disdrometer and S-band profiler for one winter southeast of the X-band radar;

Assimilation:

- o Analyse the “dividing streamline” in AR conditions relative to San Francisco Bay Area extreme precipitation.
- o Incorporate X-band dual polarimetric radar data into operational NWS MPE and FFMP algorithms and demonstrate improved flash flood guidance in the San Francisco Bay Region.

Prediction:

- 
- o Develop high resolution QPF products from the HMT-DWR WRF ensemble/High Resolution Rapid Refresh (HRRR) Model. Expected increase in lead time is 6 hours.

System Integration:

- o Disseminate the QPE / QPF gridded precipitation fields as input for the San Francisco storm water drainage hydrologic model. Demonstrate this linkage and document results for the urban runoff modeling.

The purpose of the X-band radar is to provide robust rainfall estimation using dual-polarimetric algorithms, and building on HMT-West findings regarding drop-size distributions (Martner et al. 2008). Although the range of the X-band is limited to ~40 km, the radar can observe precipitation at low levels that are often missed by NEXRAD. The S-band profiler and disdrometer would be used to validate the assumptions used in the radar rainfall algorithms and to adjust the radar data through a vertical profile of reflectivity (VPR) correction. As shown in Figure 2, the X-band QPE would be focused on the City of San Francisco and southern Marin County. The TV radars (KGO and KPIX) would provide rainfall estimation over the Russian River in Sonoma County. The ARO would allow for determination of whether a dividing streamline exists and is directly related to heavy rain over San Francisco. Past research has shown that wind direction profoundly influences the exact position of rain shadowing, and thus heavy precipitation. It is quite likely that the mountains just south and southwest of San Francisco can produce this effect, but it needs to be proven and in doing so, a specific threshold wind direction would be identified. Regardless, an accurate 5 minute resolution bias corrected radar estimate for the next 1 hour is needed

Phase 2 Solution - “North Bay and Initial Offshore/Upwind Sampling” (\$8 million)

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In addition to the assets proposed for Phase 1, the Phase 2 solution includes :

Monitoring:

- o Deployment of a C-band dual-polarimetric radar near Fort Ross in Sonoma County; and
- o 3 S-band profilers in the Russian River watershed.

Assimilation:

- o Incorporate the C- and S-band radar reflectivity data into the HMT data assimilation system.
- o Develop high resolution land surface flood monitoring data set (e.g. compatible with NWS FFMP).

Prediction:

- o Nowcasting of precipitation fields at very high temporal and spatial resolution.
- o Development of higher resolution (compared to Phase 1) QPF products from the WRF ensemble/HRRR. Expected increase in lead time is 12 hours.

System Integration:

- o Disseminate the regional precipitation weather data to agency partners such as the NWS WFO-Monterey and the San Francisco Department of Public Works.
- o Disseminate improved NWS FFMP flash flood guidance to regional stakeholders for improved situational awareness during heavy precipitation events.

The C-band radar would serve three purposes: 1) provide precipitation information out to > 100 km offshore to give forecasters a “heads-up” on potential impacts in advance of low level precipitation moving onshore; 2) provide input for nowcasting algorithms as well as more “up-stream” data assimilation information for the WRF (compared to Phase 1); and 3) support development of accurate QPE off shore as well as along the coast of Sonoma, Marin, and Mendicino counties. The S-band profilers in the Russian River watershed would provide important VPR information to correct QPE estimates from the KPIX and KGO television station radars. Improvements in storm lead time tracking by

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radar would gain 4 hours lead time; numerical modeling could extend lead times out to 12 hours. For improved PQPF forecasting, a finer, 1-km WRF ensemble will be set up embedded into the 3-km HMT-DWR ensemble, focusing on the SF Bay area. For the initialization of the fine scale ensemble, all special observing systems implemented in Tier-1 will be utilized along with the routinely available observing systems. It is anticipated that the 1-km fine resolution analysis and WRF ensemble will be updated every hour and precipitation output will be made available for 30-min intervals. For improved runoff and hydrologic forecasting, the numerical analysis fields will include not only atmospheric but also land surface conditions (e.g. NWS FFMP system). Methods to utilize short range ensemble forecasts in the data assimilation step will also be investigated. The nowcasting would be used to bridge the gap between QPE and the short term WRF PQPF. The nowcasting would be based on the DARTS methodology (Ruzanski and Chandrasekar 2010) developed at Colorado State University and is intended to provide QPF out to 1 hour at the native resolution of the radar data (< 500m) with update intervals of < 10 minutes.

#### Phase 3 Solution - “Regional Offshore/Upwind Sampling” (\$13.5 million)

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In addition to the assets proposed for Phases 1 and 2, the Phase 3 solution includes:

##### Monitoring:

- o Deployment of a C-band dual polarimetric radar near San Francisco.
- o Deployment of the X-band dual polarimetric radar in the Russian River Basin.

##### Assimilation:

- o Integrate QPE estimation with the NWP data assimilation system.
- o Apply 3D- or 4D-VAR techniques for ensembles.

##### Prediction:

- o Increase the resolution of the numerical analysis and WRF ensemble to sub-kilometer scale (~300 m) over a selected region of the Bay area. Expected increase in lead time is 12 to 24 hours.

##### System Integration:

- o Provide the high resolution QPE, QPF and PQPF products to the hydromet data dissemination system for use by NWS, State and local agency partners.

The C-band radar deployment near San Francisco is intended to provide more advanced warning of precipitation approaching the region from southerly or southwesterly directions compared to the X-band proposed in Phases 1 and 2. In Phase 3, the X-band deployment is shifted to Sonoma County to provide high resolution QPE in the lower portion of the Russian River Watershed. For further improvements to the PQPF guidance, the resolution of the numerical analysis and WRF ensemble will be enhanced to sub-kilometer scale (~300 m) over a selected region of the Bay area. Furthermore, QPE estimation will be made part of the NWP data assimilation system. All QPE and other measurements made available in Phase 2 will be directly assimilated using advanced 3D- or 4D-VAR techniques enhanced with ensemble information (hybrid data assimilation), with precipitation being one of the analyzed variables. These enhancements are expected to lead to major improvements in both the quality and the utility of QPI, including QPE and PQPF. Lead times of 12 to 24 hours are to be expected.

#### Phase 4 Solution: “Offshore observing platforms” (~\$15 M total for 3-5 years development and testing)

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The potential exists to further revolutionize observations to meet these challenging requirements by fielding observations offshore. Overcoming the fundamental challenge of operating on or above the ocean represents a major technical hurdle. Phases 1-3 provide observational solutions that are ground based or satellite based. Phase 4 literally places observing platforms on or over the ocean just west of the Bay Area. Past studies have shown the value of airborne observations, and emerging technological innovations in radar may make mounting a wind profiler on a buoy a true possibility. This would enable essentially an offshore ARO capability and provide storm warning lead times of 24 to 72 hours.

Buoy-mounted wind profiler/offshore ARO: Past efforts led to a test of this possibility on a buoy. The main advance was the development of software to account for buoy motion and evaluation of potential problems with sea clutter. Two main engineering hurdles were not overcome at that time, i.e., hardening the equipment for operation in the ocean environment, and providing adequate power. While it was deemed technically feasible to harden the equipment for operation in the ocean environment, the power requirements were not seen as resolvable. However, recently the possibility has arisen for a new low-power approach to wind profiling. While promising, this new method, called “FMCW” remains to be demonstrated. Thus, the offshore ARO element of Phase 4 requires significant further development and testing, and includes risk that the technology may not be feasible.

Airborne reconnaissance: During the CALJET/PACJET experiments, NOAA’s P-3 research aircraft was deployed off the west coast and observed ARs before they reached the coast. In one particularly strong AR, the P-3 detected that the strongest part of the storm was approaching the coast near the Bay area several hours prior to what was being predicted at the time. Through radio communications, these data were provided to NWS, and contributed to the issuance of a rare “severe storm watch” ahead of the actual landfall of a line of heavy rain, high winds and severe thunderstorms. This led to a concept for a “NEXRAD-in-the-sky,” i.e., a radar on an airplane. Since that time, it has also become feasible to use simpler aircraft to release dropsondes into storms offshore. These descend slowly from the aircraft to the sea and provide data nearly identical to what is provided by balloon soundings launched regularly from land, and that is a foundation of current weather prediction (the absence of these offshore is one of the major reasons west coast storm prediction is so challenging).

These observations could be made with an offshore ARO roughly 100-500 km west of the coast, and by aircraft in similar regions and even broader areas. Both have the potential to allow earlier detection of key meteorological conditions associated with strong ARs. Through assimilation of these data into specialized numerical model runs, it would also be likely that these data could help with numerical weather predictions, especially since assimilation of vertical profile information is known to be much more effective than assimilating measurements of conditions at the earth’s surface.

Neither of these solutions within Phase 4 is inexpensive, but they each could be “game changers” for west coast prediction of high-impact precipitation events in the Bay Area. Development of these methods for this region would serve as an example that could be applied to other vulnerable regions, such as Portland, Seattle and Los Angeles.

**DRAFT**

**Bay Area IRWMP Coordinating Committee**

Agreements and Action Items from February 28, 2011 Meeting

**1. Roll Call—Appointed FA representatives present**

<b>WS-WQ</b>	<b>WW-RW</b>	<b>FP-SW</b>	<b>Watershed</b>	<b>Other</b>
Marie Valmores (CCWD); Molly Petrick (SFPUC)	Brian Campbell, EBMUD	Mark Boucher, CCCFCD; Brian Mendenhall, SCVWD	Harry Seraydarian, NBWA; Jennifer Krebs, SFEP; Matt Gerhart, SCC	Paul Helliker, Chair, MMWD; Ann Draper, SCVWD

**Others present:**

Mitch Avalon, CCCFCD  
Victoria Baxter, City of San Jose  
Jack Betourne (NCFWCD)  
Kevin Booker (SVCSD)  
Chris Choo (Marin Flood)  
Thomasin Grim (MMWD)  
Dale Hopkins (SFBAY RWQCB)  
Carol Mahoney (Zone 7)  
Carl Morrison (M&A, Zone 7, SCWA, StopWaste.Org)  
Brad Sherwood (SCWA)  
Joanne Siew (RMC)

**2. Planning Grant Update (Information, led by CC/Chair)**

- Brian Campbell gave an overview of the steps to execute a grant agreement with DWR. MMWD, which is the lead applicant, is waiting to receive a letter of award from DWR. Contract negotiations can only occur after the award letter is received, and reimbursements of costs can only take place after a contract is in place.
- Thomasin Grim queried if some of DWR's comments on the Planning grant results would need to be taken into consideration during negotiation of the contract with DWR. For example, DWR's comment that there wasn't enough detail for Sonoma's Salt and Nutrient Management Plan may need to be addressed. Paul Helliker requested for Kevin Booker (SCWA) to get more details on the budget. Kevin noted that SCWA will be responsible for producing a more detailed budget and has started the RFP process.
- On DWR's comment on the need to show greater involvement and outreach to DACs on the Plan update, Carol Mahoney suggested that the CC contact Dipti Bhatnagar at EJCW to follow up and help define the scope better for the Plan update. Brian Mendenhall commented that it might highlight to DWR that the Bay Area is putting in more emphasis on DAC involvement if the DAC component was called out separately from the rest of the Plan update. Chris Choo agreed that it might be a good idea to subcontract the DAC portion of the Plan update to an organization like EJCW to address DWR's impression that the Bay Area agencies have not really been able to conduct outreach to DACs effectively.

- Paul Helliker noted that one other suggestion in the Planning grant application was to provide funding to some DAC groups to be involved in the IRWMP process. He asked the CC whether it would be helpful to set up a time to discuss this, and how soon should this process start. He noted that this would be part of scoping out the RFP for the Plan update as well.
- Jennifer Krebs suggested that perhaps MMWD can get 2 to 3 volunteers (maybe from each sub-region) to help scope out what the CC would like to include on the DAC portion of the Plan update.

### **3. Update on Prop 1E Projects (Discussion, led by PS subcommittee)**

- A total of 14 projects were received from project proponents for Proposition 1E applications. Of the 14 projects, 12 are new projects to be considered for addition to the IRWM Plan, and 2 are updates of existing projects in the Plan.
- The projects received are as follows:
  1. **Lower Redwood Creek Restoration** - Golden Gate National Parks Conservancy
  2. **Lake Dalwigk Habitat Enhancement Project** - Vallejo Sanitation and Flood Control District
  3. **Lower Silver Creek, Reaches 4-6 and Lake Cunningham** - Santa Clara Valley Water District – *Update of an existing project in the IRWMP*
  4. **Bayfront Regional Flood Protection System Improvements and 5th Avenue Pump Station Renovation Project** - City of Redwood City
  5. **Arroyo de la Laguna, Verona Reach Phase I** - Urban Creeks Council, Zone 7 – *Update of an existing Project in the IRWMP*
  6. **San Francisquito Creek Flood Protection and Ecosystem Restoration Capital Improvement Project, East Bayshore Road to San Francisco Bay** - San Francisquito Creek Joint Powers Authority
  7. **Cesar Chavez Street Flood and Stormwater Management Sewer Improvement Project** - San Francisco Public Utilities Commission (SFPUC)
  8. **Sunnydale Flood and Stormwater Management Sewer Improvement Project** - San Francisco Public Utilities Commission (SFPUC)
  9. **Phoenix Lake IRWM Retrofit** - Marin County Flood Control and Water Conservation District, Flood Zone 9 (FZ9)
  10. **Quartermaster Reach** - Golden Gate National Parks Conservancy
  11. **Multi-Benefit Flood and Runoff Management for Sonoma Valley** - City of Sonoma, Sonoma County Water Agency
  12. **Stivers Lagoon Marsh Complex Restoration** - Alameda Flood Control and Water Conservation District
  13. **Sabercat Historical Park Master Plan** -City of Fremont
  14. **Grimmer Greenbelt Gateway (Line G Channel Enhancement)** - Alameda County Flood Control and Water Conservation District
- The Project Screening Subcommittee will be meeting on March 10 to review the projects and develop a recommended list of projects to add to the IRWMP.
- The CC agreed that the CC will take an action to approve the recommended list of projects, and to add the projects to the IRWMP on the March 28 CC meeting.

### **4. IRWM Plan Update – Website Support (Discussion, led by PS subcommittee)**

- Brian Campbell noted that the website wasn't used effectively for the recent Prop 84 Implementation Grant application process because it took a while to set up all the permissions for project proponents to be able to upload items into the shared folders. He added that it would be good to get the website ready when Prop 84 proponents receive

funding from DWR because it would be a useful communication and data management tool.

- The current maintenance of the website is being financed by the Prop 50 grantees.
- The fee estimate that was included in the Planning grant application for the website update/maintenance is \$25,000.
- Brian Campbell noted that there are many details to be discussed as part of the website update, and suggested that the discussion be continued at the March 10 PS meeting.
- Chris Choo noted that she had worked on the District's website and volunteered to provide input on upgrading the website for the Bay Area.
- Marie Valmores noted that KJ developed a website based on proprietary software for the District and found it to be more effective than the BAIRWMP website.
- Jack Betourne noted that Napa developed a web database for project submittals to Napa's IRWMP. This database will be included in Napa's website. The purpose of the website is to help identify shovel-ready projects. He would be happy to share information on the development of the database with the CC.
- Other comments on the website:
  - Who is the target audience for the website? Project proponents or the public?
  - How much security is needed?
  - Need to look at the functionality of the website for someone submitting an application and reviewing the existing plan

## **5. Implementation Grant Update**

- Harry Seraydarian reported to the CC that Tracie Billington indicated to him that DWR will deal with the errata sheet if they are awarded an Implementation grant.
- Paul Helliker indicated that asking for DWR for the shortfall in the grant request would just be a timing issue for DWR, since funds have been allocated for the Bay Area and it is not a competitive region.
- Dale Hopkins noted that CEMAR is very concerned about this and hopes that the CC will think of creative ways to address the budget discrepancy.
- Matt Gerhart suggested that he would encourage the CC to use the same process of allocation as was done for the \$12.5 million.
- Brian Campbell went over the timeline for the Implementation grant –
  - If the awards are made in April, the applicants can optimistically finish contracting by the end of 2011.
  - Earliest invoices would go out in early 2012.
  - The Prop 50 grant requirements is that the 25% match needs to be spent first, and not pro-rata. DWR has not provided a definitive answer on their preference for Prop 84. They usually prefer the match first approach but can be flexible if pro-rata is needed for projects (e.g. those with a DAC waiver could probably invoice immediately rather than have to spend their entire match first).
  - In terms of payment timing, the first half of the year would probably be better than from July-Dec. Projects on a tight budget should take this into consideration.

## **6. Roundtable of Regions Survey**

- Matt Gerhart noted this survey was initiated mainly because of the general sentiment among applicants that the costs associated with preparing the Prop 84 Implementation application were too high because of the amount of analysis required, and some regions did not submit because of the high costs.
- Carl Morrison noted that the Planning division in DWR had developed a separate survey. The Planning division indicated that they would like to work more closely with the regions when developing the CA Water Plan Update, and prepared a survey that was separate from the Roundtable of Regions' survey. He added that about 6-7 people had signed up to provide input to the CA Water Plan Update for the Bay Area region, but he did not

recognize these people as familiar IRWMP stakeholders or participants in the CC meetings.

- Carl also announced that DWR is holding a two-day conference on Integrated Regional Water Management in Sacramento from May 24-25. The conference is organized by the Planning division in DWR and the Water Education Foundation. He added that one of the the potential outcomes of this conference could be the development of new policies on IRWM which the Funding division would have to incorporate into their funding programs.

**Action Item(s):**

- RMC to take a first cut at filling out the survey form, and then provide the partially completed form to Thomasin Grim for follow-up.

**7. Announcements**

- There were no announcements.

**8. Agenda Items for next CC meeting**

- The next CC meeting is scheduled for March 28, 2011. Agenda items include:
  - Approve projects for addition into the IRWMP
  - Discuss schedule and process for the IRWMP update
  - Discuss website update

## Bay Area IRWMP Project Screening Committee

### 3/10/11 Draft Meeting Notes

1. Attendees:
  - a. In person – Brian Campbell (EBMUD), Mark Boucher (CCCFCWCD), Molly Petrick (SPFUC)
  - b. By phone – Kevin Murray (SFQ Creek JPA), Brian Mendenhall (SCVWD), Joanne Siew (RMC), Josh Uecker (RMC), Thomasin Grim (MMWD), Carl Morrison (Morrison & Assoc), Carol Mahoney (Zone 7), Harry Seraydarian (NBWA), Dale Hopkins (RWQCB), Chris Choo (Marin Co. FCD),
2. The Project Screening Process was reviewed
  - a. Consensus to carry out screening level review for additional of projects.
  - b. No “scoring” projects is appropriate this round as the Prop 1E priorities have a different focus than the full list of assessment factors in the 2006 Bay Area IRWMP.
3. Projects that were considered for addition to the IRWM Plan:
  - a. **Lower Redwood Creek Restoration** - Golden Gate National Parks Conservancy
  - b. **Lake Dalwigk Habitat Enhancement Project** - Vallejo Sanitation and Flood Control District
  - c. **Lower Silver Creek, Reaches 4-6 and Lake Cunningham** - Santa Clara Valley Water District - *Being reviewed for possible update*
  - d. **Bayfront Regional Flood Protection System Improvements and 5th Avenue Pump Station Renovation Project** - City of Redwood City
  - e. **Arroyo de la Laguna, Verona Reach Phase I** - Urban Creeks Council, Zone 7 - *Update*
  - f. **San Francisquito Creek Flood Protection and Ecosystem Restoration Capital Improvement Project, East Bayshore Road to San Francisco Bay** - San Francisquito Creek Joint Powers Authority
  - g. **Cesar Chavez Street Flood and Stormwater Management Sewer Improvement Project** - San Francisco Public Utilities Commission (SFPUC)
  - h. **Sunnydale Flood and Stormwater Management Sewer Improvement Project** - San Francisco Public Utilities Commission (SFPUC)
  - i. **Phoenix Lake IRWM Retrofit** - Marin County Flood Control and Water Conservation District, Flood Zone 9 (FZ9)
  - j. **Quartermaster Reach** - Golden Gate National Parks Conservancy
  - k. **Multi-Benefit Flood and Runoff Management for Sonoma Valley** - City of Sonoma, Sonoma County Water Agency
  - l. **Stivers Lagoon Marsh Complex Restoration** - Alameda Flood Control and Water Conservation District
  - m. **Sabercat Historical Park Master Plan** -City of Fremont
  - n. **Grimmer Greenbelt Gateway (Line G Channel Enhancement)** - Alameda County Flood Control and Water Conservation District
4. Recommendations from the Project Screening Committee:
  - a. All projects were found to be within the Bay Area IRWMP boundary.

- b. Two projects are updates of projects already in the IRWM Plan (items 3c and 3e). The updated project template would supersede the existing project descriptions.
  - c. The Sabercat Historical Park Master Plan was considered more of a planning effort than an implementation project and analogous to Tier 2 projects in the 2006 IRWMP. More complete responses to the project template will be requested before the CC mtg.
  - d. The Committee approved recommending addition of the projects listed above, with the caveats described in 4b and 4c, based on two factors:
    - i. All projects are within the regional IRWM boundary.
    - ii. All the projects demonstrated benefits in multiple water resource mgt areas.
5. Form of Documentation to Add Projects
- a. RMC confirmed that the form of documentation to be used would be similar to that used in November 2010 (App. I) when projects were added without scoring.
  - b. A map will be included that generally locates all of the projects
  - c. The authorization for RMC to proceed with this work is subject to approval by Marin MWD upon review of scope and cost.
  - d. The documentation should be available on the website soon after the CC mtg and well ahead of the April 15 deadline for Prop 1E IRWM proposals.
6. Website Update for IRWM Plan.
- a. Background – a Scope of Work has been discussed for two years to transition the 2006 project database to a more interactive format to facilitate web updates and reporting.
  - b. The Committee reached consensus that the Scope of Work included in the successful planning grant proposal should be held until a more general review of website needs and desired functions can be considered.
  - c. Chris Choo (Marin Co.) who has experience with website developers volunteered to receive comments on suggested website improvements and help lead a workgroup to firm up the website Scope of Work to be carried out under the planning grant.
    - i. Helpful comments for Chris are links to sites you like w/specific mention of what features you find useful & appealing.
    - ii. General comments or recommendations on the overall functionality, purpose, and potential expanded uses of the Bay Area website are also welcome.
    - iii. Chris's e-mail address is: [cchoo@co.marin.ca.us](mailto:cchoo@co.marin.ca.us)
7. Recommendations for the Coordinating Committee
- a. Add projects to the IRWM Plan as described above.
  - b. Authorize RMC to proceed with preparing the Appendix I to IRWM Plan.
8. Action Items
- a. Mark Boucher to request info from Sabercat Historical Park project.
  - b. RMC to provide updated scope document to Marin MWD.

**FINAL**

**Bay Area IRWMP Coordinating Committee**

Agreements and Action Items from March 28, 2011 Meeting

**1. Roll Call—Appointed FA representatives present**

<b>WS-WQ</b>	<b>WW-RW</b>	<b>FP-SW</b>	<b>Watershed</b>	<b>Other</b>
Marie Valmores, CCWD; Molly Petrick, SFPUC Brad Sherwood (SCWA)	Brian Campbell, EBMUD	Mark Boucher, CCCFCD	Harry Seraydarian, NBWA; Jennifer Krebs, SFEP; Matt Gerhart, SCC	Paul Helliker, Chair, MMWD

**Others present:**

Mitch Avalon, CCCFCD  
Jack Betourne (NCFWCD)  
Kevin Booker (SVCSD)  
Chris Choo (Marin Flood)  
Thomasin Grim (MMWD)  
Dale Hopkins (SF RWQCB)  
Carol Mahoney (Zone 7)  
Carl Morrison (M&A, Zone 7, SCWA, StopWaste.Org)  
Ben Harwood (Golden Gate NPC)  
Gordon Becker (CEMAR)  
Renee Weber (SCWA/NBWRA)  
Rick Thomasser (Napa County)  
Gary Lippner (DWR)  
Vivien Maisonneuve (DWR)  
Shicha Chander (DWR)  
Dave Richardson (RMC)  
Joanne Siew (RMC)  
Josh Uecker (RMC)

**2. Prop 1E Projects – Approve Addition of Projects to the IRWM Plan (Action, led by Chair/Project Screening Subcommittee)**

- Brian Campbell gave an overview of the project screening process. There was an additional project suggested for inclusion in the IRWMP after the March 10 subcommittee meeting – Improving Quantitative Precipitation Information for the San Francisco Bay Region (Lead Agency: City and County of San Francisco, Dept. of Public Works, Bureau of Engineering). An email vote was conducted among the Project Screening Subcommittee, and the project received support from several subcommittee members. There were no objections to recommending the project for addition to the IRWMP.
- Mark Boucher provided a summary description of the new project to the CC. The project consists of up facing radars, additional Doppler radar stations, and other equipment to provide improved quantitative precipitation information. One benefit of including the project in the IRWMP now is to show that it has local support by being in the plan, and it will help leverage the project funding support at the national level. Mitch Avalon explained that in terms of water supply benefits, this project will offer valuable information for improving determinations of reservoir levels and release flow planning for flood control.

- The Project Screening subcommittee made a motion to the CC to add the 15 projects into the IRWMP. The motion was seconded by Thomasin Grim from MMWD. The motion was approved by consensus (no objection). The projects were added to the IRWMP Plan as of March 28, 2011. Details of the projects are included in Appendix G (Projects added as of March 28, 2011) in the IRWMP.

### **3. Planning Grant Award Update (Information, led by Chair)**

- Vivien Maisonneuve of DWR explained that Planning grant award letters should be coming out in about 2-4 weeks. The contract will be prepared once the letter has been signed and returned to DWR, and all conditions of the award letter have been met.

### **4. IRWMP Plan Update**

- Shicha Chander from DWR introduced herself as the contract manager for the Bay Area Planning Grant.
- Paul Helliker queried whether the letter from DWR will reference the proposal evaluation comments. Vivien confirmed that yes, the award letter will ask that DWR's proposal evaluation comments be addressed and reflected in the final Work Plan for the grant agreement, and that as the agreement is being completed other issues can be addressed (especially scheduling and invoicing dates). This process will minimize the need to do an amendment on the contract. DWR can also make some recommendations on where to have a more detailed/less detailed budget and where to shift funds if necessary. The time allowed for response to direction provided in the award letter is typically a 60-day window, but that is not definite yet.
- Paul Helliker commented that there wasn't a lot of detail on outreach to DACs and asked if that is information that should be clarified in the Work Plan. Vivien indicated that the lump sums indicated in the budget should be broken out, and will need to match the contract and invoicing amounts. Vivien added that the Planning grant contract template is now available on the DWR website:  
[http://www.water.ca.gov/irwm/integregio\\_resourceslinks.cfm](http://www.water.ca.gov/irwm/integregio_resourceslinks.cfm)
- Paul noted that the attorney for MMWD has reviewed the contract template and has accepted the language. MMWD has an agreement template for subcontractors and will send it out to subcontractors identified in the grant proposal. MMWD will work with the IRWMP CC subcommittees to prepare an RFP seeking consultant assistance for the IRWMP Plan update, to be distributed after the grant agreement Work Plan, Budget and Schedule for have been finalized.
- Gary Lippner of DWR clarified that they need to check with management to determine if eligible work performed for reimbursement could take place after the final awards were posted or after the commitment letters are sent.

#### Website Update

- Brian Campbell announced that Chris Choo has volunteered to be the point person to collate comments and suggestions for the website update. Chris suggested that she could send links to other existing IRWMP websites for interested parties to review as examples and then suggest the features that they would like for the Bay Area website. There was some discussion about who the customer base is for the website and how to determine when and to what extent to incorporate other stakeholder input (aside from IRWMP agencies). It was noted that DACs could have different input than the agencies.
- Paul Helliker suggested waiting until a final group is on board before developing the final scope of the work for the website consultant. David Seiband of Zentral is currently providing website updates and Prop 50 Implementation grant recipients are paying for the maintenance for the website.

**ACTION ITEM:** Chris Choo will write a short email about the request and send it to Joanne to forward to the CC distribution list. Chris Choo will collect the feedback. **The deadline for providing website comments and input to Chris Choo is April 21, 2011.**

**5. Funding of IRWMP Activities: Cost-sharing among Functional Areas (Discussion, led by BAFPAA/Carol Mahoney)**

- Carl Mahoney reported that it was brought up at the BAFPAA meeting that there is a large disparity between the income for flood control districts and water/wastewater districts, which impacts on their ability to provide equal monetary contributions to the Bay Area IRWMP. Flood control districts usually have fixed income tied to project benefits, and are unable to raise rates. Water supply and wastewater districts typically have more flexibility in raising rates.
- The BAFPAA group has developed a preliminary three-tier contribution framework, which ranges from all agencies paying a fixed cost to different agencies paying variable amounts based on their operating budgets.

**BASMAA**

- It was also noted that since BASMAA does not really participate in the Bay Area IRWMP process, the burden of financing the IRWMP for the Flood Protection/Stormwater Management Functional Area is solely on the flood protection districts. One of the reasons given for BASMAA's reluctance to participate in the BAIRWMP is that they do not see any funding benefit from being involved since grant funds often cannot be used to offset a permit requirement or for mitigation.
- Jack Betourne responded as a Board Member of BASMAA that BASMAA is currently focused on working on the MRP which has a quick timeline. In addition, BASMAA's membership currently does not include members from all nine counties in SF Bay, and the projects put forward would benefit only 6 out of the 9 counties.
- Jack noted that in June 2011, BASMAA members will be issued the draft Phase 2 permit and will need to implement all TMDLS, and perhaps then the agencies would be more interested in joining the IRWMP. He queried if the CC were to approach BASMAA for funding when that would be – Paul Helliker noted that the CC would need the funding to be made available within the next few months.
- Mitch Avalon noted that since the MRP is for the next 5 years, there would be information on which projects can help meet the requirements and so they should be able to include projects in the Plan for funding. He also noted that this is an opportune time to get BASMAA involved with the IRWMP as part of the Plan update.

**Functional Area Contributions**

- Paul Helliker outlined the budget (total of \$183K) that the four functional areas have agreed to provide as part of the Plan update and CC support:
  - Water agencies: \$60K
  - Wastewater: \$63K
  - Watershed/Coastal Conservancy: 25K\$
  - Watershed/NBWA: \$10K
  - Flood and Stormwater/BAFPAA: \$25K
- Thomasin Grim indicated that more money may be needed for the IRWMP plan update, potentially as a grant-reimbursable expense to contributors, and is concerned that

MMWD will be caught in a cash flow bind if the functional areas are not able to meet their stated contributions or have capacity for additional contributions beyond the \$183K.

#### Other Comments on IRWMP Financing

- Need to revisit funding framework
- Can financing of the IRWMP and supporting activities be included as a line item in the Work Plan to figure out how to integrate the four functional areas and develop a financial system to figure out cost sharing?
- Development and evaluation of cost-sharing approaches: e.g. cost-sharing based on population, or tiers based on range of operating budgets. It may be helpful as a first step to put together a list of the organizations that are involved, and include operating budgets for those particular functions.
- Carol Mahoney outlined proposals for cost-sharing:
  - All variable – assumed that all 10 agencies would be paying. 60% for larger agencies, 30% for medium agencies and 10% for smaller agencies of what the variable costs would be.
  - Fixed costs – every year, e.g. put \$2K in the budget for BAFPAA, second layer of variable costs (e.g. addition \$250 for smaller agencies, and \$7K for larger agencies).
- Check with the Roundtable of Regions on how other IRWMPs are structuring their financing.
- Brian Campbell outlined how BACWA approaches cost-sharing. BACWA has five principal agencies of approximately equal size that contribute equally, with other agencies that contributing some as well. When it comes to voting on the budget, it's only the 5 principal members.
- Jack Betourne expressed that a structured method of looking at contributions would be preferred by BASMAA.
- Paul Helliker questioned whether it is worth coming up with a complex financing structure for the IRWMP if it ends up being a small amount like \$8K per year for future CC support activities.
- Thomasin Grim noted that providing IRWMP support with staff time solely may be more in line with the budget constraints that the CC is facing.
- Chris Choo suggested that perhaps the regional groups should be formed and brought in to contribute their time. Jennifer Krebs supported the idea and indicated that the CC needs to think about regional projects.
- Matt Gerhart suggested that there be some sort of budget analysis for the next meeting, only thinking of what we spent to date as a starting point for budgeting in the future.

#### **6. Next Steps**

- Paul Helliker outlined the following actions for the future:
  - Scoping RFP
  - Selecting the consultant
  - Paul also pointed out that the budget for consultant support for CC meetings will probably be maxed out soon, assuming 2 hours of meeting support per month.
- Carl Morrison indicated that there is a need to start thinking about the projects that are desired to be developed to include in the Plan update, and to start engaging sub-regional stakeholders.

## **7. Announcements**

- Gary Lippner provided details on the DWR conference that will be held on May 24-25 on “Integrated Regional Water Management: Working Together for California’s Water Future”. Details are provided in the attached flyer.
- California Water Plan – public advisory meeting (e-news website). Webinar publicly available for first time on the website. Meeting will discuss State financial plan – better financing of water projects. Next Plan update scheduled for 2013. See attached flyer for details.
- Regional Water Forums – conducted by DWR. Pulling together other departments (e.g. flood, water use and efficiency) for collaboration on Water Plan activities in the future. The Bay Area Regional Water Forum will be the first region. Design teams will be meeting in the next 4-6 weeks and the first forum will be held in May or June. Products coming out from the Regional Water Forum will include a regional report and the CA Water Plan update.
- Mitch Avalon is retiring from County service at the end of March, but will still work on contract with the County for about 6 months.

## **8. Agenda Items for next CC meeting**

The next CC meeting will be held on April 25, 2011, from 1 – 3 pm.

- Scope of work for Planning Grant contract
- Budget review and upcoming expenses
- DWR Award Letter on the Planning Grant
- Update on the Prop 84 Implementation Grant proposal