San Francisco Bay Area Regional Priority Projects and Programs
Attachment 3 - Work Plan Introduction

1 Introduction

The San Francisco Bay Area has a long history of regional cooperation in water resources management. In 2004, with the advent of State bond measures aimed at promoting a new model of integrated regional water management throughout California, Bay Area water, wastewater, flood protection and stormwater management agencies; cities and counties represented by the Association of Bay Area Governments; and watershed management interests represented by the State Coastal Conservancy and non-governmental environmental organizations signed a Letter of Mutual Understandings (LOMU), detailing their intent to develop the San Francisco Bay Area IRWM Plan for the nine-county Bay Area.

Given the large geographic scope of the Bay Area region (all or parts of nine counties with over six million people) and the wide range of water management strategies being implemented, original development of the IRWM Plan was approached as a two-step process.

Four water management service areas (also known as Functional Areas) were established for the region: Water Supply and Water Quality, Wastewater and Recycled Water, Flood Protection and Stormwater Management, and Watershed Management and Habitat Protection and Restoration. Each of these four Functional Areas developed a comprehensive "Functional Area Document" in order to identify specific needs and challenges relating to the specific Functional Area, describe water management strategies and approaches to address these needs, and develop an initial list of potential strategies and implementation projects that would maximize benefits and enhance opportunities for regional cooperation within a given Functional Area. Next, the four Functional Area Documents were integrated, culminating in the development of the ***San Francisco Bay Area Integrated Regional Water Management Plan (IRWMP)***, which was adopted in December 2006. The San Francisco Bay Area Regional Water Management Group is governed by the San Francisco Bay Area IRWMP Coordinating Committee (CC), and the San Francisco Bay Area region received DWR approval under the 2009 Region Acceptance Process (RAP). Through the IRWMP effort, the CC and participating entities established priorities for regional

implementation through a collaborative planning process.[1] The CC has used this process to identify projects for implementation, taking into consideration the evolving needs of the region, which include the need to increase water supply reliability to adapt to potential long-term drought conditions and other climate change impacts, address the decline in water quality and biological resources in the Bay, reduce the impacts of stormwater and flood runoff pollution, which particularly impact Disadvantaged Communities in the Bay area , and enhance and restore natural ecosystems that can be integrated into water supply and flood management systems to build up their adaptive capacity to new stressors and uncertainties brought by climate change.

Through this collaborative process, the Bay Area IRWM Coordinating Committee (CC) has identified five high priority regional programs for implementation and inclusion in this Proposal:

1. Regional Recycled Water Program
2. Regional Water Conservation Program
3. Wetland Ecosystem Restoration Program
4. Regional Green Infrastructure Capacity Building Program
5. Integrated Water Quality Improvement, Flood Management and Ecosystem Restoration in Bay Area Disadvantaged Communities

Each of these programs incorporates multiple water management elements. Together, these programs incorporate a wide range of water management elements, and address all of the regional objectives set forth in the San Francisco Bay Area IRWMP. These programs together comprise the San Francisco Bay Area Integrated Regional Water Management Proposition 84 Implementation Grant Proposal.

1.1 Critical Water Management Challenges and Issues

The Bay Area region is defined by the jurisdiction of the San Francisco Bay Regional Water Quality Control Board (Region 2). This region, defined by the State as one of California's nine major hydrologic regions, includes all or major portions of the nine counties which surround the San Francisco Bay (Bay). The Bay is an important component of the largest estuary on the west coast, the Sacramento-San Joaquin Delta (CALFED Bay-Delta). The San Francisco Bay Hydrologic Region (Bay Area) has a strong regional identity and is a significant area of great ecological, cultural and socio-economic diversity. Although diverse and encompassing a large geographic scope, many of the critical issues and concerns are consistent throughout the Bay Area region and are listed as follows.

Water Supply Challenges

Water agencies throughout the region face a variety of challenges threatening their ability to provide an adequate supply to meet the needs of their customers. Water supply challenges facing the region include the following:

Threats to Baseline Supplies – Delta supplies are threatened by regulatory constraints on Delta exports, risk of catastrophic failure, and local facilities operations (e.g. fish flows, temperature requirements, diversions, dam safety). Surface water supplies are threatened by reductions in local yield and/or carryover storage due to seismic concerns and sedimentation, as well as the use of water to meet regulatory requirements (i.e. environmental requirements). Groundwater supplies are threatened by actual and potential pollution and overdraft.

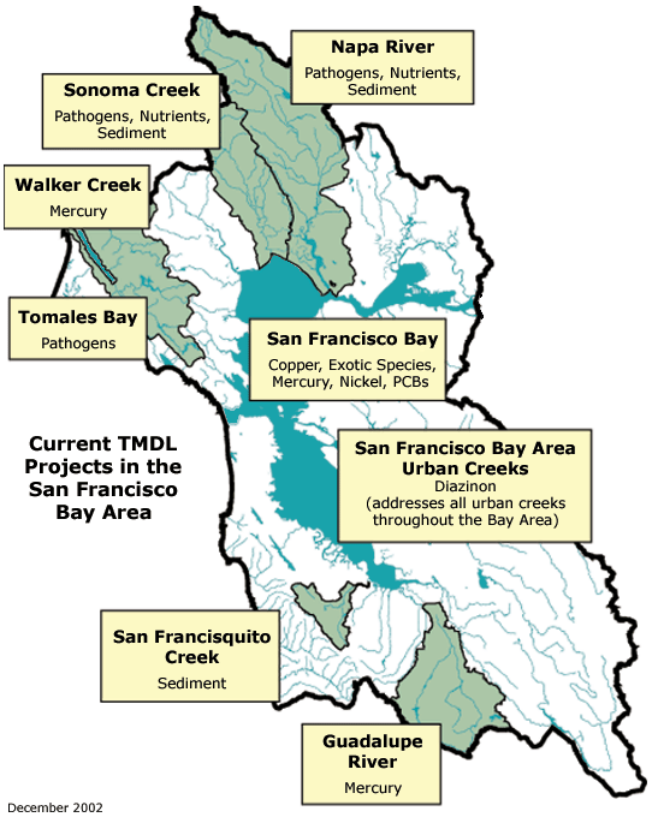
[1] Bay Area Integrated Regional Water Management Plan, December 2006. Section F. Regional Priorities.

Increasing Demands – The Association of Bay Area Governments (ABAG) projects that the population will increase approximately 25% from 7.34 million in 2010 to 9.07 million in 2035. Even though the Bay Area has made significant gains in reducing per capita water use through conservation measures, many agencies predict a shortfall in meeting future demands with their current water supply portfolios, especially in dry years.

Hydrologic Variations – Many sources of supply for the Bay Area are limited in dry years. The Bay Area is potentially subject to reductions in supplies from the State Water Project, Central Valley Project, Tuolumne and Mokelumne Rivers and local supplies in the event of a multi-year drought similar to that of 1987-1992 and the drought conditions experienced Statewide from 2007 to 2009.

Water Quality Challenges

The Bay Area region's immediate watershed is highly urbanized, resulting in contaminant loads from both point and nonpoint sources, as well as pollutants from the Delta and the Central Valley. The San Francisco Bay is listed on the 303(d) list as an impaired water body due to high levels of legacy pollutants such as mercury and PCBs. Mercury and PCBs are known to bio-accumulate in the Bay food web. The figure below (Source: RWQCB Region 2, 2002) shows the current Total Maximum Daily Loads (TMDLs) in the Bay Area.



Decline in Quantity and Quality of Biological Resources in the Bay – San Francisco Bay is considered one of the most highly invaded estuaries in the world. There are fewer fish and other aquatic and riparian species; native species are on the decline, and some species have significant levels of contamination, which has led to health advisories for human consumption and adverse effects on species health and reproduction.[2]

Runoff Pollution and Hydromodification – The water quality of many water bodies in the Bay Area continues to be degraded from pollutants discharged from the cumulative impact of multiple point sources such as urban runoff. Urban runoff is a significant source of toxic pollutants such as mercury, PCBs, copper, nickel and pesticides, and is one of the largest pathways through which these pollutants enter San Francisco Bay. In addition, many of the region's creeks have been channelized, culverted, or otherwise geomorphically altered, which has had adverse impacts on aquatic and riparian habitats, sediment transfer and hydrology.

Source Water Quality Variations – Drinking water sources range from the high quality Hetch Hetchy and Mokelumne River supplies and local surface and groundwater to variable-quality Delta water. Utilities that depend on the Delta for all or part of their domestic water supplies meet the current drinking

[2] California Water Plan Update, 2009.

water standards, although they remain concerned about issues such as microbial contamination, salinity and organic carbon. Delta water constitutes about one-third of the domestic water in the Bay Area.

Flooding Impacts on Water Quality – Floodwaters in urban areas pick up contaminants from streets, industrial areas, service stations, wastewater transmission lines, and many other sources. This toxic, urban "soup" can spread highly contaminated, toxic waters over large areas, destroying homes, furniture, retail spaces, and landscaping, and possibly sickening people and pets that come into contact with it. Many of the low-lying flood-prone areas in the Bay Area are also Disadvantaged Communities, and they lack resources to effectively prevent flooding in these areas.

Environmental and Watershed Challenges

The Bay Area is composed of unique and varied ecosystems, from the tidal wetlands along the Bayshore to the wooded headlands that drain the Coastal Range. These ecosystems are home to important and endangered plants and animals – there are about 500 species of fish and wildlife in the Bay Area region and 105 wildlife species are designated by State and federal agencies as threatened or endangered. The most important habitats of concern around the shore of the Bay are deep and shallow bay channel environments, tidal baylands, and diked baylands.

Decline in the Bay's Wetlands – More than 90 percent of the Bay's historical wetlands have been lost or altered through a variety of land use changes around the Bay, including filling for urban and industrial uses and the construction of dikes for agricultural uses.

Barriers to Recovery of Special Status Fish – Special status fish, including steelhead, coho salmon, and Chinook salmon, were historically abundant in Bay Area streams. Though the Bay Area historically served as an important estuary for anadromous fish, land use changes, channel alterations, and construction of dams, dikes and weirs have severely limited current fish populations.

Flood Protection Challenges

Flooding in the Bay Area is caused primarily by intense rainstorms; the steep terrain results in floods that are intense and of short duration. The greatest flood damage occurs in low-gradient lower reaches as channels overflow and floodwaters spread through low-lying urban neighborhoods.

Vulnerability of Disadvantaged Communities in Low-Lying Areas Prone to Flooding – Although many portions of the Bay shoreline are protected from development or are in the process of restoration, there is significant ongoing development on the Bay-ward side of the freeways ringing the Bay. The Bay is subjected to El Niño episodes, which bring about a dangerous combination of severe storms and heightened water levels, resulting in tidal flooding impacts. Minority and disadvantaged communities are often located in these low-lying flood-prone areas, and are much more vulnerable than other areas to the impacts of flooding due to the lack of financial and information to address flood management, including early warning resources.

Climate Change Challenges

Climate change is projected to present water resource management challenges to the Bay Area. Many climate models predict warming and increased precipitation variability over the entire Sierra Nevada, which would result in reduced snow accumulation, earlier and quicker snowmelt, and would affect water supplies for the Bay Area region.[3] One of the most direct effects on water supplies will be the need for more storage to compensate for the reduction in "snow pack storage" in the sierra or equivalent dry-

[3] Department of Water Resources. 2009. California Water Plan Update 2009, San Francisco Bay Regional Report.

season/dry-year supply strategies. Another effect of the projected climate warming is mean sea level rise. California's coastal observations and global model projects indicate that California's open coast and estuaries will experience increasing sea and bay levels during the next century. The 2006 California Climate Action Team Report projects that global sea level will rise between 4 to 33 inches by the year 2100. Mapping studies by the Bay Conservation and Development Commission (BCDC) indicate that a one-meter rise in the level of the San Francisco Bay could flood more than 200 square miles of land around its perimeter.

2 Goals and Objectives

This Proposal will achieve the following key goals and objectives:

1. Advance the regional goals and objectives of the IRWM Plan and implement projects collectively identified as regional priorities by the Bay Area IRWM Coordinating Committee.
2. Contribute to sustainable water supply and reliability, address water quality issues, and promote integrated flood management in the Bay Area region
3. Identify and address critical water management needs, including water quality improvement, of disadvantaged communities (DACs) in the Bay Area.
4. Support balanced implementation of the IRWM Plan and integration of projects within the region.
5. Contribute towards implementation of Climate Change adaptation strategies, especially by providing more dry-season/dry-year water supply.

Goal 1: Advance the IRWM Plan Regional Goals and Objectives and Further Regional Priorities

The programs included in this Proposal were identified through collaborative decision-making by the participating entities and the Bay Area IRWM Coordinating Committee. The programs were selected for inclusion in this Proposal due to their ability to assist the Region in making significant progress towards achieving the regional goals and objectives. The following table lists the programs that will serve the objectives to meet the six regional goals established in the IRWM Plan.

Project Key

P1: Regional Recycled Water Program

P2: Regional Water Conservation Program

P3: Wetland Ecosystem Restoration Program

P4: Regional Green Infrastructure Capacity Building Program

P5: Integrated Water Quality Improvement, Flood Management and Ecosystem Restoration in Bay Area Disadvantaged Communities

Table 1: Regional Goals and Objectives in IRWM Plan met by Proposal

Regional Goal	Objectives	P1	P2	P3	P4	P5
Contribute to the promotion of economic, social, and environmental sustainability	Maximizing external support and partnerships	●	●	●	●	●
	Providing trails and recreation opportunities			●	○	
	Increasing community outreach and education for watershed health; Maximizing community involvement and stewardship				●	●
	Engaging public agencies, businesses, and the public in stormwater pollution prevention and watershed management				●	●
	Achieving community awareness of local flood risks; Considering and addressing disproportionate community impacts					●
Contribute to improved supply reliability	Meeting future and dry year demands	●	●		●	
	Maximizing water use efficiency		●		○	
	Maximizing control within the Bay Area region	●	●		○	
	Increasing opportunities for recycled water use consistent with health and safety; Maintain a diverse portfolio of water supplies to maximize flexibility	●				
Contribute to the protection and improvement of hydrologic function	Protecting, restoring, and rehabilitating natural watershed processes			●	○	●
	Preserving land perviousness and infiltration capacity			●	●	
Contribute to the protection and improvement of the quality of water resources	Preserving natural stream buffers and floodplains to improve filtration of point and non-point source pollutants			●		●
	Reducing pollutants in runoff; Continuously improving stormwater pollution prevention methods				●	
Contribute to the protection of public health, safety and property	Advancing technology through feasibility studies/demonstrations				●	●
	Minimizing health impacts associated with polluted waterways					●
	Achieving effective floodplain management by encouraging wise use and management of flood-prone areas			●		○
Contribute to the creation, protection, enhancement, and maintenance of environmental resources and habitats	Conserving and restoring habitat for species protection; Acquiring, protecting and/or restoring wetlands, streams, and riparian areas			●		●
	Improving structural complexity (riparian and channel)			●		●
	Designing and constructing natural flood protection and stormwater facilities				●	○

Key:
● - Program fully addresses objective
○ - Program partially addresses objective

Goal 2: Contribute to sustainable water supply and reliability, address water quality issues and promote integrated flood management in the Bay Area region

Water Supply Benefits

Most of the Bay Area water agencies rely upon surface water from the Delta or Sierra Nevada, upstream of the delta, to meet demands. Over 70% of the Bay Area water supply comes from the statutory Delta. ACWD, BAWSCA Members, CCWD, City of Napa, SCVWD, Solano CWA, and Zone 7 all rely on Delta supplies as part of their water supply portfolio. Thus, Bay Area agencies are committed to implementing programs that will reduce demands on the Delta and also reduce conflicts from competing uses by leaving additional water in the Delta for environmental and other purposes.

Implementing the programs in this proposal will assist the region in developing a sustainable water supply and increasing water supply reliability. The ***Regional Recycled Water Program***, which consists of ten recycled water projects throughout the Bay Area region will improve supply reliability for the region significantly by replacing 3,210 AFY of potable water supplies with a drought-proof supply. The ***Regional Water Conservation Program***, which will be implemented by 12 participating agencies Bay Area-wide is anticipated to reduce potable water demand by approximately 2,500 AF annually and between 26,000 AF to 32,000 AF over the life of the program through the implementation of water-efficiency incentive and educational programs. By reducing demand through conservation, Bay Area agencies can optimize use of existing supplies, and reduce the need for development of new supplies, as well as reduce existing demands on the Delta. The ***Regional Green Infrastructure Capacity Building Program*** involves implementing a rainwater harvesting program in Napa County that will convert wine and other barrels to home rain barrels to capture and store stormwater for reuse, therefore reducing the demand on potable supplies.

Water Quality Benefits

Several of the programs included in the Proposal provide benefits to the key water quality challenges highlighted in Section 1.1. The ***Regional Green Infrastructure Capacity Building Program*** involves implementing an improved approach to manage stormwater by treating stormwater at the source using low impact development design features, reducing pollutant loading into urban stormwater runoff. This project will also reduce the amount of impervious area and allow for increased infiltration of runoff, thereby improving water quality. The ***Wetlands Ecosystem Restoration Program*** will restore degraded tidal wetlands on the bay shoreline of three counties which will help to filter pollutants from fresh and saltwater and reduce pollutant and nutrient loading to the San Francisco Bay. The ***Integrated Water Quality Improvement, Flood Management and Ecosystem Restoration in Bay Area DACs Program*** will help assist local agencies to better serve low-lying, disadvantaged and underserved communities in ways that will reduce the water pollution hazards associated with the inundation of communities by storm and floodwaters. The Regional Water Conservation Program utilizes Bay-Friendly landscaping and gardening principles, which avoid the use of herbicides and reduce the need for synthetic fertilizers, thereby reducing pollutant and nutrient loading to urban creeks and the San Francisco Bay.

Flood Protection Benefits

Flood protection benefits will also be achieved through implementation of this Proposal. Restoration of tidal wetlands in the ***Wetlands Ecosystem Restoration Program*** will attenuate local storm surges and maintain or improve drainage in adjacent creeks and sloughs, without inducing erosion. The ***Integrated Water Quality Improvement, Flood Management and Ecosystem Restoration in Bay Area Disadvantaged Communities Program*** will:

1. Develop a design tool to guide stream channel and floodplain restoration for flood protection, applicable to different regions of the Bay based on surveys in DAC areas.
2. Conduct a detailed assessment of flood and stormwater infrastructure in an at-risk, disadvantaged area to demonstrate the methodologies that can be effectively implemented to identify infrastructure deficiencies in DACs
3. Develop an integrated flood reduction plan for the Pescadero Watershed.

Goal 3: Identify and address critical water management needs of disadvantaged communities (DACs) in the Bay Area

In addition to addressing the critical need of improved water supply reliability for the region, this Proposal will provide specific, targeted benefits to disadvantaged communities (DACs) in the Region. There are disadvantaged communities located in North Richmond, East Palo Alto, Bay Point and Pescadero. These neighborhoods are located in low-lying, floodprone areas and have been highly vulnerable to stormwater, flood damages and pollution, due to the lack of resources. The ***Integrated Water Quality Improvement, Flood Management and Ecosystem Restoration in Bay Area DACs Program*** will help to provide relief to these DACs from polluted flood and stormwaters in their streets, business districts, and homes. This program presents an integrated flood management strategy that will provide multiple benefits to the communities through:

1. The implementation of stream restoration projects conducted through disadvantaged schools
2. Development of restoration design guidance
3. The development of flood maps, which will link information from federal and State sources with localized information about flooding and stormwater systems

The solution to abating the effects of climate change on water quality from increased flood water inundation of low-lying or flood prone areas requires a multi-objective approach for successful implementation. This program is a necessary first step in meeting the needs of the identified Bay Area DACs to address the critical water quality issue of polluted flood water impacts. The integrated strategy takes into account the various needs of the watershed as a whole, including the community, riparian habitat, flood infrastructure, and fisheries.

Goal 4: Support balanced implementation of the IRWM Plan and integration of projects within the region

The programs included in this Proposal were selected and ranked based on the projects assessment criteria developed in the IRWM Plan, ensuring that the projects/programs meet the IRWM Plan goals and objectives as highlighted above. In addition, to support balanced implementation of the IRWM Plan and integration of projects within the region, the following criteria were applied in the development of the Proposal:

- **Regionalism** – the participating entities recognized the importance of highlighting projects that are broad in geographic scope and developed five regional programs in this Proposal based on regional plans or synergistic efforts. For example, the ***Regional Water Conservation Program*** will integrate resources from twelve Bay Area agencies to optimize the effectiveness of the program throughout the region to achieve maximum regional benefit through greater coordination. The program also builds on regional water conservation initiatives supported by Proposition 50 IRWM funding. The ***Regional Recycled Water Program,*** which includes ten recycled water projects around the Bay Area region, advances the efforts of two previous regional

water recycling plans, the Bay Area Regional Water Recycling Program (BARWRP)[4] and the North Bay Water Reuse Program.[5] The ***Wetlands Ecosystem Restoration Program*** is based on the recommendations of the Baylands Ecosystem Habitat Goals Report[6], and subsequent regional efforts.

- **Partnerships** – as an integrated planning effort, the programs in this Proposal involve multiple partners as outlined above for the recycling and conservation programs. The ***Wetlands Ecosystem Restoration Program*** is a collaboration among State and federal agencies, and non-profit and land trust organizations. The ***Regional Green Infrastructure Capacity Building Program*** is collaboration among Bay Area regional entities (San Francisco Estuary Partnership, SFEP and San Francisco Estuary Institute, SFEI, and cities and counties in the Bay Area. The ***Integrated Water Quality Improvement, Flood Management and Ecosystem Restoration in Bay Area DACs Program*** is a collaboration among multiple Bay Area regional entities (SFEP, SFEI, the Bay Institute, Center for Ecosystem Management and Restoration), San Mateo Resource Conservation District, and local non-profit organizations and stakeholders in disadvantaged communities.

- **Meets Objectives of Multiple Functional Areas** – in an effort to identify projects that are truly integrated across functional areas (Water Supply and Water Quality; Wastewater and Recycled Water; Flood Protection and Stormwater Management; Watershed Management, Habitat Protection and Restoration), programs included in this Proposal meet objectives of multiple functional areas and provide multi-benefits. For example, the ***Regional Green Infrastructure Capacity Building Program*** is based on a concept developed in the IRWM Plan that includes multi-objective pilot evaluation projects. This program emphasizes the integration of multiple water management strategies such as stormwater retention and infiltration, rainwater harvesting and groundwater recharge to achieve multiple benefits. The ***Integrated Water Quality Improvement, Flood Management and Ecosystem Restoration in Bay Area DACs Program*** will address issues of water quality, flood protection and stormwater management, and habitat and fisheries protection through a multi-stakeholder approach to working with local DAC communities and municipalities.

- **Maintain stakeholder engagement** – in order to maintain and improve stakeholder engagement in the region through the IRWM Planning process, the programs included in this Proposal have a broad group of involvement and breadth of participants ranging from agencies in the functional areas, to subregional groups (e.g. local non-profit organizations, local governments and disadvantaged communities). The participants are listed in Table 2 in each individual Work Plan, and are also described in the tasks in the Work Plan.

Goal 5: Contribute towards implementation of Climate Change adaptation strategies

This Proposal helps the Bay Area region to advance towards implementation of Climate Change adaptation strategies highlighted in DWR's 2008 Report "Managing an Uncertain Future: Climate Change Adaptation Strategies for California's Water". The adaptation strategies used by each of the programs are highlighted below.

Aggressively Increase Water Use Efficiency

[4] Bay Area Regional Water Recycling Program, 1999.
[5] North Bay Water Recycling Program (http://www.nbwra.org/)
[6] Baylands Ecosystem Habitat Goals Report, 1999.

Using water efficiently is a foundational action for water management, one that serves to mitigate and adapt to climate change. The ***Regional Water Conservation Program*** will reduce water demand, wastewater discharges, as well as energy demand and greenhouse gas emissions. Efficient water use will help communities cope with water shortages that may result from climate change, thus reducing economic and environmental impacts of water shortages.

Adopt Model Water Efficient Landscape Ordinance

The *Water Efficient Landscape Education project* in the ***Regional Water Conservation Program*** will conduct Bay-Friendly trainings for landscape professionals around the Bay Area on the Model Water Efficient Landscape Ordinance. The ordinance provides guidance to local agencies in developing and adopting landscape ordinances leading to water savings, which will reduce water demand and water-related energy use.

Promote the Development and Use of Recycled Water

The ***Regional Recycled Water Program*** actively promotes the development and use of recycled water, which is a reliable, drought-proof supply for appropriate, cost-effective uses while protecting public health.

Practice and Promote Integrated Flood Management

Climate change will potentially increase the flood risk in the Bay Area by causing a shift toward more intense winter storms which could produce higher peak flows and is anticipated to raise Bay and sea water levels which will affect flooding in low lying areas. The ***Integrated Water Quality Improvement, Flood Management and Ecosystem Restoration in Bay Area Disadvantaged Communities Program*** will conduct a detailed assessment of flood and stormwater infrastructure in at-risk, disadvantaged areas to demonstrate the methodologies that can be effectively implemented to identify and infrastructure deficiencies in DACs, and will develop a model integrated flood reduction plan for the Pescadero Watershed and Bay Point area. This program promotes flood damage reduction and restoration while considering how climate change will impact fisheries and habitat, in addition to local neighborhoods. It also addresses the need to address both fishery management and flood management as an integrated approach rather than as an "either-or" conflict situation between human and natural resources.

Enhance and Sustain Ecosystems

Reliable water supplies and resilient flood protection depend upon ecosystem sustainability. Building adaptive capacity for both public safety and ecosystems requires that water and flood management projects maintain and enhance biological diversity and natural ecosystem processes. Water supply and flood management systems are significantly more sustainable and economical over time when they preserve, enhance and restore ecosystem functions, thereby creating integrated systems that suffer less damage from, and recover more quickly, after severe natural disruptions. Through the restoration of tidal wetlands along the Bay shoreline, the ***Wetland Ecosystem Restoration Program*** will facilitate the re-establishment of native aquatic and terrestrial habitats to support increased biodiversity and resilience for adapting to a changing climate. The ***Integrated Water Quality Improvement, Flood Management and Ecosystem Restoration in Bay Area Disadvantaged Communities Program*** will implement a stream restoration project, and develop a design tool to guide stream channel and floodplain restoration applicable to different regions of the Bay based on detailed surveys in DAC areas. By integrating these design tools with 'on-the-ground' fisheries information and the location of flood infrastructure, this program will better prepare the targeted DACs for addressing the negative water quality issues surrounding flood inundation and the degradation of ecosystems.

Integration with Land Use Policies that help Restore Natural Watershed Processes

The ***Regional Green Infrastructure Capacity Building Program*** promotes low-impact development that reduces water demand, captures and treats urban runoff, and stores and reuses stormwater, which increases water supply reliability. The program involves implementing projects that 'mimic' the natural processes in watersheds to increase infiltration, slow runoff, improve water quality and augment the natural storage of water. The ***Integrated Water Quality Improvement, Flood Management and Ecosystem Restoration in Bay Area Disadvantaged Communities Program*** will conduct a detailed assessment of flood and stormwater infrastructure in an at-risk, disadvantaged area to demonstrate the methodologies that can be effectively implemented to identify and infrastructure deficiencies in DACs as well as create design tools for stream channel and floodplain restoration while integrating the assessment of local fisheries. This program will assist local flood protection agencies in prioritizing flood infrastructure and restoration/habitat projects within the targeted watersheds.

Preserve, Upgrade and Increase Monitoring, Data Analysis and Management

There is currently insufficient monitoring of the populations of the federal endangered central California coast coho salmon and the steelhead trout, which serve as important indicators of watershed health. Maintaining a healthy watershed will increase the resilience of the ecosystem to climate change impacts, and build up its adaptive capacity. The ***Integrated Water Quality Improvement, Flood Management and Ecosystem Restoration in Bay Area Disadvantaged Communities Program*** will implement a regional steelhead trout monitoring program for watersheds tributary to the San Francisco Estuary, and a coho salmon monitoring program in the Pescadero Creek watershed. Information developed through the program will achieve multiple objectives including improving consistency between water supply operations and stream management, producing an indicator of watershed health, and informing the development of stream restoration activities.

Plan for and Adapt to Sea Level Rise

Rising sea level now threatens to submerge and destroy additional tidal wetlands in the Bay Area, which in turn will exacerbate climate change by reducing the capacity for carbon sequestration. The re-establishment of wetlands may prove the best approach to partially mitigate future sea level rise. The ***Wetlands Ecosystem Restoration Program*** is engineered with a variety of strategies to prolong functioning in the face of sea level rise. In addition, the Sears Point project in the Program offers a rare opportunity to allow wetland transgression (inland migration) as sea level rises. The ***Integrated Water Quality Improvement, Flood Management and Ecosystem Restoration in Bay Area Disadvantaged Communities Program*** will conduct a detailed assessment of flood and stormwater infrastructure in low-lying or flood prone areas. The impacts of sea level rise on these low-lying areas will need to be integrated into future planning of the local flood protection agencies and other watershed groups to address not only flooding issues, but also the impacts of sea level rise on habitat and fisheries. By identifying infrastructure needs and habitat/fisheries patterns, flood agencies and local watershed groups can better plan for sea level rise in the targeted watersheds.

3 Purpose and Need

The purpose of this Proposal is to develop and implement regional projects and programs that will further the regional goals and objectives the IRWM Plan. This Proposal is needed for the Bay Area region now because the projects/programs to be implemented are part of key resource management strategies that were identified in the IRWM Plan, as well as in regional workshops, to address the critical water management challenges in the Region. Therefore, it is critical that the programs in this Proposal are implemented now to avoid potential negative impacts associated with delay or worse, non-implementation. These negative impacts may include:

- **Failure to meet 20x2020 Conservation Objectives**. The ***Regional Water Conservation Program*** and ***Regional Recycled Water Program*** are needed in order to help the Bay Area agencies work toward achieving the 20% reduction in per capita water consumption by 2020. Failure to implement this Program could jeopardize the Region's ability to meet this requirement.
- **Permanent loss of tidal wetlands habitat in the San Francisco Bay**. Approximately 90% of the tidal wetlands that once ringed the San Francisco Bay and were an essential component of the Bay and Delta ecosystems have been lost to diking and filling for agriculture, industrial and urban development. The ***Wetlands Ecosystem Restoration Program*** is needed to re-establish contiguous habitat and movement corridors for plant and animal species related to tidal wetlands ecosystems. Each year failure to implement this programs like this one could result in greater loss of tidal wetland acreage and functions, reductions in habitat for flora and fauna, exposure of the shoreline to erosion and flooding, and more nutrient and pollutant loading into the Bay from urban growth and development.
- **Local Water Supply Reliability Impacts**. The ***Regional Recycled Water Program*** and ***Regional Water Conservation Program*** are needed to improve supply reliability and to prevent near- and long-term water supply shortfalls, especially in areas that are dependent upon the Delta for its water supply, due to the uncertainty associated with the availability (quantity and timing) of extracting drinking water supply from the Delta. ACWD, BAWSCA Members, CCWD, City of Napa, SCVWD, Solano CWA, and Zone 7 all rely on Delta supplies as part of their water supply portfolio.
- **Degradation of Groundwater Supplies from Overpumping**. The ***Regional Recycled Water Program*** is needed to offset the use of groundwater and reduce further degradation of groundwater supplies, which are currently heavily pumped for agricultural and limited municipal uses and in some localities, have marginal quality.
- **Declining Water Quality in Waterways due to Hydromodification Impacts**. Without the ***Regional Green Infrastructure Capacity Building Project***, important regional demonstration projects will not be built now and urban runoff carrying pollutants from impervious surfaces will continue to flow into creeks and waterways, impacting water quality. Opportunities would also be lost to regionalize low impact development water quality management techniques.
- **Impacts to Disadvantaged Communities**. Without the ***Integrated Water Quality Improvement, Flood Management and Ecosystem Restoration in Bay Area Disadvantaged Communities Program***, disadvantaged Bay Area communities will continue to suffer the impacts of polluted flood and stormwater inundating their streets, businesses and homes, along with the public health implications associated with the degraded water quality of flood waters in urbanized areas. These communities are at a disadvantage to address climate change and sea level rise without having the critical planning and design that are afforded to wealthier communities.

4 Consistency with Basin Plan

The San Francisco Bay Area IRWM Region is coterminous with RWQCB's Region 2. This Proposal is consistent with the Basin Plan for the San Francisco Bay Basin (Region 2). The Basin Plan identifies water quality objectives for water bodies within its respective region, and lists the following beneficial uses for the San Francisco Bay:

- Agricultural Supply – Irrigation and Stock Watering (Existing)
- Areas of Special Biological Significance
- Freshwater Habitat – Cold and Warm
- Ocean, Commercial and Sport Fishing
- Estuarine Habitat
- Freshwater Replenishment
- Groundwater Recharge
- Industrial Supply – Process and Service Supply
- Marine Habitat
- Fish Migration
- Municipal and Domestic Supply (Existing)
- Navigation
- Preservation of Rare and Endangered Species
- Recreation - Contact and Other Non-Contact
- Shellfish Harvesting
- Fish Spawning
- Migration – Warm and Cold
- Wildlife Habitat

The Basin Plan also designates wildlife habitat, preservation of rare and endangered species, marine habitat, fish migration, fish spawning and estuarine habitat as beneficial uses for wetlands, which is compatible with the objectives of the ***Regional Wetland Ecosystem Restoration Program***. In addition, the Water Board has participated in completing the Baylands Ecosystem Habitat Goals Report (1999), which is one of the foundational studies contributing to the objectives of the ***Regional Wetland Ecosystem Restoration Program***.

As mentioned in Section 2, one of the goals of this Proposal is to improve the quality of receiving waters. All of the programs in the San Francisco Bay that benefit ambient or receiving water quality provide benefit to water quality in Region 2, and are therefore consistent with this Basin Plan. Specific water quality objectives for surface waters in the Region 2 Basin Plan include the following:

- Bacteria
- Bioaccumulation
- Biostimulatory Substances
- Color
- Dissolved Oxygen
- Floating Material
- Oil and Grease
- pH
- Radioactivity
- Salinity
- Sediment
- Settleable Material
- Suspended Material
- Sulfide
- Tastes and Odors
- Temperature
- Toxicity
- Turbidity
- Un-ionized ammonia[1]

Several of the programs included in this Proposal will reduce the loading and/or concentrations of these parameters in the San Francisco Bay, as follows:

The Regional Recycled Water Project will increase the use of recycled water in the Bay Area Region, reducing wastewater discharges, and corresponding pollutant loading reductions. It is anticipated to decrease the loading of bioaccumulative substances, biostimulatory substances, salinity, suspended material, and ammonia into receiving waters. It may also contribute to increased dissolved oxygen and decreased turbidity.

The Regional Water Conservation Program will reduce water demands for agencies that derive their supplies from the Delta, and as a result, may leave additional supplies for the Delta for increased dilution

of pollutants. Therefore, this project would be expected to contribute to a reduction in concentration of the contaminants listed, which is certainly consistent with the Basin Plan.

The Wetlands Ecosystem Restoration Program will implement restoration of tidal wetlands located along the shoreline of the San Francisco Bay. The restoration of tidal wetlands will help filter pollutants from point and non-point sources and increase tidal flushing and circulation, thus improving overall Bay water quality which is consistent with the water quality objectives in the Basin Plan.

The Regional Green Infrastructure Capacity Building Project will slow and reduce peak stormwater flows, reduce urban runoff into creeks and waterways, and filter and improve stormwater quality. Therefore, it is anticipated that the project will decrease pollutant loading into receiving waters, which may include floating material, oil and grease, sediment, toxic materials and is consistent with the water quality objectives of the Basin Plan.

The Integrated Water Quality Improvement, Flood Management and Ecosystem Restoration in Bay Area Disadvantaged Communities Project addresses the following objectives of The Basin Plan: Freshwater habitat, Fish migration, Fish spawning, Wildlife habitat, Preservation of rare and endangered species, and Improvement of the quality of receiving waters. This program assesses coho salmon and steelhead trout in local watersheds as well as performs stream restoration through disadvantaged schools. Detailed assessments of flood and stormwater infrastructure in low-lying or flood prone areas of disadvantaged communities seeks to identify areas where poor water quality may be impacting the streams and the Bay during high-flow storm events. This project will lead to reduced flooding in highly contaminated areas adjacent to San Francisco Bay, thus reducing pollutant inputs of toxic materials, which may include floating materials, oil and grease, heavy metals, bacteria and other settleable and suspended materials associated with stormwater runoff and flooding of contaminated land areas. The portions of the project related to development of regional curves for stream restoration projects will contribute to the Regional Board's Stream and River Protection Circular guidance document and to the Stream and Wetland Systems Protection Policy (in progress and expected to be adopted as a Basin Plan Amendment in 2011-12); restoration activities will contribute to sediment reduction (including the two TMDL watersheds of San Francisquito Creek and Pescadero Creek); and smolt trapping will provide key information for development of sediment TMDL implementation measures. All of these project outcomes will directly contribute to improving water quality in the Bay and streams and will be consistent with the Regional Board's Basin Plan.

5 Project List

The table below provides an abstract of each of the programs included within this Proposal and identifies the implementing agencies and the current status. Individual program Work Plans are located after the Introduction.

1. Bay Area Regional Recycled Water Program
Lead Agencies: **Central Contra Costa Sanitary District (CCCSD)** **Dublin San Ramon Services District (DSRSD)** **East Bay Municipal Utility District (EBMUD)** **Marin Municipal Water District (MMWD)** **Las Gallinas Valley Sanitary District (LGVSD)** **North Bay Water Reuse Authority (NBWRA)** **North Marin Water District (NMWD)** **Sonoma Valley County Sanitation District (SVCSD)** **Napa Sanitation District (NSD)** **San Francisco Public Utilities Commission (SFPUC)** **Santa Clara Valley Water District (SCVWD)** **South Bay Water Recycling - City of San Jose**
Abstract: This Program consists of ten recycled water projects located throughout the Bay Area region. The total recycled water project yield from the Program is approximately 3,210 AFY. The Program will generally increase utilization of recycled water for non-potable water demands, and will improve water supply reliability for the region through the creation of a drought-proof supply that can offset use of potable water supplies for non-potable demands. The Program will also benefit the Delta and other watersheds by reducing dependence on those supplies and lessening pressure of competing demands on a limited resource. The Program will help to advance the reduction of potable water demand from the Bay-Delta, Central Valley Project (CVP) and State Water Project (SWP). The implementation of this Program may also support several beneficial water uses as defined by the San Francisco Bay Basin Plan including, but not limited to: industrial service supply, and municipal (irrigation) water supply. In addition, the Program will contribute to improved water quality of the San Francisco Bay through the reduction of the volume of wastewater discharge. The Program may also lead to the reduction of energy consumption and carbon footprint by using locally available recycled water supplies to reduce pumping and import of supplies from the Bay-Delta.
Status: The projects are in various stages of completion of planning and design. Pending funding assistance, most projects are ready to begin construction in mid- to end- of 2011 and complete construction by 2013. Please refer to the Work Plan for the Regional Recycled Water Program for specific project details.

2. Bay Area Regional Water Conservation Program

Lead and Partner Agencies:

Solano County Water Agency (Solano)
Alameda County Water District (ACWD)
Bay Area Water Supply & Conservation Agency (BAWSCA)
City of Napa (Napa)
Contra Costa Water District (CCWD)
East Bay Municipal Utility District (EBMUD)
Marin Municipal Water District (MMWD)
San Francisco Public Utility District (SFPUC)
Santa Clara Valley Water District (SCVWD)
Sonoma County Water Agency (SCWA)
StopWaste.org and the Bay-Friendly Landscape and Gardening Coalition (Bay-Friendly)
Zone 7 Water Agency (Zone 7)

Abstract:

The proposed Regional Water Conservation Program will leverage and expand the implementation of existing water conservation education and consumer incentive programs and build on regional water conservation initiatives supported by Proposition 50 IRWM funding. The Program includes a suite of program elements that promote high-efficiency technologies and best water conservation practices to improve indoor and outdoor water use efficiency throughout the San Francisco Bay Area. Five specific program elements are proposed that will provide quantifiable and sustainable water savings including: 1) High-Efficiency Toilet and Urinal Direct Installation and Rebates, 2) High Efficiency-Washer Rebates, 3) Water-Efficient Landscape Education, 4) Water-Efficient Landscape Rebates, and 5) Weather-Based Irrigation Controller Rebates.

Combined, these program elements target significant indoor and outdoor end uses of water in residential, commercial, industrial and institutional sectors and are estimated to achieve approximately 26,000 to 32,000 acre feet of water savings over the life of the resulting water conservation measures. Beyond the life of the measures, implementation of the Program will influence and transform markets and standards towards higher efficiency and foster long-term "passive" water savings after implementation is complete.

Status: This Program is ready for implementation by October 1, 2011 pending receipt of grant funding. The Program is not considered a "project" under CEQA [CEQA Guideline 15378]. Please refer to the Work Plan for the Regional Water Conservation Program for specific project details.

3. Bay Area Wetland Ecosystem Restoration Program

Lead and Partner Agencies:

State Coastal Conservancy
California Department of Fish and Game
U.S. Fish and Wildlife Service
Sonoma Land Trust
City of Redwood City
Ducks Unlimited
San Francisco Public Utilities Commission
San Francisco Bay Trail
CA Wildlife Conservation Board
Santa Clara Valley Water District
Alameda County Public Works
Resources Legacy Fund
US Geological Survey
NOAA

Abstract:

The Bay Area Wetland Ecosystem Restoration Program (WERP) consists of a suite of restoration construction projects located on the bay shoreline of 3 counties. Each of the projects will carry out ecosystem restoration of degraded tidal wetlands and also address climate change response, flood management, protection and improvement of surface water quality, and will provide public recreation opportunities. Individually and collectively, the WERP projects will implement regional goals and objectives of the Bay Area IRWM Plan, the San Francisco Bay Comprehensive Conservation and Management Strategy, the Basin Plan, the Baylands Ecosystem Habitat Goals, the Tidal Wetland Recovery Plan of the U.S. Fish and Wildlife Service (USFWS), the San Francisco Bay Joint Venture Implementation Strategy and BCDC's Sea Level Rise Strategy for the San Francisco Bay Region. The proposed projects are at Sears Point in Sonoma County, Bair Island in San Mateo County, and South Bay Salt Ponds A16/17 in Santa Clara County.

Status:

Each project is at an advanced stage of readiness, with CEQA completed for Bair Island and the South Bay Salt Ponds and Sears Point CEQA scheduled for completion in January 2011; property interests secured; construction and management lead agencies identified; and a large portion of the funding assembled. The current status of the projects summarized as follows. Please refer to the Program Work Plan for specific project details.

Sears Point Wetland and Watershed Restoration

- 30% design completed.

Bair Island Restoration

- 100% Final design completed.

Pond A16/17 Habitat Restoration

- Permits and environmental documents completed.
- Revised 30% design to be completed in January 2011. 100% Final Design to be completed in early 2011.

4. Bay Area Regional Green Infrastructure Capacity Building Program

Lead and Partner Agencies:

San Pablo Avenue Green Stormwater Spine & Regional Promotion of Green Infrastructure
San Francisco Estuary Partnership (SFEP)
Cities of San Pablo, Richmond, El Cerrito, Albany, Berkeley, Emeryville, Oakland; Caltrans; San Francisco Estuary Institute; and StopWaste.org/Bay-Friendly Landscaping

Hacienda Avenue "Green Street" Improvement
City of Campbell

Napa County Rainwater Harvesting Project
Napa County
Cities of American Canyon, Napa, St. Helena, and Calistoga, the Town of Yountville; Napa County Resource Conservation District; Napa County Agricultural Commissioner; Napa County Farm Bureau; Napa Valley school districts; Napa Valley Grape Growers; Master Gardeners; Napa Valley California Native Plant Society; and Friends of the Napa River

Abstract:

The Regional Green Infrastructure Capacity Building Program will implement three demonstration projects in the northern, southern and eastern sub-regions of the San Francisco Bay Area IRWM region and analyze the performance of these projects. Results of the pilot evaluations will then be used to inform and expand development of green infrastructure projects to all parts of the region.

The three demonstration projects are:

The *San Pablo Avenue Green Stormwater Spine & Regional Promotion of Green Infrastructure* project addresses the ubiquitous problem of stormwater pollutants associated with traffic and impervious surfaces through pilot stormwater treatment facilities in seven cities along San Pablo Avenue. These bioretention treatment facilities will help remove TSS, copper, mercury and other metals, PCBs, excess nutrients, and possibly pesticides and other pollutants. The facilities will also help alleviate localized flooding along San Pablo Avenue and erosion of local creeks by reducing peak storm flows. The projects will build upon the successful El Cerrito San Pablo Avenue stormwater planters implemented in spring 2010 with federal stimulus funding and managed by the Estuary Partnership. A rater from StopWaste.org and the Bay Friendly Coalition will rate each project as Bay-Friendly. SFEI and SFEP will compile and evaluate the project costs and benefits so that they can be used to ensure that future green infrastructure efforts throughout the region can benefit and build upon these demonstration projects.

The *Hacienda Avenue "Green Street" Improvement* project will convert a portion of Hacienda Avenue in Campbell to a green street with the following objectives: Reduce the roadway width by reclaiming and transforming approximately 25% of the existing roadway surface into a public green space running the length of Hacienda Avenue; including linear parkway options to increase the amount of open space; replace non-pervious asphalt concrete surfaces with pervious material. The proposed improvements include installing bike lanes, planting street trees, installing bioswales and other stormwater treatment facilities, narrowing the existing pavement from 70' to 50' and using open space or alternative permeable paving surfaces to allow stormwater infiltration. A rater from Stopwaste.org and the Bay Friendly Coalition will rate each project as Bay-Friendly. SFEI and SFEP will compile and evaluate the project costs and benefits so they can be used to ensure that future green infrastructure efforts throughout the region can benefit from and build upon these demonstration projects.

The *Napa County Rainwater Harvesting Project* will involve construction of up to ten demonstration rain gardens throughout the County capturing and treating up to one acre's worth of polluted stormwater runoff. Additionally, the County will develop and implement a program that converts wine and other barrels to home rain barrels. A rater from Stopwaste.org and the Bay Friendly Coalition will rate each project as Bay-Friendly. SFEI and SFEP will compile and evaluate the project costs and benefits so they can be used to ensure that future green infrastructure efforts throughout the region can benefit from and build upon these demonstration projects. The project will coordinate, provide support funding, and conduct performance assessments of rain barrel and rain gardens throughout Napa County to determine what type of rainwater harvesting works best for various purposes in the different environments within the county.

Status: The projects are in various stages of design and are summarized as follows:

San Pablo Spine and Regional Promotion of Green Infrastructure

- The seven cities along the stormwater spine are in the process of conducting preliminary site investigations and feasibility analyses. No actual work will be completed until notification that funding has been received.

Hacienda Avenue "Green Street" Improvement Project

- Conceptual (10%) design of the project is currently in progress and is expected to be completed prior to the grant award date of June 1, 2011.
- Preparation of CEQA documentation for the project is in progress and is expected to be submitted for review and approval in November 2010.

Napa Valley Rainwater Harvesting

- The project is 10% designed, with multiple existing rainwater harvesting installations identified.
- Prior to June 1, 2011, there will be ongoing coordination of the project with project partners, which includes contracting with Napa RCD to conduct outreach and tracking of facilities.
- A CEQA categorical exemption (Section 15302 – Class 2: Replacement or Reconstruction) for the project was completed in September 2009 and filed with the County Clerk.

5. Integrated Water Quality Improvement, Flood Management and Ecosystem Restoration in Bay Area Disadvantaged Communities

Lead and Partner (Implementation) Agencies:

San Francisco Estuary Partnership (SFEP)
The Bay Institute (TBI)
San Francisco Estuary Institute (SFEI)
Balance Hydrologics
Urban Tilth and Restoration Design Group
San Mateo County Resource Conservation District (San Mateo RCD)
Far West Engineering
Center for Ecosystem Management and Restoration

Abstract:

This is an integrated program that serves both the greater Bay Area and specific disadvantaged communities (DACs) located at all compass points of the bay. The program advances the capacity of disadvantaged communities to reduce polluted waters in their communities by lowering damages from underperforming stormwater systems and overbank flows from natural drainages. In addition, targeted assessments of flood infrastructure, fisheries habitats for key salmonids, and other stream restoration sciences will be addressed as part of the multi-objective approach to manage inundation problems within the context of climate change. This program supports a broad-based Bay Area Network of environmental justice, watershed, flood protection, educational and scientific organizations. As a result of the IRWMP the San Francisco Bay Area has organized two new associations of stakeholders to respond to watershed and floodplain management needs. This program represents a collaboration of these new organizations, the Bay Area Association of Flood Control Agencies and the Bay Area Watershed Network.

The most critical water management need identified at present 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 backup of water into streets, neighborhoods, residences and businesses by a combination of inadequate storm drains, tidal backwaters, overbank creek flows and hydraulic constrictions from bridges and culverts in low lying areas near the bay or ocean create pollution problems unique to lower income areas. The critical water quality implications of this are that homes and businesses become contaminated with flood waters. Pollutants and toxics are carried though streets and browns-fields and are frequently deposited in the structures where people live and work. Environmental justice and DAC concerns are being further addressed by examining new data that may show areas that were not identified as "disadvantaged" in the previous census block data. Because these problems must be addressed in an integrated context so that endangered and protected species such as anadromous fish populations are enhanced, the solutions being devised are based on remedies employing environmental restoration. The program provides guidance specific to the disadvantaged areas the communities can use to understand fish populations, management options and stream restoration options.

Status: The projects are new, standalone projects that are ready for implementation in October 2011 with the award of the grant; several build upon past work that has led to the current project readiness to proceed.

6 Integrated Elements of Projects

The Bay Area IRWM Coordinating Committee considered each program for its multiple water management strategies implemented, multiple benefits, diversity of participants, and regional impact. Each program in this Proposal combines multiple project elements which result in tremendous added value for the Region. The result for this Proposal is a suite of projects that integrate and coordinate efforts for multiple benefits and added value. This section describes the synergies and linkages between the regional programs included in this Proposal that result in added value, or require coordinated implementation or operation.

Water Management Strategies Synergies and Linkages

As shown in the table below, each of the programs included in this Proposal incorporates several water management strategies from the Bay Area IRWM Plan.

Project Name	Regional Recycled Water	Regional Water Conservation	Wetland Ecosystem Restoration	Regional Green Infrastructure	Integrated WQ, FM and ER in DACs
Water Management Strategy					
Ecosystem Restoration			✓		✓
Environmental and Habitat Protection & Improvement			✓	✓	✓
Water Supply Reliability	✓	✓	✓	✓	
Flood Management			✓	✓	✓
Groundwater Management					
Recreation and Public Access			✓		✓
Stormwater Capture and Management				✓	✓
Water Conservation		✓			
Water Quality Protection and Improvement	✓	✓	✓	✓	✓
Water Recycling	✓				
Wetlands Enhancement and Creation			✓		
Conjunctive Use					
Desalination					
Imported Water					
Land Use Planning				✓	
Non-Point Source Pollution Control		✓		✓	✓
Surface Storage					
Watershed Planning					✓
Water and Wastewater Treatment	✓				
Water Transfers					
Interties					
Infrastructure Reliability					
Regional Cooperation	✓	✓	✓	✓	✓
Education and Outreach		✓	✓	✓	✓
Monitoring and Modeling			✓	✓	✓
Groundwater Banking					

Combining water management strategies can result in synergistic benefits for the region. As shown above, by combining multiple water management strategies within each regional program, greater benefits can be

achieved, often a less expense, then by implementing individual water management strategies independently.

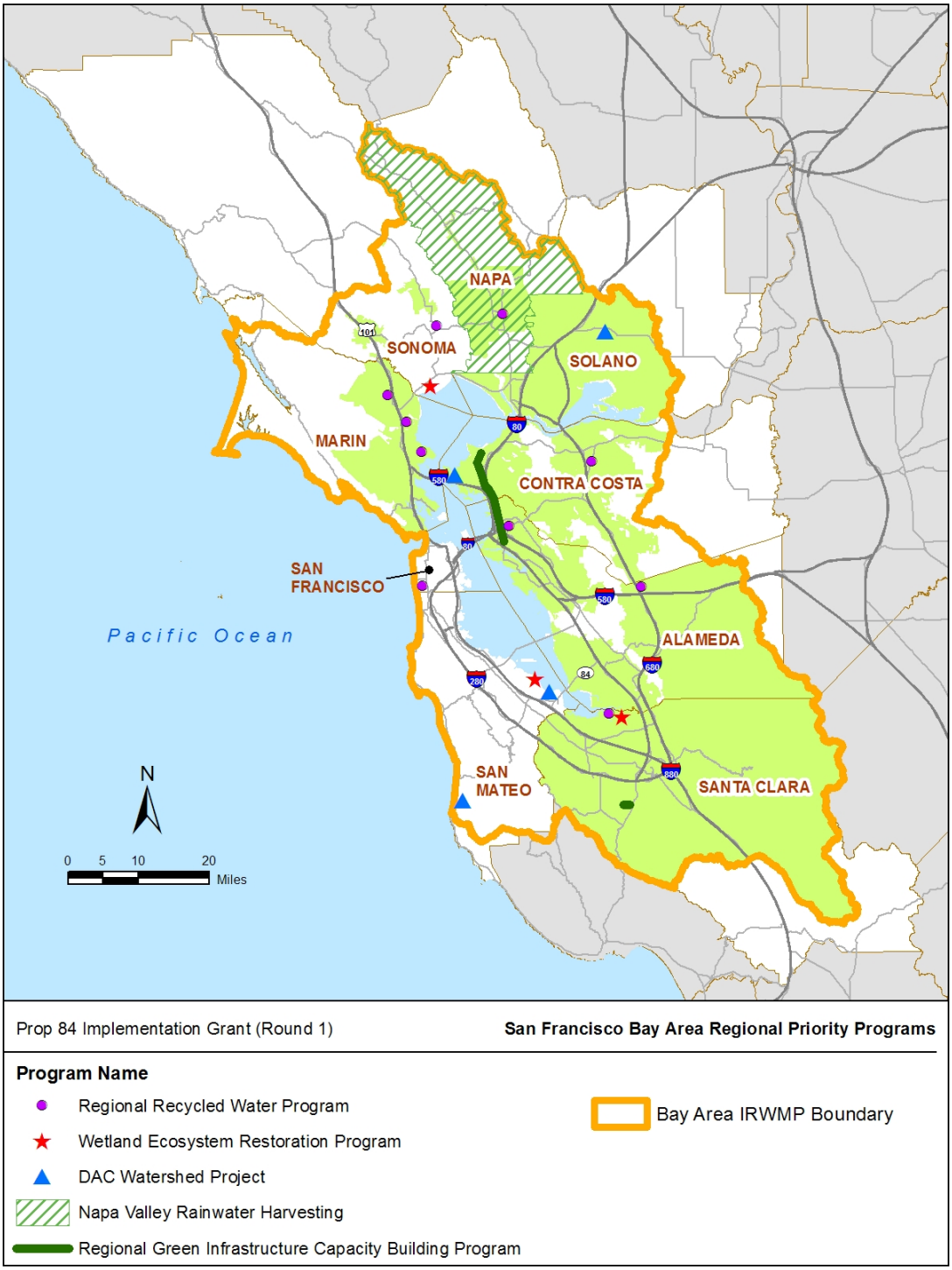
Each Program Work Plan following this Introduction will address in greater detail the synergies and linkages associated with the projects that result in added value, and the coordination and data management measures that would be implemented to ensure effective integration.

Program Schedules

In terms of timing, the schedules of proposed programs are not interdependent. However, several of the projects are elements of larger projects or programs and funding received through this grant opportunity will be leveraged to implement a component of a larger project.

7 Regional Map

The following map of the Bay Area region shows the location of the five regional programs included in this Proposal. In addition to this map, the project work plans in the following sections provide more detailed maps and schematics for each project.



San Francisco Bay Area Regional Priority Projects and Programs
Attachment 3 – 0. Grant Management

1 Introduction

This section describes the steps that will be taken to ensure that grant funds are properly managed and administered for the Bay Area IRWM grant.

Grant Overview

The Bay Area's IRWM grant consists of 26 projects covering regional water conservation, water recycling, green infrastructure, wetland ecosystem restoration, and a combined assessment project that, in part, benefits specific disadvantaged communities. The IRWM grant is for $29.7 million in State funding and over $85 million in non-state matching funds. The grant period will extend from June 1, 2011, the expected award date, until the lengthiest projects will wind down about four years later when the grant can then be closed out.

Grant Administrator and Grant Recipients

The Bay Area grantee is the Bay Area Clean Water Agencies (BACWA), a Joint Powers Agency consisting of wastewater agencies in the San Francisco Bay Area Region. BACWA has extensive experience in undertaking activities and projects involving multiple agencies, including the Bay Area Regional Water Recycling Program done in the 1990s that had over 30 participating agencies, and more recently the $12.5 million Prop 50 IRWM implementation grant awarded to the Bay Area. Day to day activities will be supported by a professional services consultant (contractor), a grant manager, and BACWA's financial administrator (EBMUD) and overseen by BACWA's Executive Director.
The participating agencies include the State Coastal Conservancy and several water agencies, wastewater agencies, the Association of bay Area Governments, and other local entities in the Bay Area. The participating entities will be grant recipients and the entities responsible for cost matching required under the grant. Each of the participating entities is an eligible entity with state grant experience.

Oversight and Coordination Committee

The Bay Area entities participating in the grant and BACWA will form an Oversight and Coordination Committee that will meet or have conference calls quarterly, or more frequently if needed, to review progress / quarterly reports, grant reimbursement or invoicing issues, and resolve outstanding matters. The Committee would be composed of the BACWA Executive Director and/or a BACWA Board member, a grant manager, plus one designated representative for each participating entity. At a minimum, coordination on quarterly progress reports and requests for reimbursement will be reviewed by the Committee each quarter. The Committee review will be independent from any review or certification required by BACWA.

Implementation Agreements
An implementation agreement between BACWA and each participating entity will be established to ensure that matching funds are committed to and all pertinent grant conditions are satisfied, which will reduce risk exposure to BACWA in executing a grant agreement with the State on behalf of the participants. Each of the agreements will have similar general conditions and then be tailored to the specific funding and grant requirements particular to each project. Generally, the implementation agreements would be controlling with respect to issues affecting a specific project whereas the Oversight & Coordination Committee would be looking at issues affecting implementation of the entire suite of projects.

2 Grant Administration Tasks

The grant administration and management task is an Implementation task that consists of several distinct sub-tasks:

Subtask 2.1: Finalize Grant Agreement with DWR
This task involves first the establishment of a specific contract with BACWA legal counsel and then a legal review of the proposed State grant agreement, coordinating with participating entities, negotiating final terms, and attaining BACWA Board approval for the grant agreement. This task also involves hiring a professional service consultant (consultant) to help finalize the updated workplan, schedule and budget (Exhibits A, B and C) for the grant agreement. The consultant will report to the grant manager. BACWA's accountant will establish a generally accepted accounting method to track financial information for the grant.

Subtask 2.2: Establish Implementation Agreements with Participants
This task entails establishing agreements with each participating entity that will receive IRWM grant funding through BACWA and attaining BACWA Board approval for each agreement. Each participating agency will be expected to execute such an agreement before reimbursement is distributed. At a minimum, each Implementation Agreement will cover standard formatting for reporting progress and requesting reimbursement, dispute resolution, and other conditions specified in the Grant Agreement between BACWA and DWR. The Oversight and Implementation Committee will also be formed through these agreements.

Subtask 2.3: Quarterly Reports
The consultant will prepare each quarterly report, to be compiled largely from reports for each active project during the grant period with additional detail as needed to meet the grant conditions. The quarterly report will include key milestones achieved, percent completion on each task identified in the workplan, and accumulated cost to date organized by grant funded costs and non-State match costs. The participants will utilize the existing website for the Bay Area IRWM Plan or a similarly acceptable location to store electronic records that are submitted to DWR under the grant. Each participating entity will utilize a web folder to store documents pertaining to its project(s).

Subtask 2.4 Reimbursement Process
Reimbursement requests (invoices) are expected to be submitted quarterly. The initial reimbursement request after execution of the grant agreement will likely be the most extensive request. The grant manager will be responsible for preparing the reimbursement request based on records provided by the participating agencies. A contractor may help to coordinate with local project sponsors and maintain records. The Oversight and Coordination Committee will review each request before the BACWA Executive Director submits the reimbursement request (invoice) to DWR.

After BACWA receives reimbursement from the State, BACWA's accountant will disburse funds to participating agencies. Records will be maintained and made available to each participating entity to track reimbursement to document, at a minimum, the reimbursement amount, the cumulative amount of reimbursement distributed to date, the cumulative matching amount to date, and any outstanding issues. As needed, the professional services contractor may also be called upon to provide assistance. The conditions for reimbursement will be specified in the Implementation Agreement for each agency.

Subtask 2.5 Bookkeeping and Auditing

Bookkeeping will be done by EBMUD, which is designated as BACWA's Treasurer and which provides accounting services to BACWA. At a minimum, records will be updated on a monthly basis to summarize BACWA administration costs to date, reimbursement requested from DWR, reimbursement received from DWR, reimbursement disbursed from BACWA to participating entities, and any outstanding financial issues. These monthly records will be available electronically to each participating agency.

An independent annual audit as well as a close out audit will be performed for grant funds by an independent Certified Public Accountant using Generally Accepted Accounting Principles.

Subtask 2.6 Coordination, Support and Record Keeping

a. **Agency Coordination.** This covers convening regular meetings of the Oversight & Coordination Committee, quarterly or as needed, interacting with State personnel and following up on action items. More meetings may be needed during the first year of so of the grant period when extensive activity will be ongoing for each project.

b. **Contract Management**. This consists of month to month BACWA administration of the contractor(s) and legal counsel, including writing work authorizations, reviewing work products, and approving invoices for payment.

c. **Maintain Files**. Records related to grant administration and management will be maintained by the participating entities, BACWA contractors, the grant manager, and EBMUD accounting during the grant period in locations that can be readily accessed by project participants and State personnel. At the end of the grant period the files will be stored where they can be expeditiously retrieved for a period of three years after the grant period ends.

Subtask 2.7 Field Verification

Periodic job site visits will also conducted by an independent contractor or consultant to verify progress on projects, particularly at the final inspection with DWR which is a condition of successfully completing a project and subsequent release of retained funds.

This scope for administration is the best estimate of expected activities at the outset of the grant. In an undertaking as complex as this, with multiple projects of varying type and schedule funded from a single grant, unexpected issues or complications may arise during the grant period. The participants reserve the ability to modify the scope or budget to best meet administrative needs during the grant term, subject to approval by DWR.

If any of the funding allocated to administration is not needed for that purpose the project participants strongly favor redirecting this funding to expansion of other projects covered by the grant rather than reducing the total grant amount. The Oversight and Coordination Committee will review and agree on any proposal to change funding allocations among grant funded activities before submittal to DWR for review.

San Francisco Bay Area Regional Priority Projects and Programs
Attachment 3 – 1. Regional Recycled Water Program

PSP Requirements **Page**

1 Introduction

About 70 percent of the water supply in the San Francisco Bay Hydrologic Region is imported and is relatively expensive due to the capital, operations and maintenance costs of the projects. Droughts, climate change and growth all could negatively impact the reliability of available water supplies. Limited surface water is available as a potable or non-potable source, as surface flow is required for riparian habitat preservation and vital for groundwater recharge.

Water recycling is a critical component of integrated regional water resources management in the San Francisco Bay Area. Water recycling projects embody water supply reliability, ecosystem protection and enhancement, and surface water protection, which together comprise the basis for sustainable water resources management. Recycled water in the Bay Area region is used in a full spectrum of applications, including landscape irrigation, agricultural needs, residential, municipal, commercial and industrial purposes, and as a supply to the area's many wetlands.

The San Francisco Bay Area region has a long history of regional recycled water planning. In the early 1990s, following years of drought and facing uncertain future water supplies, the Bay Area water and wastewater agencies formed a partnership with the U.S. Bureau of Reclamation (USBR) and California Department of Water Resources (DWR) to study the feasibility of a regional approach to water recycling in the Bay Area region. This partnership resulted in the formation of the Bay Area Regional Water Recycling Program (BARWRP), which produced the BARWRP Master Plan in 1999.

The BARWRP Master Plan, which remains at the foundation of regional recycled water planning throughout the Bay Area today, recommended that water recycling should be pursued from regional partnerships to maximize benefits including water supply, wastewater discharge and environmental benefits. The Plan further recommended implementing locally planned recycled water projects, or phasing, as catalysts for overall regional Bay Area recycling. The master plan indicated that there is a

large potential market for recycled water, up to one million acre-feet per year (AFY) by 2040.[1] This integrated planning process has fostered successful partnerships among the Bay Area agencies for the development and implementation of recycled water projects.

The South Bay Water Recycling Program (SBWR) was initiated in 1993 to provide a reliable, sustainable and drought-proof supply of recycled water to the South Bay area. The SBWR provide a case study of a complex partnership between local, state and federal agencies including entities such as San Jose, Santa Clara and Milpitas, five sanitation districts, the U.S. Bureau of Reclamation, Environmental Protection Agency, California Department of Water Resources, Department of Health Services, Regional Water Quality Control Board, and Santa Clara Valley Water District. The SBWR distribution network includes multiple pump stations, reservoirs and extensive pipelines serving San Jose, Santa Clara and Milpitas to deliver recycled water to golf courses, parks, schools and agricultural lands, and for industrial processes and cooling towers.

In 2003, water supply and clean water agencies throughout the North Bay counties of Marin, Sonoma and Napa began meeting to investigate opportunities to expand the use of recycled water for agricultural and other purposes. Co-sponsored by USBR, the North Bay Water Reuse Program (NBWRP) was initiated to identify a regional recycled water program to increase water supply, reduce discharges to the North Bay and provide ecosystem enhancements

Smaller scale collaboration efforts between water purveyors and sanitation districts have also multiplied in the recent years. The partnership between the San Francisco Public Utilities Commission (SFPUC) and Daly City to develop the Harding Park Recycled Water Project is one such example. Other examples that are discussed in this workplan includes the partnerships between East Bay Municipal Utilities District (EBMUD) and local cities such as Alameda, Albany, Berkeley, Emeryville and Oakland; that between Contra Costa Sanitary District (CCSD) and City of Concord; that of Dublin San Ramon Services District (DSRSD) and City of Dublin; and finally that between Marin Municipal Water District (MMWD) and the Central Marin Sanitation Agency (CMSA).

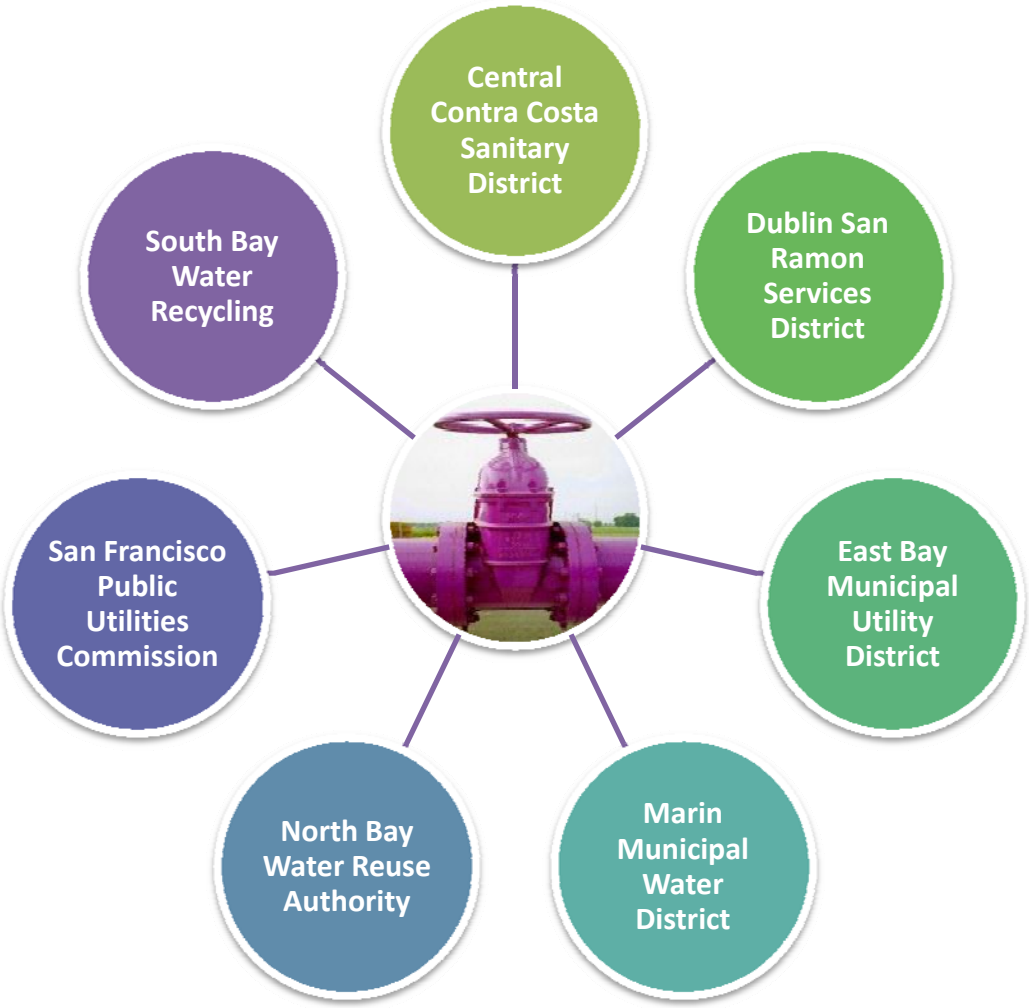
Local water recycling projects involve the collection of wastewater that is currently being discharged within the service area, treating that water to a suitable standard for specific uses, and substituting the recycled water for existing or future potable water demands. Local projects may provide a cost-effective means of securing the infrastructure, public acceptance, and foundation necessary for ultimately implementing a large-scale regional program. Development of recycled water projects generally requires creative solutions to funding, regulatory requirements, institutional arrangements and public acceptance, and therefore, the following priority projects are included in this Proposal.

- Project A. Central Contra Costa Sanitary District (CCCSD)/Concord Recycled Water Project
- Project B. Dublin San Ramon Services District (DSRSD) Central Dublin Recycled Water Distribution and Retrofit Project
- Project C. East Bay Municipal Utilities District (EBMUD) East Bayshore Phase 1A I-80 Pipeline
- Project D. Marin Municipal Water District (MMWD) Peacock Gap Recycled Water Extension
- Project E. North Bay Water Reuse Authority (NBWRA) Program which in turn is comprised of the following four components:
    - i. Novato Sanitary District (Novato SD)/North Marin Water District (NMWD) Novato North Service Area Project

[1] Bay Area Clean Water Agencies (BACWA), 2006. Wastewater and Recycled Water Functional Area Document for the Bay Area IRWMP.

- ii. Las Gallinas Valley Sanitary District (LGVSD)/NMWD Novato South Service Area Project
- iii. Napa Sanitary District (Napa SD) Napa State Hospital Pipeline Construction Stage 1 Project
- iv. Sonoma Valley County Sanitation District (SCVSD) Recycled Water Project Stage 1 Project

- Project F. San Francisco Public Utilities Commission (SFPUC) Harding Park Recycled Water Project
- Project G. South Bay Water Recycling (SBWR) Industrial Expansion and Reliability



1.1 Goals and Objectives

The Bay Area Regional Recycled Water Program will meet the goals of expanding water supply reliability, ecosystem protection and enhancement, and surface water protection, which together comprise the basis for sustainable water resources management. The objectives of the Regional Recycled Water Program are as follows:

- Increase utilization of recycled water for non-potable water demand.
- Increase utilization of recycled water for industrial cooling to existing and planned data centers and other high-tech facilities, supporting the economy of Silicon Valley.
- Reduce potable water use for landscape irrigation.
- Provide a reliable and alternative water supply during drought years and provide an alternative "drought-proof" water supply to supplement water imported from the CALFED Bay-Delta.
- Reduce demand of surface and groundwater supplies.
- Reduce import of potable water from Central Valley Project (CVP).
- Reduce import of potable demand from State Water Project (SWP).
- Reduce import of potable water from the CALFED Bay Delta.
- Reduce energy consumption and carbon footprint by using locally available recycled water supplies to reduce pumping and importation of potable water from the CALFED Bay Delta.
- Reduce/postpone development of new or expanded other water supplies.
- Meet and exceed the SB x7_7 20% by 2020 water conservation requirements.
- Reduce wastewater discharges to San Francisco Bay and the Pacific Ocean.
- Increase flows through the Delta and local creeks and rivers for other beneficial uses, including endangered species protection.
- Increase water for restoration of wetlands and improve in-stream flows for riparian habitat and fisheries recovery.
- Further reduce the flow of fresh, highly treated effluent to South San Francisco, preserving the salt marsh habitat of two endangered species (salt marsh harvest mouse and California clapper rail).

1.2 Project List and Purpose & Need

This section provides an abstract and status description of the various elements of the Regional Recycled Water Program to date. A summary of the program's status is also provided in Table 1.

Project A. CCCSD/Concord Recycled Water Project – Phase I

Central Contra Costa Sanitary District's (CCCSD or District) proposed CCCSD-Concord Recycled Water Project would provide up to 190 acre-feet per year (AFY) of recycled water to 34 sites for landscape irrigation in the City of Concord. The Project will extend the District's distribution system from the Buchanan Fields Golf Course (an existing recycled water customer). Once through the golf course property, the balance of the pipeline construction would take place in existing city streets near the Chevron Office Park in Concord.

The Project consists of construction of approximately 2.5 miles of underground recycled water transmission lines ranging in diameter from 2" to 10", service laterals, and backflow protection devices. The proposed Project will be an expansion of the District's existing and successful Recycled Water Program.

Recycled water is an important component of Contra Costa Water District's (CCWD) long-term water supply portfolio. Approximately 10,000 acre-feet of recycled water is currently used within CCWD's service area. CCWD projects that over the next 25 years, recycled water deliveries will make up about 5% of its water supply in a normal (non-drought) year, and up to about 7% of its water supply in the third year of a multi- year drought.

Recycled water provides a sustainable drought proof water supply that allows irrigation customers in the community to protect valuable landscaping during droughts and water shortages. For example, reduced Delta water allocations to CCWD during the severely dry year in 2009 required that landscape irrigation customers using potable water supplies (including those to be served by this project) significantly reduce water consumption to avoid additional costs for CCWD to purchase high cost water from other sources.

Overall, this project would address the following needs:

- Increase recycled water use by expanding the existing program to deliver an additional 190 acre-feet per year (AFY) of recycled water to 34 sites for landscape irrigation of local businesses, office parks, and landscape medians in the City of Concord that are currently irrigated with potable water.
- Reduce importation from and water supply demands on the CALFED Bay-Delta. This Project will offset potable water demands within the CCWD service area. CCWD is almost entirely dependent upon the Delta for its water supply. In the late summer of 2007, a federal judge ordered that pumping from the Delta be reduced while state and federal agencies develop a plan to protect the endangered Delta smelt and possibly other species that live or migrate through the Delta. To date, these restrictions have not impacted CCWD's pumping from the Delta. In addition to the impacts of reduced pumping, the availability of drinking water from the Delta is further threatened by the potential for levee failure that could lead to flooding and seawater intrusion, which would result in non-drinkable water. Global climate change and rising sea levels may also create greater stress on the levee system. Increasing recycled water use within the CCWD service area will reduce its demands on the Delta.
- Reduce energy consumption and carbon footprint by using locally available recycled water supplies to reduce pumping and importation of potable water from the CALFED Bay Delta.
- Provide a reliable, drought proof water supply for landscape irrigation of local businesses, office parks, and landscape medians.
- Reduce treated wastewater effluent discharge to the Suisun Bay.

Project B. DSRSD Central Dublin Recycled Water Distribution and Retrofit Project

The Dublin San Ramon Services District's (DSRSD or District) Central Dublin Recycled Water Distribution and Retrofit Project (Project) will expand the District's existing recycled water distribution system to deliver an additional 240 AFY within its service area. This project entails of construction of recycled water distribution pipelines to convey water for landscape irrigation to eleven sites:

- Dublin High School
- Frederiksen Elementary School
- Wells Middle School
- Cronin Park
- Valley High School
- Kolb Park
- Murray Elementary School
- Dublin Swim Center
- Stagecoach Park
- Alamo Creek Park
- Amador Lakes Apartments

The Project consists of approximately 14,000 linear feet of recycled water pipe, ranging in diameter from 4-inches to 12-inches. The majority of the pipelines will be constructed within existing city streets; construction will include a crossing under the San Ramon Creek. The lines will be constructed from the 16-inch DERWA main supply line located in the Iron Horse Trail to the project customers. This project will also provide plumbing retrofits to connect existing irrigation systems at Dublin schools and parks to the recycled water system; however, retrofits are not included in the grant funded portion of the project.

DSRSD's recycled water program began in 1995 when significant growth began in the eastern portion of the City of Dublin and Dougherty Valley, with development plans proposed for the western portion of the City of Dublin (i.e., Schaefer Ranch) and the existing military base (i.e., Parks Reserve Forces Training Area). Consequently, the District began working with East Bay Municipal Utility District (EBMUD) on the San Ramon Valley Recycled Water Program (SRVRWP), a joint project developed by the Dublin San Ramon Services District East Bay Municipal Utility District Recycled Water Authority (DERWA) to provide recycled water service to irrigation customers in the San Ramon Valley and adjacent areas.

This particular project addresses the following needs:

- Expand the District's recycled water system to replace 240 AFY of non-potable water use with recycled water for landscape irrigation at eleven new customer sites. The customers to be served are Priority 1 (most important to serve) as identified in the District's 2005 Water Master Plan Update.
- Reduce importation of potable water from the CALFED Bay-Delta and the State Water Project (SWP).
- Reduce the District's potable water demand and extend its potable water supply resource while delaying the need to expand water supply projects.
- Reduce DSRSD’s energy consumption and carbon footprint by reducing pumping of wastewater effluent to the San Francisco Bay. DSRSD secondary effluent is pumped approximately 15 miles from Dublin to San Leandro through the East Bay Dischargers Authority (EBDA) Livermore-Amador Valley Water Management Agency (LAVWMA) pipeline. Recycling water will reduce pumping and energy use, as well as decrease carbon emissions.
- Provide a drought-proof water supply that is available year round for non-potable uses.

- Reduce/postpone development of new or expanded water supplies and replace potable water currently used for irrigation and construction.
- Offset the water supply provided by the Zone 7 Water Agency (Zone 7) from the State Water Project, which would consequently reduce diversions, reduce groundwater extraction, and reduce energy use (by reduced pumping). The expanded use of recycled water would also reduce the burden on existing Federal water supply facilities such as the Central Valley Project (CVP). The SWP and CVP water contract allocations are closely inter-connected and supply of recycled water would reduce demand and utilization of these valuable drinking water resources.

Project C. EBMUD East Bayshore Phase IA- I-80 Pipeline

The East Bayshore Recycled Water Project (EBRWP) will ultimately provide up to 2.5 mgd (2,800 AFY) of recycled water to customers within the cities of Alameda, Albany, Berkeley, Emeryville, and Oakland, including the disadvantaged community of West Oakland. According to the Northern California Council for the Community, the 2000 Census reported a West Oakland household median income of $22,689, which is only 46% of the statewide median household income of $48,979.

The initial phase of the project, Phase 1A, will deliver about 560 AFY of recycled water for primarily irrigation purposes, thereby preserving limited potable water supplies. A portion of Phase 1A has been completed in the Oakland area, including a tertiary treatment plant, transmission and distribution pipelines, and customer retrofits. For the completed portion of the Phase 1A project, recycled water deliveries began in 2008 to portions of Oakland and Emeryville.

The remainder of the Phase 1A project in northern Emeryville, Berkeley, and Albany will yield about 210 AFY of the total 560 AFY of recycled water when completed. Project facilities to be completed include a transmission pipeline along Interstate 80 (I-80) from Emeryville to Albany, distribution pipelines in Emeryville, Berkeley, and Albany, and customer retrofits. A portion of the I-80 pipeline was completed but segments of the pipeline have not been installed. Completion of the I-80 pipeline is crucial to expand recycled water service from Oakland to northern Emeryville, Berkeley, and Albany.

The specific project component proposed for grant funding is a portion of the I-80 transmission pipeline from the Emeryville/Oakland border outside of the District's main wastewater treatment plant to south of Temescal Creek in Emeryville. This project component is anticipated to provide 210 AFY once the entire I-80 pipeline, distribution pipelines, and customer retrofits are completed.

The recycled water is produced from treated effluent from EBMUD's main wastewater treatment plant (MWWTP) in Oakland, located near the base of the San Francisco Bay Bridge. In order to serve the maximum number of potential customers, the recycled water is treated to the disinfected tertiary level as defined by Title 22. This project element addresses the following needs:

- Reduce regional dependence on imported water supplies. The East Bayshore Regional Water Project Phase 1A will help offset demands for potable water by substituting recycled water for beneficial landscape, commercial and industrial water uses currently served by EBMUD's supplies from the Mokelumne River, a tributary to the Delta. During dry and critically dry years, the project will reduce EBMUD diversions from the Mokelumne and/or Sacramento Rivers (once the Freeport Project is in service).
- Increase regional supply reliability for EBMUD's 1.3 million customers located in a service area that spans two counties and includes 20 incorporated cities and 13 unincorporated communities. This project would help reduce the risk of severe rationing during prolonged droughts. By increasing the proportion of recycled water used, EBMUD will be able to save a larger percentage of its high quality potable water supplies for residential and commercial potable uses.

- Increase flows through the Delta. Approximately 95% of EBMUD's water supply comes from the Mokelumne River, an eastside tributary to the Delta. This project will reduce the amount of water that must otherwise be delivered from the Mokelumne River to EBMUD's East Bay service area. Reducing deliveries can result in higher reservoir storage levels in EBMUD reservoirs in the Sierra Nevada foothills and increased reservoir releases to the lower Mokelumne River. Under a legally enforceable Settlement Agreement involving state and federal resource agencies, releases and flows in the lower Mokelumne River during the fall and early winter are based on storage levels so increased storage may result in some portion being released for fishery purposes. Once that water reaches the Delta, it provides additional benefits for Delta resources and water users.

Project D. MMWD Peacock Gap Recycled Water Extension

This project will expand MMWD's recycled water distribution system in order to provide recycled water for irrigation purposes to the Peacock Gap Golf Course and surrounding residential area. In addition to the golf course, the project will convert 34 other smaller existing potable water users to recycled water. Current potable water irrigation meters will be transferred to the new recycled water lines. In certain cases, new recycled water meters will be installed at locations different than the current potable meters. In cases where a common irrigation and domestic use meter is to have the irrigation split off to a new meter, the potable meter may need to be resized. In all circumstances, consumers will be brought into participation with the District regarding the consequences and impacts of the changes prior to construction.

This project element entails adding 8.5 miles of pipeline to the existing recycled water distribution line and converting a 500,000-gallon potable water storage tank into recycled water storage as part of the expanded recycled water system.

The Peacock Gap Recycled Water Project will extend Marin Municipal Water District's recycled water piping from its current terminus at North San Pedro Road and Schmidt Lane along North San Pedro Road (and La Pasada, Adrian and La Brea) in San Rafael, through China Camp State Park on the Peacock Gap Trail thence along Biscayne Drive and utility easements to the Peacock Gap Water Tank. The project will convert the existing Peacock Gap Water Tank from potable water to recycled water storage and provide a potable water "make-up" supply to the tank. Additionally, recycled water piping will be installed on Biscayne Drive, Partridge Drive, Knollwood Drive, Riviera Drive, Pt San Pedro Road (from Biscayne Drive to Knight Drive) Cantera Way, Chapel Cove Drive, Surfwood Circle and Knight Drive.

The golf course irrigation services have an entitlement of 193 acre feet per year and residential users have an entitlement of 126.9 acre feet per year. Overall, this project will result in shifting 320 acre feet of potable water consumption to recycled water.

The Las Gallinas Recycled Water System has a service pressure gradient determined by the Terra Linda Recycled Water storage tanks at elevation 310 feet MSL. The Peacock Gap Tank will set a gradient for the Peacock Gap recycled water service area at 225 feet MSL. An automated regulating control valve station will be necessary to maintain separation between the two different pressure zones. It is anticipated that this station will be located near the intersection of Biscayne Drive and Peacock Gap Trail.

Implementation of this project will result in the following:

- Provide approximately 320 AFY of recycled water for irrigation purposes to Peacock Gap Golf Course and the surrounding residential area thereby offsetting potable water currently being used for irrigation in the project area.
- Reduce treated wastewater effluent discharges to San Francisco Bay.

- Reduce reliance on Lagunitas Creek and Russian River supplies by replacing water that would have been diverted from these sources with recycled water, leaving more surface water for other beneficial uses, including endangered species protection.
- Reduce the District's water supply imbalance. MMWD faces a near and long-term water supply shortfall. The District's current Urban Water Management Plan (UWMP), adopted in 2006, includes projections for water use in the District at five-year intervals out to the year 2025. The water use projections are based on ABAG population projections and current water consumption rates. Based on the UWMP the current District water use is about 31,000 AFY. The UWMP projects that the District water use in 2025 will be 34,700 AFY and that the projected supply availability will be 27,300 AFY. These long-range projections show that the District's water supply and demand imbalance would increase to 7,400 AFY by the year 2025 without more aggressive and effective conservation measures. During MMWD's drought of record (1977-78), reservoirs were almost completely emptied, severe rationing was imposed and an emergency supply pipeline had to be constructed to connect to Delta water supplies to avoid a major public health crisis in Marin County. Since that drought, MMWD has had to ration water supplies on five different occasions and has imposed water connection moratoria twice.
- Pursue the District's strategy to address the identified water supply shortfall. MMWD has studied and evaluated water supply and demand alternatives extensively, and is currently moving forward with a multi-faceted approach to addressing the water supply shortfall. This multi-faceted approach includes optimizing the District's reservoir operations, taking next steps towards considering construction of a bay water desalination facility, implementing the District's 2007 Water Conservation Master Plan, and expanding the District's recycled water program where feasible.

Project E. North Bay Water Reuse Authority Program

Under a Memorandum of Understanding (MOU) between a series of water agencies, the North Bay Water Reuse Authority (NBWRA) is exploring "the feasibility of coordinating interagency efforts to expand the beneficial use of recycled water in the North San Pablo Bay Region thereby promoting the conservation of limited surface water and groundwater resources." The NBWRA consists of the following agencies: Sonoma County Water Agency, Sonoma Valley County Sanitation District, Napa Sanitation District, Novato Sanitary District, Las Gallinas valley County Sanitation District, North Marin Water District, and Napa County. The NBWRA Program is intended to alter the disposition of recycled water in the North Bay Region by providing increased recycled water supply to urban, agricultural and environmental uses. The NBWRA Program consists of four components described below:

i. Novato SD/NMWD Novato North Service Area Project

NMWD and Novato Sanitary District would expand recycled water service in the Novato North Service Area by expanding treatment capacity to 1.7 MGD (peak day capacity) at the Novato Sanitary District's Davidson Wastewater Treatment Plant (WWTP). The project would also include a distribution pump station, improvements to the Plum Street Tank for recycled water storage and installation of 4.6 miles of pipeline. The recycled water pipelines would be routed from Atherton Avenue to Olive Avenue under Highway 101, and north on Redwood Boulevard to San Marin Drive. The rehabilitated Plum Street Tank would be connected to the Recycled Water Facility (RWF) at Davidson WWTP via Lea Drive/Olive Avenue to provide diurnal storage. A separate pipeline would be routed on H Lane to serve the Valley Memorial Park Cemetery. This project would provide 186 AFY of recycled water.

ii. LGVSD/NMWD Novato South Service Area Project

Service to the Hamilton Field area would be established through implementation of a 0.7 mgd tertiary treatment upgrade at the existing LGVSD WWTP or expansion of an existing tertiary treatment facility within the fence line of the existing LGVSD WWTP, construction of a new booster pump station onsite, and construction by NMWD of a pipeline distribution system from the LGVSD

WWTP north to serve the Hamilton Field area. This system would originate at the LGVSD WWTP and extend north through grazing land. The alignment would turn west along St. Vincent's Drive then north adjacent to the Northwest Pacific Railroad (NWPRR) right-of-way. At the north end, the alignment will make a loop around the Coast Guard Housing area by following South Oakwood Drive, Casa Grande Drive, Hangar Drive and connecting back along South Palm Drive. Recycled water storage would be provided by retrofit of the existing 0.5-million gallon (MG) Reservoir Hill Tank located at the north end of the pipeline alignment. This project would provide 204 AFY of recycled water.

iii. Napa SD NSH Pipeline Construction Stage 1 Project

The entire project would provide recycled water to the Miliken-Sarco-Tulocay (MST) area in southern Napa County. Project includes 17 miles of new pipeline, four booster pump stations along the pipeline route and a new booster pump at the Soscol Recycled Water Facility (SRWF). The project has four phases, of which only the first phase is proposed for funding consideration:

- Construct 24" recycled water pipeline along Napa College and through the Napa State Hospital (NSH) property.
- Design and construct the first phase of pipeline in the MST area north of NSH.
- Expand tertiary treatment capacity at the SRWF.
- Construct the second phase of the pipeline in MST.

After implementation, the project will result in estimated savings of 200 AFY initially, while providing the infrastructure to deliver an additional 1,000 AF of recycled water when the MST recycled water pipeline system is completed for the City of Napa.

City of Napa uses treated raw water from the CALFED Bay-Delta and local reservoirs as its potable water source. Therefore, implementation of the project will reduce the dependency on surface water, a less reliable source of supply, as it is diverted by multiple users, and has low flows during summer (which coincides with the irrigation season), and dry years. In addition, extending the recycled water pipeline system in southern Napa County to deliver recycled water for irrigation purposes will reduce the use of potable water for this purpose.

Lastly, when completed, the project will reduce the draw on groundwater for irrigation purposes, saving up to 1,000 AFY of groundwater. As the groundwater tables in this area continue to drop, this project is vital to protecting potable water reliability.

iv. SVCSD Recycled Water Stage 1 Project

This project includes installing distribution pipeline, performing design, and constructing improvements at the Sonoma Valley County Sanitary District's (SCVSD) treatment plant (distribution pump station). It also includes land acquisition, design and construction of a recycled water reservoir with a capacity between 60 and 100 AF. This project would provide 100 AFY of recycled water.

Overall, the NBWRA Program is intended to address the following needs:

- Reduce demand on both surface and groundwater supplies (groundwater supplies are heavily pumped for agricultural and limited municipal uses and in some localities have marginal quality).
- Increase water for restoration of wetlands and improve in-stream flows for riparian habitat and fisheries recovery.
- Reduce the use of potable water and groundwater for irrigation purposes by extending the availability of recycled water.
- Provide a reliable irrigation supply for both landscaping (parks, golf courses, and municipal landscaping) and agriculture (including vineyards and pasture lands).

- Develop infrastructure to reduce the draw on groundwater for irrigation purposes and protecting potable water reliability.

Project F. SFPUC Harding Park Recycled Water Project

The San Francisco Public Utilities Commission (SFPUC) and the City of Daly City are jointly developing the Harding Park Recycled Water Project to provide recycled water to irrigate Harding Park. Harding Park comprises an 18-hole public golf course (Harding Park) and a 9-hole golf course (Fleming), located in the City and County of San Francisco. Harding Park is currently irrigated with potable water from the SFPUC's Regional Water System. The SFPUC is committed to the preservation of scarce potable water resources and maximizing the availability of potable supply for potable use. Tertiary treated irrigation water is available within one mile of Harding Park to meet the park's recycled water demands.

The Project would deliver 260 AFY of tertiary-treated water to meet the average annual demand for irrigating the golf courses, which are currently irrigated with potable water. The Project will use existing recycled water capacity and facilities that have been serving recycled water to the Lake Merced Golf Club, the Olympic Club, and the San Francisco Golf Club, as well as other landscaped areas in Daly City since 2004. New construction for the project will include pipeline along Lake Merced Boulevard to Harding Park, a 700,000-gallon underground storage tank below the Harding Park Maintenance Yard parking lot, and an irrigation pump station at Harding Park Maintenance Yard to deliver water to the Harding Park irrigation system. The Harding Park Recycled Water Project is the first public recreational facility in San Francisco to use recycled water for non-potable use. The project will address the following:

- Reduce dependence on the SFPUC's Regional Water System by reducing potable water demand by260 AFY on an average annual basis. The project intends to replace potable water supply with recycled water for irrigation of the 18-hole Harding Park Golf Course and adjoining 9-hole Fleming Golf Course (referred to collectively as Harding Park).
- Provide reliable water supply to serve Harding Park while using the most appropriate water quality (tertiary treated recycled water) to the intended irrigation use.
- Replace the use of potable water with recycled water for the irrigation of Harding Park.

Project G. SBWR Industrial Expansion and Reliability

South Bay Water Recycling supplies 10,000 acre-feet per year of highly treated non-potable water to more than 600 landscape and industrial customers in the cities of San José, Santa Clara and Milpitas. SBWR facilities include over 110 miles of pipe, four pump stations and three reservoirs. The SBWR recycled water program was original proposed as a means of reducing discharge to south San Francisco Bay in order to protect the habitat of two endangered species, the California clapper rail and the salt marsh harvest mouse. Since its implementation, however, SBWR has emerged as an important source of water to augment existing supplies. Current efforts have focused on extending the SBWR system to provide recycled water for industrial cooling to support Silicon Valley businesses. This project consists of the following elements:

1. Construction of approximately 6,000 feet of 12-inch recycled water pipeline to provide up to 500 AFY of recycled water to data centers and other high-tech industrial users in the vicinity of the SBWR pipeline in the City of Santa Clara.
2. Construction of two potable backup systems to ensure the reliable supply of recycled water of consistent quality to critical facilities requiring uninterrupted sevice. T
    a. One potable backup system will be provided by construction of approximately 5,500-feet of 18-inch pipe to provide potable water to the 8 mgd (9,000 AFY) Advanced Water Treatment Facility located at the San José/Santa Clara Water Pollution Control Plant. The backup will ensure continuous supply to more than 600 SBWR customers in the event that water produced by the Advanced Water Treatment Facility (now under construction)

becomes unavailable. A project map showing the location of the proposed Industrial 3B pipeline and plans and specifications showing the 90% design of the first segment (Industrial 3B-1) are attached for review.

b. A second potable backup system will be constructed to ensure the continuous supply of 100 AFY of recycled water for irrigation, cooling, washing cars and flushing toilets at the Mineta-San Jose International Airport. This backup system will ensure continues service in the event of a break in the recycled water pipe to the Airport, which serves the needs of more than 11 million passengers per year. (The SBWR pipeline extension to the Airport is not currently looped, and a break would leave that facility without water for an extended period of time.)

   Project maps showing the location of the proposed potable backup facilities and design drawings showing the current status of their design are attached for review.

3. An outreach component, tied to the Regional Recycled Water Outreach Project, will facilitate public acceptance for recycled water by: 1) Identifying key audiences; 2) Developing appropriate messages to communicate the value of recycled water, and 3) Designing a strategic communications plan to convey the message to Bay Area stakeholders.

Overall, this project is aimed to accomplish the following:

- Provide an alternative "drought-proof" water supply to supplement water imported from the CALFED Bay-Delta.
- Reduce the energy required to supply adequate water supplies to Santa Clara County by augmenting the existing local supply of recycled water.
- Provide recycled water for industrial cooling to existing and planned data centers and other high-tech facilities, thereby supporting the economy of Silicon Valley.
- Expand the use of recycled water by public and private facilities requiring uninterrupted water service by constructing a system-wide potable backup system to the new Advanced Water Treatment Facility and a second potable backup system to ensure a reliable supply of recycled water to the Mineta-San Jose International Airport (SJC).
- Further reduce the flow of fresh, highly treated effluent to the south end of San Francisco Bay, preserving the salt marsh habitat of two endangered species (salt marsh harvest mouse and California clapper rail).
- Develop a regional message promoting the use of recycled water suitable for distribution throughout the San Francisco Bay area.
- Ensure the reliable supply of water to critical industries in Silicon Valley and augment the supply of potable water for nearly 2 million people in Santa Clara County. In addition, further use of recycled water reduces the flow of highly treated effluent to the southern portion of the San Francisco Bay, preserving endangered species salt marsh habitat. To this end, the communities in the service are of the San Jose/Santa Clara Water Pollution Control Plant have already invested over $230 million in recycled water facilities and intend to further expand the regional distribution system.

  This project also fulfills the following identified needs:

- Without this project, data centers developing in Santa Clara and elsewhere in Silicon Valley—the infrastructure behind Silicon emerging economic recovery—will continue to use potable water for their extensive cooling needs. Once the proposed project is completed, SBWR can serve 500 acre-feet per year to the area immediately adjacent to the Santa Clara Industrial 3B project and establish a precedent for the use of recycled water in this industry.
- Without this project, the supply of water to over 600 SBWR customers would be suspended by interruption of the Advanced Water Treatment (AWT) facility. Once the proposed project is completed, interruption in the flow of product water from the AWT MF/RO facility will be

supplemented by potable water such that recycled water customers will continue to receive water of similar quality and pressure, reinforcing the demand of recycled water by industrial customers in Silicon Valley.

- Without this project, recycled water could not be provided to the Mineta-San Jose International Airport due to reliability concerns. Once the project is completed, some 11 million passengers per year will be provided recycled water for flushing toilets and washing rental cars and the airport will be further served by recycled water for irrigation and industrial cooling.
- Without this project, individual agencies in the San Francisco Bay area will continue to spend more to promote individual recycled water programs to stakeholders in their service areas on an "as needed" basis. Once the project is completed agencies will be able to take advantage of a consistent message and a coordinated strategy, reducing the unit cost of public education and enhancing public

A summary of the Bay Area Regional Recycled Water Program, including the current status of each project in terms of percent completion of design, is provided in Table 1 on the following page.

Table 1: Project List

Project	Current Status	Implementing Agencies
A. CCCSD/Concord Recycled Water Project Phase I	Planning, CEQA and final design completed.	Central Contra Costa Sanitary District
B. DSRSD Central Dublin Recycled Water Distribution and Retrofit Project	Planning, CEQA, and pre-design completed.	Dublin San Ramon Services District
C. EBMUD East Bayshore Phase IA- I-80 Pipeline	Planning, CEQA, and pre-design completed.	East Bay Municipal Utilities District
D. MMWD Peacock Gap Recycled Water Extension	75% design completed.	Marin Municipal Water District
E. NBWRA Program	• Planning and CEQA completed. • Design: 60% Complete (Novato SD/NMWD Novato North Service Area Phase 1 Project). • Design: 10% Complete (LGVSD/NMWD Novato South Service Area Phase 1 Project). • Design: 100% Complete (NSD NSH Pipeline Construction Phase 1 Project). • Design: 30% Complete (Sonoma Valley Recycled Water Phase 1 Project).	North Bay Water Reuse Authority consisting of: Sonoma County Water Agency, Sonoma Valley County Sanitation District, Napa Sanitation District, Novato Sanitary District, Las Gallinas valley County Sanitation District, North Marin Water District, and Napa County
F. SFPUC Harding Park Recycled Water Project	Final design completed.	The San Francisco Public Utilities Commission (SFPUC) and the City of Daly City
G. SBWR Industrial Expansion and Reliability	Between 10% and 90% design completed based on various project components.	City of San José as administering agency of the San Jose/Santa Clara Water Pollution Control Plant serving: • City of San José • City of Santa Clara • City of Milpitas • City of Saratoga • City of Cupertino • City of Campbell • City of Monte Sereno • Town of Los Gatos • Santa Clara Valley Water District • US Bureau of Reclamation

1.3 Regional Map

The following map shows the location of each of the ten projects included in the Regional Recycled Water Program. Individual project maps are provided in Section 2.1.

1.4 Integrated Elements of Projects

As described earlier, the Bay Area Regional Recycled Water Program consists of ten recycled water projects. However, these elements share the goal of furthering development of recycled water supplies within the Bay Area Region and thereby improving water supply reliability while reducing reliance on imported state and federal supplies through the State Water Project and the Central Valley Project as well as groundwater and surface water supplies. While these elements tend to be independent, they are generally part of bigger recycled water development schemes envisioned by individual Bay Area water agencies as well as on a regional level. A short description of how the individual Bay Area Recycled Water Project elements address agency-wide and regional water supply strategies is provided below.

Project A. CCCSD/Concord Recycled Water Project – Phase I

This project is part of Central Contra Costa Sanitary District's Recycled Water Program that aims to conserve potable water supplies and reduce demands on the Delta. This project will reduce pumping from the Delta thus improving its water quality, reducing energy consumption, and benefiting other communities across the region that rely on the Delta for their water supply.

Project B. DSRSD Central Dublin Recycled Water Distribution and Retrofit Project

This project is an expansion of the District's San Ramon Valley Recycled Water Program to deliver water to Priority 1 customers identified in the District's 2005 Water Master Plan Update. The distribution pipelines to be constructed under this project will convey water from the District's existing recycled water facilities. DSRSD has been operating under a Stage 1 Water Shortage since July 2009, asking customers to voluntarily reduce their water use by 20 percent. This is because DSRSD purchases potable water from the Zone 7 Water Agency which relies for about 80% of its water supply on the State Water Project (SWP). Availability of water supply from the SWP has been restricted by the federal government for the last two years and continues to be limited this year. By replacing non-potable water uses with recycled water, the District reduces its demand and importation of water from the Delta and SWP which is of regional significance. In addition, this project integrates with and supports Zone 7's water conservation efforts and its overall goal of reducing potable water demand.

Project C. EBMUD East Bayshore Phase IA- I-80 Pipeline

The East Bayshore Project is part of the District's updated Water Supply Management Program which provides guidance to developing long-term water supply and conservation solutions for the East Bay region across portions of Alameda and Contra Costa counties, multiple cities and towns, and 1.35 million population.

Project D. MMWD Peacock Gap Recycled Water Extension

By implementing the MMWD Peacock Gap Recycled Water Extension project, the District pursues its strategy to address the identified water supply shortfall through a multi-faceted approach. This approach includes optimizing the District's reservoir operations, taking next steps towards considering construction of a bay water desalination facility, implementing the District's 2007 Water Conservation Master Plan, and expanding the District's recycled water program where feasible.

Project E. NBWRA Program

The North Bay Water Reuse Program is a model for maximizing the benefits of limited water resources in the west. As each of the projects in the North Bay Water Reuse Authority Program is implemented, potable water demand across the Marin, Napa, and Sonoma counties program area will be reduced while

providing a sustainable long-term supply of recycled water for urban, agricultural and environmental uses. This comprehensive regional program provides a sound approach towards meeting local, state and federal water management objectives and regulatory requirements and helps put recycled water to its broadest and most beneficial use.

Project F. SFPUC Harding Park Recycled Water Project

As laid out in its 2009 Environmental Impact Report released in 2010, the SFPUC has made it a priority to decrease its reliance on potable water supplies and increase the development of alternative water supplies including recycled water projects that produce a total of 4,480 AFY by 2018. The Harding Park project will replace potable water used for the irrigation of the park with 260 AFY of recycled water supplied by Daly City. The plant in Daly City currently provides recycled water for irrigation purposes at the Lake Merced Golf Club, Olympic Club, and San Francisco Golf Club, as well as other landscaped areas in Daly City. This partnership and use of recycled water to irrigate Harding Park will reduce the San Francisco Regional Water System's dependency on a single source of water, decrease demand on surface water, provide a drought-resistant water source, and decrease wastewater discharges to the Pacific Ocean.

Project G. SBWR Industrial Expansion and Reliability

By extending and normalizing industrial use of recycled water in Silicon Valley, this project will establish case histories and best practices that will facilitate further use of recycled water throughout the Bay area. In particular, this project will protect the overall effectiveness of the regional South Bay Water Recycling Program by ensuring the reliable implementation of the Advanced Water Treatment Facility (funded in part through the last IRWMP funding round). It will provide a positive impression of water reuse to the airport's 11 million passengers per year, as well as developing a case history for the use of recycled water as a supply for Bay Area carwashes by ensuring the reliable use of recycled water at the Mineta-San Jose International Airport rental car facilities. And finally, this project will facilitate the use of recycled water in all Bay Area counties by developing a consistent message and regional public education strategy.

1.5 Completed Work

This section highlights the tasks that will be completed prior to June 1, 2011 for each project in the Regional Recycled Water Program. The tasks are presented for each project according to the following categories:

- Task 1- Project Administration
- Task 2- Labor Compliance Program
- Task 3- Reporting
- Task 4- Assessment and Evaluation
- Task 5- Design
- Task 6- Environmental Documentation
- Task 7-Permitting
- Task 8- Construction Contracting
- Task 9- Construction
- Task 10- Environmental Compliance/Mitigation/Enhancement
- Task 11- Construction Administration

Project A. CCCSD/Concord Recycled Water Phase 1 Project

Task 1- Project Administration- Consists of coordination with customers, the City of Concord, and the Contra Costa Water District.

Task 2- Labor Compliance Program– In progress, to continue through construction.

Task 3- Reporting- To commence after grant award.

Task 4- Assessment and Evaluation-

- Engineering Report for Zone One Recycled Water Project (November 1996)
- Project Specific Agreement for the Zone One Recycled Water Project between CCCSD and CCWD (November 1995)
- Hydraulic Modeling of A-Line Expansion with Existing Recycled Water System (April 2009)
- Feasibility study for Backflow prevention Requirements for Fire Protection Systems at sites Proposed for Recycled Water (October 2007)
- Letters of Intent for major customers representing more than half of the recycled water demand (September 2008)

Task 5- Final Design-

- 100% Design (2007)-This project was originally designed as part of the District's A-Line Sewer Expansion project. Due to cost prohibitions at the time the project was bid, the recycled water pipeline construction was pulled from the sewer project and put on hold until funding becomes available.

Task 6- Environmental Documentation-

- CEQA – Notice of Exemption (March 25, 2009)
- NEPA Documentation (Environmental Assessment) (April 2011; 30% complete). Since CCCSD is seeking both state and federal funding for this project, NEPA is being conducted to comply with federal funding requirements. Tribal notification was completed in 2010 as required by NEPA and for Prop 84 funding.

Task 7- Permitting-

- NPDES Permit No. CA0037648 for waste discharge (January 23, 2007)
- General Order 96-011 to operate a recycled water project (May 9, 2007)

Task 8- Construction Contracting

- Advertisement and Receipt of bids (bids were received (2007) but a contract was not awarded. The Project was put on hold until state/federal funding becomes available. The Project will be re-bid in 2011.

Task 9- Construction- To commence with grant award.

Task 10- Environmental Compliance/Mitigation/Enhancement- To commence after grant award.

Task 11- Construction Administration- To commence after grant award.

Project B. DSRSD Central Dublin Recycled Water Distribution and Retrofit Project

Task 1- Project Administration- Includes 12 hours of project manager time to date to coordinate with other property owners and agencies for the following activities:

- Meet with City of Dublin, Dublin Unified School District, and Amador Lakes Apartment representatives to discuss schedule and construction requirements for connection of existing irrigation facilities to recycled water system.
- Coordinate with City of Dublin, Zone 7, and Union Pacific to obtain encroachment permits & right of entry. Encroachment permits and rights-of-way will be obtained by the contractor after award of the construction contract.

Deliverables include:

- Time report documentation
- Right of Entry from Property Owners to modify irrigation system

Task 2- Labor Compliance Program- In progress, to continue through construction.

Task 3- Reporting- To commence after grant award.

Task4- Assessment and Evaluation-

- Pre-design Report- May2004
- 2005 Water Master Plan

Task 5- Final Design-

- Utility Research, Survey, and Geotechnical Investigation
- 10% Design (Selection of Final Alignment for selected final alignment). The selected alignment is based on the alignment alternatives developed in the Winzler & Kelly design TM, and was modified to minimize costs and meet the District's schedule while extending the system to serve the District's Priority 1 customers.

Task 6- Environmental Documentation-

- San Ramon Valley Recycled Water Program Environmental Impact Report- Notice of Determination filed December 23, 1996
- NEPA Documentation (Environmental Assessment) including Native American tribal consultation- December 17, 2010 submitted to Bureau of Reclamation

Task 7- Permitting- The following permits have been approved:

- NPDES- August 30, 2006
- General Order 96-011- January 7, 2005

Task 8- Construction Contracting- To commence after grant award.

Task 9- Construction- To commence after grant award.

Task 10- Environmental Compliance/Mitigation/Enhancement- To commence after grant award.

Task 11- Construction Administration- To commence after grant award.

Project C. EBMUD East Bayshore Phase IA- I-80 Pipeline

Task 1- Project Administration- To commence after grant award.

Task 2- Labor Compliance Program- In progress, to continue through construction.

Task 3- Reporting- To commence after grant award.

Task 4- Assessment and Evaluation-
- Project Facilities Plan (December 2000)

Task 5- Design –
- Easement verification, utility research, surveys, and geotechnical investigations

Task 6- Environmental Documentation-
- Final EIR: Completed in May 2001
- NOD for EIR: Completed in June 2001
- CEQA Addendum (if pipeline alignment changes)- To be completed in February 2011

Task 7- Permitting-
- General Reuse Order 96-011: Obtained in March 28, 2002 from RWQCB
- Project Engineering Report Approval: Obtained in May 4, 2007 for distribution of recycled water (CDPH approval)

Task 8- Construction Contracting- To commence after grant award.

Task 9- Construction- To commence after grant award.

Task 10- Environmental Compliance/Mitigation/Enhancement- To commence after grant award.

Task 11- Construction Administration- To commence after grant award.

Project D. MMWD Peacock Gap Recycled Water Extension

Task 1- Project Administration- Includes 12 hours of project manager time.

Task 2- Labor Compliance Program- To commence after grant award.

Task 3- Reporting- To commence after grant award.

Land Purchase Easement- The proposed alignment for the recycled water supply pipeline passes through China Camp State Park. Work with State Park staff to acquire an easement allowing the pipeline to cross the Park property is in progress.

Task 4- Assessment and Evaluation- Not applicable.

Task 5- Final Design-

- 75% Design: November 2010
- 90% Design: February 2011
- 100% Design: By June 1, 2011

Task 6- Environmental Documentation – In progress.

- IS/MND will be completed in May 2011.

Task 7- Permitting- As the project is designed it is not clear that permits from CDFG (1602), Regional Board (401), or Corps (404) will be needed. However, since there are protected species in project area, we will apply for permits as a cautionary measure. That process will start in January/February and we should have permits in hand (if the agencies determine they're needed) by June 1, 2011.

- Encroachment permits (San Rafael & Marin County)
- CDFG Code Section 1602 Lake or Streambed Alteration Agreement
- SF Bay RWQCB Water Quality Certification/Section 401 of the federal Clean Water Act
- Army Corps of Engineers federal Clean Water Act Section 404/Nationwide Permit

Task 8- Construction Contracting- To commence after grant award.

Task 9- Construction- To commence after grant award.

Task 10- Environmental Compliance/Mitigation/Enhancement- To commence after grant award.

Task 11- Construction Administration- To commence after grant award.

Project E. NBWRA Program

Task 1- Project Administration- Consists of ongoing project administration, which includes the following:

- 400 hours of NBWRA project manager time
- 100 hours of legal time
- 40 hours of accountant time
- 80 hours of administrative time.
- 800 hours of consultant project manager time

Deliverables prior to grant award:

- Monthly meetings and monthly conference calls
- Annual contract preparation and approval
- Annual budget preparation and approval

Task 2- Labor Compliance Program- In progress, to continue through construction.

Task 3- Reporting- Current reporting includes monthly and quarterly reports to USBR. Reporting to DWR will commence after grant award.

Land Purchase Easement- Right-of-Way/Easements for Phase I facilities have been acquired.

Task 4- Assessment and Evaluation-

- North San Pablo Bay Restoration and Reuse Project - June 2008

Task 5- Final Design-

- 10% Design- Completed by June 2010
- 30% Design- Completed by June 2010
- 60% Design- 1 project complete; other 3 projects to be completed by April 2011
- 90% Design- 1 project complete; other 3 projects to be completed by June 2011
- 100% Design- 1 project complete; other 3 projects to be completed by August 2011

Task 6- Environmental Documentation-

- CEQA/NEPA –Anticipate all approvals by December 2010
- Record of Decision Approval by USBR pending

Task 7- Permitting- The following permits have been approved or are anticipated for approval prior to June 1, 2011:

- Environmental permits including Section 1602, 404, 402, NPDES, Streambed Alteration, Section 7 ESA Consultation, NMFS ESA Consultation, 401 Certification (April 2010)
- Building, encroachment grading, electrical, development, General Plan consistency permits, Cal OSHA Permit Northern Sonoma County Air Pollution Control District, Bay Area Air Quality Management District, SWPPP permits (February 2011).

Task 8- Construction Contracting-
Solicitation Efforts
Napa SD NSH Pipeline Bidding and Award – Expected to be completed by February 2011.

Task 9- Construction- To commence after grant award.

Task 10- Environmental Compliance/Mitigation/Enhancement- To commence after grant award.

Task 11- Construction Administration- To commence after grant award.

Project F. SFPUC Harding Park Recycled Water Project

Task 1- Project Administration- To commence with grant award.

Task 2- Labor Compliance Program- To commence with grant award.

Task 3- Reporting- To commence with grant award.

Task 4- Assessment and Evaluation-

- Harding Park Recycled Water Project Feasibility Study (September 2007): Initial feasibility of project evaluated including demand data, plant capacity, and project requirements.

Task 5- Final Design-

- 60%Design- December 2008
- 95% Design- August 2009
- 100% Design- May 2010

Task 6- Environmental Documentation-

- Public Draft Environmental Impact Report (EIR)- July 2009
- Final EIR- October 2009
- Notice of Determination (NOD)- November 2009

Task 7- Permitting-

- Storm Water Pollution Prevention Program (SVPPP) for required stormwater compliance: December 2010

Task 8- Construction Contracting

- Bid/Award complete
- Notice to Proceed (NTP)- November 2010

Task 9- Construction

- Construction of the Harding Park Recycled Water Project will comply with the contractual plans and specifications. The plan includes standard notes and details to which construction must conform, such as minimum acceptable cover over pipes, backfill requirements, and trenching details.
- The contractor will be responsible for safety on the job site, and will be required to follow the standards listed below to ensure Health & Safety of the workers, the public and the environment.
  - CalOSHA
  - DPH
  - Caltrans and traffic control requirements in Daly City and San Francisco
  - Soil sampling, testing and management
  - Groundwater sampling, testing, and management
  - Survey and settlement monitoring

Task 10- Environmental Compliance/Mitigation/Enhancement- To commence with grant award.

Task 11- Construction Administration- Construction administration is 40% complete.

Project G. SBWR Industrial Expansion and Reliability

Task 1- Project Administration- Ongoing. Approximately 40 hours of Project Manager time.
With the exception of the Regional Outreach component of the proposed projects, all project elements (Santa Clara Industrial 3B alignment, AWT Potable Backup and Airport Potable Backup) were originally conceived as elements of a stimulus funding package and were prepared for implementation by September 30, 2011. Ultimately, funding under the American Recovery and Reinvestment Act (ARRA) was not applied to these projects, which are now available for implementation through the IRWMP program.

The following procedures and inter-agency agreements have been put in place for the project implementation:

- Standard Operating Procedures for IRWMP Implementation (September 2010)
- Agreement between the City of San Jose and the Santa Clara Valley Water District for the Integration of Facilities and Programs for the Use of Recycled Water in Santa Clara County (March 2010)
- Amendment to Agreement for In-Kind Services between the City of Santa Clara and the City of San José (December 2010)

Task 2- Labor Compliance Program- In process, will be implemented throughout construction. The City of San Jose implements a labor compliance program supervised by Nina Grayson, Director of the Office of Equality Assurance. The program consists of examination of payroll records and interviews with employees to verify work, classification and pay rate.

Task 3- Reporting- Current project reporting includes:

- Weekly narrative reports of progress of design of Industrial 3B project
- Monthly invoice of expenditures by project, project task and contractor

Land Purchase Easement- Land owner has approved the alignment and agreed to the encroachment; documentation is being prepared for signature.

Task 4- Assessment and Evaluation- Several studies have been completed to date including:

- South Bay Water Recycling Expansion Strategy Volume 1 – Near Term Development Plan, RMC Engineers (March 2001)
- South Bay Water Recycling Expansion Strategy Volume 2 –Long Term Strategies, RMC Engineers (June 2000)

Task 5- Final Design- The following designs for the various components will be completed prior to grant award:

- 10% Design: August 2010
- 30% Design: March 2011
- 60% Design: April 2011
- 90% Design: May 2011

Task 6- Environmental Documentation- The following environmental documentation has been developed for the project:

- CEQA and NEPA approval on Santa Clara Industrial 3B Alignment based on previous alignment (approved 2010): expected by December 14, 2010.
- Mitigated Negative Declaration for Advanced Water Treatment Facility (AWTF), Santa Clara Valley Water District: February 2010
- Potable Backup System for Advanced Water Treatment Facility to be covered by addendum to "Mitigated Negative Declaration for Advanced Water Treatment Facility (AWTF), Santa Clara Valley Water District, February 2010."
- CEQA Document for San Jose Airport Extension, City of San José Resolution #64667, PP10-20
- Addendum to "San Jose Airport Extension" City of San José Resolution #64667, PP10-20 and NEPA Certification filed April 13, 2010 to address Potable Backup System for Mineta-San Jose International Airport.
- Addendum #7 "Santa Clara and Milpitas Extensions" to "Final Environmental Impact Report for the

Project G. SBWR Industrial Expansion and Reliability

San Jose Non-Potable Reclamation Project "(SCH# 92013071)

Task 7- Permitting- To commence after grant award. Other than possible encroachment permits for construction of some Santa Clara Industrial 3B facilities, no additional permits will be required.

Task 8- Construction Contracting- To commence after grant award.

Task 9- Construction- To commence after grant award.

Task 10- Environmental Compliance/Mitigation/Enhancement- To commence after grant award.

Task 11- Construction Administration- The equivalent of 220 hour have been spent by four senior staff members for construction administration purposes to complete the following activities:

- Santa Clara Industrial 3B 90% design: expected to be complete by December 14, 2010.
- Mineta-San Jose International Airport Potable Backup Facility 100% Design

1.6 Existing Data and Studies

The key data and studies that have been developed in support of the Regional Recycled Water Program ten components are summarized below.

Project A. CCCSD/Concord Recycled Water Project

- Engineering Report for Zone One Recycled Water Project (November 1996)
- Project Specific Agreement for the Zone One Recycled Water Project between CCCSD and CCWD (November 1995)
- Hydraulic Modeling of A-Line Expansion with Existing Recycled Water System (April 2009)
- Feasibility study for Backflow Prevention Requirements for Fire Protection Systems at sites Proposed for Recycled Water (October 2007)
- CCSD Plans for Construction of District Project No. 5980 A-Line Relief Interceptor Phase 2A (2007) Volume 3 of 3 Project Drawings (Pages 1-4; pages 12 - 25 (except page 19) ;and Page 60)

Project B. DSRSD Central Dublin Recycled Water Distribution and Retrofit Project

- Pre-design Report - May 2004
- 2005 Water Master Plan
- Utility Research, Survey, and Geotechnical Investigation

Methods used for the development of the Master Plan and Pre-design Report include a hydraulic analysis and computer modeling to determine pipe sizes. The basis for the hydraulics analysis is the historical water use of the planned customer sites.

Project C. EBMUD East Bayshore Phase 1A I-80 Pipeline

- Project Facilities Plan (December 2000)

Methods used for the development of the Facilities Plan include:

- Review of historic water use to estimate projected recycled water demands.
- Hydraulic modeling of the system to determine appropriate pipe diameters to serve the anticipated recycled water demands.

Project D. MMWD Peacock Gap Recycled Water Extension

- MMWD Peacock Gap Recycled Water Transmission Pipeline Project Plans (February 2010)
- MMWD San Rafael Peacock Area Recycled Water Facilities Plans

Project E. NBWRA Program

- North San Pablo Bay Restoration and Reuse Project - June 2008

i. Novato Sanitary District (Novato SD)/North Marin Water District (NMWD) Novato North Service Area Project

- NMWD Recycled Water Expansion Project North Service Area 50% Design Plan & Profile (November 2010) (Pipeline)
- Novato Sanitary District Wastewater Facility Upgrade - Contract D - Novato Recycled Water Facility 95% Submittal Contract Drawings- Volume 3 (December 2010) (Treatment)

iii. Napa Sanitary District (Napa SD) Napa State Hospital Pipeline Construction Stage 1 Project

- Napa Sanitation District Contract Documents for the Construction of Napa State Hospital Recycled Water Pipeline Project (CIP-5506) Drawings- Volume 3 (October 2010)
- Napa Sanitation District Napa State Hospital Recycled Water Pipeline Project (CIP-5506) Contract Documents, Bidding and Contract Requirements, General Requirements, Technical Specifications and Drawings (October 2010)
- Appendices

v. Sonoma Valley County Sanitation District (SCVSD) Recycled Water Project Stage 1 Project

- North Bay Water Reuse Program Sonoma Valley Effluent Reservoir R5 Sonoma Valley County Sanitation District 99% Design Submittal (December 2010)
- Sonoma Valley County Sanitation District Main Sewer Trunk Replacement and Recycled Water Pipeline Plans and project Manual (Watmaugh Road East to Treatment Plant) (January 2011)

Methods used for development of the North San Pablo Bay Restoration and Reuse Project include the following:

- Assumed use of PVC recycled water pipeline
- Derived urban water demands from municipal planning documents (UWMPs).
- Derived potential agricultural demands from land use acreage data and crop specific water demand rates.
- Derived water supply needs from reservoir storage, stream gauges and municipal records for groundwater use
- Derived wastewater quantities from municipal records
- Evaluated existing and future regional conditions, water reuse opportunities and conducted hydraulic modeling to optimize the project alternatives

Project F. SFPUC Harding Park Recycled Water Project

- Harding Park Recycled Water Project Feasibility Study (September 2007): Initial feasibility of project evaluated including demand data, plant capacity, and project requirements.
- Contract No. WD-2623 Harding Park Recycled Water Project Volume 3 of 3 - Conformed Drawings (September 2010)

Project G. SBWR Industrial Expansion and Reliability

- South Bay Water Recycling Expansion Strategy Volume 1 – Near Term Development Plan, RMC Engineers (March 2001)
- South Bay Water Recycling Expansion Strategy Volume 2 –Long Term Strategies, RMC Engineers (June 2000)
- City of Santa Clara Water and Sewer Utilities 12" Recycled Water Line Project from Comstock St. to Arbuckle Ct. Drawings (2010)
- City of Santa Clara Water and Sewer Utilities Department Specifications and Contract Documents for the Construction of Industrial 3B- Phase 1 Recycled Water Pipeline Alignment Comstock St. to Arbuckle Ct. Project
- San Jose Airport North Concourse Potable Backup Schematic
- SC Industrial 3B Phase 1 and Phase 2 Alignment
- ARWTF Potable Back Alignment
- San Jose Airport Potable Backup Schematic

1.7 Project Timing and Phasing

The recycled water projects included in the Regional Recycled Water Program are capable of providing the benefits claimed in the absence of other projects; as a result, implementation of the tasks described in Section 2 will yield full benefits for each project. The schedules of the ten proposed projects are not interdependent. However, a few of the projects included in this Program are elements of larger projects and funding received through this grant opportunity will be leveraged to implement a component of a larger project.

Project A. CCCSD/Concord Recycled Water Project – Phase I

This project is independent from future phases and will operate as a stand-alone project. Future phases will consist of extending the distribution pipeline constructed as part of this project to additional water recycled users.

Project B. DSRSD Central Dublin Recycled Water Distribution and Retrofit Project

This is a discrete project of DSRSD's San Ramon Valley Recycled Water Program. While the construction of a new distribution pipelines undertaken under this project will be connected to the existing backbone system, it is independent of subsequent phases.

Project C. EBMUD East Bayshore Phase IA I-80 Pipeline

This project is a component of EBMUD's East Bayshore Recycled Water Project which consists of construction of a portion of a transmission pipeline along I-80 that will be connected to the existing recycled water backbone system. Recycled water distribution through the new pipeline will commence once the remainder of the I-80 pipeline and distribution pipelines is constructed.

Project D. MMWD Peacock Gap Recycled Water Extension

The project will provide recycled water in two Phases: Phase 1 will deliver recycled water to the Peacock Gap Golf Course; Phase 2 will provide recycled water to other suitable services in the area. Phase 1 will allow recycled water to flow to the primary user in the area, the Peacock Gap Golf Course, and will allow the project to be fully functional without implementing the expansion of recycled water service to other suitable services in the area. Implementation of this second phase will allow full benefit of the Phase 1 work to be achieved because the new recycled water supply will be maximally utilized.

Project E. NBWRA Program

The North Bay Water Reuse Program is a large regional project that consists of four independent components, coordinated through the North Bay Water Reuse Authority. All four projects under the North Bay Water Reuse Authority Program are designed to be completed in phases. Only the first phase, which consists of constructing infrastructure to serve local needs, is addressed in this proposal. Subsequent phases will build upon that initial phase, once completed.

Project F. SFPUC Harding Park Recycled Water Project

As mentioned earlier, the project will use existing recycled water facilities that have been serving recycled water to the Lake Merced Golf Club, the Olympic Club, and the San Francisco Golf Club, as well as other landscaped areas in Daly City since 2004. The SFPUC-Daly City partnership on this project for the supply and use of recycled water will reduce the San Francisco Regional Water System's dependency on a single source of water, decrease demand on surface water, provide a drought-resistant water source, and decrease wastewater discharges to the Pacific Ocean. This project is independent and not part of a multi-phased project.

Project G. SBWR Industrial Expansion and Reliability

This project is an independent element of the larger South Bay Water Recycling (SBWR) system which intends to provide recycled water for industrial cooling to existing and planned data centers and other high-tech facilities. It should be noted that this project also aims at drafting an adequate public outreach campaign, which other agencies will be able to use to develop a consistent message and a coordinated strategy, reducing the unit cost of public education and enhancing public in the future. While this project is not by nature linked to subsequent phases, it has the potential to act as a catalyst for additional industrial recycled water reuse within SBWR's service area.

2 Work Tasks

This section highlight the tasks that need to be completed for implementation of the recycled water projects and follow the same format used in the Completed Work section. Again, the tasks are presented for each element according to the following categories shown below. It should be noted that tasks that have already been completed are characterized as Non Applicable (NA) in the following tables. These tasks are addressed under Section 1.5- Completed Work.

- Task 1- Project Administration
- Task 2- Labor Compliance Program
- Task 3- Reporting
- Task 4- Assessment and Evaluation
- Task 5- Design
- Task 6- Environmental Documentation
- Task 7-Permitting
- Task 8- Construction Contracting
- Task 9- Construction
- Task 10- Environmental Compliance/Mitigation/Enhancement
- Task 11- Construction Administration

In accordance with the PSP, this section specifically addresses the following:

PSP Requirements

- ✓ Tasks are detailed and complete in order to demonstrate that projects can be implemented
- ✓ Work Item submittals are clearly indicated for each of the tasks
- ✓ A list of project permits and their current status, is provided for each of the projects
- ✓ The status of environmental compliance activities is discussed
- ✓ If applicable, plans and specifications have been submitted to demonstrate consistency with the design tasks noted in the Work Plan
- ✓ For each of the projects, scientific and technical information has been submitted to demonstrate feasibility
- ✓ For each of the projects, there is a discussion of the data management and monitoring deliverables
- ✓ For each of the projects, there is a site map showing the geographical location and site boundaries
- ✓ In addition, each project write-up below includes a discussion of the required items listed on page 31 of the PSP:
  - o Description of work to be performed and current status of each task
  - o Procedures by which the applicant will coordinate with its partner agencies
  - o Discussion of standards used in implementation
  - o Development of performance measures and monitoring plans
  - o Discussion of acquisition of land or rights-of-way status
  - o Discussion of merits of materials and computational methods

Project A. CCCSD/Concord Recycled Water Project – Phase I

Task 1- Project Administration- Includes on-going coordination with customers, City of Concord, and Contra Costa Water District through October 2012.

Task 2- Labor Compliance Program- CCCSD will hire an approved third party Labor Compliance Program consultant prior to grant award (June 2011). Deliverables include:

- Executed Labor Compliance Consultant Contract
- Labor Compliance Program
- Annual Report

Task 3- Reporting- Reporting elements include:

- Quarterly Reports to DWR- From October 15, 2011 to October 15, 2012
- Final Report (Project Close-Out) to DWR- Anticipated by October 2012

Task 4- Assessment and Evaluation- NA

Task 5- Design - NA

Task 6- Environmental Documentation-

- NEPA Compliance Letter - Pending submittal of NEPA documentation.

Task 7- Permitting- NA

Task 8- Construction Contracting-

- Advertise for bids- June 17, 2011
- Evaluate of bids- July 14, 2011
- Award contract- August 4, 2011
- Notice to proceed: August 18, 2011

Task 9- Construction

Subtask 9.1 Mobilization and Site Preparation

- Contractor will prepare a staging area for storage of project construction materials and construction equipment.

Subtask 9.2 Project Construction

- Construction is required to comply with the contractual plans and specifications for the project. The standard notes and details that are part of the contractual plans include information such as: minimum acceptable cover over pipes, backfill requirements, and trenching details. Contractors are responsible for safety on the job site.
- Contractor will construct recycled water transmission pipelines and appurtenances.
- District will coordinate with Contra Costa Water District for installation of the backflow devices and performance of the cross connection tests.
- A construction inspector will be regularly monitoring and inspecting the job site for proper installation of piping and appurtenances.

Subtask 9.3 Performance Testing and Demobilization

- Pressure testing will be conducted in accordance with the District's standard specifications.
- Cross Connection control tests will be performed by the Contra Costa Water District by a certified Cross Connection Control Specialist.
- Demobilization - Contractor will clear staging area and return it to its original state.

Task 10- Environmental Compliance/Mitigation/Enhancement -NA

Project A. CCCSD/Concord Recycled Water Project – Phase I

Task 11- Construction Administration- Construction administration includes the following positions from start of construction:

- Construction Manager: full time
- Construction Inspector: full time
- Construction Administration Support: half time
- Project Manager: 8 hours/week

Project B. DSRSD Central Dublin Recycled Water Distribution and Retrofit Project

Task 1- Project Administration- Includes 8 hours per week of project manager time after June 1, 2011. Deliverables include reports, invoices and other relevant materials.

Task 2- Labor Compliance Program- Program to be established by certified third party labor compliance consultant prior to start of construction. Deliverables will include:

- Labor Compliance Program
- Annual Report
- Labor Compliance Consultant invoices

Task 3- Reporting- Reporting elements include:

- Quarterly Reports to DWR- From October 5, 2011 to July 15, 2012
- Final Report (Project Close-Out) to DWR- Anticipated by October 2012

Task 4- Assessment and Evaluation- NA

Task 5- Final Design-

- 30% Design - Underway (Will include the project siting and appurtenances).
- 100% Design- Expected in May 2011.

Task 6- Environmental Documentation- The following will occur in the near future:

- Addendum to San Ramon Valley Recycled Water Program EIR to update existing EIR to reflect selected alignment this overall project: Anticipated March 2011
- NEPA Compliance Letter- Anticipated for March 2011
- Draft Mitigated Negative Declaration- Anticipated for December 2011

Task 7- Permitting- The following permits will be needed:

- Encroachment Permit, City of Dublin - To be approved after June 1, 2011
- Encroachment Permit and Permanent Easements from Union Pacific Railroad, Alameda County, and Zone 7 Water Agency- To be approved after June 1, 2011
- General Permit, California Department of Fish and Game- To be approved after April 30, 2011

Task 8- Construction Contracting-

- Advertise for bids- June 5, 2011
- Evaluate of bids- June 28, 2011
- Award contract- July 5, 2011
- Notice to proceed: July 19, 2011

Task 9- Construction

Subtask 9.1 Mobilization and Site Preparation

- Contractor will prepare a staging area for storage of project construction materials and construction equipment.

Subtask 9.2 Project Construction

- Contractor will construct recycled water transmission pipelines
- Sub-Contractor will retrofit project customer sites for recycled water after construction of the transmission pipelines is complete.
- Costs associated with the retrofits are not subject to reimbursement from the Prop 84 grant and will be separated from transmission line construction costs.
- All facilities associated with the project will conform to the most recent editions of the Uniform Building Code, the California Building Code, and the Seismic Safety element of the City of Dublin's General Plan and grading ordinance. In particular, Alamo Creek Park facilities, which will be located

Project B. DSRSD Central Dublin Recycled Water Distribution and Retrofit Project

within the Alquist-Priolo Special Study Zone, will be designed to accommodate the maximum expected offset from fault rupture.

- Construction is required to comply with the contractual plans and specifications for the project. The standard notes and details that are part of the contractual plans includes information such as: minimum acceptable cover over pipes, backfill requirements, and trenching details.
- Contractors are responsible of safety on the job site.
- A construction inspector will be regularly monitoring and inspecting the job site for proper installation of piping and appurtenances.

Subtask 9.3 Performance Testing and Demobilization

- Pressure testing of pipelines
- Cross Connection Control test will be performed by a certified Cross Connection Control Specialist and will be conducted in accordance with the District's Recycled Water Use Guidelines and standard specifications.
- Demobilization - Contractor will clear staging area and return it to its original state

Task 10- Environmental Compliance/Mitigation/Enhancement- The following mitigation measures apply:

- Mitigation Measure BIO-1 - Preconstruction Nesting Bird Surveys
- Mitigation Measure HYD -1 – Implement Best Management Practices
- Mitigation Measure HYD -2 – Prepare a Site Specific Bore Plan
- Mitigation Measure GEO-1 – Adequate Project Design
- Mitigation Measure AQ-1 –Equipment Use and Maintenance
- Mitigation Measure AQ-2 – Implement Air Quality Best Management Practices in Accordance with BAAQMD Guidance
- Mitigation Measure NOISE-1 - Limit Timing and Equipment Used During Construction.
- Mitigation Measure TRANS-1 - Prepare Traffic Management Plan.
- Mitigation Measure TRANS-2 - Coordinate with Transit Providers.
- Mitigation Measure TRANS-3 – Notify Adjacent Property Owners of Construction Activities
- Mitigation Measure HAZMAT-1 – Hazardous Material Site Safety Plans
- Mitigation Measure CUL-1 – Protect Human Remains
- Mitigation Measure CUL-2- Construction Monitoring in Archaeologically Sensitive Areas
- Mitigation Measure CUL-3 - Construction Monitoring in Paleontologically Sensitive Areas

Task 11- Construction Administration- Construction administration includes the following positions from start of construction:

- Construction Manager: full time
- Construction Inspector: full time
- Construction Administration Support: half time
- Project Manager: 12 hours/ week

Project C. EBMUD East Bayshore Phase IA- I-80 Pipeline

Task 1- Project Administration- Includes program/project management time. Deliverables include reports, invoices and other relevant materials.

Task 2- Labor Compliance Program- Program to be established by certified third party labor compliance consultant prior to start of construction. Deliverables will include:

- Labor Compliance Program
- Annual Report

Task 3- Reporting- Reporting elements include:

- Quarterly Reports to DWR- From October 5, 2011 to July 15, 2012
- Final Report (Project Close-Out) to DWR- Anticipated by October 2012
- Annual Reports to DWR- From 2013 to 2023

Land Purchase Easement – New easements may not be needed, based on evaluations of existing EBMUD easement.

Task 4- Assessment and Evaluation- NA

Task 5- Final Design-

- 100% Design

Task 6- Environmental Documentation- NA

Task 7- Permitting- The following permits may be needed:

- Encroachment Permits- For portions of pipeline in public streets when working outside of EBMUD's existing easement.

Task 8- Construction Contracting

- Advertise for bids- June 1 2011
- Evaluate of bids- June 21, 2011
- Award contract- July 12, 2011
- Notice to proceed- July 26, 2011

Task 9- Construction

Subtask 9.1 Mobilization and Site Preparation

- Contractor will prepare a staging area for storage of project construction materials and construction equipment.

Subtask 9.2 Project Construction

- Contractor will construct recycled water transmission pipeline. Construction is required to comply with the contractual plans and specifications for the project. The standard notes and details that are part of the contractual plans include information such as: minimum acceptable cover over pipes, backfill requirements, and trenching details. Contractors are responsible of safety on the job site. A construction inspector will be regularly monitoring and inspecting the job site for proper installation of piping and appurtenances.

Subtask 9.3 Performance Testing and Demobilization

- Prior to placing the pipeline into service, testing will be performed in accordance with District's standard specifications. The distribution system will undergo a pressure test conducted by the construction contractor.
- Contractor will clear staging area and return it to its original state.

Project C. EBMUD East Bayshore Phase IA- I-80 Pipeline

Task 10- Environmental Compliance/Mitigation/Enhancement- NA

Task 11- Construction Administration- Construction administration includes the following positions from start of construction:

- Construction Manager: full time
- Construction Inspector: full time
- Construction Administration Support: half time

Project D. MMWD Peacock Gap Recycled Water Extension

Task 1- Project Administration- Includes 100 hours of project manager time for grant coordination activities. Deliverables include reports, invoices and other relevant materials.

Task 2- Labor Compliance Program- The program will be in place before construction begins. Deliverables will include:

- Labor Compliance Program
- Annual Report

Task 3- Reporting- Reporting elements include:

- Quarterly reports to DWR- Throughout grant period, beginning with July-September 2011 quarter.
- Final report to DWR- At completion of project.

Land Purchase Easement- The proposed alignment for the recycled water supply pipeline passes through China Camp State Park. Work with State Park staff to acquire an easement allowing the pipeline to cross the Park property is in progress and will be in place prior to construction.

Task 4- Assessment and Evaluation- NA

Task 5- Final Design-

- 100% design- Will be completed prior to June 1, 2011.

Task 6- Environmental Documentation-

- Mitigated Negative Declaration (MND): May 2011
- Mitigation Monitoring and Reporting Program (MMRP) - August 2011
- CEQA will be essentially complete by June or July, 2011. Pre-construction surveys will occur two-weeks prior to start of construction as part of biological surveys. There will be an on-site cultural resources monitor during construction, at three locations along the proposed alignment. No additional studies are anticipated post July 1, 2011.

Task 7- Permitting- Note that at this point, it isn't clear that permits from CDFG (1602), Regional Board (401), or Corps (404) will be needed. However, since there are protected species along both sides of North San Pedro Road, permit applications will be submitted in January/February and permits approved by June 2011 if needed. The complete list of permits that may be require is as follows:

- Encroachment permit with City of San Rafael- June 2011
- Encroachment permit County of Marin - June 2011
- California Fish and Game Code Section 1602 Lake or Streambed Alteration Agreement- June 2011
- San Francisco Bay Regional Water Quality Control Board Water Quality Certification under Section 401 of the federal Clean Water Act - June 2011
- Army Corps of Engineers federal Clean Water Act Section 404/Nationwide Permit - June 2011

Task 8- Construction Contracting-

- Advertise for bids- September 1 2011
- Evaluate of bids- September 8 2011
- Award contract- September 30, 2011

Task 9- Construction- Within 30 days of contract award, the contractor will be required to obtain all necessary permits and commence work. Pipeline work will follow the constant repetitive pattern of daily excavation, pipe installation and repavement of the street. Upon the completion of the pipeline installation, the pipe shall be pressure tested and disinfected. After those tests are complete, the pipe will be connected to the recycled water source and to the storage tank. At this time, service connections can commence. Consumers will be advised of connection timing details and the availability of the recycled water for use on their properties.

Project D. MMWD Peacock Gap Recycled Water Extension

Task 10- Environmental Compliance/Mitigation/Enhancement-

- Cultural resources monitoring- Periodically during construction at three locations.
- No additional studies will be commissioned post July 1, 2011.

Task 11- Construction Administration- Work includes public meetings, contract administration, inspection and material testing services. It runs through duration of project including advertising the construction contract, submittal review, construction progress payments, processing all bonds, checking all regulatory labor compliance and filing of the Notice of Completion. Consumer issues related to the transfer to recycled water use will be addressed.

Project E. NBWRA Program

Task 1- Project Administration- Includes

- 200 hours of NBWRA project manager time
- 40 hours of legal time
- 20 hours of accountant time
- 40 hours of administrative time.
- 400 hours of consultant project manager time

Procedures for coordinating with partner agencies include:

- Monthly meetings
- Monthly conference calls
- Annual contract preparation and approval
- Annual budget preparation and approval

Deliverables will include quarterly invoices.

Task 2- Labor Compliance Program- The approved Labor Compliance Program will be implemented throughout project construction. Deliverables will include:

- Annual Report

Task 3- Reporting- Reports include the following:

- Quarterly reports to DWR
- Final Report to DWR
- Monthly and Quarterly Reports to USBR

Task 4- Assessment and Evaluation- NA. All assessments and evaluations have been completed for all of the four projects included in this program.

Task 5- Final Design- 100% Design for all four projects to be completed by December 2011. Deliverables include:

- Final design documents

Task 6- Environmental Documentation- NA. CEQA/NEPA documentation has been approved for all four projects.

Task 7- Permitting- The following permits will be obtained for each project prior to the start of construction:

- Building encroachment grading, electrical, development, General Plan Consistency Permits, Cal OSHA Permit, Northern Sonoma County Air Pollution Control District, SWPP - Pending start of construction, anticipated by January 2012.
- Title 22 Engineer's Report for the Production, Distribution and Use of Recycled Water and SF Bay RWQCB Notice of Intent for the General Water Reuse Order.

Deliverables will include:

- Summary of Permits, approval dates and status.

Task 8- Construction Administration- Bid solicitation tasks for the projects include the following:

- Advertise for bids, Evaluate bids, Award Contract, Notice of Award (anticipate completion by November 2012).

Task 9- Construction- Construction tasks consist of the following:

Subtask 9.1 Mobilization and Site Preparation

- Submittals, approvals, permits, mobilization and setup of temporary facilities, equipment, materials and supplies, clear and grub.

Project E. NBWRA Program

Subtask 9.2 Project Construction

i. Novato SD/NMWD Novato North Service Area Project

- Expand treatment capacity to 1.7 MGD (peak day capacity), construct distribution pump station, improve Plum Street Tank for recycled water storage and install 4.6 miles of pipeline.

ii. LGVSD/NMWD Novato South Service Area Project

- 0.7 mgd tertiary treatment upgrade or expansion of an existing tertiary treatment facility, construction of a new booster pump station onsite, and construction of a pipeline distribution system to serve the Hamilton Field area

iii. Napa SD/NSH Pipeline Construction Stage 1 Project

- Construct 6,100 linear feet of 24 inch recycled water pipeline from the current terminus at Napa Valley College through the Napa State Hospital (NSH).

iv. SVCSD Recycled Water Stage 1 Project

- Distribution pipeline from the treatment plant north to Watmaugh Road; Design and initiate construction of improvements at the SVCSD's treatment plant (distribution pump station)

Subtask 9.3 Performance Testing and Demobilization

- Pipeline pressure testing, disinfection, TV/video inspection, pump tests, treatment performance testing, flow rate, wastewater lab testing in compliance with NPDES requirements.

Task 10- Environmental Compliance/Mitigation/Enhancement- The North Bay Water Reuse Program anticipates participating in the Ohlone Mitigation Bank.

Task 11- Construction Administration- Includes, pending initiation of construction activities expected in January and August 2011:

- 740 hours of NBWRA project manager time
- 660 hours for inspections
- 700 hours of accountant time
- 520 hours of administrative time.
- 400 hours of consultant project manager time

Project F. SFPUC Harding Park Recycled Water Project

Task 1- Project Administration-
- Includes 60 hours of project manager time.
- Deliverables include quarterly reports and invoices.

Task 2- Labor Compliance Program- The Labor Compliance Program will be implemented by a third party. Program deliverables include the following:
- Program Labor Compliance Program
- Annual Report

Task 3- Reporting- Reports include the following:
- Monthly and Quarterly Progress Reports- Beginning October 2011
- Quarterly reports to Bay Area IRWMP
- Final Report to USBR and Bay Area IRWMP

Task 4- Assessment and Evaluation- NA

Task 5- Final Design- NA

Task 6- Environmental Documentation- NA

Task 7- Permitting- The following permits will be required:
- Section 1602
- 404
- 402
- NPDES

Task 8- Construction Contracting- The following activities will occur:
- Advertise for bids
- Pre-bid contractors meeting
- Evaluate bids
- Award contract

Task 9- Construction
- 60% of construction (underground storage tank) will be completed by June 2012.

Task 10- Environmental Compliance/Mitigation/Enhancement- NA

Task 11- Construction Administration- About 60% of construction management time to occur after June 2011.

Project G. SBWR Industrial Expansion and Reliability

Task 1- Project Administration- Coordination with City of Santa Clara and Santa Clara Valley Water District will occur under the terms described in the following agreements:

- Agreement with the City of Santa Clara for Construction Services for South Bay Water Recycling.
- Agreement between the City of San Jose and the Santa Clara Valley Water District for the Integration of Facilities and Programs for the Use of Recycled Water in Santa Clara County.

Coordination will be ensured through the following mechanisms:

- Monthly project status narrative
- Reviewed and approved project invoices
- Minutes from monthly project coordination meetings

Task 2- Labor Compliance Program- The City of San Jose implements a labor compliance program supervised by Nina Grayson, Director of the Office of Equality Assurance. The program currently ensures all ARRA-funded projects meet Davis-Bacon Act as well as the San José's own "Living Wage" ordinance. The program consists of examination of payroll records and interviews with employees to verify work, classification and pay rate.

Task 3- Reporting- The following reports will be generated throughout the duration of the project:

- Weekly Narrative reports of progress of design of Industrial 3B project.
- Monthly Report of invoice of expenditures by project, project task and contractor
- As-needed identification of project schedule and/or budget deviations and recovery schedules or budget recommendations
- Quarterly project progress summary reports for funding agencies
- Final accounting of project, electronic record of reference documents (specifications and "as-built" plans), and interactive map of project elements within 90 days of project completion.

Land Purchase Easement- A short segment of the Santa Clara Industrial 3B alignment will be routed through private property in order to facilitate construction and avoid utility conflicts. The owner has approved the alignment and agreed to the encroachment; documentation is being prepared for signature.

Task 4- Assessment and Evaluation- NA

Task 5- Final Design- The following designs for the various components will take place in the near future:

- **30% Design**
  - AWT Backup- 6/11
- **60% Design**
  - 3B-2- 1/11
- **90% Design**
  - AWT Backup- 7/11
- **100% Design**
  - SC Industrial 3B-2- 8/11
  - AWT Backup- 9/11
  - Airport Backup- 1/11

Task 6- Environmental Documentation- NA

Task 7- Permitting- Encroachment permits for final Santa Clara Industrial 3B pipeline alignment as necessary.

Task 8- Construction Contracting- Solicitation efforts for the various project components will occur as described below:

- SC Industrial 3-1- January 2011
- SC Industrial 3-2- July 2011
- Airport Potable Backup System- February 2011

Project G. SBWR Industrial Expansion and Reliability

- AWT Potable Backup System- September 2011

Task 9- Construction- The following activities will occur under the following construction phases:

Subtask 9.1 Mobilization and Site Preparation

- **SC Industrial 3 Pipeline:** Fencing and security for laydown area; traffic control for pipe delivery; construction trailer location.
- **Airport Potable Backup:** Clearing, grubbing and compaction of potable backup construction area; fencing and security for laydown area, area under construction.
- **AWT Potable Backup:** N/A (Site already under construction)

Subtask 9.2 Project Construction

- **SC Industrial 3 Pipeline:** Installation of approximately 6000 linear feet of ductile iron recycled water distribution pipe.
- **Airport Potable Backup:** Installation of potable water line to break tank and distribution to hydropneumatic tank for potable water at pressure to the Airport recycled water distribution system.
  AWT Potable Backup: Installation of potable water line, instrumentation and control equipment consistent conductivity to customers in case of a failure of AWT.

Subtask 9.3 Performance Testing and Demobilization

- **SC Industrial 3 Pipeline:** Pressure testing of approximately 6000 linear feet of ductile iron recycled water distribution pipe.
- **Airport Potable Backup:** Testing of potable water line to break tank and operation of hydropneumatic tank for potable water at pressure to the Airport recycled water distribution system.
  AWT Potable Backup: Testing of instrumentation and control equipment to provide consistent conductivity to customers in case of a failure of AWT.

Task 10- Environmental Compliance/Mitigation/Enhancement- NA

Task 11- Construction Administration- Project construction administration is based on 5% of construction cost.

In addition to project-specific information provided in the preceding tables, construction standards, health and safety standards and other standards that are applicable to all components of the Bay Area Regional Recycled Water Program are described in the following table.

Construction Standards, Health and Safety Standards, Laboratory Analysis, or Accepted Classification Methods To Be used for Project Implementation

- Numerous construction standards apply including: ASTM, AWWA, Caltrans, UBC, UPC,
- Health and Safety Standards include:
  1. Injury and Illness Prevention Program (IIPP): Conforming to the General Industrial Safety Orders (CCR Title 8, Division 1, Chapter 4, Subchapter 7, Section 3203), and the California Labor Code (Section 6401.7).
  2. Site-Specific Safety and Health Plan (SSHP): Describing health and safety procedures that shall be implemented during the Work in order to ensure safety of the public and those performing the Work. Follow the guidelines for a SSHP listed in CCR Title 8, Division 1, Chapter 4, Subchapter 7, Section 5192, Item (b)(4) f.3. Confined Space Program:
     a. General Industrial Safety Orders (CCR Title 8, Division 1, Chapter 4, Subchapter 7, Section 5157).
     b. Permit space entry is allowed only through compliance with a permit space program meeting the requirements of Section 5157 of the General Industrial Safety Orders
- A Fire Protection Plan will be developedCompliance with CCR Title 8, Division 1, Chapter 4, subchapter 4 (Construction Safety Orders), Section 1541.1Construction is required to comply with the contractual plans and specifications for the project.
- Construction inspectors will be regularly monitoring and inspecting the job site for proper installation of facilities.
- Testing will be performed in accordance with each district's standard specifications.

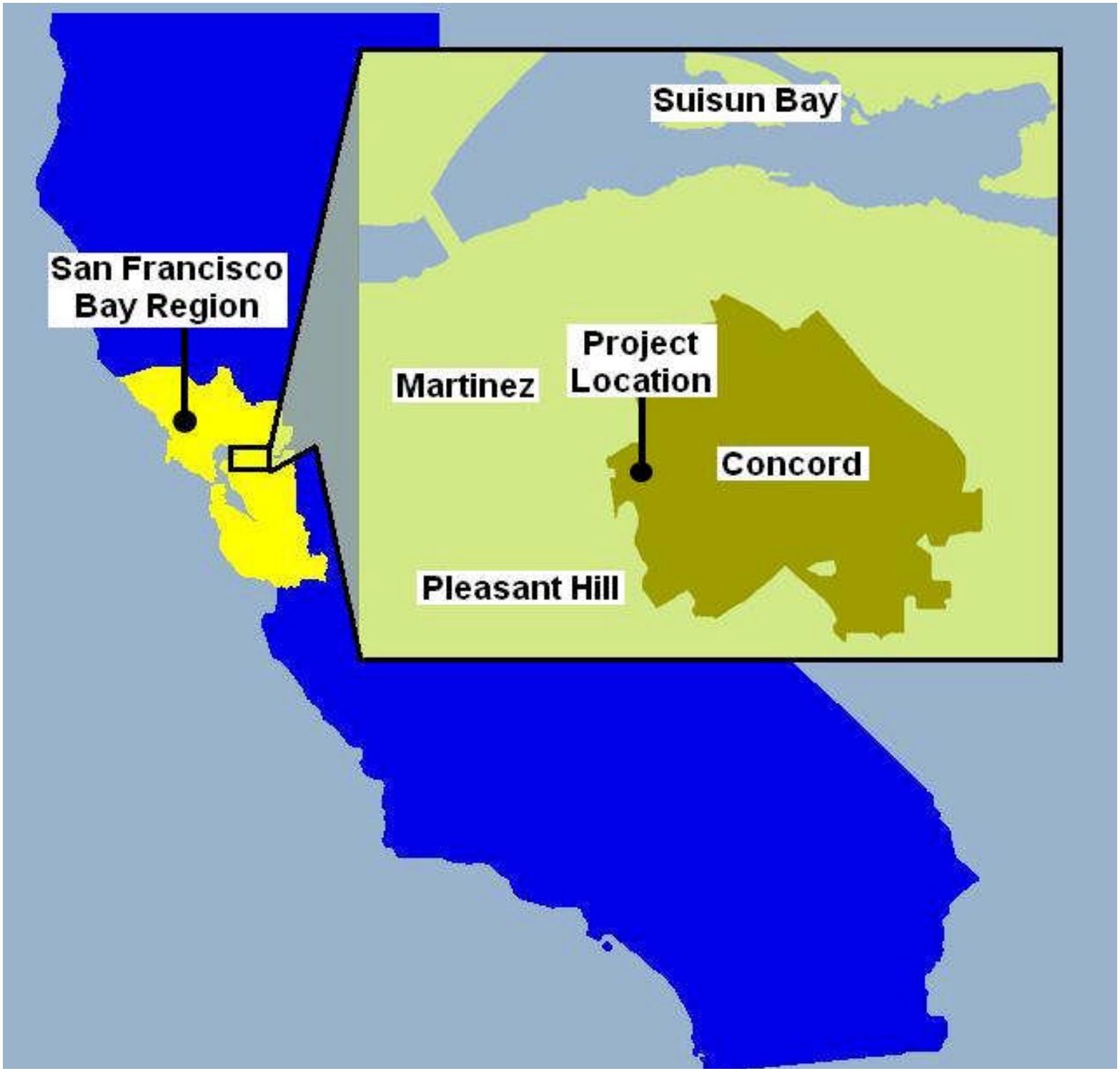
2.1 Project Map

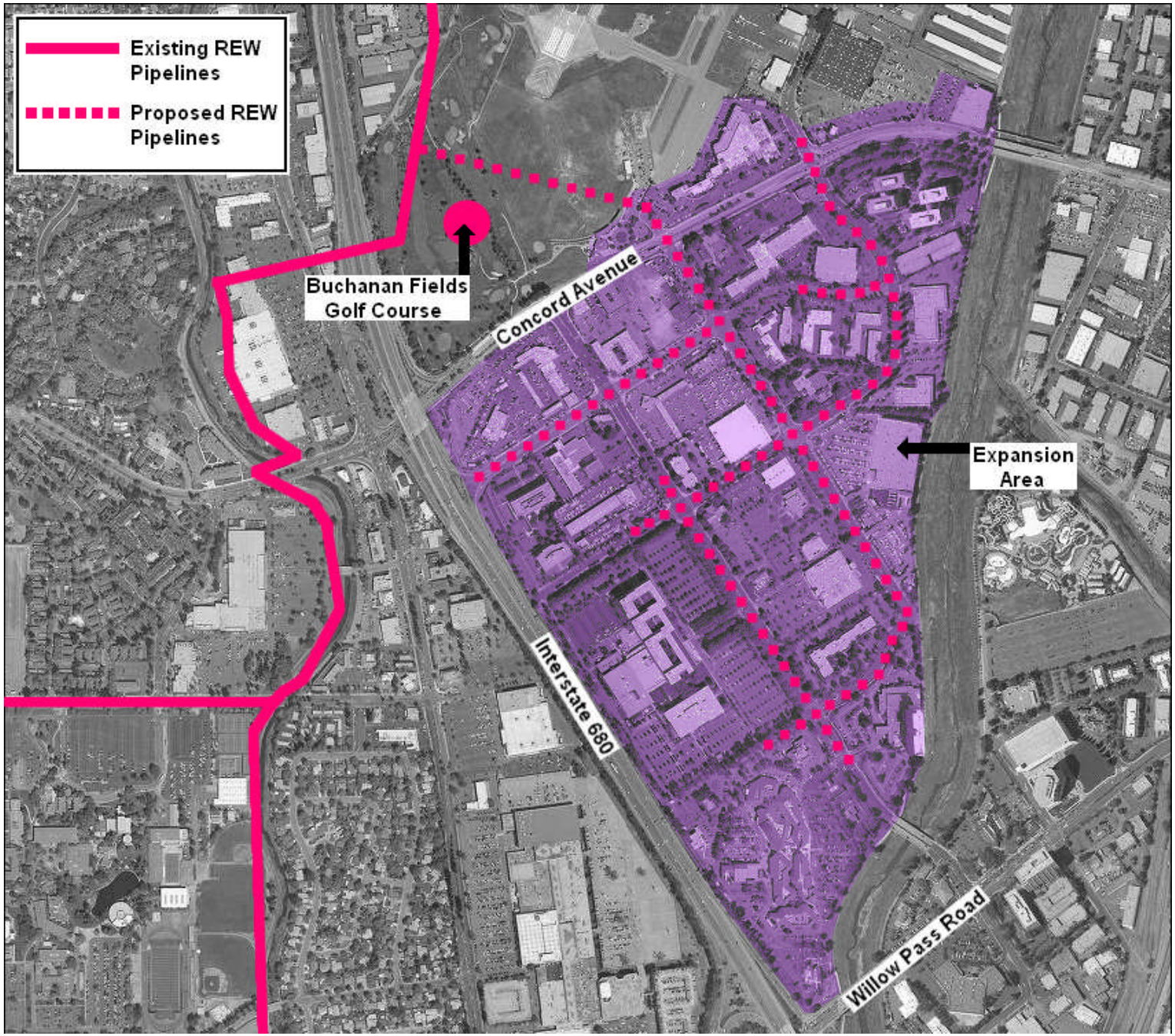
Provide a site map showing the project(s) geographical location and the surrounding work boundaries.

Maps of each of the Regional Recycled Water Project components are presented in this section. The maps are numbered as follows:

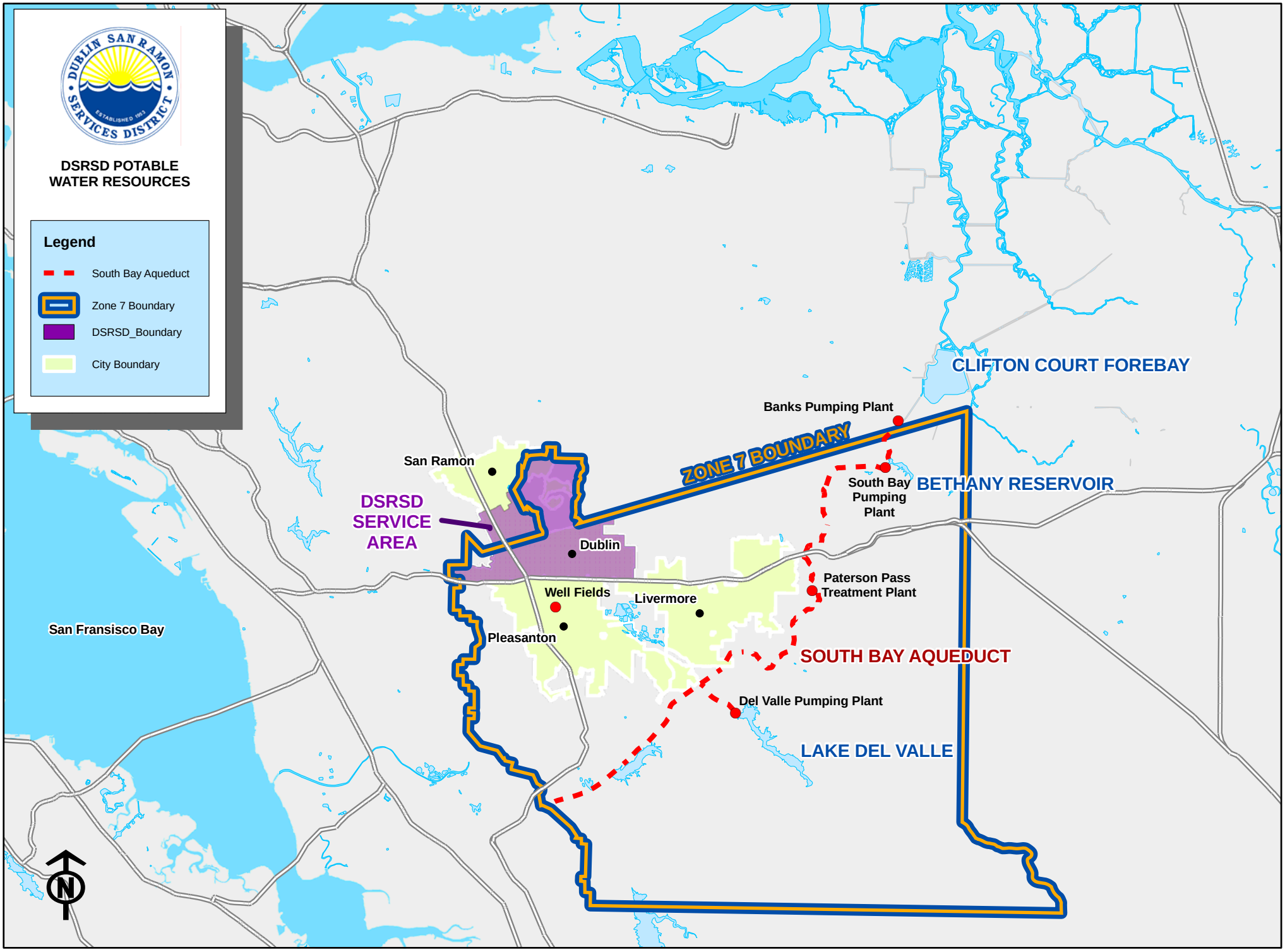
Map 2.1.A- CCCSD/Concord Recycled Water Project
Map 2.1.B - DSRSD Central Dublin Recycled Water Distribution and Retrofit Project
Map 2.1.C- EBMUD East Bayshore Phase 1A I-80 Pipeline
Map 2.1.D- MMWD Peacock Gap Recycled Water Extension
Map 2.1.E.i- Novato SD/NMWD Novato North Service Area Project
Map 2.1.E.ii- LGVSD/NMWD Novato South Service Area Project
Map 2.1.E.iii- Napa SD Napa State Hospital Pipeline Construction Stage 1 Project
Map 2.1.E.iv- SVCSD Recycled Water Project Stage 1 Project
Map 2.1.F- SFPUC Harding Park Recycled Water Project
Map 2.1.G- SBWR Industrial Expansion and Reliability

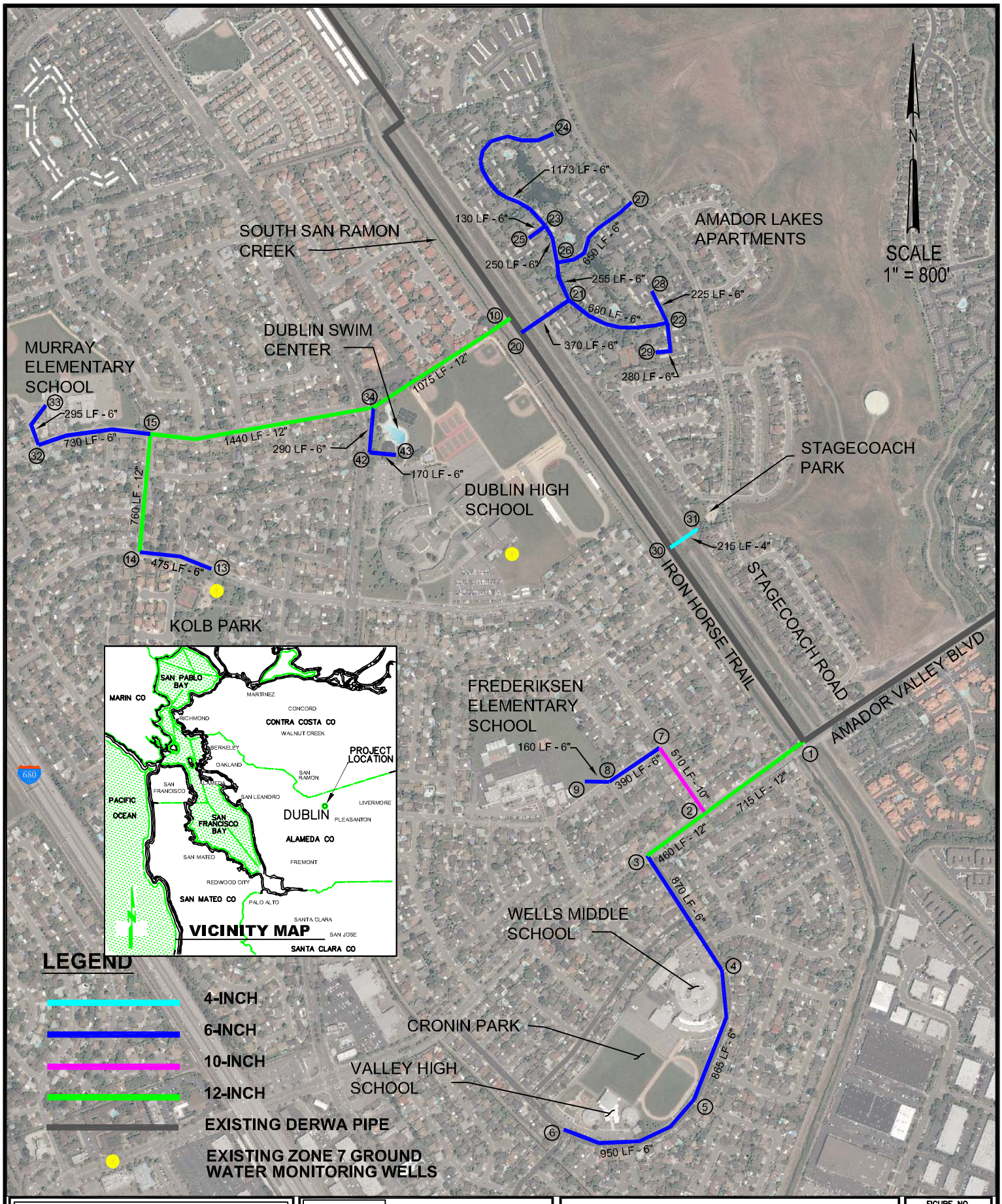
Map 2.1.A- CCCSD/Concord Recycled Water Project


Suisun Bay
San Francisco
Bay Region
Project
Location
Martinez
Concord
Pleasant Hill


Existing REW Pipelines
Proposed REW Pipelines
Buchanan Fields Golf Course
Concord Avenue
Expansion Area
Interstate 680
Willow Pass Road

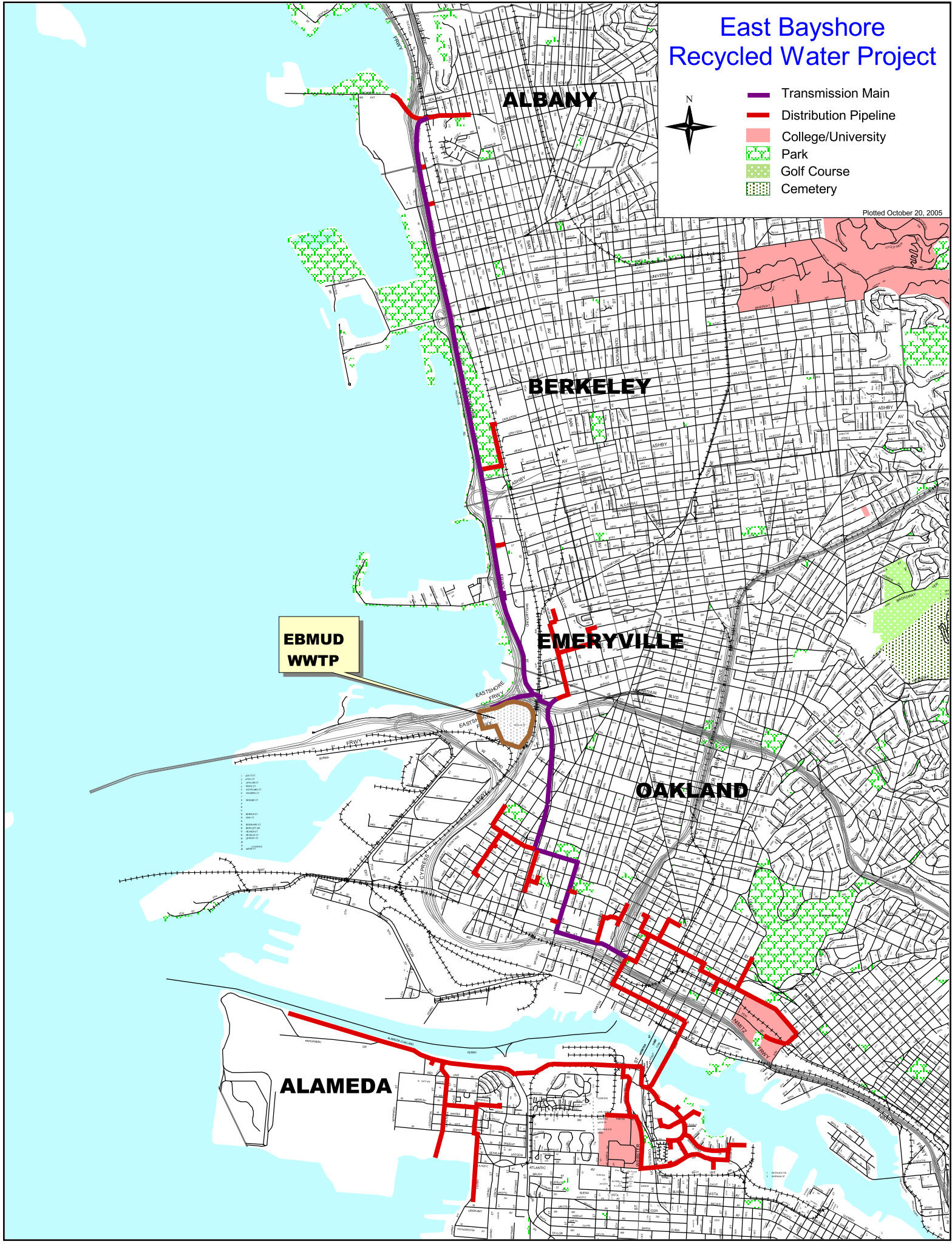
Map 2.1.B - DSRSD Central Dublin Recycled Water Distribution and Retrofit Project


DUBLIN SAN RAMON SERVICES DISTRICT
ESTABLISHED 1953
DSRSD POTABLE WATER RESOURCES
Legend
South Bay Aqueduct
Zone 7 Boundary
DSRSD_Boundary
City Boundary
CLIFTON COURT FOREBAY
Banks Pumping Plant
ZONE 7 BOUNDARY
San Ramon
DSRSD SERVICE AREA
South Bay Pumping Plant
BETHANY RESERVOIR
Dublin
Paterson Pass Treatment Plant
Well Fields
Livermore
San Fransisco Bay
Pleasanton
SOUTH BAY AQUEDUCT
Del Valle Pumping Plant
LAKE DEL VALLE
N

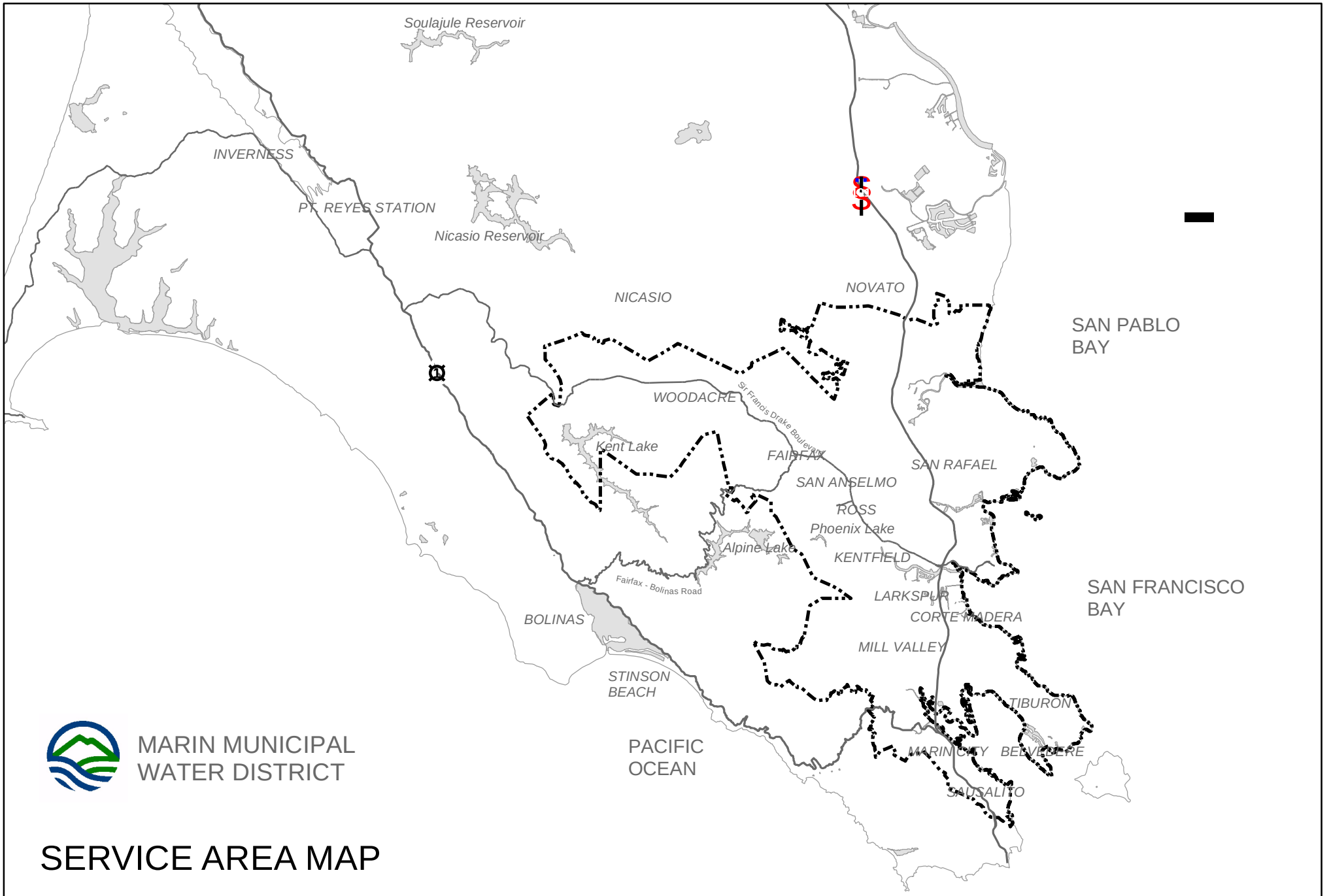


DUBLIN SAN RAMON SERVICES DISTRICT		PROJECT ALIGNMENT - PIPELINE SIZING AND LOCATION	FIGURE NO. 1

Map 2.1.C- EBMUD East Bayshore Phase 1A I-80 Pipeline


East Bayshore
Recycled Water Project
N
Transmission Main
Distribution Pipeline
College/University
Park
Golf Course
Cemetery
Plotted October 20, 2005
ALBANY
BERKELEY
EMERYVILLE
OAKLAND
ALAMEDA
EBMUD
WWTP

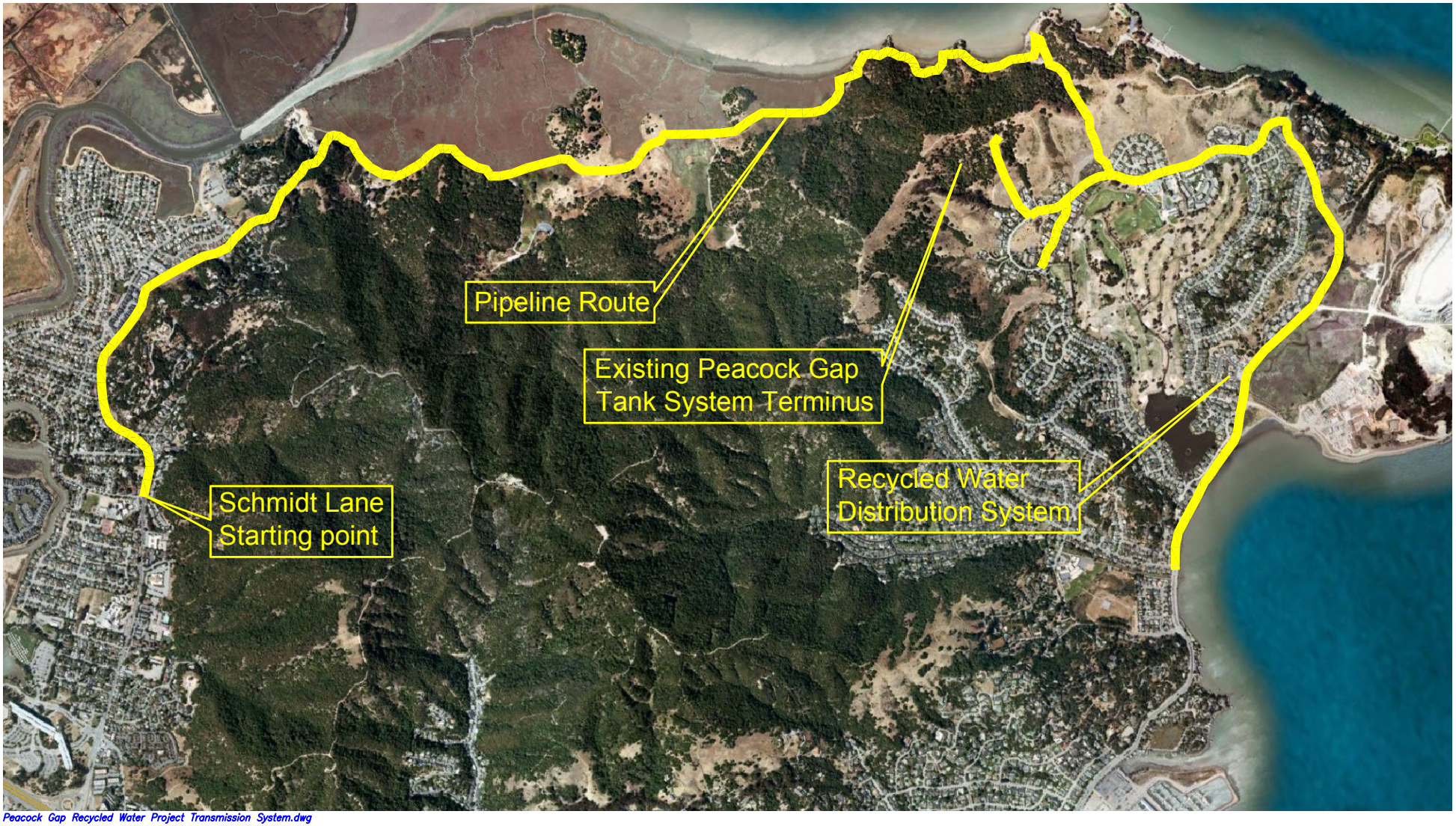
Map 2.1.D- MMWD Peacock Gap Recycled Water Extension



SERVICE AREA MAP

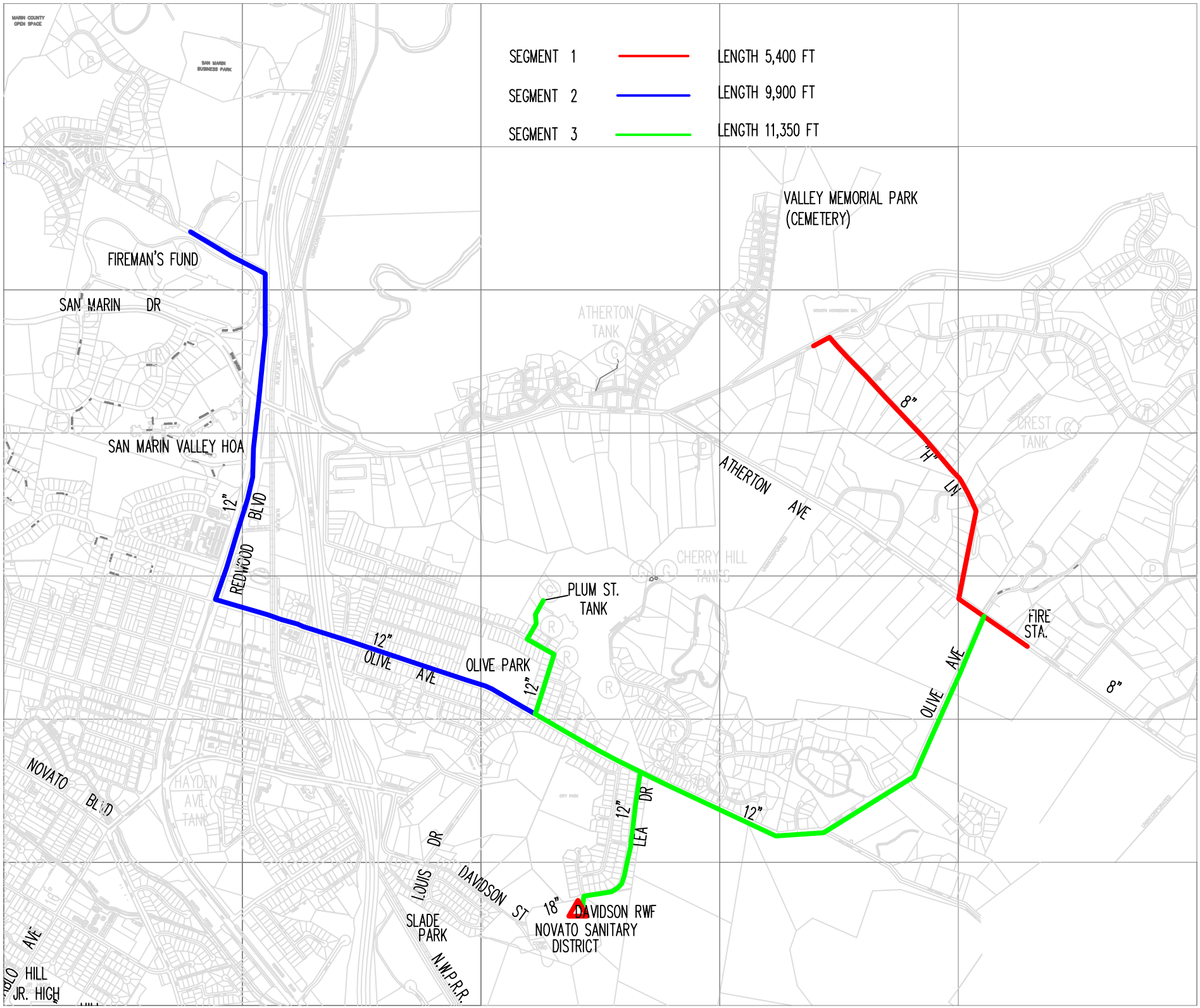
July, 2006

Peacock Gap Recycled Water Project Transmission System



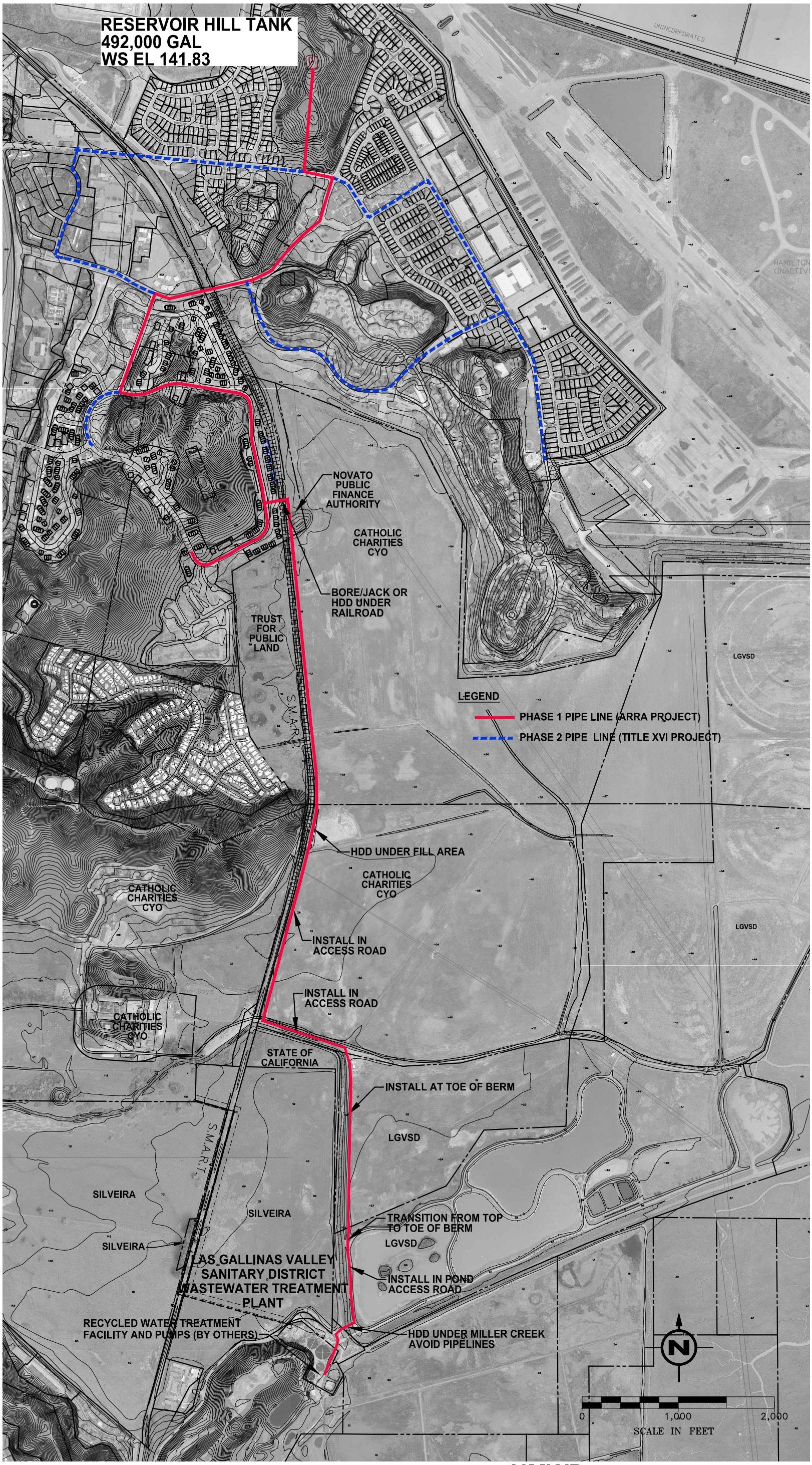
Peacock Gap Recycled Water Project Transmission System.dwg

Map 2.1.E.i- Novato SD/NMWD Novato North Service Area Project



R:\Folders by Job No\6000 jobs\6055\SRF Application\RW Expansion North Segments.dwg, 12/29/2010 8:50:32 AM

Map 2.1.E.ii- LGVSD/NMWD Novato South Service Area Project



NMWD
HAMILTON AREA RECYCLED WATER PROJECT
PHASE 1 AND 2 PIPE LINES

Printed: October 11, 2010 4:01 PM
L:\District\NMWD\7956 North Bay Water Reuse\7956 NMWD recycled water from LGVSD.dwg Layout: SMART route ONLY Pagesetup: -----

Map 2.1.E.iii- Napa State Hospital Pipeline Construction Stage 1 Project

NAPA SANITATION DISTRICT

NAPA STATE HOSPITAL RECYCLED WATER PROJECT

LEGEND

24" TRANSMISSION PIPELINE

DELIVERY POINT

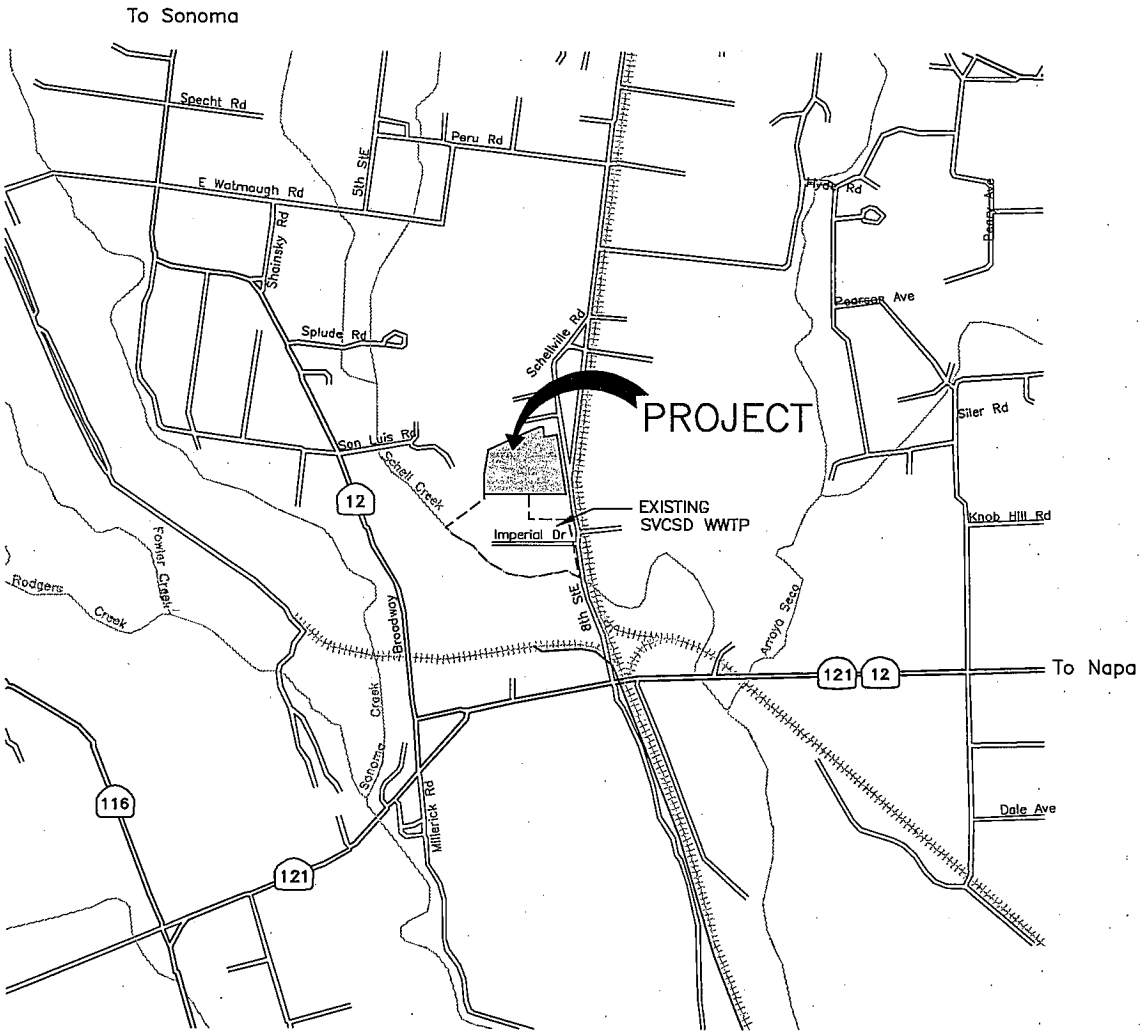
N

NOT TO SCALE

Map 2.1.E.iv- Sonoma Valley Recycled Water Project Stage 1 Project

N

1"=1/2 Mile



HDR

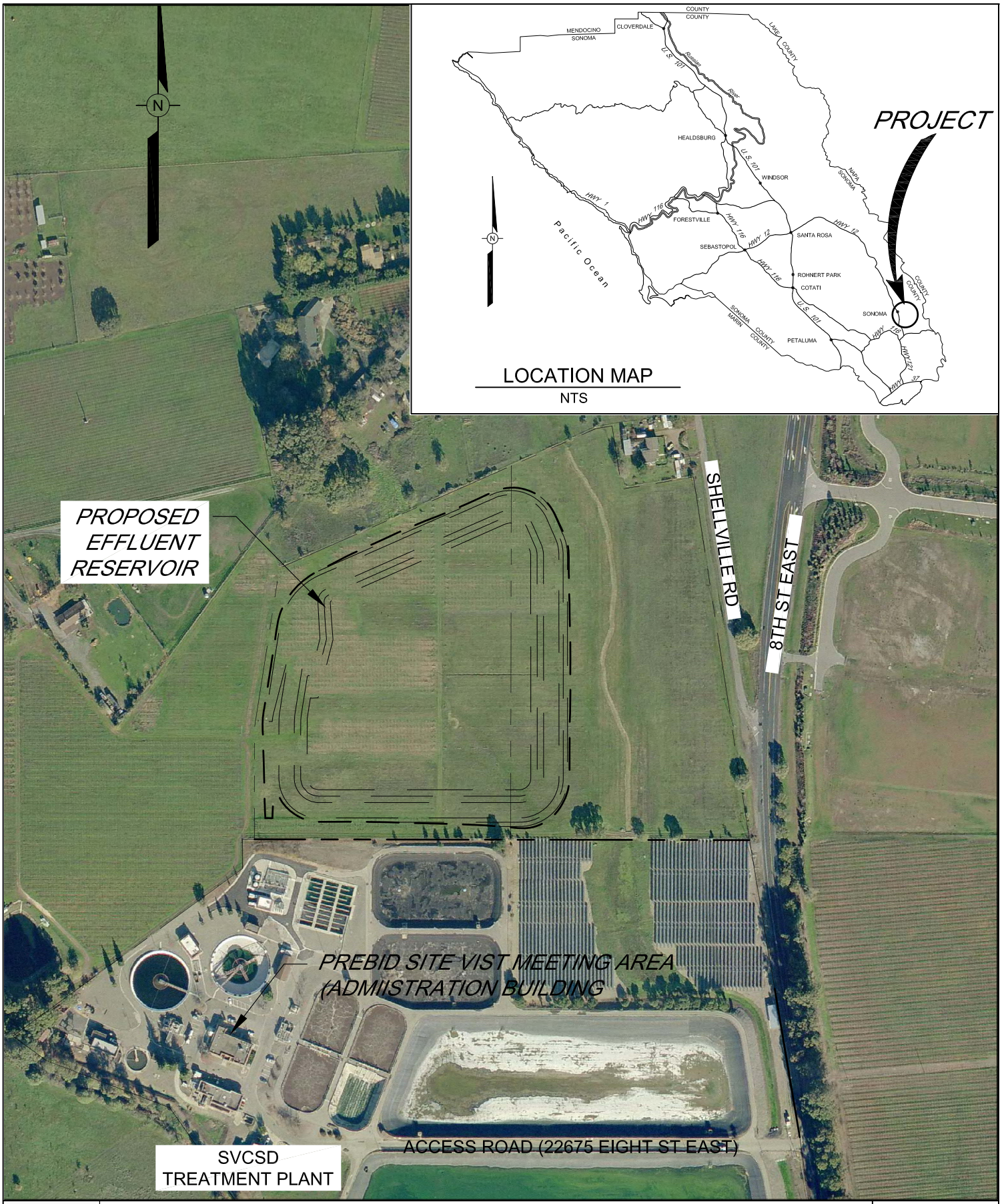
ONE COMPANY | Many Solutions

VICINITY MAP

TERTIARY TREATMENT POND
SONOMA WWTP

Date
OCT 2010

Figure
1



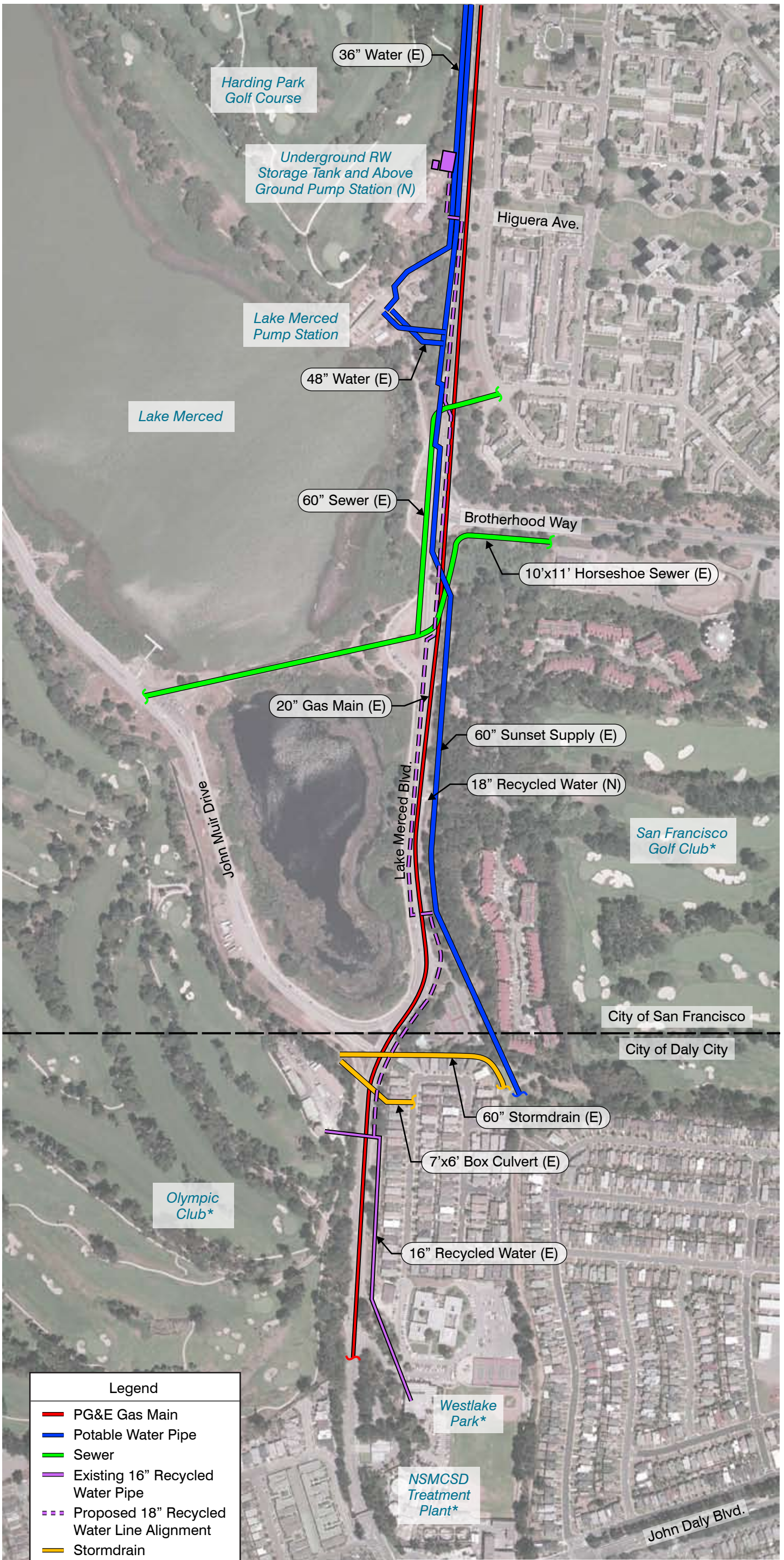
\\SD-DATA\PROJ\SANITATION\SONOMA VALLEY CSD\RECYCLED WATER\7487_EFFLURESER\7487_LOCMAP-SITE.DWG

SONOMA COUNTY WATER AGENCY

NORTH BAY WATER REUSE PROGRAM
SONOMA VALLEY EFFLUENT RESERVOIR R5

FIGURE 1

Map 2.1.F- SFPUC Harding Park Recycled Water Project



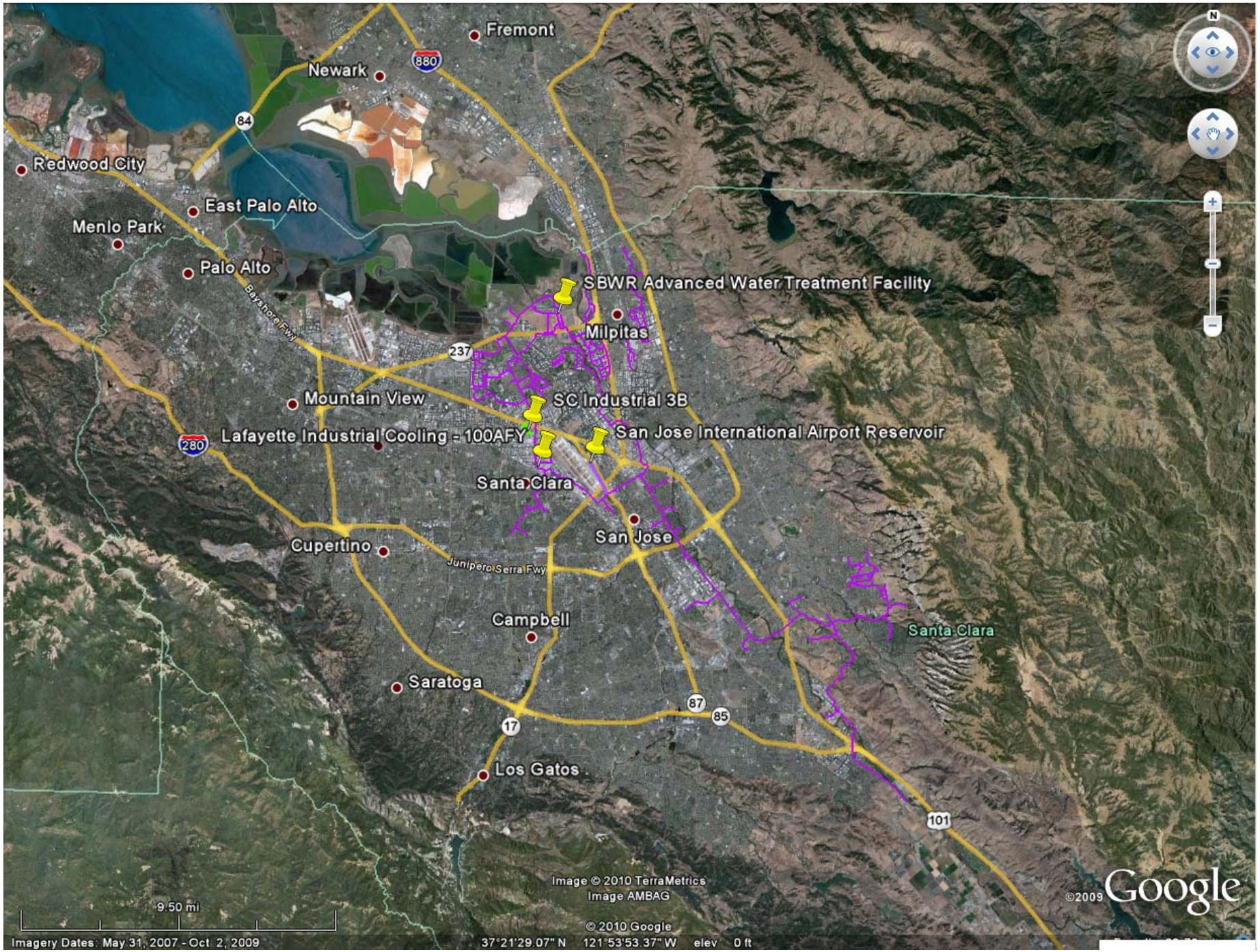
dc309m1-7813.ai

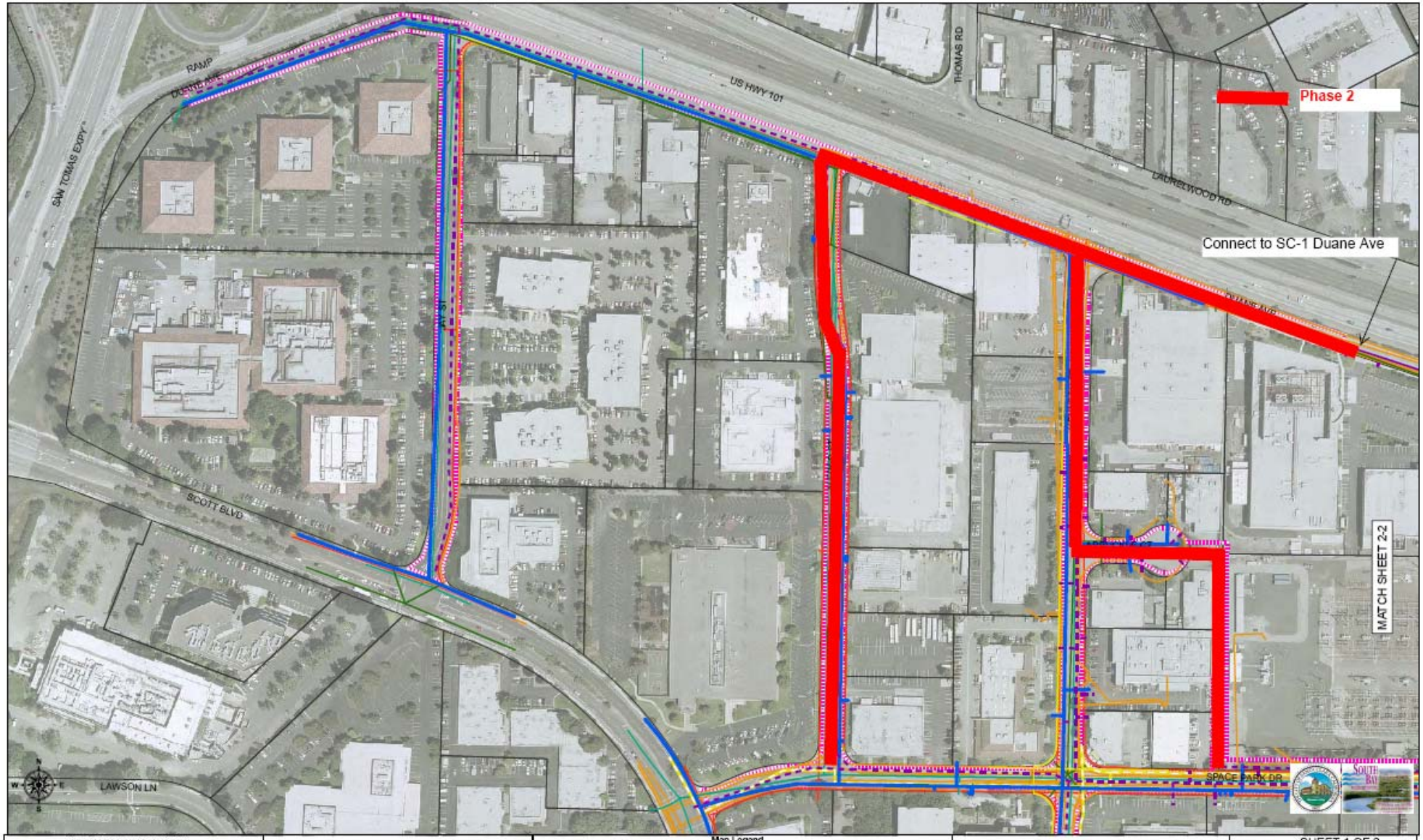
18” RW PIPELINE ROUTE

HARDING PARK RECYCLED WATER PROJECT
CITY OF DALY CITY AND SAN FRANCISCO
PUBLIC UTILITIES COMMISSION

Note: Only major utilities are shown on figure. Not to scale.

Map 2.1.G- SBWR Industrial Expansion and Reliability


Fremont
Newark
880
84
Redwood City
East Palo Alto
Menlo Park
Palo Alto
Bayshore Fwy
SBWR Advanced Water Treatment Facility
Milpitas
237
Mountain View
SC Industrial 3B
San Jose International Airport Reservoir
Lafayette Industrial Cooling - 100AFY
280
Santa Clara
San Jose
Cupertino
Junipero Serra Fwy
Campbell
Santa Clara
Saratoga
87
85
17
Los Gatos
101
Image © 2010 TerraMetrics
Image AMBAG
©2009 Google
© 2010 Google
9.50 mi
Imagery Dates: May 31, 2007 - Oct 2, 2009
37°21'29.07" N 121°53'53.37" W elev 0 ft



ARCHAEOLOGICAL AREA OF POTENTIAL EFFECTS

SC INDUSTRIAL 3B
September 4, 2009

0 2550 100 150 200 Feet
1 inch = 200 feet

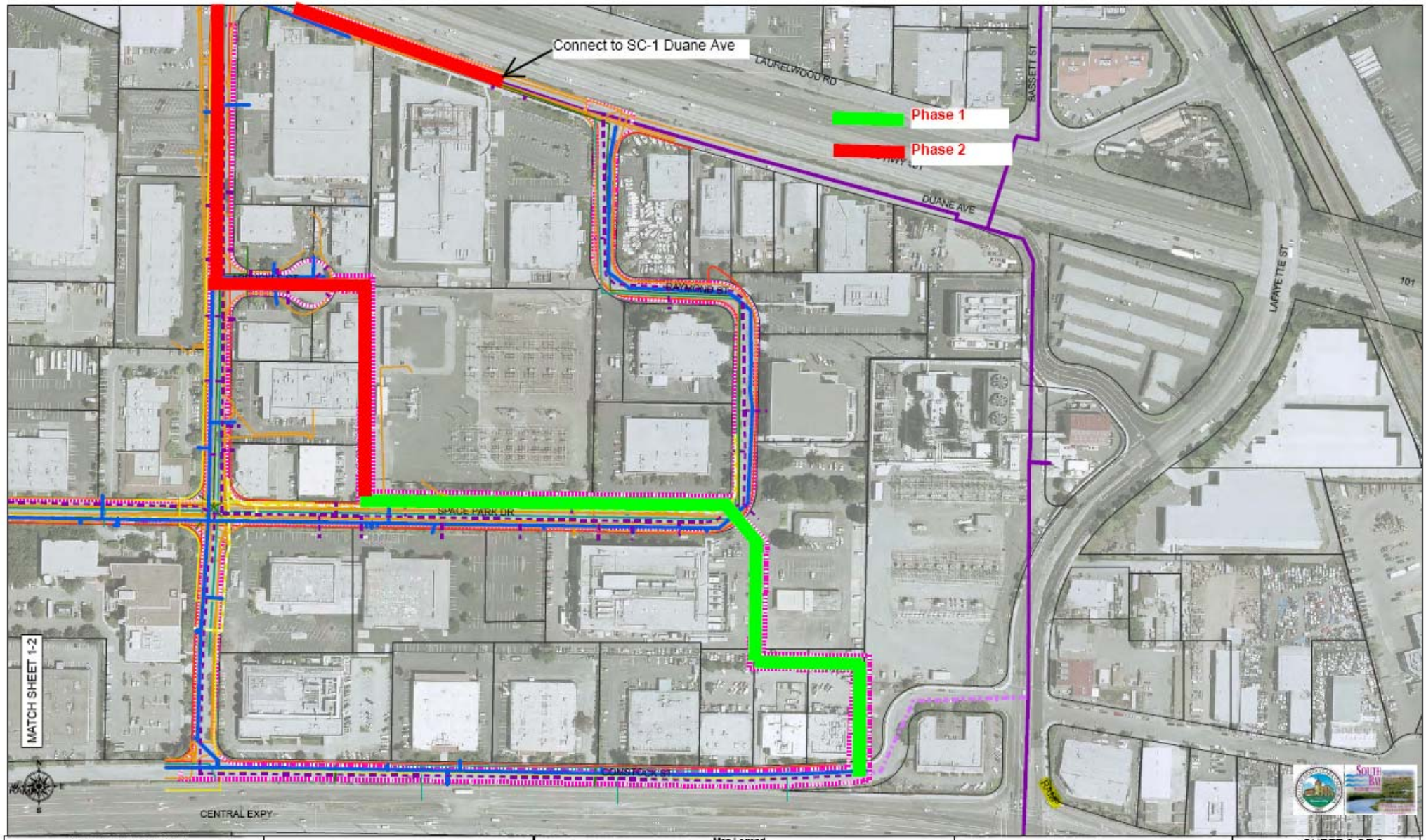
SOUTH BAY WATER RECYCLING

CITY OF SANTA CLARA WATER DEPARTMENT

SHEET 1 OF 2

Map Produced by City of San Jose Environmental Services Department

Calif State Plane Zone 3 Survey Ft.



ARCHAEOLOGICAL AREA OF POTENTIAL EFFECTS

SC INDUSTRIAL 3B
September 4, 2009

0 2550 100 150 200
Feet
1 inch = 200 feet

Map Legend

- RECYCLED WATER - EXISTING
- RECYCLED WATER - NEW
- PROPOSED SC INDUSTRIAL 2 ALIGNMENT
- WATER
- NITROGEN
- GAS
- STORM
- SANITARY
- COMMUNICATION
- ELECTRICAL
- AREA OF POTENTIAL EFFECTS
- PROPERTY BOUNDARIES

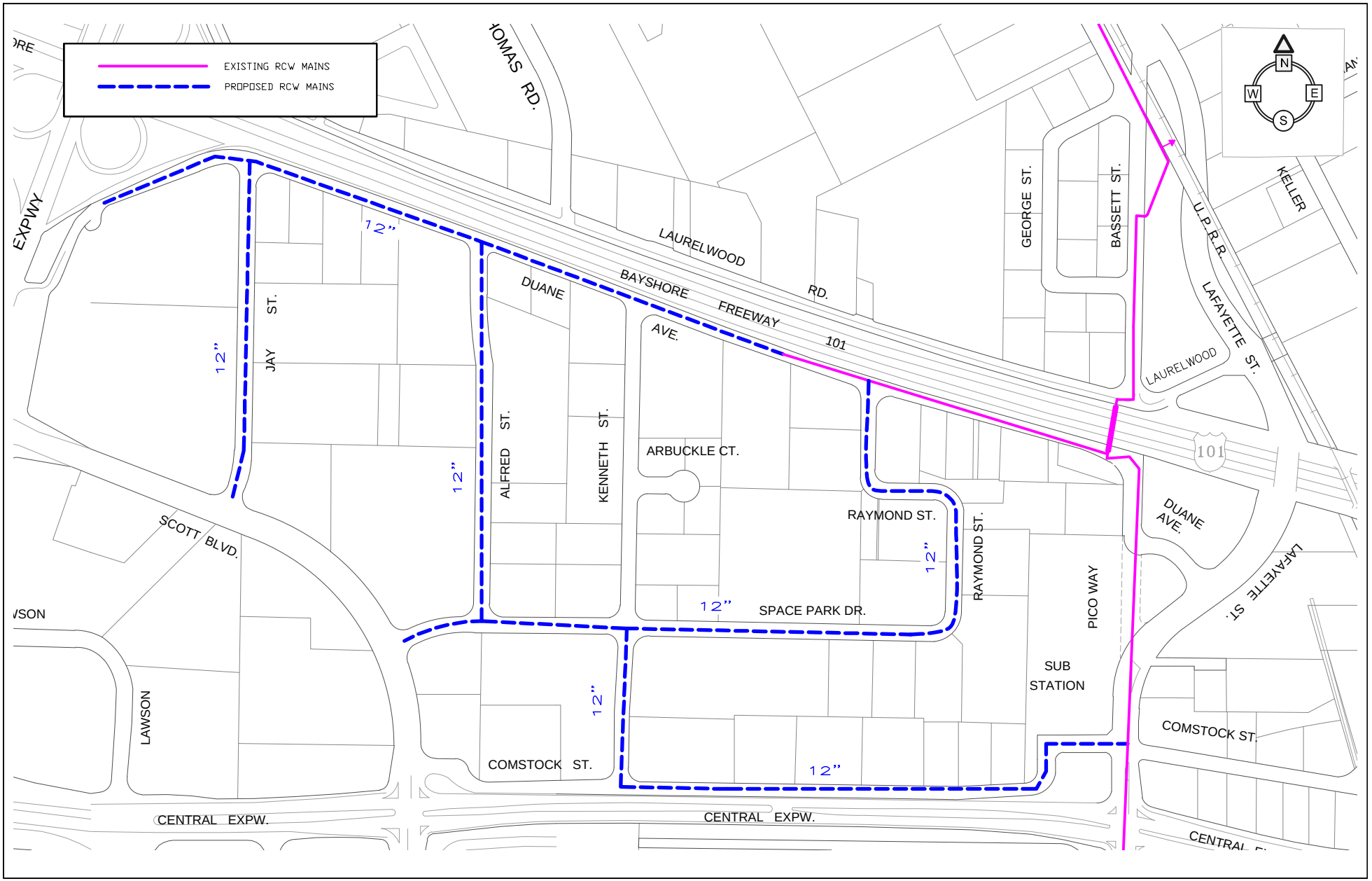
SOUTH BAY WATER RECYCLING

CITY OF SANTA CLARA WATER DEPARTMENT

SHEET 2 OF 2

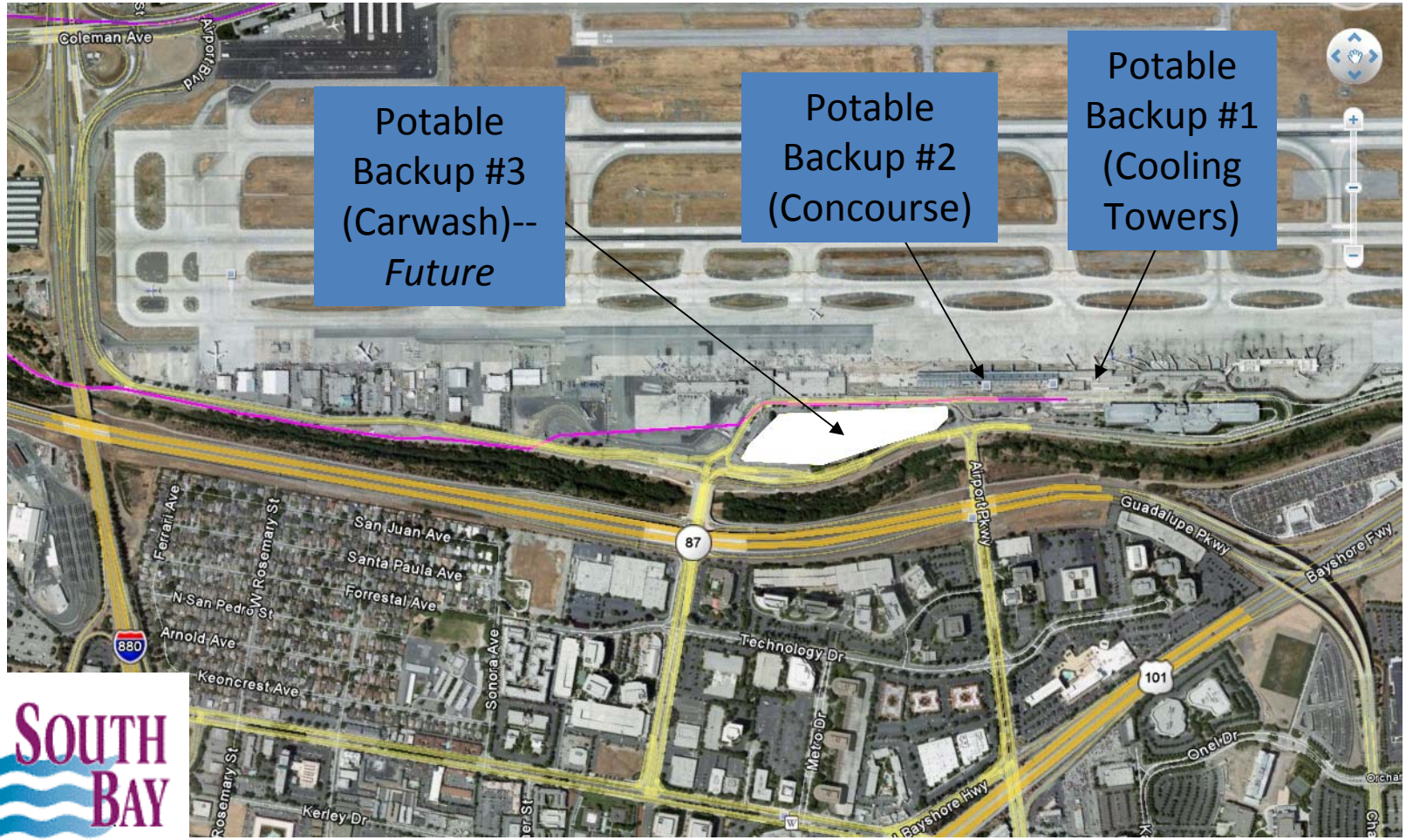
Map Produced by City of San Jose Environmental Services Department

Calif State Plane Zone 3 Survey Ft.

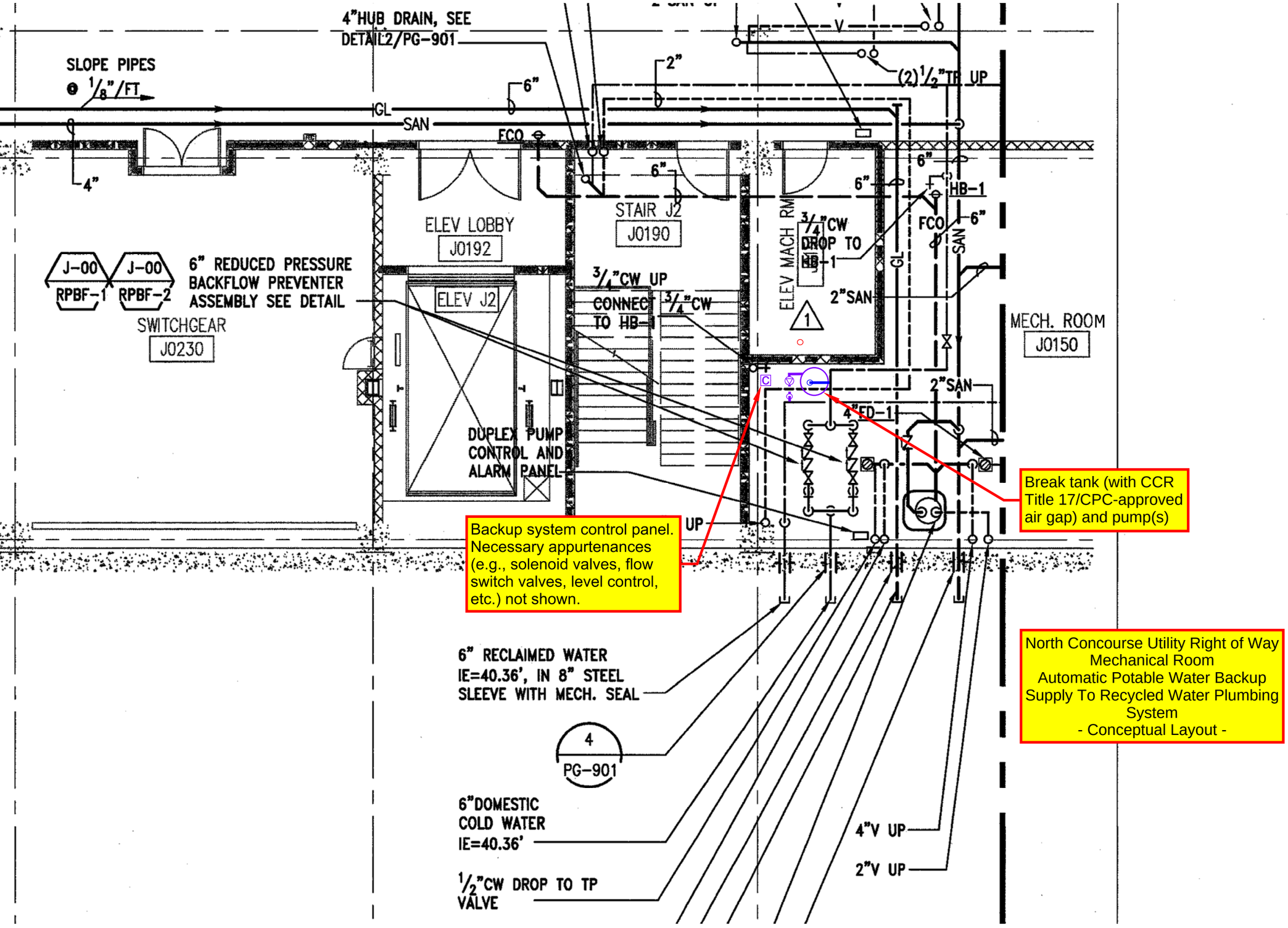


PROJECT: INDUSTRIAL 3B RECYCLED WATER PIPELINE

Airport Terminal Aerial View



SOUTH BAY WATER RECYCLING


4"HUB DRAIN, SEE DETAIL 2/PG-901
SLOPE PIPES @ 1/8"/FT
GL
SAN
FCO
2"
6"
4"
(2) 1/2"TR UP
ELEV LOBBY
J0192
STAIR J2
J0190
ELEV MACH RM
3/4"CW DROP TO HB-1
HB-1
FCO
6"
SAN
GL
2"SAN
J-00 RPBF-1
J-00 RPBF-2
6" REDUCED PRESSURE BACKFLOW PREVENTER ASSEMBLY SEE DETAIL
SWITCHGEAR
J0230
ELEV J2
3/4"CW UP CONNEC TO HB-1
3/4"CW
MECH. ROOM
J0150
DUPLEX PUMP CONTROL AND ALARM PANEL
4"FD-1
UP
Backup system control panel. Necessary appurtenances (e.g., solenoid valves, flow switch valves, level control, etc.) not shown.
Break tank (with CCR Title 17/CPC-approved air gap) and pump(s)
6" RECLAIMED WATER IE=40.36', IN 8" STEEL SLEEVE WITH MECH. SEAL
4
PG-901
6"DOMESTIC COLD WATER IE=40.36'
1/2"CW DROP TO TP VALVE
4"V UP
2"V UP
North Concourse Utility Right of Way
Mechanical Room
Automatic Potable Water Backup Supply To Recycled Water Plumbing System
- Conceptual Layout -

ARWTF Potable backup

Figure 1-1: Project Location Map

San Francisco Bay Area Regional Priority Projects and Programs

Attachment 3 – 2. Bay Area Regional Water Conservation Program

PSP Requirements **Page**

1 Introduction

As a demand-side source of water supply, an aggressive conservation program is essential to integrated regional water management (IRWM). Consumer acceptance of water-efficient technology and practices will result in long-term demand reduction that improves the region's capacity to manage drought scenarios and other strains on Bay Area water supplies and the Delta. Further, water conservation is a comparatively low-cost source of water supply with positive environmental impacts and benefits including energy savings, pollution prevention, solid waste reduction, and reduced carbon emissions.

The proposed Regional Water Conservation Program (Program) will leverage and expand the implementation of existing water conservation education and consumer incentive programs and build on regional water conservation initiatives supported by Proposition 50 IRWM funding. The Program includes a suite of program elements that promote high-efficiency technologies and best water conservation practices to improve indoor and outdoor water use efficiency throughout the San Francisco Bay Area. Five specific program elements are proposed that will provide quantifiable and sustainable water savings including: 1) High-Efficiency Toilet and Urinal Direct Installation and Rebates, 2) High Efficiency-Washer Rebates, 3) Water-Efficient Landscape Education, 4) Water-Efficient Landscape Rebates, and 5) Weather-Based Irrigation Controller Rebates.

Combined, these program elements target significant indoor and outdoor end uses of water in residential, commercial, industrial and institutional sectors and are estimated to achieve approximately 26,000 to 32,000 acre feet of water savings over the life of the resulting water conservation measures. Beyond the life of the measures, implementation of the Program will influence and transform markets and standards towards higher efficiency and foster long-term "passive" water savings after implementation is complete.

Long-term water savings results from adoption of water-efficient technology through informed consumer choice and through behavioral changes in water use practices. Therefore, outreach and education are integral to the Program. Each incentive program element includes outreach to increase consumer awareness and the landscape education element provides end users with actionable information and

professional resources needed to transform urban landscape and irrigation practices towards sustainable alternatives.

The proposed Program will result in efficiencies on a regional scale, increase visibility of the Program, and improve coordination among existing individual agency programs. The range of incentive offers and public outreach strategies provides the implementing agencies with flexibility to respond to a variety of consumer demand and program participation levels, thereby improving overall program outcomes.

1.1 Goals and Objectives

The primary goal of the Program is to reduce potable water demand by approximately 2,500 AF annually and 26,000 to 32,000 AF over the lifespan of the program's measures by implementing water-efficiency incentive and educational programs. Improving water use efficiency and reducing wasteful water use practices throughout the region will also help agencies address statewide, regional and local water conservation initiatives:

- Statewide water demand reduction targets set forth in SBx7-7 legislation that meets the Governor's water conservation goal of 20 percent per capita reduction by the year 2020.
- Support implementation of the conservation component of water agency Water Supply Management Plans and Urban Water Management Plans.

- Facilitate compliance with the Best Management Practices as set forth in the California Urban Water Conservation Council's Memorandum of Understanding Regarding Urban Water Conservation in California.
- Support the regional goals in the San Francisco Bay Area Integrated Regional Water Management Plan.

Incentive offers combined with education and outreach will achieve the following objectives:

- Influence consumer choice towards water-efficient products and services.
- Promote sustainable and water-efficient practices through consumer education, on-site consultation, training classes, workshops, public outreach and marketing.
- Target disadvantaged and low-income communities through consumer rebates and direct installation of water saving fixtures.

Specific objectives associated with each program element are listed below in **Table 1**.

Table 1: Program Objectives

Project Element	Project Objectives
High-Efficiency Toilet and Urinal Direct Install/Rebate Program	• Replace 35,000 high-water using toilets and urinals with High-Efficiency Toilets (HETs) and High-Efficiency Urinals (HEUs). • Achieve total potable water savings of 14,000 acre-feet over the lifespan of the installed fixtures. • Increase high-efficiency product availability. • Increase access to high-efficiency products for low-income populations through direct installation and rebates. • Improve consumer acceptance and awareness of high-efficiency products. • Promote the U.S. EPA WaterSense product label.
Regional High-Efficiency Washer Program	• Purchase and install 51,000 high-efficiency clothes washers. • Achieve water savings of more than 12,000 acre-feet over the 10-year lifespan of the appliances. • Improve consumer acceptance of high-efficiency clothes washers. • Increase product availability. • Improve affordability of high-efficiency clothes washers. • Reduce energy use and carbon emissions by reducing pumping and treatment for water and wastewater and reducing hot water end use.

Water-Efficient Landscape Education Program	• Provide outreach, education and trainings to convert traditional urban landscaping to water-efficient and sustainable landscaping and support the water-efficient landscape and weather-based irrigation controller rebates. • Broaden the focus of water-efficient landscape rebates to also reduce waste, green house gas emissions and non-point source pollution. • Leverage the removal of 3.6 million square feet of turf through the Water-Efficient Landscape Rebate Program and encourage through the education programs an additional one million square feet to be removed. This will conserve an additional 86 acre feet of water per year and avoid the use of approximately a half ton of herbicides or the generation, transport and landfilling of 7,200 tons of plant debris and improve soil health that results in drought resistant soils, increased rate of infiltration and reduced need for synthetic fertilizers. • Target the landscape professional, residential, and commercial communities with sustainable landscape trainings for up to 500 landscape professionals and outreach to 52,120 home gardeners. • Partner with 18 local nurseries in nine water districts to provide venues for 36 home gardener trainings.
Water-Efficient Landscape Rebate Program	• Replace 3.8 million square feet of water-thirsty lawn with water efficient and sustainable landscaping by providing financial incentives to customers. • Achieve potable water savings of approximately2, 800 acre-feet over a ten-year period. • Promote environmental sustainability and improve environmental stewardship by reducing potable water use, carbon emissions from mechanized gardening, and fertilizer, herbicide and pesticide laden water runoff into local streams.
Weather-based Irrigation Controllers Program	• Install approximately 2,000 weather-based irrigation controllers controlling more than 33,000 sprinkler stations. • Achieve water savings of approximately 2,600 acre-feet over the 10-year lifespan of the equipment. • Improve landscape irrigation scheduling through customer education • Focus outreach to target high-water users in residential and CII sectors.

1.2 Purpose and Need

This project will improve water supply reliability and reduce strains on Bay Area water supplies and the Delta. Recent dry years, water supply shortages, and increasing demands upon water and wastewater infrastructure elevate the need to emphasize regional and local water conservation planning, technologies, and practices.

Funding regional conservation initiatives results in increased program visibility and consumer participation that is difficult and more costly to achieve by lone agency implementation. This Program, with its five program elements, provides project participants with the flexibility to select the most appropriate program elements to address local water use patterns and contribute to regional water conservation through collaboration with other agencies and educational programs.

Developing water-saving technologies and methods require support to successfully penetrate the market and form the basis for improved water-efficiency standards and practices. Incentives and education promote consumer acceptance and market penetration of water saving technology; a precursor to successful adoption of new codes and standards. Such standards are currently pending or are being adopted locally for high-efficiency clothes washers, toilets, and urinals. Users of weather-based irrigation controllers require technical understanding to maximize water savings from the devices. An ongoing grassroots movement toward sustainable landscaping needs support to become widely adopted by the commercial and residential landscape industry. Transformation of the market to full acceptance of these technologies and practices raises the baseline efficiency standard and will result in sustained water saving without long-term agency investments to promote them.

Water agencies and local governments throughout the San Francisco Bay Area currently have limited financial resources and need additional funding to ensure that educational resources and financial incentives are available to address the water supply challenge.

This Program will support the conservation component of each agency's Future Water Supply Plan and their Urban Water Management Plans, is consistent with the CUWCC's MOU for Best Management Practices and the San Francisco Bay Area Integrated Regional Water Management Plan (IRWMP), and will support meeting the Governor's water conservation goal of 20 percent reduction by 2020 (SBX7-7).

Table 2 shows specific the project purpose and need by project element.

Table 2: Program Purpose and Need

High Efficiency Toilet and Urinal Direct Install/Rebate Program
Project Purpose
• Raise consumer awareness of the availibility of HETs and HEUs and influence consumer choice towards water-efficient products. • Replace existing high-volume toilets and urinals.
Project Need
• The end use of water for toilet flushing is approximately 25 percent of indoor household usage. There are also many older toilets in the commercial, industrial and institutional sectors. There remains a significant amount of older high-water-use toilets that, when replaced with HETs reduce water usage by approximately 60 percent. • While there is not a direct correlation between product price and efficiency, the average costs for HET/HEUs are higher than for moderately priced standard toilets/urinals. Bridging the cost difference with a rebate or a direct-install program will increase demand for HET/HEUs and thus help to transform the market.

Regional High Efficiency Washer Program

Project Purpose

- Raise consumer awareness of the availibility of HEWs and influence consumer choice towards these products.

Project Need

- Funding for this project element will maintain the momentum of an existing Regional High-Efficiency Washer incentive offer. Currently many water agencies participate in a regional energy and water clothes washer rebate initiative with Pacific Gas and Electric Company. Implementation on the regional scale results in cost sharing, economies of scale, and expanded program visibility.
- The end use of water for clothes washing with standard washing machines is approximately 25 percent of indoor water use. HEWs reduce water consumption for clothes washing by approximately 50 percent and energy consumption by 60 percent.

Water-Efficient Landscape Education Program

Project Purpose

- Provide education and training in support of the water-efficient landscape rebate and weather-based controller rebate programs through outreach to landscape professionals, nurseries and home gardeners.
- Support the water-efficient landscape rebate program by increasing installation of low water-use gardens, and ensure the longevity of the resulting water savings.
- Foster long-term behavior change and provide professional services for lawn conversions, and creating low-water using landscapes that reduce landfilling of plant debris and use of herbicides
- Reduce the potential green house gas impacts from the transport and landfilling of plant debris, the use of herbicides and nonpoint source pollution of waterways by teaching professionals and home gardeners how to sheet mulch the lawn in place.

Project Need

- Education is essential to transforming the industry and consumer perceptions and preferences in the design and maintenance of the urban landscape.
- A consistent, well-defined and regional approach to sustainable and water efficient landscape education and training will increase effectiveness and accelerate implementation.

Water-Efficient Landscape Rebate Program
Project Purpose
• Reduce demand for landscape irrigation including peak demand on water distribution systems. • Promote the removal existing water-intensive lawns and replacing them with sustainable plants and landscapes. • Promote water-efficient irrigation technology and proper landscape irrigation scheduling. • Support sustainable landscape and gardening principles.
Project Need
• More than half of urban water use throughout the Bay Area is for landscape irrigation. Of that, the majority of the water is used to irrigate lawns. Lawns also require regular mowing which results in greenhouse gas emissions from mechanized landscape maintenance. Finally, lawn irrigation often results in runoff which delivers pollutants to local creeks and streams.

Weather-based Irrigation Controllers Program
Project Purpose
• Provide an effective incentive for customers to adopt weather-based irrigation controller technology for both residential and commercial landscape irrigation. • To reduce urban runoff, which eventually ends up in local creeks. • To reduce peak demands on water distribution systems from excessive irrigation.
Project Need
• The typical home irrigation system is only about 40-50% efficient, meaning half of the water applied to the landscape is wasted, not benefiting the plants and results in run-off or non-point source pollution. Improving irrigation efficiency is perhaps the single most important goal for water conservation professionals.

1.3 Project List

The proposed suite of incentive and educational programs allows for flexible implementation; program elements can be scaled up or down as needed based on consumer response and market conditions. This approach is consistent with Best Management Practices as defined on CUWCC's MOU Regarding Urban Water Conservation in California. Previous program element descriptions in this Work Plan and the summary abstracts below establish implementation targets for water-efficient units installed and educational activities performed. The proposed targets would be implemented and flexible in order to best achieve overall demand reductions.

Program Element Abstract

High Efficiency Toilet (HET) and Urinal Direct Install/Rebate Program

The High Efficiency Toilet and Urinal Replacement Program aims to achieve the installation of approximately 35,000 high efficiency toilets and urinals. The program will be marketed to replace

older high volume toilets (3.5 or more gallons per flush) with HETs, which use of 1.28 gallons per flush (gpf) or less. The program will also replace existing urinals using from 1.0 gpf or more with high-efficient urinals that use 0.5 gpf or less. Customer incentives will include rebates, vouchers, and direct-installations. Program structure and specifics will be implemented by the individual agency. Agencies choosing to participate in a direct install program will contract with vendors to purchase and install the HETs with a projected cost of $300 per unit installed. Agency rebates or voucher offers will be a minimum of $100 per unit.

High-Efficiency Washer Program

The High-Efficiency Washer Program will target purchase and installation of approximately 51,000 qualifying high-efficiency clothes washers which will result in a water savings of more than 12,000 acre feet over the ten-year lifespan of the machines. A rebate offer promoted at point of purchase will continue to leverage the energy rebates and consumer benefits of reduced operating cost for energy and water. This program will promote replacement of existing regular clothes washers using 41 gallons per load with high-efficiency washer using 23 gallons per load. Qualifying products will be based on the Consortium for Energy Efficiency (CEE) listings for water and energy efficient clothes washer models. Most water agencies will expand their participation in an existing regional water and energy rebate offer which simplifies and streamlines consumer participation in the program. To the extent possible, individual water agency program structure and eligibility requirements will be typical of the regional program with a minimum water agency rebate amount of $50 per unit to be combined with an energy utility rebate; currently $50, for a total consumer rebate of $100.

Water-Efficient Landscape Education Program

Water-Efficient Landscape Education will greatly increase the effectiveness of the landscape and Weather-based controller rebates programs for residential, commercial and institutional customers while at the same time building partnerships with nurseries and “greening” the landscape industry through the Bay Area. It will leverage Bay-Friendly Landscaping & Gardening, a well established sustainable landscaping program that encourages property owners and managers to minimize and remove turf. Bay-Friendly Landscaping & Gardening supports property owners throughout a sustainable renovation process, as well as over the long term, with extensive resources for both ‘do-it-yourself’ home gardeners and landscape professionals including ‘how-to’ information for removing turf without resorting to the use of herbicides or hauling removed sod to the landfill. The Water-Efficient Landscape education program will offer eight comprehensive Bay-Friendly landscape professional classes for 320 to 480 landscape professionals and 36 lawn conversion classes for home gardeners. As many as 52,120 home gardeners throughout the Bay Area will be educated at 42 Bay-Friendly Gardening workshops, 2 regional gardening tours, and through the distribution of 7,500 gardening guides as well as through web-based tools. On-line information will be disseminated via regular updates in an on-line newsletter, Facebook, Bay-Friendly Blog and a lawn conversion slide show.

Water-Efficient Landscape Rebate Program

The Water-Efficient Landscape Rebate Program will focus on removing existing water-intensive lawns and replacing them with water-efficient landscapes. The Program aims to replace 3.8 million square feet of lawn equivalent to removing 80 football fields. Participating water agencies will provide a minimum rebate of 50 cents per square foot converted to participating residential and commercial customers. Eligibility requirements will vary by individual implementing agency consistent with Bay-Friendly Landscape Principles of sustainable landscaping. A key educational component includes pre- and post-conversion site visits by technicians that serve as in-person consultations on landscape conversion techniques, parameters for selection and installation of plants and landscaping materials, and landscape maintenance and irrigation scheduling. The Program will capitalize on the growing

"green" movement and will be supported by the Water-Efficient Landscape Education element of this proposal.

Weather-based Irrigation Controllers Program

The Weather-based Irrigation Controller Program will aim to replace standard automatic landscape irrigation timers with self-adjusting irrigation controllers that schedule irrigation events based on actual on-site conditions and weather data. The program will target installation of weather-based irrigation control for 33,000 active irrigation stations or valves at approximately 2,000 residential, commercial and institutional sites. Customer incentives will include a rebate, voucher or direct install at a minimum amount of $20 per active station at residential sites and $30 at commercial and institutional sites. This program will reference the Irrigation Association (IA) guidelines for qualifying product characteristics. The program structure and specifics will be implemented by the individual agency.

Data Management and Monitoring Deliverables included in the Work Plan

The Work Plan described in Section 2 includes the following data management and monitoring deliverables:

- Participant rebate application database
- Quarterly progress reports and Final Report on project close-out.

Consistent with Data Management Standards in the Bay Area IRWM Plan, the data collected from this Program will be made available on the Bay Area IRWMP website and in the quarterly and final reports that will be disseminated to the Functional Areas and other appropriate agencies.

Current Status of Program

The implementing agencies for this Program provide water conservation and education services to a large majority of the region's communities and population. Combined, these agencies bring a wealth of experience and established water conservation programs implementation to this project. These agencies have collaborated on numerous initiatives and actively participate in resource conservation organizations. Twelve implementing agencies include:

Alameda County Water District (ACWD)
Bay Area Water Supply & Conservation Agency (BAWSCA)
City of Napa (Napa)
Contra Costa Water District (CCWD)
East Bay Municipal Utility District (EBMUD)
Marin Municipal Water District (MMWD)
San Francisco Public Utility District (SFPUC)
Santa Clara Valley Water District (SCVWD)
Solano County Water Agency (Solano)
Sonoma County Water Agency (SCWA)
StopWaste.org and the Bay-Friendly Landscape and Gardening Coalition (Bay-Friendly)
Zone 7 Water Agency (Zone 7)

Table 3 lists the current status of each program element.

Table 3: Current Status of Program

Program Element	Current Status
High Efficiency Toilet and Urinal Direct Install/Rebate Program	Most agencies have established HET rebate programs and coordinate implementation with retailers and suppliers. HETs have a growing foothold in the market with numerous qualifying products available in the region. Several agencies also offer direct installation to targeted markets. Several offer rebates or direct installation of high-efficiency urinals, a relatively new technology.
Regional High Efficiency Washer Program	Nine water agencies currently participate in a regional initiative with Pacific Gas and Electric to offer a combined, one-stop energy and water rebate. Other agencies offer rebates in a well-established market with a wide range of eligible products.
Water-Efficient Landscape Education Program	The Bay-Friendly Landscape program is an established program and brand of StopWaste.org serving Alameda County with highly developed programs and informational resources. The Bay-Friendly Landscape Coalition is an established non-profit focused on regional dissemination of Bay-Friendly Landscape principles and training programs with many Bay Area agencies as founding members. .
Water-Efficient Landscape Rebate Program	Several of the Bay Area water agencies have implemented pilot programs to incentivize customers to replace lawn with water-efficient landscaping. Thus far, the programs have been very successful with considerable customer interest. In addition, numerous case studies have demonstrated successful results.
Weather-based Irrigation Controllers Program	Several Bay Area water agencies are implementing weather-based irrigation controller rebate programs. Five of the agencies participated in a regional Prop 50 grant funded program and supported a statewide study of WBIC program implementation. Most agencies offer incentives, training, and education to facilitate the successful implementation of this technology.

1.4 Integrated Elements of Projects

The Regional Water Conservation Program is intended to improve water efficiency and reduce potable water demand in the Bay Area. Synergies among the five components of the water conservation program elements, the IRWM Plan, and statewide priorities include:

Consumer Education

Each program involves outreach and an educational component to customers and they work in sync by expanding customers' overall knowledge of options to reduce water use. Customers who participate in one program will be informed of other incentives and services that may apply to them, and this cross marketing will increase participation among all the programs. For example, toilets and clothes washers represent a high percentage of residential customers' indoor water use. Agencies participating in toilet direct install programs generally will conduct on-site eligibility audits of customer properties that include review of customers' overall water use and make recommendations of other indoor and outdoor water-saving retrofits such as clothes washer replacements and landscape improvements.

Linkages

The landscape programs are also closely linked. The education program will support participation in the two incentive programs, and will stimulate demand for the incentives. Education will improve the rate of success in the short and long-term and will support the transformation of lawns to low-water use gardens in an ecologically sound manner. In addition to linkages among the conservation programs, several of the conservation programs are linked to other programs in this overall grant application and to critical regional and state legislation. For example landscape education is connected with the Green Infrastructure program, in that ten of the Green Infrastructure projects will be Bay-Friendly Rated Landscapes.

Implementation Efficiencies

Implementing parallel agency programs will provide data and feedback to evaluate and compare the effectiveness of incentive programs among the diverse demographics of the region. Even where programs will be implemented individually by agencies, working within a regional framework will help improve the pricing, structure, and quality control of incentive programs. For example, with the weather-based irrigation controller program, centralized procurements of products will yield better pricing and terms from the manufacturers, and development of a single technical specification for controllers will enable manufacturers to produce a single product for all agency programs in the region and the state.

Support bigger plans and key legislation

The programs will be key parts of each agency's efforts to comply with statewide Best Management Practices for urban water conservation and meet SB 7x7 goals; Urban Water Management Plans document compliance with these initiatives. The Water Conservation Project directly supports the implementation of critical regional and state legislation. For example, the landscape programs support compliance of local jurisdiction's Water Efficient Landscape Ordinance, the AB 32 Greenhouse Gas Initiative, and the Bay Area Municipal Storm Water permit. Landscape and other incentive elements also support Cal Green and local green building policies and more.

The conservation program also supports several ***Statewide Priorities***, in particular:

Water quality

More efficient use of water supply will improve flow to aquatic ecosystems and help habitat restoration. The resulting water savings from the program will help reduce diversions from the Bay-Delta and up-stream of the Bay-Delta, allowing more in-stream flows on a year-round basis. Delta fisheries directly

benefit from in-stream flow enhancements. These savings offer more flexibility in management of operations of the state and federal water projects to improve environmental conditions in the Delta and its associated tributary rivers and wetlands. Additionally, landscape programs promoting use of native and drought tolerant plantings that require less nutrients and water will help reduce urban runoff and water quality impacts to water bodies.

Energy consumption

The conservation program will not only reduce potable water use but wastewater treatment, as well. Less water and wastewater to pump and treat, in turn, will reduce energy consumption and the associated green house gas emissions. In addition, the clothes washer rebate program directly reduces the amount of energy used by the homeowner.

By reducing overall water use, energy demand and costs associated with the pumping of raw water, treatment plant operation, the distribution of finished, potable water, and wastewater collection and treatment are all likewise reduced. Reduction in treatment process chemicals also means less energy needed to produce and transport the chemicals. We can expect valuable reductions in summer energy demand due to implementation of these proposed water use efficiency measures. This benefits the State's power grid during high demand periods, as well as providing the greatest cost savings to the individual water agencies. The reduction in energy demand reduces the carbon footprint of overall water delivery.

Environmental stewardship

All of the conservation program elements support environmental stewardship. The toilet and washer rebate programs reduce water use and energy use by reducing the amount of water and wastewater pumped and treated. The water-efficient landscape rebates, the water-efficient landscape education and weather based irrigation controller programs all promote water use efficiency in the landscape. The programs also promote eliminating runoff onto pavement, holistic approaches to improving soils, reducing green waste, and eliminating the use of chemical fertilizers, herbicides and pesticides.

Equitable distribution of benefits

Several of the participating agencies will use grant funding to expand programs that serve disadvantaged communities in their service areas, such as the SFPUC's HET direct install program to low-income customers, Solano County Water Agency's HET direct install to low-income housing units in Fairfield, Vacaville, and Vallejo; and BAWSCA's plans to expand East Palo Alto's participation in the regional clothes washer program to also join a HET program. All of the programs will assist water customers to reduce their water use and thereby reduce their water bills.

Water Supply Reliability

Being able to support existing customer water demands with reduced water supply requirements enhances the water supply reliability of the participating agencies and the Region. The ability to respond to supply shortages due to emergency, regulatory or drought conditions is improved when normal demand requirements are reduced.

1.5 Completed Work

The Bay Area Water Agencies have been implementing a variety of conservation programs for more than twenty years. During the past few years agencies have implemented High-Efficiency Toilet Replacement Program, High-Efficiency Clothes Washer Rebate Programs, Weather-Based Irrigation Controller rebate programs and a few have recently implemented Water-Efficient Landscape Rebate Programs. Although none of the costs for these programs prior to this grant will be included in the agency match, they demonstrate the commitment to water conservation. In addition, this Program draws on existing Bay-Friendly Landscaping and Gardening materials developed by StopWaste.Org for use in Alameda County and will leverage the existing non-profit organization, Bay-Friendly Landscaping and Gardening Coalition to implement these services regionally.

Due to past program development investments and ongoing implementation, this project will commence after notification that funding has been awarded.

The Program is not considered a project under CEQA [CEQA Guideline 15378] because it does not have a potential for resulting in either a direct physical change in the environment, or a reasonably foreseeable physical change in the environment.

1.6 Existing Data and Studies

Individual agencies have prepared Urban Water Management Plans (UWMPs) to support their long-term resource planning and ensure adequate water supplies are available to meet existing and future water demands. Participating agencies in the Regional Water Conservation program are committed to make a good faith effort to implement the Best Management Practices (BMPs) and Demand Management Measures listed in the UWMP and to update the Plan on a five-year schedule.

In addition, **Table 4** lists some of the key studies on water savings and conservation technologies that guide or influence conservation elements in this Program, as well as agency-specific studies that direct each agency's conservation efforts.

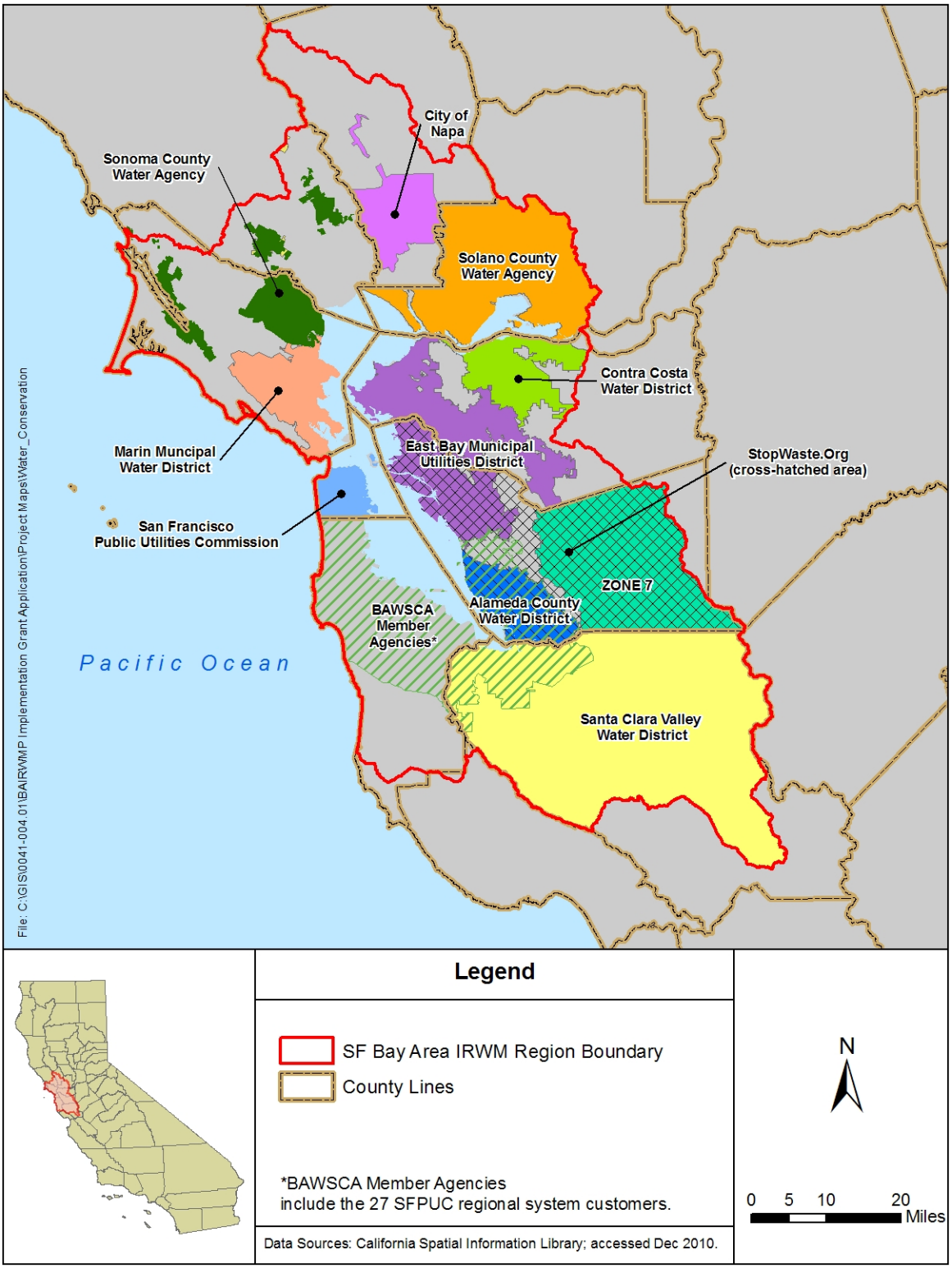
Table 4: Existing Studies Supporting the Program

Conservation Element	Study
High Efficiency Toilet and Urinal Direct Install/Rebate Program	• Water Conservation Market Penetration Study, EBMUD, 2001 • Handbook of Water Use and Conservation, Amy Vickers, 2002 • CUWCC MOU Exhibit 6, ULFT Savings Assumption, CUWCC, 1992 • Potential Best Management Practices, CUWCC, 2006
Regional High Efficiency Washer Program	• California Energy Commission • Bern, Kansas Clothes Washer Study, US Department of Energy, 1998

Water Efficient Landscape Education Program	• Bay-Friendly Landscaping Guidelines, Sustainable Practices for the Landscape Professional, StopWaste,org, 2008 • Large Landscape Water Audit Savings Study, Contra Costa Water District, 1994 • Water Use Classification of Landscape Species (WUCOLS), UC Cooperative Extension, 1994 • Xeriscape Conversion Study, Southern Nevada Water Authority, 2005
Weather-based Irrigation Controllers Program	• Potential Best Management Practices, CUWCC, 2004 • California Water Smart Irrigation Controller Project, AquaCraft Inc., 2009 • ET Controller Unit Savings, MWDOC, 2004 • Evaluation of California Weather-Based "Smart" Irrigation Controller Programs, MWD and EBMUD.
General Regional Conservation	• SFPUC Demand and Conservation Potential Model and Plan, SFPUC and consultants, 2004. Update in progress to be completed early 2011. • SFPUC Water Supply Availability Study for the City and County of San Francisco, SFPUC, 2009. • BAWSCA Water Conservation Implementation Plan, September 2009. • Water Conservation Master Plan, EBMUD, 1994. • CCWD Future Water Supply Implementation Final EIR, 1999. • EBMUD Water Supply Management Program 2040, Conservation Evaluation Memorandum, 2009 • SCVWD Water Use Efficiency Strategic Plan, 2008. • SCVWD CVPIA Water Conservation Plan, 2005.

1.7 Project Map

The map below shows the participating agencies and the service areas the Program will be implemented in.



1.8 Project Timing and Phasing

Regional Water Conservation Program	
Is the project part of a multi-phased project complex?	No
Demonstration that project can operate on a standalone basis (i.e. can be fully functional without the implementation of the subsequent projects)	N/A
Is requested funding for a component of a larger project?	No
If so, describe all of the components of the larger project complex and identify project elements that the IRWM grant is supposed to fund.	N/A
Linkages to other projects that must be completed first or that are essential to obtain the full benefits of the project	N/A

2 Tasks

This section includes a detailed discussion of the various tasks needed to implement each project and collectively this Program. In accordance with the PSP, this section specifically addresses the following:

PSP Requirements

- ✓ Tasks are detailed and complete in order to demonstrate that projects can be implemented
- ✓ Work Item submittals are clearly indicated for each of the tasks
- ✓ A list of project permits and their current status, is provided for each of the projects
- ✓ The status of environmental compliance activities is discussed
- ✓ If applicable, plans and specifications have been submitted to demonstrate consistency with the design tasks noted in the Work Plan
- ✓ For each of the projects, scientific and technical information has been submitted to demonstrate feasibility
- ✓ For each of the projects, there is a discussion of the data management and monitoring deliverables
- ✓ For each of the projects, there is a site map showing the geographical location and site boundaries
- ✓ In addition, each project write-up below includes a discussion of the required items listed on page 31of the PSP:
  - o Description of work to be performed and current status of each task
  - o Procedures by which the applicant will coordinate with its partner agencies
  - o Discussion of standards used in implementation
  - o Development of performance measures and monitoring plans
  - o Discussion of acquisition of land or rights-of-way status
  - o Discussion of merits of materials and computational methods

Regional Water Conservation Program

Task 1: Administration

Subtask 1.1: Project Administration

The Regional Water Conservation Program will be implemented by 12 participating agencies. The Lead Agency, Solano County Water Agency (Solano), will contract with a third-party Contractor to provide project administration services to all participating agencies. The administrative roles, responsibilities and agencies that will be involved in the administration task are outlined below.

Solano County Water Agency will act as Lead Agency for the Program, and will be responsible for contracting with and managing the Contractor, and reviewing quarterly program activity reports and invoices and final reports submitted by participating agencies.

The program activity reports would include the following information:

- Program activity levels by agency and totals
- Review of water savings
- Description of marketing efforts
- Description of public outreach and education

Participating agencies will review reports submitted by the Lead Agency for accuracy and will report any discrepancies to the Lead Agency.

The third-party Contractor providing project administration services will be selected via a competitive bidding process to be conducted by the Lead Agency. The Contractor will be responsible for developing templates for each of the five program elements, specific to the rebate activities per agency, to report water savings, marketing efforts and public outreach and education, finalizing service contracts between that entity and Participating Agencies, and preparing comprehensive quarterly program activity status reports and a draft Final Project Report on behalf of the Participating Agencies.

Deliverable(s):

- Standardized reporting templates for each of the program elements
- Quarterly program activity status reports to BACWA for compilation to DWR.
- Draft Final Project Report to BACWA for input to the Final Project Report documenting project completion.

Subtask 1.2: Coordination and Contracts with Participating Agencies

The Program will be implemented by 12 participating agencies, which are all contributors of matching funds. This subtask involves developing a standardized Interagency Agreement for execution by each participating agency in order to formalize agency participation in the Program and facilitate matching funds, and communicating with participating agencies via telephone, emails, implementation reporting and coordination meetings.

Deliverable(s):

- Interagency Agreements

Task 2: Labor Compliance Program

Not applicable. This program is not a public works construction project and does not involve any construction work.

Task 3: Reporting

The Bay Area Clean Water Agencies (BACWA) will act as the grant administrator, and will be responsible for compiling quarterly progress reports and invoices for submittal to DWR. Reports will meet generally accepted professional standards for technical reporting and be proofread for content, numerical accuracy, spelling and grammar prior submittal to the State.

The Quarterly Reports will explain the status of the project and will include the following information:

- Summary of the work completed for the project during the reporting period (including rebate activity levels within the reporting period, marketing efforts and effectiveness, challenges and how they were overcome, customer satisfaction, and any modifications made to the Program)
- Statement of progress compared to the schedule listed in Attachment 5 of this proposal
- Comparison of actual costs to date to the budget listed in Attachment 4 of this proposal

The third-party Contractor will prepare, on behalf of the participating agencies, a Final Project Report documenting implementation of the Program, to be submitted to DWR via BACWA within ninety (90) calendar days of DWR verification that all tasks associated with a project have been completed. The Final Project Report will include the following information:

- Description of the actual work done, such as the number of installations of high efficiency toilets/urinals, and weather-based irrigation controllers, number of rebates provided for high efficiency washers and lawn replacements, and number of trained Bay-Friendly Qualified Landscape Professionals, etc.
- Final schedule showing actual progress versus planned progress
- Marketing methods and associated performance
- Results of the water savings
- Lessons learned

Deliverables:

- Quarterly Reports and Invoices
- Final Report

Task 4: Assessment and Evaluation

Not applicable. This project does not require preparation of assessment and evaluation studies.

Task 5: Final Design

Not applicable. This program does not require design services.

Task 6: Environmental Documentation
Not Applicable. The Program is not considered a project under CEQA [CEQA Guideline 15378], because it does not have a potential for resulting in either a direct physical change in the environment, or a reasonably foreseeable physical change in the environment.

Task 7: Permitting
Not applicable. This program does not require permits.

Task 8: Construction/Implementation Contracting
This task involves contracting with Contractors and vendors to implement the program. Please refer to the individual program elements for details.

High Efficiency Toilet and Urinal Direct Install/Rebate Program
Rebate and Direct Install Programs: • Contracting specifics and structure will vary per agencies , but in general are likely to include the following steps: 1) Prepare and issue request for proposal for toilet/urinal supply and installation services or rebate administration, 2) evaluate proposals, 3) select highest-scoring vendor, 4) enter into agreement and award contract. Some agencies already have contractors in place and will not need to solicit for new services. • HETs installed/ rebated through this program will be required to meet or exceed the UNAR specification. The UNAR specification is supplementary to the minimum requirements established within the following national standards: American Society of Mechanical Engineers A112.19.2-2003 and A112.19.5-2005, Canadian Standards Association B45 Series-02, Plumbing Fixtures. • HETs and HEUs installed/ rebated through this program will be required to meet the US EPA WaterSense standard.
Regional High Efficiency Washer Program
Not applicable. Rebate payments to consumers are the only rebate program element cost for which grant funding is requested. Most agencies will contract with Pacific Gas and Electric Company for High-Efficiency Clothes Washer Rebate Program administration services. As administrator of a regional energy rebate program, PG&E is uniquely positioned to provide one-stop energy- and water- rebate processing services. Agencies offering and combined energy/water rebate will directly award contracts to PG&E.
Water-Efficient Landscape Education
Not applicable. StopWaste.Org is applying on behalf of the non-profit, Bay-Friendly Landscaping and Gardening Coalition in order to provide fiscal and grant support required by DWR. The Bay-Friendly Landscaping and Gardening program has established relationships with local governments and the landscape industry in the Bay Area and is uniquely qualified to implement the Bay-Friendly landscape and gardening education program regionally. StopWaste.Org will negotiate a funding contract with the BF Coalition.
Water-Efficient Landscape Rebate Program
Not applicable. Agencies will not contract with a 3rd party contractor. Agencies will provide rebates directly to customers.
Weather-based Irrigation Controller Program
Not applicable. Agencies will not contract with a 3rd party contractor. Agencies will provide rebates directly to customers.

Deliverable(s):

- Contracting agreements with third-party contractors and vendors.

Task 9: Construction/Implementation

Subtask 9.1: Program Marketing

Participating agencies will develop, design and print marketing materials. Agencies will have the flexibility to collaborate to ensure consistent messaging throughout the region. For example, Agencies and PG&E will develop dual energy and water rebate public outreach materials, and Agencies will utilize materials from the Bay Friendly Landscape Program to assist in educating the public about the benefits of lawn removal. Specific marketing efforts may include: back of bill messages, bill inserts, newsletters, electronic, newspaper advertisements, public service announcements, and others.

Deliverable(s):

- Program Marketing Materials

Subtask 9.2: High Efficiency Toilet and Urinal (HET/HEU) Direct Install/Rebate Program Element Implementation

The High Efficiency Toilet and Urinal (HET/HEU) Direct Install/Rebate Program Element involves replacing older high volume toilets (3.5 or more gallons per flush) with high efficiency toilets (1.28 gallons per flush or less), and existing urinals (1.0 or more gallons per flush) with high efficiency urinals that use 0.5 gallons per flush or less. Agencies may decide to implement either a Direct Installation Program or a Rebate/Voucher Program. The main implementation components to these programs are:

For Rebate Programs:

9.2.1 Rebate Applications Evaluation

- Participating Agency(s) will review and confirm applicants meet program eligibility requirements
- Participating Agency(s) will review applications to ensure they meet program terms and conditions
- A pre-post inspection may be required to verify toilet/urinal meets program terms and conditions

9.2.2 Rebate Processing

- Participating Agency(s) will provide rebates based on toilet/urinal cost. Agencies rebate will be a minimum of up to $100 per unit.
- Rebates will be issued in the form of a check or water credit on the customer water bill
- Participating Agency(s) will maintain a database to track program activities

9.2.3 Public Outreach and Customer Service

- Participating Agency(s) will market their program in a variety of ways including but not limited to: direct mail to customers and local plumbers, newspaper

advertisements, flyers at home supply stores, agency newsletter, customer bill inserts, and agency website.
- Participating Agency(s) will provide information to assist customers with their toilet/urinal replacement, such as flyers describing program and information on their websites.

For Direct Installation Programs:

9.2.4 Secure services of toilet contractor to administer program
- Either water agency will send this contract out for competitive bid or water agency already has program with contractor in place. See section 8.0.

9.2.5 Contractor replaces old, inefficient toilets and urinals with new, efficient toilets and urinals
- Contractor will replace only toilets that currently flush at 3.5 gpf and urinals that currently flush at 1.0 gpf with approved HETs and HEUs.

9.2.6 Contractor bills water agency monthly for each installation
- Contractor provides complete database with all participation details, along with invoice.
- Projected cost for each installation is approximately $300 for High-Efficiency Toilets and Urinal.

Deliverable(s):
- Eligible Customer List
- Completed HET/HEU Install List
- Database of participant rebate application forms

Subtask 9.3: Regional High Efficiency Washer (HEW) Program Element Implementation

The High Efficiency Washer Rebate Program provides rebates to customers to purchase the most energy and water efficient clothes washer available on the market. . The washing machine models selected for rebates will be at least as water and energy efficient as the Consortium for Energy Efficiency (CEE) Tier 3 machines, which are the most efficient models currently available on the market. The implementation components are:

9.3.1 Rebate Applications Evaluation
- Participating Agency(s) will review and evaluate applications for rebates to ensure that the applicants meet qualifying criteria. A post inspection may be required for verification.

9.3.2 HEW Rebate Processing
- A third-party contractor (e.g. PG&E) will process the rebate following the rebate distribution protocol of the program, distribute rebates to customers and maintain a database of customers.

9.3.3 HEW Public Outreach
- Participating Agency(s) will market the program in a variety of ways including but not limited to: direct mail to customers, newspaper advertisements, point of purchase

materials at washer retail stores, agency newsletters, customer bill inserts, and agency website.

Deliverable(s):

- Database of participant rebate application forms
- Public outreach materials

Subtask 9.4: Water Efficient Landscape Education Program Element Implementation

The Water Efficient Landscape Education Program is a sustainable landscaping program that encourages property owners and managers to minimize and remove turf, and provides support to participants with published guides, videos and hands-on trainings. There are three (3) implementation components:

9.4.1 Water Efficient Landscape Education Start-up

- Schedule home gardener and landscape professional trainings.
- Identify and coordinate with agencies to host and sponsor trainings.
- Recruit participants and provide an online application for recruiting.

9.4.2 Water Efficient Landscape Education Implementation

- Conduct eight (8) landscape professional trainings, each consisting of 24 hours of instruction to approximately 320 to 480 landscape professionals from around the Bay Area on ET controllers, high efficiency irrigation, hydrozoning, sheet mulching, lawn alternatives and the model Water Efficient Landscape ordinance as well as use of recycled content materials and Integrated Pest Management. Upon completion of the class and final exam, the participants become a Bay-Friendly Qualified Landscape Professional.
- Identify qualified landscape professionals that offer sheet mulching and lawn conversion services.
- Conduct 36 “Rethink Your Lawn” workshops and sheet mulching demonstrations led by Bay-Friendly Qualified Landscape Professionals and Bay-Friendly Educators at 18 nurseries. Each workshop is followed by educational tabling and trained volunteers for follow-up questions from participants.
- Create a step-by-step lawn conversion slide show accessible on websites and at nursery events reaching thousands of home gardeners.
- Label low water use, non-invasive plants suited to local soils and climates as Bay-Friendly plant species at five (5) nurseries.

9.4.3 Water Efficient Landscape Education Surveys and Analysis

- Conduct surveys at all workshops and trainings.
- Evaluate website utilization via weekly reports, subscriptions and activity reports from consultants.
- Survey website users on lawn conversion implementation.
- Survey host nurseries to identify trends in sales of labeled Bay-Friendly plants.
- Analyze survey results.

Deliverable(s):

- Online application for recruiting
- Landscape professional trainings
- List of landscape professionals offering sheet mulching and lawn conversion services

- Labels on low-water use plants and nurseries
- Step-by-step lawn conversion slide show
- Summary analysis of participant surveys

Subtask 9.5: Water-Efficient Landscape Rebate Program Element Implementation

The Water-Efficient Landscape Rebate Program focuses on removing existing water-intensive lawns and replacing them with more sustainable, water-efficient landscapes. In general, participating agencies will provide rebates to both residential and commercial participants based on the square footage of lawn converted. The program consists of three (3) components

9.5.1 Rebate Applications Evaluation

- Review applications for landscape rebates to ensure that the applicants meet qualifying criteria. A pre-post inspection may be required for verification.

9.5.2 Rebate Processing

- Provide rebates based on each square foot of front lawn converted. The minimum rebate is 50 cents per square foot of lawn replaced.
- Issue rebates in the form of a check or water credit on the customer water bill.
- Maintain customer rebate database.

9.5.3 Public Outreach and Customer Service

- Participating Agency(s) will market their program in a variety of ways including but not limited to: direct mail to customers and local landscape professionals, newspaper advertisements, flyers at retail irrigation supply stores and nurseries, agency newsletters, customer bill inserts, and agency website.

Deliverable(s):

- Rebate Application
- Database of participant rebate application forms
- Public outreach materials

Subtask 9.6: Weather-Based Irrigation Controller (WBIC) Program Element Implementation

The Weather-Based Irrigation Controller Program involves the replacement of standard irrigation "clock-type" controllers with self-adjusting automatic irrigation controllers that schedule irrigation events using Evapotranspiration (ET) controllers.

9.6.1 Customer Purchase Program Implementation

- Conduct an outdoor survey at the customer's site to determine the existing type of irrigation system.
- Identify qualifying properties and verify eligibility.
- Agency(s) to provide a list of recommendations and information on improving water efficiency to the customer.
- Agency(s) to develop a list of approved Weather-Based Irrigation Controllers (WBIC) models, and generate modes for customer utilization at the time of purchase.

- Customer(s) will self-install the WBIC, and provide proof of install to complete the rebate application form and submit the rebate application to their local participating agency.
- An optional inspection at the request of the customer or agency will include a precipitation test on 50% of an individual site. Field personnel may perform onsite inspections on 5-20% of the controller installation and programming sites to ensure accuracy per manufacturer specifications.

9.6.2 Rebate Processing

- Participating agencies will review and evaluate customer rebate applications. An agency may require a purchase receipt and/or post inspections prior to issuing a rebate.
- Issue rebates in the form of a check or water credit on the customer water bill.

9.6.3 Public Outreach

- Conduct customer and retailer marketing and public outreach activities to implement the incentive program and verification process. Specific activities include outreach to retailers, publishing rebate materials and postcards associated with the distribution of the incentives.

Deliverable(s):

- Rebate Applications
- Database of participant rebate application forms
- Public outreach materials

Task 10: Environmental Compliance/Mitigation/Enhancement

Not Applicable. The Program is not considered a project under CEQA [CEQA Guideline 15378].

Task 11: Construction Administration

Not applicable. The Program does not include construction activities.

San Francisco Bay Area Regional Priority Projects and Programs

Attachment 3 – 3. Bay Area Wetland Ecosystem Restoration Program Work Plan

1 Introduction

The Bay Area Wetland Ecosystem Restoration Program (WERP) consists of a suite of restoration construction projects located on the bay shoreline of 3 counties. Each of the projects will carry out ecosystem restoration of degraded tidal wetlands and also address climate change response, flood management, protection and improvement of surface water quality, and will provide public recreation opportunities. Individually and collectively, the WERP projects will implement regional goals and objectives of the Bay Area IRWM Plan, the San Francisco Bay Comprehensive Conservation and Management Strategy, the Basin Plan, the Baylands Ecosystem Habitat Goals, the Tidal Wetland Recovery Plan of the U.S. Fish and Wildlife Service (USFWS), the San Francisco Bay Joint Venture Implementation Strategy and BCDC's Sea Level Rise Strategy for the San Francisco Bay Region. The proposed projects are at Sears Point in Sonoma County, Bair Island in San Mateo County, and South Bay Salt Ponds A16/17 in Santa Clara County.

1.1 Goals and Objectives

The overall goal of WERP is to create a variety of wetland habitats in order to bring back San Francisco Bay's ecosystem functions, enhance the abundance and diversity of the Bay's plants, fish, and wildlife, and provide the public with a means to appreciate these changes. As the Bay Area underwent a 150-year transformation to a highly-urbanized area, the San Francisco Bay suffered a major loss of tidal wetland and associated habitats, with acreage reductions of up to 90% as historic wetlands were diked for agricultural, military, urban and other development purposes.

In 1999, the San Francisco Baylands Ecosystem Habitat Goals report, prepared by a broad array of land managers, agencies, restoration practitioners and scientists to evaluate the amounts and distribution of habitats necessary to ensure a healthy and functioning bay ecosystem, recommended the restoration of 100,000 acres of wetlands at the Bay's edge. Since, the Baylands Goals report has been the guiding document for wetlands restoration and enhancement around the Bay, having contributed to the protection of 40,000 acres of baylands and having attracted significant funding for implementation of acquisition, protection, and restoration projects.

The WERP will contribute to fulfilling the Baylands Goals by implementing three of the largest and most strategically-located wetland restoration projects currently underway along the shores of the Bay. While the majority of the acreages restored under this proposal are for tidal wetlands, each project has design variations that incorporate site constraints, provide habitat for resident and migratory species that are currently found or will be found on the site post-restoration, and increase the habitat diversity of the shoreline of the Bay as a whole. Public access facilities will be constructed at these sites to provide visitors with a means to see and understand the benefits resulting from the restoration of wetland habitats.

Specific objectives associated with each project element are listed in **Table 1**.

Table 1: Project Goals and Objectives

Project Element	Project Objectives
A. Sears Point Wetland and Watershed Restoration	• Restore 960 acres of tidal marsh. • To improve tidal exchange in neighboring Tolay Creek along the eastern edge of the project boundary. • To enhance/restore 106-acres of non-tidal seasonal wetlands while maintaining existing agriculture between, and providing flood protection for, the SMART rail line and Highway 37. • To provide public recreation access by building 2.5-mile segment of the Bay Trail with options for additional trails. • To enhance 15.5 acres of breeding and sheltering habitat for the federally threatened California red legged frog. • To enhance nearly 1,000 acres of uplands through ecologically-based grazing and riparian enhancements.
B. Bair Island Restoration	• To restore and enhance 896 acres of tidal marsh habitat at Middle Bair Island. • To reestablish tidal marsh within the next 20 years so that the marsh plain will be able to keep pace with sea-level rise and continue to sequester carbon. • To maintain and improve hydrology of a degraded intertidal system by increasing scour, thus improving both tidal prism to nourish tidal marsh and benefiting recreational boating through deeper access near shore. • To restore tidal marsh that will help filter pollutants from point and non-point sources, thus improving overall bay water quality. • To restore tidal marsh that will help buffer mainland properties from storm tides and rising sea levels. • To benefit a variety of fish and wildlife species, including the endangered California clapper rail, salt marsh harvest mouse, and Central Valley spring-run Chinook salmon, as well as the threatened Central Valley steelhead (Central California Coast steelhead Distinct Population Segment) and the North American green sturgeon.
C. Pond A16/17 Habitat Restoration	• To reestablish tidal marsh within the next 10-20 years so that the marsh plain will be able to keep pace with sea-level rise and continue to sequester carbon. • To restore 90 acres of tidal marsh habitat and 280 acres of shallow water migratory bird habitat and nesting islands in order to provide sustainable habitat for the endangered, threatened, and special status species. • To maintain and improve hydrology by increasing tidal prism in restored marsh and increasing circulation within ponds. • Improve water quality within and discharges from the ponds by increasing tidal flushing and circulation. • To restore tidal marsh that will help filter pollutants from point and non-point sources as well as improve circulation in the

	ponds, thus improving overall bay water quality. • To restore tidal marsh that will help buffer mainland properties from storm tides and rising sea levels and improve levees for increased protection from flooding. • To restore tidal marsh habitat in Pond A17 in order to help provide a continuous stretch of habitat along the south bay for a variety of tidal dependant fish and wildlife species and to provide nesting habitat for shallow water dependant migratory bird species. • Implement a Phase I project of the South Bay Salt Pond Restoration Project, a 15,000 acres project to turn industrial salt ponds into tidal wetlands and habitat ponds.

1.2 Purpose and Need

The following discussion principally addresses the regional purposes of and needs for the WERP program. Purpose and need information that is specific to each of the 3 proposed projects has been developed in the respective CEQA/NEPA documents, is summarized in the "Detailed Project Description" section below, and can be provided in greater detail as needed.

1. Need for and purpose of ecosystem restoration, environmental and habitat protection and improvement, wetlands enhancement and creation, and water quality protection and improvement:
Approximately 90% of the tidal wetlands that once ringed San Francisco Bay and were an essential component of the Bay and Delta ecosystems have been lost to diking and filling for agriculture, industry and urban development. Among the adverse impacts of the loss of tidal wetland acreage and functions are radical reductions in habitat for many plants and both resident and migratory animal species, protection of the shoreline from erosion and flooding, carbon sequestration, filtering of pollutants from both fresh and salt water, and contribution of nutrients to the Bay. The WERP seeks to restore these functions on over 2,300 acres of degraded wetlands at the 3 project sites and to utilize post-construction monitoring and adaptive management to inform future wetland restoration throughout the region.

2. Need for and purpose of flood management:
Many well-known factors have resulted in flood hazards to the shoreline of the Bay and to upstream areas. Regionally, sea level rise will aggravate flooding. The WERP program addresses site-specific flood management issues. Each tidal restoration project will attenuate local storm surges and each has been designed to maintain or improve drainage--without inducing erosion--in adjacent creeks and sloughs. Existing or reconstructed interior levees will protect uplands at each site. In particular at Sears Point, a new flood control levee will play a significant role in protecting both Highway 37 and the SMART railroad from flooding under current and future conditions, as the elevation of the highway at several points bordering the project area is several feet below current high tides. The design height of the planned levee will address this as well as expected future sea level rise. In addition, the project proponent is collaborating with Caltrans to protect other adjacent areas.

3. Need for and purpose of response to climate change:
Rising sea level now threatens to submerge and destroy even more tidal wetlands, which in turn will feed climate change by reducing the capacity for carbon sequestration. Projects that provide for rapid re-establishment of wetlands may prove the best able to keep up with future sea level rise. The projects in the WERP program have all been engineered with a variety of strategies to prolong functioning in the face of sea level rise. In addition, the Sears Point project offers an opportunity, rare around the Bay, to allow wetland transgression (inland migration) as sea level rises. Other needs and purposes related to

rising sea level were addressed in items 1 and 2.

4. Need for and purpose of providing recreation and public access facilities:

The right of the public to have access to the ocean (and Bay) shoreline is established in the State Constitution and reflected in BCDC's Bay Plan and in various other regional plans. In our crowded urban area, access to open space and recreation is also important for quality of life. Under the WERP, recreation and public access facilities have been incorporated into the restoration projects and designed to avoid adverse impacts to flora and fauna.

A. Sears Point Wetland and Watershed Restoration

Project Purpose

- The purpose of the Sears Point Project is to restore natural estuarine and seasonal freshwater wetlands on 1,300 acres of diked baylands and to significantly increase public access opportunities on the North Bay shoreline. Upland restoration and enhancement will provide for watershed-level restoration leading to increased water quality, retention of stormwater, and connectivity from ridgelines to the Bay.

Project Need

- The North Bay has lost nearly 70% of its tidal wetlands and 53% of its seasonal wetlands in the last 130 years.
- The Sears Point Restoration Project offers a rare opportunity to connect restored tidal marsh and seasonal wetlands with adjacent upland habitats.
- The North Bay offers relatively few opportunities for public access. The Sears Point Restoration Project will construct 2.5 miles of the Bay Trail, thereby greatly expanding the currently limited public recreational opportunities not currently available at the site.
- The Sears Point Restoration Project will contribute to the recovery of numerous species protected under the federal Endangered Species Act and the California Endangered Species Act.

B. Bair Island Restoration

Project Purpose

- The restoration of Middle Bair Island is part of a larger effort to restore the Bair Island complex, composed of Inner, Middle, and Outer Bair Islands. The broader project will restore and enhance over 1,300 acres of diked wetlands to tidal wetlands and associated sloughs and channels within the 2,634-acre Bair Island Unit of the Don Edwards San Francisco Bay National Wildlife Refuge. Middle Bair Island is the second phase of wetland restoration and will restore tidal action to 896 acres of wetlands, as well as enhance tidal flow to portions of Outer Bair.

Project Need

- Nearly 90% of the wetlands in southern San Francisco Bay were converted to industrial salt ponds that resulted in declines in wetland species populations and diversity, decreased tidal prism resulting in silted-in channels and sloughs, decreased water quality and reduced storm surge capacity. Restoring large amounts of tidal marsh would improve the Bay's natural filtering system and enhance water quality, increase primary productivity of the aquatic ecosystem, and reduce the need for flood control and channel dredging. Enhancing diked wetlands would increase the regional and subregional support of migratory birds and reverse declines of unique plant and animal communities.

C. Pond A16/17 Habitat Restoration

Project Purpose

- The purpose of the project is to increase habitat quality and ecological diversity and provide wildlife-compatible public access in the South Bay by creating islands for nesting birds, 280 acres of shallow water habitat for shorebird foraging, 90 acres of tidal wetlands to ensure marsh connectivity for wetland species such as clapper rails in the South Bay, and providing recreational and environmental education opportunities with a public access trail and overlook.

Project Need

- Historically, 90% of the wetlands in southern San Francisco Bay were converted to other uses, including large areas of industrial salt ponds, which resulted in declines in wetland species populations and diversity, decreased tidal prism resulting in silted-in channels and sloughs, decreased water quality and reduced storm surge capacity. Restoring large amounts of tidal marsh will improve the Bay's natural filtering system and enhance water quality, increase primary productivity of the aquatic ecosystem, and reduce the need for flood control and channel dredging. Enhancing managed ponds will increase the regional and subregional habitat for migratory birds and other unique plant and animal communities.

1.3 Project List

This section describes the specific projects included in the Wetlands Ecosystem Restoration Program, the current status of each project in terms of percent completion of design, and the implementing agencies.

Project Abstract

A. Sears Point Wetland and Watershed Restoration

The North Bay has lost 70% of its tidal marsh and 53% of its seasonal wetlands. Over the last 15 years multiple planning efforts have been developed to address the loss. In 2004/05, the Sonoma Land Trust (SLT) made a major stride forward in this process by purchasing the 2,327-acre Sears Point property, a site proposed for casino development only one year prior.

Located on the Sonoma County shoreline of San Pablo Bay, Sears Point includes 1,300 acres of diked baylands and over 1,000 acres of surrounding uplands. Since 2005, SLT has developed a comprehensive restoration plan for the site, a process that brought together a diverse set of stakeholders and underwent intensive peer review.

The overall restoration project will restore 960 acres of tidal marsh providing vital ecosystem services including high rates of carbon sequestration, buffering against sea level rise, habitat for recovery of rare, threatened and endangered species, and filtration of pollutants. The project will also enhance and restore over 106 acres of seasonal wetlands, and restore nearly 1,000 acres of upland grasslands and riparian corridors. Within the uplands the Project will enhance 15.5 acres of breeding and sheltering habitat for the CA red-legged frog including creation of several breeding ponds. Public access will be dramatically increased with the construction of 2.5 miles of the Bay Trail for use by hikers, birders, and hunters.

Phase I of the Sear's Point restoration includes three elements. The first element will prepare the 960-acre future tidal marsh by constructing a 2.5-mile levee, excavating over 10 miles of new tidal channels, building over 500 topographic features to promote future vegetation development and sediment deposition, and managing brackish flooding of the site for one to two seasons to allow vegetation to establish before being subject to the full brunt of the tides. The second element will restore up to 106 acres of seasonal freshwater wetlands by implementing ecologically-based agriculture and through excavation of depressions in historic locations. The final element of Phase I is well underway and includes restoration of 1,000 acres of adjacent uplands through ecologically-based grazing, creations of red-legged frog breeding areas, and enhancement of riparian drainages. Phase II will include breaching and lowering of the outboard levee and dredging of connector channels to ensure full tidal exchange.

Through these actions the Sears Point Restoration Project offers a unique opportunity to physically and biologically connect uplands to baylands and to connect people to the land. This proposal seeks funding only for Phase I.

B. Bair Island Restoration

The Bair Island complex is divided into three distinct areas separated by slough channels: Inner, Middle, and Outer Bair Islands. Planning and permit work is complete for all of Bair Island. Construction work began in 2007 to restore Inner Bair Island, the first stage of a comprehensive restoration project. At Inner Bair Island, the most deeply subsided of all the islands, dredged material (or other sources of fill) is being used to raise the marsh plain elevation to reduce bird-strike hazards and to protect the South Bayside System Authority (SBSA) sewer line. Outer Bair Island was completed in January 2009, with the exception of a small component that will be completed during Middle Bair construction, and tidal flows were restored by breaching levees and blocking interior ditches. Middle Bair Island is ready to be constructed once fully-funded. The project will consist of levee breaching and placement of ditch blocks, as well as the placement of flow restrictors and restoration of historic meanders, which will return the hydrological conditions to near-historic conditions. The levees will be breached at seven historic channel locations and marsh plain will be restored by natural tidal flows to the islands. When completed, the resulting tidal marsh will be self-sustaining and will not require additional construction. Bair Island is owned by the US Fish and Wildlife Service and the CA Dept. of Fish and Game.The restoration project is being implemented by the USFWS in partnership with Ducks Unlimited and the California State Coastal Conservancy.

C. Pond A16/17 Habitat Restoration

As one of the Phase I South Bay Salt Pond Restoration projects, this project will reconfigure the approximately 240-acre Alviso Pond A16 managed pond in order to create islands for nesting birds and shallow water habitat for shorebird foraging. The southern third of the approximately 130-acre Alviso Pond A17 will also be reconfigured to create islands for nesting birds and shallow water habitat for shorebird foraging, while the two-thirds adjacent to Coyote Creek (90 acres) will be restored to tidal marsh. Public access and recreation components will include interpretive signs and two new observation platforms. Initial funding has been obligated to a general contractor selected in December 2010 that is tasked to complete project design and begin implementation as soon as total funding is available. Nesting islands will be constructed similar to those on the nearby and recently-completed South Bay Salt Pond SF2 project. Water will flow through a northern, currently muted tidal cell in Pond A17 (future tidal wetlands), into the managed cell, then into the southern portion of Pond A16. These nesting islands and shallow water habitats are expected to provide habitat for tens of thousands of migratory birds traveling along the Pacific flyway each year. A16/17 is owned by the US Fish and Wildlife Service and the project is being implemented in partnership with the California State Coastal Conservancy and other agencies.

Current Status of Project

Table 2 lists the specific project elements in the Bay Area Wetland Ecosystem Restoration Program, including the current status of each project in terms of percent completion of design, and the implementation agencies.

Table 2: Current Status of Projects

Project	Current Status (% Completion of Design)	Implementation Agencies
A. Sears Point Wetland and Watershed Restoration	30%	CA Department of Fish and Game; U.S. Fish and Wildlife Service; Sonoma Land Trust
B. Bair Island Restoration	100% (completed)	California Coastal Conservancy; City of Redwood City; Ducks Unlimited; U.S. Fish and Wildlife Service; CA Dept. of Fish and Game (partial landowner); San Francisco Public Utilities Commission; San Francisco Bay Trail
C. Pond A16/17 Habitat Restoration	Permits and environmental documents completed. Revised 30% design to be completed in January 2011.	Main project partners for this project: US Fish and Wildlife Service; CA State Coastal Conservancy Other South Bay Salt Pond Project Partners include: CA Wildlife Conservation Board; CA Dept. of Fish and Game; Santa Clara Valley Water District; Alameda County Public Works; Resources Legacy Fund; US Geological Survey; NOAA; Ducks Unlimited

1.4 Integrated Elements of Projects

A. Sears Point Wetland and Watershed Restoration

The Sears Point Wetland and Watershed Restoration Project is directly adjacent to the Tolay Creek Tidal Marsh Restoration Project in the east and the Sonoma Baylands Restoration Project in the west. Integration with the neighboring restoration projects at Sonoma Baylands and Tolay Creek was prioritized during the design for the Sears Point wetland restoration component. The completion of Sears Point will fulfill a major objective of the 1999 *Habitat Goals* Report, to protect and restore an uninterrupted swath of tidal marsh from the Petaluma River to Tolay Creek. In addition, completion of the tidal restoration component will substantially expand the range of existing and restored wetlands in the North Bay, including the Napa Sonoma Marshes Restoration Project, the Napa Plant Site Restoration Project, and the soon-to-be-restored Cullinan Ranch Restoration Project (Figure 1).

B. Bair Island Restoration

Bair Island is composed of three separate islands: Inner, Middle and Outer (Figure 2). Due to different

levels of degradation, subsidence, and constraints, each island's restoration will be implemented separately. Outer Bair restoration has been completed by Ducks Unlimited, with the exception of one component that will be completed with restoration of Middle Bair. Inner Bair Island will be restored through the placement of dredged or upland-sourced material to raise the marsh plain to the appropriate level, followed by breaching to restore tidal hydrology. This project is being completed in cooperation with the US Army Corps of Engineers and a private dirt contractor. The US Fish and Wildlife Service, in cooperation with Ducks Unlimited, seek to restore Middle Bair by installing ditch plugs to block circulation through the borrow ditches created during levee construction, and breaching levees along historic slough alignments to restore tidal action.

Planning and implementation of the Bair Island Restoration project was a precursor to the nearby South Bay Salt Pond Restoration Project (SBSPR Project), an effort to restore 15,100 acres of industrial salt ponds to a rich mosaic of tidal wetlands and other habitats. Lessons learned from Bair Island planning and implementation has informed the SBSPR Project. Furthermore, synergies exist between the two projects as they share the same technical advisory committee which allows the participating agencies to share the lessons learned about marsh restoration techniques and adaptive management. Together, Bair Island and the SBSPR Project have tremendous potential impact on regional goals to increase available tidal marsh habitats in the south bay subregion by eventually providing an almost unbroken corridor from Bair Island south around to the east side of the bay.

Restoration of Bair Island thus also helps implement the recommendations of the *Baylands Ecosystem Goals Report* (1999), which identifies restoration of large areas of tidal marsh as the overall goal of the South Bay subregion.

C. Pond A16/17 Habitat Restoration

The Pond A16/17 project is part of Phase I implementation of the South Bay Salt Pond Restoration project, a 15,100 acre project that will return former industrial salt ponds back into wetland habitats, provide public recreation, and improve flood protection (Figure 3). As discussed above, combined, the Bair Island project and the SBSPR Project have tremendous potential impact on regional goals to increase available tidal marsh habitats in the south bay subregion by eventually providing an almost unbroken corridor from Bair Island south around to the east side of the bay.

Restoration of A16/17 will also help implement the recommendations of the Baylands Ecosystem Goals Report (1999), an integrated action plan for Bay wetland restoration, which identifies restoration of large areas of contiguous tidal marsh as well as the creation of shallow water habitat for migratory birds as the overall goal of the South Bay subregion. Restoration of these habitats on a regional scale also has the ability to improve regional water quality, improving the ecological and economic productivity of Bay waters, ameliorate the effects of storms and shoreline flooding, as well as assist in the adaptation of Bay communities to sea level rise.

Data Management and Monitoring Deliverables included in the Work Plan

The Work Plan described in Section 2 includes the following data management and monitoring deliverables:

- Quarterly progress reports and Final Report on project close-out.

Consistent with Data Management Standards in the Bay Area IRWM Plan, the data collected from this Program will be made available on the Bay Area IRWMP website and in the quarterly and final reports that will be disseminated to the Functional Areas and other appropriate agencies.

1.5 Regional Map

The following map presents the location of each project included in the Wetland Ecosystem Restoration Program.

1.6 Completed Work

Significant work has been completed on projects included in the Wetland Ecosystem Restoration Program. By June 1, 2011, the following work will have been completed on the projects included herein:

A. Sears Point Wetland and Watershed Restoration

- Project Administration: oversaw preparation of reports listed Section 1.7 Existing Data and Studies.
- Project Reporting: provided monthly and quarterly reports to grantors detailing project activities and provided copies of technical reports, designs, etc.
- Land Purchase Easement: Sonoma Land Trust purchased the 2,327-acre Sears Point Property in 2004/2005.
- Environmental Documentation: Draft EIR/EIS submitted and approved in August 2009. Final EIR/EIS expected to be completed in January 2011.

B. Bair Island Restoration

- Project Administration: ongoing cost-estimating grant applications, fundraising, and participation in technical advisory meetings.
- Land Purchase Easement: Bair Island is owned by the U.S. Fish and Wildlife Service for a portion of Outer Bair which is owned by the CA Department of Fish and Game.
- Planning/Design/Engineering/Environmental Documentation: EIR/S and Enhancement Plan adopted in 2007.
- Final Design: the design for this project is complete.
- Environmental Documentation: NEPA and CEQA documentation approved and adopted in June 2007.
- Permitting: the following permits have been obtained for this project:

Permit	Approval Date
Biological Opinion (USFWS)	January 2006
Biological Opinion (NMFS)	January 2006
BCDC	April 2007
Corps of Engineers Section 404	May 2008

C. Pond A16/17 Habitat Restoration

- Project Administration: ongoing monthly South Bay Salt Pond Restoration Project Team Meetings, annual Geographical Working Group Meetings, Annual Stakeholder Forum Meetings, ongoing coordination with local government and regulatory agencies.
- Planning/Design/Engineering/Environmental Documentation: Completed 30% design and cost estimate.
- Final Design: The 10% design for this project was completed in September 2009. The revised 30% design will be completed in January/February 2011, 60% design in March 2011, 90% design in June

2011 and 100% design in July 2011. A bid package was issued by USFWS using IDIQ contracts in December and a general contractor selected. Labor compliance program and other requirements will be met.

- Environmental Documentation: The Final EIR/EIS fulfilling requirements for environmental analysis and mitigation as required by CEQA/NEPA was approved in January 2009.
- Permitting: the following permits have been obtained for this project:

Permit	Approval Date
US Army Corps of Engineers	January 2009
USFWS BO	August 2008
RWQCB	August 2008
BCDC	October 2008
NMFS BO	January 2009
NMFS EFH	January 2009

Plans and Specifications

The following is the existing status of plans and specifications for the projects, included as attachments to this work plan:

- Sears Point: 30% Plans and Specifications
- Bair Island: 100% Final Design
- Pond A16/17: Initial 30% Plan attached; these are under revision and will be completed along with preliminary specifications in January 2011.

For Sears Point, the final design is anticipated to be completed before grant award and project start. For Pond A16/17, final designs will be completed as part of the project in mid-2011.

1.7 Existing Data and Studies

Table 3 lists the studies that have been performed that support the projects' site location, feasibility and technical methods.

The broad suite of studies, reports and documents below illustrate the wide variety of technical information necessary to successful project completion. For each project site, initial studies have framed existing conditions, identified potential design constraints, and established the baseline for monitoring of post project conditions. CEQA documentation for each project includes detailed information about sensitive environmental characteristics and mitigations necessary to ensure the projects are implemented with the least possible environmental impact. Finally, initial designs and cost estimates throughout have allowed project proponents to refine project parameters, scope future steps, and frame implementation needs. Furthermore, the restoration concepts for these wetland projects have been influenced by regional-scale planning which accounts for adjacent habitats and conditions, as well as Bay-wide restoration goals.

Table 3: Existing and In Process Data and Studies Supporting the Project

Data/Study	Description	Date
Sears Point		
Existing Conditions Report	Biological and physical surveys	March 2005
Rail Alternatives Cost Benefit Analysis	Analysis of how to work project around the railroad	December 2005
Cultural Resources	Survey of site for cultural resources	March 2005
Geotechnical Investigation	Preliminary investigation of soils and future levee	December 2005
Soil and Groundwater Investigation Report	Evaluation of contaminated soils	August 2005
Final Preliminary Restoration Plan	Conceptual Restoration Plan	February 2007
Bay Trail Feasibility Study	Analysis of options for alignment of the Bay Trail and railroad crossings	September 2007
Hydrodynamic tidal modeling	Investigate dredging of Tolay Creek	October 2007
Sears Point Ranch Master Plan	Plan for use of buildings on site	June 2008
Wetland Delineation		July 2010
Stormwater Modeling Report	Assessment of stormwater pump needs	May 2011
Geotechnical Investigation	Levee design and evaluation	March 2011
Bair Island Restoration		
Enhancement Plan and EIR/S	Restoration plan and environmental documentation	Adopted 2007
Pond A16/17 Habitat Restoration		
PWA 30% and cost estimate	Geotechnical, hydrologic and topographic surveys were conducted as part of a refinement of the previous design to account for technical issues surrounding constructability	January 2011 (Anticipated)
Preliminary Design Memo	10% conceptual design	September 2009

Existing Conditions	Biological, hydrologic, infrastructure, water and sediment quality, and public access are covered in 5 existing conditions documents	2005
Final South Bay Salt Ponds EIS/R	Joint National Environmental Policy Act/California Environmental Quality Act environmental documentation including Restoration and Adaptive Management Plan	January 2009

1.8 Project Site Maps

Site maps for each project location are located on the following pages.

Figure 1: Sears Point Project Location

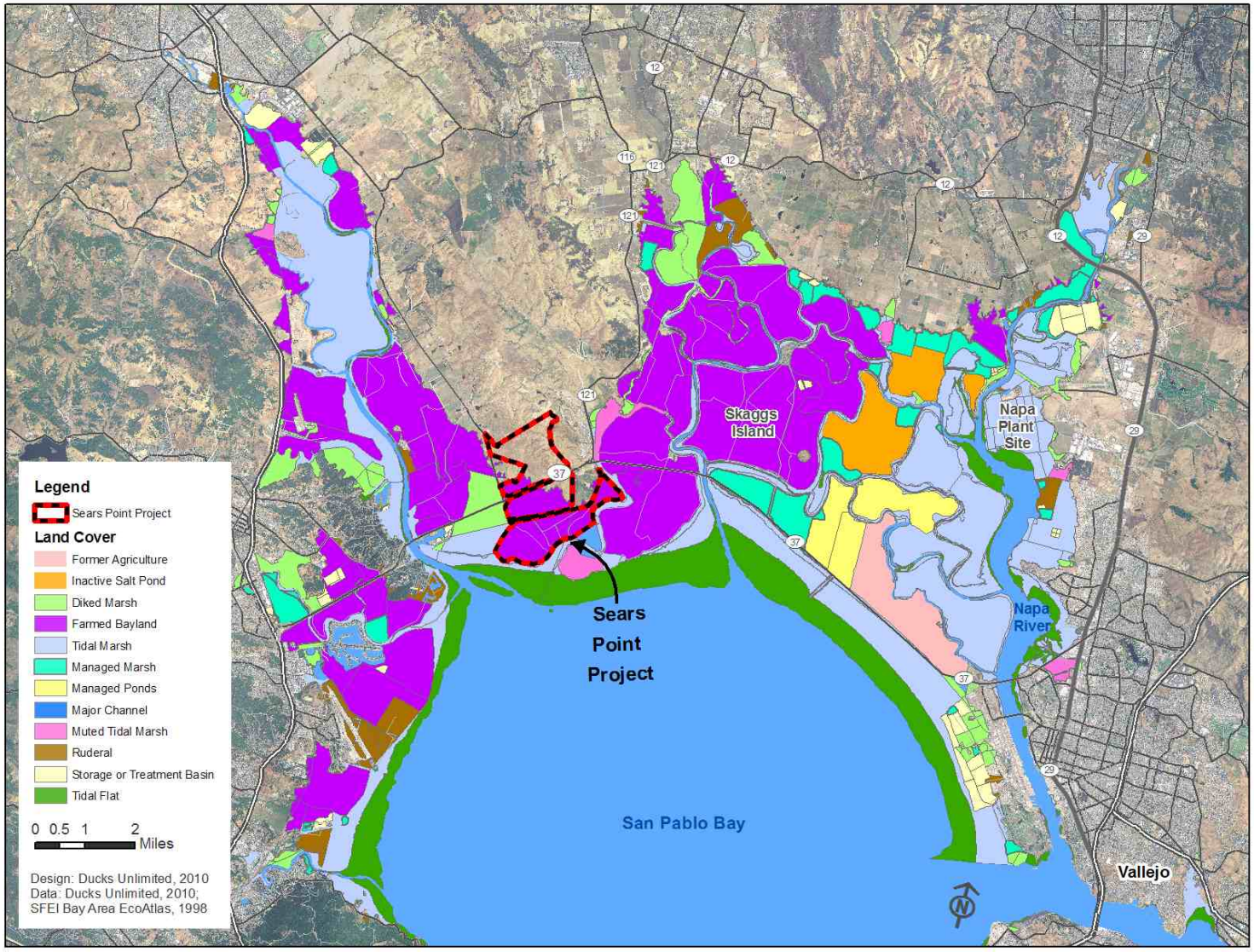


Figure 2: Bair Point Project Location

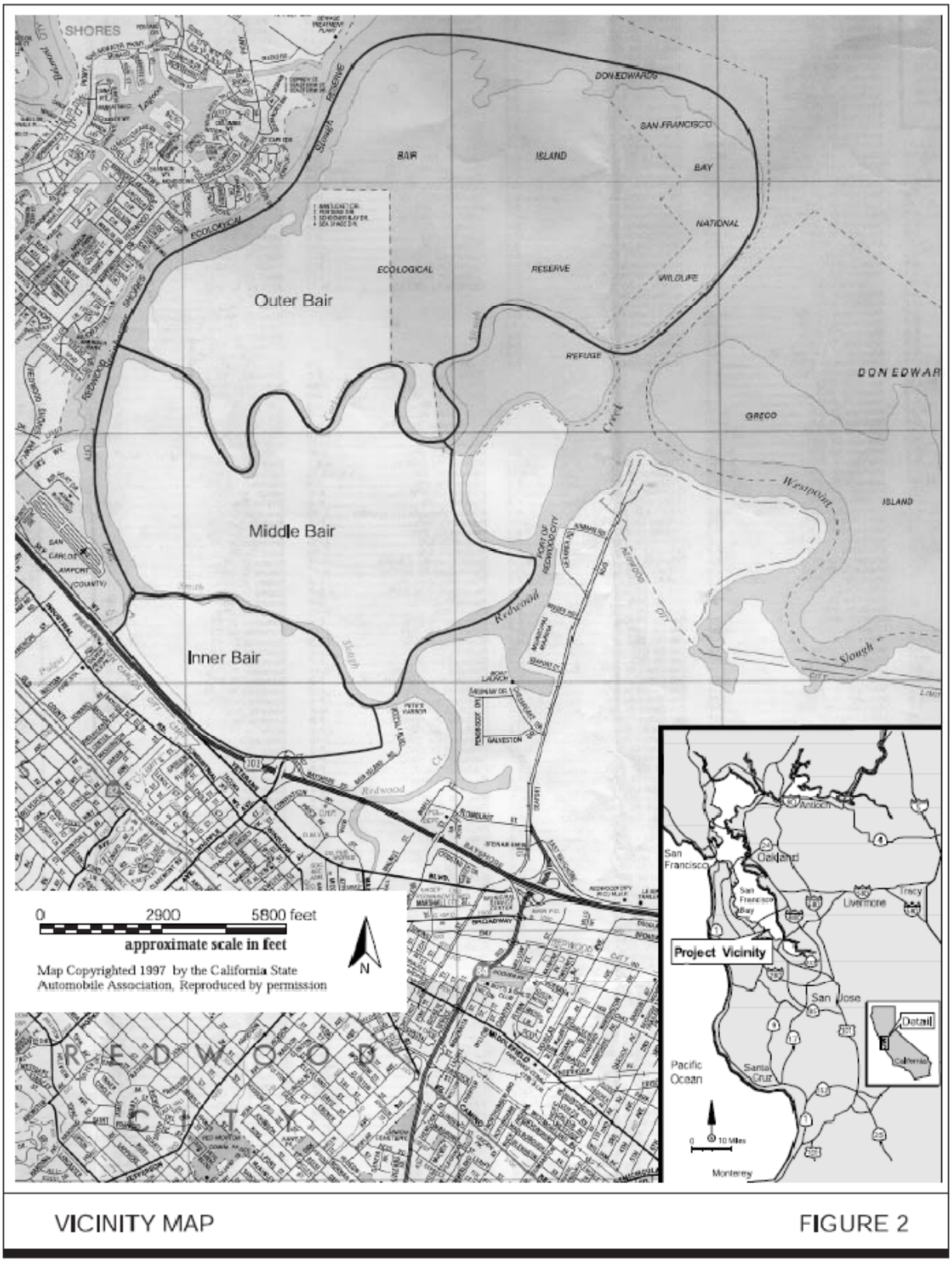
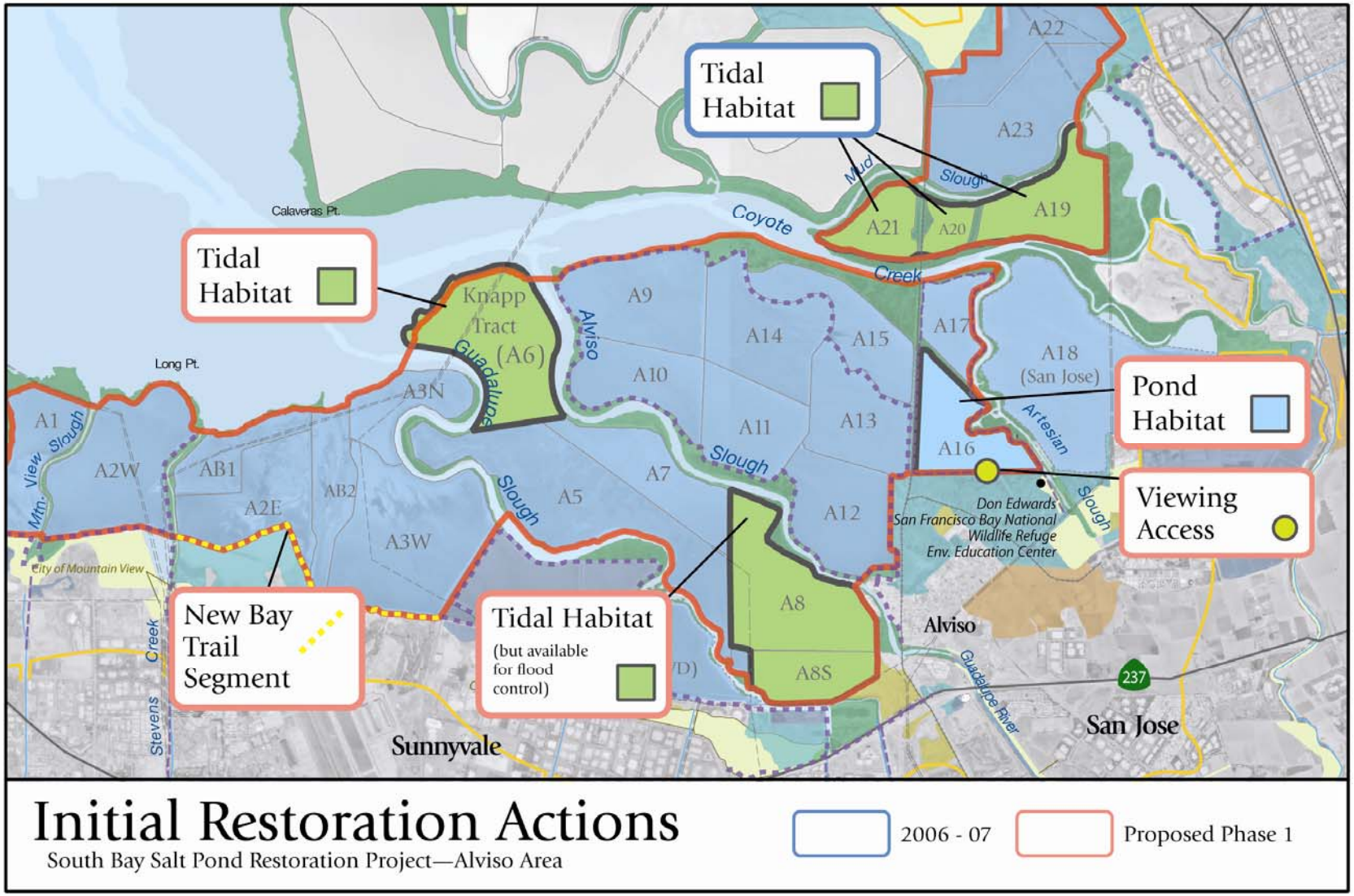


Figure 3: Pond A16/17 Project Location



1.9 Project Timing and Phasing

The projects included in this Program are components of larger, multi-phased projects. The following tables explain project phasing and components of the larger project complex and identify project elements that the IRWM Implementation grant is proposed to find.

A. Sears Point Wetland and Watershed Restoration	
Is the project part of a multi-phased project complex?	Yes
Demonstration that project can operate on a standalone basis (i.e. can be fully functional without the implementation of the subsequent projects)	All seasonal wetlands will be complete and fully-functional in Phase I. For future tidal areas, while final breaching will require Phase II work after appropriate vegetative communities have developed. Phase I will provide extensive new topography, habitat features, and channel structures that will be immediately available to wildlife.
Is requested funding for a component of a larger project?	Yes
If so, describe all of the components of the larger project complex and identify project elements that the IRWM grant is supposed to fund.	• Pre-tidal Phase I includes three elements. The first includes preparation of nearly 1,000 acres of diked baylands for reintroduction of the tides by constructing a 2.5-mile levee, excavation of over 10 miles of new tidal channels, building over 500 topographic features to promote future vegetation development and sediment deposition, and managed flooding of the site for one to two seasons to allow vegetation to establish before being subject to the full brunt of the tides. The second element is to enhance and create 106 acres of seasonal wetlands. The third element is the 1,000-acre upland restoration, which is funded by other sources. • Phase II includes levee breaching and lowering and dredging of neighboring Tolay Creek and a connector channel to the Bay. • While the tidal marsh preparation area relies on Phase II to be fully functional, the seasonal wetland and upland habitas will be restored by the close of Phase I.
Linkages to other projects that must be completed first or that are essential to obtain the full benefits of the project	None that are required for project success.

B. Bair Island Restoration	
Is the project part of a multi-phased project complex?	Yes
Demonstration that project can operate on a standalone basis (i.e. can be fully functional without the implementation of the subsequent projects)	US Fish and Wildlife Service worked with Moffat & Nichol (design firm) to identify project elements that would need to be included in order to restore Middle Bair Island. This includes construction of the flow restrictors on Smith and Corkscrew Sloughs. With implementation of these elements as proposed, this project can go forward and operate on a standalone basis.
Is requested funding for a component of a larger project?	Yes
If so, describe all of the components of the larger project complex and identify project elements that the IRWM grant is supposed to fund.	Bair Island is separated by slough channels into Inner, Middle and Outer Bair Islands. Work began in 2007 to restore Inner Bair Island, the first stage of a comprehensive restoration project. At Inner Bair Island, dredged material (or other sources of fill) is being used to raise the marsh plain to reduce bird-strike hazards by expediting the establishment of emergent marsh. Once proper elevations are achieved, levee breaches will be constructed restoring tidal action. In January 2008, tidal action was restored to Outer Bair Island when levee breaches and ditch blocks were constructed restoring over 400 acres. Success of restoration at Outer Bair Island is independent of restoration at Middle and Inner Bair Island. Success of restoration at Middle Bair Island is independent of the other two efforts as well. However, the success of Inner Bair Island is dependent on the construction of flow restrictors that are planned as part of the Middle Bair Island phase.
Linkages to other projects that must be completed first or that are essential to obtain the full benefits of the project	None that are required for project success.

C. Pond A16/17 Habitat Restoration	
Is the project part of a multi-phased project complex?	Yes
Demonstration that project can operate on a standalone basis (i.e. can be fully functional without the implementation of the subsequent projects)	Although Ponds A16/17 is part of Phase I implementation of the South Bay Salt Ponds Project, it can be implemented as a standalone project with independent habitat, water quality and flood benefits. While the restoration of the 15,000 acres was planned and permitted as a whole on a landscape level, each project is expected to be constructed separately.
Is requested funding for a component of a larger project?	Yes
If so, describe all of the components of the larger project complex and identify project elements that the IRWM grant is supposed to fund.	Ponds A16/17 include the tidal restoration of 90 acres of A17 through levee lowering, levee breaching, and the construction of ditch blocks. The remaining areas will be managed for wildlife through the construction of nesting islands and water control structures (including a fish screen) and internal berms to optimize water levels for habitat enhancement. The IRWM grant would be used to help with implementation costs, which are anticipated to exceed the grant amount.
Linkages to other projects that must be completed first or that are essential to obtain the full benefits of the project	None that are required for project success

2 Tasks

This section includes a detailed discussion of the various tasks needed to implement each project and collectively this Program. In accordance with the PSP, this section specifically addresses the following:

PSP Requirements

- ✓ Tasks are detailed and complete in order to demonstrate that projects can be implemented
- ✓ Work Item submittals are clearly indicated for each of the tasks
- ✓ A list of project permits and their current status, is provided for each of the projects
- ✓ The status of environmental compliance activities is discussed
- ✓ If applicable, plans and specifications have been submitted to demonstrate consistency with the design tasks noted in the Work Plan
- ✓ For each of the projects, scientific and technical information has been submitted to demonstrate feasibility
- ✓ For each of the projects, there is a discussion of the data management and monitoring deliverables
- ✓ For each of the projects, there is a site map showing the geographical location and site boundaries
- ✓ In addition, each project write-up below includes a discussion of the required items listed on page 31of the PSP:
  - o Description of work to be performed and current status of each task
  - o Procedures by which the applicant will coordinate with its partner agencies
  - o Discussion of standards used in implementation
  - o Development of performance measures and monitoring plans
  - o Discussion of acquisition of land or rights-of-way status
  - o Discussion of merits of materials and computational methods

A. Sears Point Wetland and Watershed Restoration

Work Tasks

Task 1: Administration
Sonoma Land Trust staff will be working with the non-profit organization, Ducks Unlimited, to prepare final design, manage the bid process, and hire appropriate contractors. Ducks Unlimited will provide construction supervision (see construction contracting in Task 10).

Deliverable(s):

- Reports, contracts, meetings, logistics, etc.
- Project Invoices and backup documentation as prepared by contractors and submitted by the Coastal Conservancy.

Subtask 1.2: Coordination and Contracts with Participating Agencies
Grant contracting and administration will be undertaken by Coastal Conservancy staff. This subtask involves developing a standardized Interagency Agreement, as may be applicable, for execution by each participating agency in order to formalize agency participation in the Program and facilitate matching funds.

Deliverable(s):

- Interagency Agreements
- Contract with Ducks Unlimited

Task 2: Labor Compliance Program
There is no program currently in place. The project will adopt and enforce a labor compliance program pursuant to California Labor Code §1771.5(b) before or by the time of awarding a contract for construction or implementation of the project. The Labor Compliance Program will be developed as part of bid specifications and included in the bid package.

Deliverable(s):

- Adopted Labor Compliance Program
- Annual Report

Task 3: Reporting
The Coastal Conservancy will act as the lead administrator for the Program, and will be responsible for compiling quarterly progress reports and invoices for submittal to Bay Area Clean Water Agencies (BACWA), the grant administrator. Reports will meet generally accepted professional standards for technical reporting and be proofread for content, numerical accuracy, spelling and grammar prior submittal to the State.

The Quarterly Reports will explain the status of the project and will include the following information:

- Summary of the work completed for the project during the reporting period
- Statement of progress compared to the schedule listed in Attachment 5 of this proposal

- Comparison of actual costs to date to the budget listed in Attachment 4 of this proposal

The Coastal Conservancy will prepare a Final Project Report documenting implementation of the Program, to be submitted to DWR within ninety (90) calendar days of DWR verification that all tasks associated with a project have been completed. The Final Project Report will include the following information:

- Description of the actual work done
- Certification of As-Built Drawings
- Final schedule showing actual progress versus planned progress
- Lessons learned

Deliverables:

- Quarterly Reports and Invoices
- Final Report

Land Purchase Easement
Not applicable. Land purchase easement has been completed.

Task 4: Assessment and Evaluation
Not applicable. Assessments and evaluation for this project have been completed.

Task 5: Final Design
The engineering design will be an iterative process that accounts for recommendations made during permitting and EIS/R development. This phase will result in the creation of engineering design contract documents which will include intermediate and final engineering plans and accompanying technical specifications which incorporate permit requirements.

Bid Solicitation Efforts

Bids will be solicited by Ducks Unlimited from a list of qualified firms.

Deliverables:

- Completed project plans and specifications at the 90% level
- Completed project plans and specifications at the 100% final level

Task 6: Environmental Documentation
Not Applicable. All necessary environmental documentation has been completed for this Project. Additional tribal consultation will be undertaken, as may be necessary.

Task 7: Permitting
The following permits need to be obtained for the Project.

Permit	Approval Date	Status	Purpose of Permit
BCDC Permit	October 2011	Pending	McAteer-Petris Act Consistency with SF Bay Plan and

			Coastal Zone Management Act
CWA Section 401 Cert	October 2011	Pending	Clean Water Act Section 401
• Consistency determination under Section 2080.1 with the federal Biological Opinion • Section 2081(b) for incidental take of state listed species • Streambed Alteration Agreement (1602)	October 2011	Pending	CA Endangered Species Act CA Fish and Game Code
USFWS ESA Section 7 consultation	October 2011	Pending	Federal Endangered Species Act
NOAA ESA Section 7, MMPA, and EFH Consultation	October 2011	Pending	Federal Endangered Species Act Marine Mammal Protection Act Essential Fish Habitat

Additional coordination with the following entities for other authorizations for the Project is as follows:

- Sonoma County for determination of F2 zoning.
- Sonoma County Regional Parks for determination of consistency with Sonoma Bay Trail Plan.
- Association of Bay Area Governments for determination of consistency with Bay Trail Plan.
- Bay Area Air Quality Management District as a CEQA commenting agency.
- CA Dept of Toxic Substances and Control for approval of remediation plans for identified areas of contamination, if needed.
- State Historical Preservation Office for review of National Historic Preservation Act Section 106 report.
- Advisory Council on Historic Preservation for review of National Historic Preservation Act Section 106 report.
- Natural Resource Conservation Service for land evaluation and site assessment related to Farmland Protection Policy Act.

Deliverables:

- BCDC Permit
- CWA Section 401 Cert
- Section 2080.1
- Section 2081(b)
- Section 1602
- ESA Section 7

Task 8: Construction/Implementation Contracting

Ducks Unlimited will work with Sonoma Land Trust staff to prepare construction documents, bid process, and contract construction. Construction contracting will include preparation of a bid solicitation package which includes the final design and technical specifications. This will be distributed to a list of pre-qualified contractors. The bid solicitation package will include the final design and technical specifications. Once bids are received, the contract will be awarded to the lowest qualified bidder.

Deliverable(s):

- Bid solicitation package
- Pre-bid contractors meeting
- Evaluation of bids
- Award contract

Task 9: Construction

Subtask 9.1: Mobilization and Site Preparation
All equipment will be mobilized to the site as needed. Site preparation includes demolition of existing buildings, removal of trees and other items, and remediation of lead contaminated soils.

Subtask 9.2: Project Construction
Project construction will be phased.

Phase I will include all construction activities prior to introducing the tides. This includes work within the future tidal marsh area (channel excavation, levee construction, construction of topographic features, etc.) and work within the seasonal wetland area (access road improvements, excavation of wetlands, riparian restoration, cattle exclusion fencing, etc).

Phase II includes activities related directly to the introduction of the tides (levee lowering and breaching, dredging, etc).

Subtask 9.3: Performance Testing and Demobilization
Equipment will be demobilized appropriately and most cost effectively with equipment remaining on site only as long as needed. Performance testing will occur needed during project construction and will also be assessed over the 15-year project monitoring period through physical and biological monitoring.

Additional Project Information

Merits of the building materials and/or computational methods that were used for the project development	Hydrodynamic modeling and geotechnical analysis will be utilized to finalize the project design.
Construction standards that will be used for project implementation	This will follow all applicable State and Federal construction and safety standards.

Task 10: Environmental Compliance/Mitigation/Enhancement
This Project is anticipated to be self-mitigating. Environmental compliance and monitoring of the site will be ongoing during construction. Post project monitoring will be used to help ensure the project is meeting restoration objectives, and is included in the overall project budget. Monitoring will be conducted as described in EIR/S.

Task 11: Construction Administration
Ducks Unlimited (DU) will provide construction management services. Construction management services will include the following: general documentation, weekly construction meetings, dispute resolution, general inspection, progress payments, and closeout. Construction inspection consists of periodic observation of the construction work to provide Sonoma Land Trust and the Conservancy with

an understanding of the nature, progress and quality of the work based upon applicable standards of practice and Contract Document requirements. It is not continuous or exhaustive inspection nor is it the same as quality assurance/quality control services.

DU will establish and implement system for review, preparation and processing of General Contractor's progress payment requests. DU will oversee project closeout. DU will coordinate Sonoma Land Trust's acceptance and final payment and will make determinations or recommendations regarding Substantial Completion, Final Acceptance, and Notice of Completion.

B. Bair Island Restoration

Work Tasks

Task 1: Administration
US Fish and Wildlife Service (USFWS) staff will work with the non-profit organization Ducks Unlimited, to prepare final design, manage bid process, and hire appropriate contractors. Ducks Unlimited will provide construction supervision (see construction contracting in Task 10).

Deliverable(s):
- Meetings and documentation as needed to administer contract
- Project invoices and backup documentation as prepared by contractors and submitted by the Coastal Conservancy.

Subtask 1.2: Coordination and Contracts with Participating Agencies
Grant contracting and administration will be undertaken by Coastal Conservancy staff. This subtask involves developing a standardized Interagency Agreement, as may be applicable, for execution by each participating agency in order to formalize agency participation in the Program and facilitate matching funds. Other coordination activities include:

- Weekly Project Team meetings with engineering staff, refuge manager, construction supervisor contractor, and funders (as necessary).

Deliverable(s):
- Interagency Agreements
- Contract with Ducks Unlimited

Task 2: Labor Compliance Program
There is no program currently in place. The project will adopt and enforce a labor compliance program pursuant to California Labor Code §1771.5(b) before or by the time of awarding a contract for construction or implementation of the project. The Labor Compliance Program will be developed as part of bid specifications and included in the bid package.

Deliverable(s):
- Adopted Labor Compliance Program
- Annual Report

Task 3: Reporting
The Coastal Conservancy will act as the lead administrator for the Program, and will be responsible for compiling quarterly progress reports and invoices for submittal to Bay Area Clean Water Agencies (BACWA), the grant administrator. Reports will meet generally accepted professional standards for technical reporting and be proofread for content, numerical accuracy, spelling and grammar prior submittal to the State.

The Quarterly Reports will explain the status of the project and will include the following information:

- Summary of the work completed for the project during the reporting period
- Statement of progress compared to the schedule listed in Attachment 5 of this proposal
- Comparison of actual costs to date to the budget listed in Attachment 4 of this proposal

The Coastal Conservancy will prepare a Final Project Report documenting implementation of the Program, to be submitted to DWR within ninety (90) calendar days of DWR verification that all tasks associated with a project have been completed. The Final Project Report will include the following information:

- Certification of As-Built Drawings
- Description of the actual work done
- Final schedule showing actual progress versus planned progress
- Lessons learned

Deliverables:

- Quarterly Reports and Invoices
- Final Report
- Certification of As-Built Drawings

Land Purchase Easement
Not applicable. Bair Island is owned by the USFWS and the CA Department of Fish and Game and managed by the USFWS.

Task 4: Assessment and Evaluation
Not applicable. Assessments and evaluation for this project have been completed.

Task 5: Final Design
Not applicable. The final design has been completed for the Project.

Task 6: Environmental Documentation
Not applicable. All necessary environmental documentation has been completed for this Project. Additional tribal consultation will be undertaken, as may be necessary.

Task 7: Permitting
Not applicable. All necessary permits have been obtained for the Project.

Task 8: Construction/Implementation Contracting
Ducks Unlimited will work with USFWS staff to prepare construction documents, bid process, and contract construction. Construction contracting will include preparation of a bid solicitation package which includes the final design and technical specifications. This will be distributed to a list of pre-qualified contractors. The bid solicitation package will include the final design and technical specifications. Once bids are received, the contract will be awarded to the lowest qualified bidder.

Deliverable(s):

- Bid solicitation package
- Pre-bid contractors meeting

- Evaluation of bids
- Award contract

Task 9: Construction

Subtask 9.1: Mobilization and Site Preparation
Contractor will mobilize to the site and carry out site preparation, including selection of a staging area, and clearing and grubbing of vegetation in accordance with project permits. Contractor will mobilized construction equipment and materials for water control structures.

Subtask 9.2: Project Construction
Restoration includes breaching levees at four historic locations on Middle Bair Island, installing an additional breach on Outer Bair Island, lowering interior levees to extent possible, constructing five ditch blocks, and connecting historic channels through internal levees. Flow control structures would be installed along Smith and Corkscrew Sloughs to minimize project related sedimentation in Redwood Creek shipping channel and flow velocities at Pete's Harbor. These structures must be in place prior to construction of exterior levee breaches.

Subtask 9.3: Performance Testing and Demobilization
Ducks Unlimited will perform construction management and oversight services, will ensure that the project is constructed to design specifications, and will oversee contractor demobilization from the site, as described in monitoring plan.

Additional Project Information

Merits of the building materials and/or computational methods that were used for the project development	Project plans were developed by hydrological engineering firms and bid specifications will be developed by Ducks Unlimited, an experience wetland restoration nonprofit organization with multi-discipline staff.
Construction standards that will be used for project implementation	Construction standards and mitigation requirements will be documented in bid specifications.

Task 10: Environmental Compliance/Mitigation/Enhancement
Environmental compliance and monitoring of the site will be ongoing during construction. Post project monitoring will be used to help ensure the project is meeting restoration objectives, and is included in the overall project budget. Monitoring will be conducted as described in EIR/S by Refuge staff and private contractors.

Task 11: Construction Administration
Ducks Unlimited (DU) will conduct construction bid process, implement labor compliance program and grant conditions, as well as ensure construction contractors comply with project description and environmental requirements. DU will provide construction management services.

Construction management services will include the following: general documentation, weekly construction meetings, dispute resolution, general inspection, progress payments, and closeout. Construction inspection consists of periodic observation of the construction work to provide US Fish and

Wildlife Service and Coastal Conservancy with an understanding of the nature, progress and quality of the work based upon applicable standards of practice and Contract Document requirements.

DU will establish and implement system for review, preparation and processing of General Contractor's progress payment requests. DU will oversee project closeout. DU will coordinate US Fish and Wildlife Service's acceptance and final payment and will make determinations or recommendations regarding Substantial Completion, Final Acceptance, and Notice of Completion.

C. Pond A16/17 Habitat Restoration

Work Tasks

Task 1: Administration
U.S. Fish and Wildlife Service (USFWS) staff will prepare final design, manage bid process, and hire appropriate subcontractors for labor compliance program and construction supervision (see construction contracting in Task 10). The South Bay Salt Ponds Executive Project Manager will provide project support and coordination with other SBSP projects.

Deliverable(s):
- Meetings and documentation as needed to administer contract
- Project invoices and backup documentation as prepared by contractors and submitted by the Coastal Conservancy.

Subtask 1.2: Coordination and Contracts with Participating Agencies
Grant contracting and administration will be undertaken by Coastal Conservancy staff. This subtask involves developing a standardized Interagency Agreement, as may be applicable, for execution by each participating agency in order to formalize agency participation in the Program and facilitate matching funds. Other coordination activities include:

- Monthly South Bay Salt Pond Restoration Project Management Team Meetings
- Annual Geographical Working Group Meetings
- Annual Stakeholder Forum Meetings
- On-going coordination with local government and regulatory agencies
- Additional meetings as needed.

Deliverable(s):
- Interagency Agreements

Task 2: Labor Compliance Program
There is no program currently in place. The project will adopt and enforce a labor compliance program pursuant to California Labor Code §1771.5(b) before or by the time of awarding a contract for construction or implementation of the project. The Labor Compliance Program will be developed as part of bid specifications and included in the bid package.

Deliverable(s):
- Adopted Labor Compliance Program
- Annual Report

Task 3: Reporting
The Coastal Conservancy will act as the lead administrator for the Program, and will be responsible for compiling quarterly progress reports and invoices for submittal to Bay Area Clean Water Agencies (BACWA), the grant administrator. Reports will meet generally accepted professional standards for technical reporting and be proofread for content, numerical accuracy, spelling and grammar prior submittal to the State.

The Quarterly Reports will explain the status of the project and will include the following information:

- Summary of the work completed for the project during the reporting period
- Statement of progress compared to the schedule listed in Attachment 5 of this proposal
- Comparison of actual costs to date to the budget listed in Attachment 4 of this proposal

The Coastal Conservancy will prepare a Final Project Report documenting implementation of the Program, to be submitted to DWR within ninety (90) calendar days of DWR verification that all tasks associated with a project have been completed. The Final Project Report will include the following information:

- Description of the actual work done
- Certification of As Built Drawings
- Final schedule showing actual progress versus planned progress
- Lessons learned

Deliverables:

- Quarterly Reports and Invoices
- Final Report

Land Purchase Easement
Not Applicable. Land was purchased in 2003 and is owned in fee title by USFWS.

Task 4: Assessment and Evaluation
Not applicable. Assessments and evaluation for this project have been completed.

Task 5: Final Design
Final design to be completed by the USFWS and will include 100% design drawings, bid package and a Labor Compliance Program.

Bid Solicitation Efforts
USFWS will be using IDIQ contracts.

Task 6: Environmental Documentation
Not applicable. All necessary environmental documentation has been completed for this Project. Additional tribal consultation will be undertaken, as may be necessary.

Task 7: Permitting
Not applicable. All necessary permits have been obtained for the Project.

Task 8: Construction/Implementation Contracting
USFWS will hire, award and finalize construction contracting following established USFWS contracting procedures. Tasks to obtain contractors/award contracts include:

- Completion of final design, labor compliance program, and bid specifications.

- Advertisement for bids, pre-bid contractors meeting, evaluation of bids, award contract
- On-going compliance with construction conditions and requirements.

Deliverable(s):

- Bid solicitation package
- Pre-bid contractors meeting
- Evaluation of bids
- Award contract

Task 9: Construction

This task involves earthwork to lower and breach levees, construction of berms to direct flows, installation of water control structures, construction of nesting islands, construction of trail improvements and viewing platforms, and installation of interpretive signs.

Subtask 9.1: Mobilization and Site Preparation

- Staging area already established in existing parking areas
- Mobilization of equipment to site anticipated to take 1 week.
- No site preparation required

Subtask 9.2: Project Construction

- Construct internal berms in A17 and A16.
- Install new water control structures in these berms (including fish screen in A17 berm).
- Construct new outlet structure on Artesian Slough.
- Construct approximately 16 nesting islands.
- Install interpretive and public access features.
- Lower A17 levees along Artesian Slough and Coyote Creek.
- Breach A17.

Subtask 9.3: Performance Testing and Demobilization

- Hydrologic tests for water level management will occur prior to final breaching.
- Demobilization of equipment to site anticipated to take 2 weeks.

Additional Project Information

Merits of the building materials and/or computational methods that were used for the project development	Design was based on engineering hydrological models to create desired circulation and depths. Materials will be similar to those used at another South Bay Salt Pond Restoration project – SF2.
Construction standards that will be used for project implementation	This will follow all applicable State and Federal construction and safety standards.

Task 10: Environmental Compliance/Mitigation/Enhancement

- Construction timing will take fish migration and avian nesting seasons into account.
- Worker education program regarding sensitive species will occur prior to commencement of work.
- BMPs will be implemented per the project permits.

Task 11: Construction Administration

USFWS will oversee construction contractors or hire appropriate construction supervision contractor to ensure project is constructed per design specifications. This will be ongoing during the bidding and construction process.

San Francisco Bay Area Regional Priority Projects and Programs

Attachment 3 – 4. Bay Area Regional Green Infrastructure Capacity Building Program

1 Introduction

The Regional Green Infrastructure Capacity Building Program (Program) will implement three demonstration projects in the northern, southern and eastern sub-regions of the San Francisco Bay Area Integrated Regional Water Management (IRWM) region and analyze the performance of these projects. Results of the pilot evaluations will then be used to inform and expand development of green infrastructure projects to all parts of the region.

The Program for the San Francisco Bay Area IRWM region seeks to implement an improved approach to manage stormwater by treating stormwater at the source, using small-scale integrated site design, treatment devices, and management practices to mimic the site's natural hydrology. In addition to effective stormwater management, green infrastructure can also provide many environmental, social, and economic benefits including reduction of runoff, water conservation, energy conservation and improvement of air quality. The key concept for this Program is spur excellent demonstration projects throughout the region to speed the acceptance of Green Infrastructure projects. Critical to this effort is identifying how well specific practices work in specific locations and promoting successful practicies throughout the region. Such an approach was an important element of the San Francisco Estuary Partnership's State of the Estuary Conference in 2009, SFEP's 2009 Strategic Plan and was also the theme of the North Bay Watershed Association's "Greening our Water Infrastructure" Conference in 2010. The varied projects proposed – installing rain gardens in seven cities along San Pablo Avenue, developing a pilot green street in Santa Clara County, and constructing rain gardens and cisterns throughout Napa County – will be analyzed by the San Francisco Estuary Partnership (SFEP) and San Francisco Estuary Institute (SFEI), two organizations which have collaborated on assessing the successes of other Green Infrastructure projects around the region.

1.1 Goals and Objectives

The goal of the Program is to develop innovative stormwater treatment units throughout the Bay Area to accomplish multiple water management benefits, including: slowing, spreading, and sinking stormwater; reducing stormwater pollution; reducing peak flows; restoring a natural hydrograph; and reducing the need for imported water for landscape irrigation, etc.

Overall Program objectives include 1) creating several new demonstration green infrastructure projects across the region; 2) analyzing each project to determine actual benefits of water conservation and/or stormwater quality benefits, and 3) disseminating the lessons learned from implementing these projects, which will then be used by many other cities, counties and water management entities to benefit their future water management practices.

Specific objectives associated with each project element are listed in **Table 1**:

Table 1: Project Element Objectives

Objective	San Pablo Spine	Hacienda Avenue "Green Street"	Napa Valley Rainwater Harvesting
Increase adoption of LID/Green Infrastructure projects in the region	✓	✓	✓
Create new demonstration projects in areas easily accessible to the public	✓	✓	✓
Analyze each project to determine actual costs and benefits of water conservation and/or stormwater quality treatment measures	✓	✓	✓
Slow and reduce peak stormwater flows; filter and improve stormwater quality	✓	✓	✓
Retrofit the built-out urban landscape with green stormwater treatment facilities that beautify the urban environment, improve property values, slow traffic in problem areas, and provide habitat for birds and pollinating insects	✓	✓	✓
Improve quality of life in disadvantaged communities through greening of the landscape	✓		
Promote economic and environmental sustainability by decreasing the amount of hardscape (impervious surface) that requires continuous maintenance and future replacement expenditures.	✓	✓	✓
Create resilient watersheds in the face of climate change	✓	✓	✓
Raise public awareness about the need for water quality protection	✓	✓	✓
Decrease the carbon footprint by reducing the use of concrete and asphalt materials which are derived from petroleum and generate carbon emissions from their production.	✓	✓	✓
Conduct performance assessments of rain barrel and rain gardens to determine what type of rainwater harvesting works best for various purposes, environments and climates.			✓

1.2 Purpose and Need

The San Francisco Bay region is a highly urbanized watershed. A critical need as part of overall regional water management improvement is enhanced management of our stormwater resources.

The Integrated Regional Water Management Plan (IRWMP) Regional Acceptance Process (RAP) defines Green Infrastructure as the "use of natural channels, drainages, and depressions for runoff conveyance and detention, and reductions in impervious surfaces and innovative stormwater management techniques."

Replacing pavement with permeable pavers, reducing impermeable surfaces, harvesting rainwater in cisterns of various capacities, establishing water-smart landscaping, restoring stormwater culverts to creeks and/or more naturalistic flood control channels are all projects implemented within the nine county region by a local government, water/wastewater agency, private developer, or homeowner in localized efforts to implement green infrastructure water management. The IRWMP describes implementing these strategies as multi-benefit, integrated programs necessary to meeting regional priorities.

Currently the Bay Area is not known as a national or even state leader in green infrastructure. This Program seeks to increase the region's stature in this area while improving the water quality of San Francisco Bay. The Program will increase the number of regional projects and publicize the costs and benefits of the projects. Project proponents will be organized by San Francisco Estuary Partnership. A database of information on the projects will be developed including cost information, maintenance requirements, and, in the case of rainwater harvesting, documenting the amount of water conserved (or potentially conserved). These data are critical in making the case to policymakers as to the amount of funds needed to implement green infrastructure, and the long-term benefits of such investments under our changing climate patterns, including droughts.

Without this Program, three important regional demonstration projects will not be built and analyzed for performance. The result is that there will continue to be only limited, scattered, and uncoordinated green infrastructure efforts. Lessons learned from those few projects will have much less impact on community decision-making throughout the region, opportunities will be lost to regionalize water conservation efforts and water quality management techniques.

A. San Pablo Spine & Regional Promotion of Green Infrastructure

Project Purpose

- The San Pablo Avenue Green Stormwater Spine creates more ecologically, economically, and socially sustainable communities by treating polluted stormwater within the urban landscape, reducing the pollution that flows to San Francisco Bay and making stormwater treatment visible to urban residents in an attractive way. Making this more visible connection to the Bay (with the aid of interpretive signs) increases ecological understanding and appreciation; beautifying the streetscape contributes to a more vibrant, sustainable economy and community.
- These first demonstration projects along the San Pablo Avenue Green Stormwater Spine will inspire and lead to additional projects. The first stormwater retrofit on San Pablo Avenue, completed this year by El Cerrito with ARRA funds, has inspired great interest on the part of other cities throughout the region and the state.
- The projects are being developed in disadvantaged communities, where urban greening is desperately needed, both to beautify communities and to mitigate urban heat island effects from a concrete and asphalt-heavy landscape.
- The second component of this proposal is to disseminate information on the costs and benefits of the current green infrastructure projects across the region. The infrastructure projects from which this information will be gathered include the San Pablo Avenue Green Stormwater Spine, Campbell, and Napa Projects as well as projects championed by or known to the Association of Bay Area Governments (ABAG) and its San Francisco Estuary Partnership program (SFEP). Monitoring for all projects will either be completed by or designed by San Francisco Estuary Institute (SFEI). All projects will be Bay Friendly rated. Outreach materials will be created to complement each other. The goal is to spur green infrastructure throughout the region to improve water quality, reduce impervious surfaces within the urban footprint to expand ecosystem benefits, and where possible collect rainwater, setting the stage for water reuse.

Project Need

- San Pablo Avenue, a busy state roadway at the foot of the East Bay hills, receives large quantities of polluted urban runoff from all of the vehicles that traverse it as well as from the surrounding highly urbanized landscape. All of this pollution currently flows directly to San Francisco Bay. The green stormwater treatment facilities in the San Pablo Avenue Green Stormwater Spine will collect, slow, and treat this runoff.
- The San Francisco Bay is on the 303(d) list as impaired for mercury and PCBs. Both mercury and PCBs are known to bio-accumulate in aquatic food webs. Stormwater runoff is one of the greatest contributors of pollutants to local creeks and waterways including the San Francisco Bay. In recognition of these facts, the Regional Water Quality Control Board adopted a Municipal Regional Stormwater Permit (MRP) in 2009 that requires 76 municipalities and special districts to take a variety of actions to protect the waters of the San Francisco Bay Region. The MRP requires 10 pilot Green Street projects to be completed in up to four counties. The San Pablo Spine and Regional Green Infrastructure Project will aid municipalities in complying with their stormwater requirements by 1) assisting municipalities in building stormwater treatment units, 2) collecting information on the costs and benefits of such units, and 3) disseminating the lessons learned, making it easier for municipalities to meet permit requirements.

B. Hacienda Avenue "Green Street" Improvement Project

Project Purpose

- Reduce the volume of stormwater runoff collected by the City's stormdrain system, and deposited into nearby Los Gatos Creek.
- Reduce stormwater pollutants and improve water quality through retaining and infiltrating runoff close to its source and help prevent pollutants from being transported to nearby surface waters. Once runoff is infiltrated into soils, plants and microbes can naturally filter and break down many commpn pollutants found in stormwater.
- Replacing impervious streetscape with pervious areas.
- Reduce use of resources for maintenance; promoting environmental sustainability.

Project Need

- Hacienda Avenue, Campbell is a high volume street with residential surroundings currently in disrepair. Rather than just repairing the pavement, the City of Campbell is committed to turning the street into a "green street" using a wide variety of sustainable design principles.
- Due to significant traffic volumes experienced on Hacienda Avenue, combined with a variation in the pavement sections constructed over the years, many under-designed for the loads experienced today, Hacienda Avenue has fallen into disrepair. The pavement condition for the majority of Hacienda Avenue is very poor with much of the street in need of major rehabilitation, and some portions requiring actual reconstruction. This street has a predominant street right-of-way of 90-ft, with approximately 70-ft of this area in street pavement.
- Replace the existing road surface to facilitate the capture of the storm runoff.
- Replace impervious areas with pervious material
- Install native and drought tolerant planting, and appropriate soil material that will maximize treatment capabilities of the soil layer.
- Minimize the asphalt road surface to reduce dependency or resources for maintenance.

C. Napa Valley Rainwater Harvesting
Project Purpose
• Demonstrate feasibility and economic viability of capturing, treating, and using rainwater on sites throughout the county. • Reduce dependence on Delta as water source for the county by increasing local water capture and reuse. • Reduce sediment pollution to the Napa River.
Project Need
• The Napa River is listed for sediment and a TMDL is pending. Retaining rainwater on site and slowing, spreading and sinking rainwater will reduce sediment pollution to the river. • Increase county-wide capacity for alternative stormwater treatment methodology. • Develop additional drought sources of water.

1.3 Project List

This section describes the specific projects included in the Regional Green Infrastructure Capacity Building Program, the current status of each project in terms of percent completion of design, and the implementing agencies.

Project Abstract

San Pablo Spine & Regional Promotion of Green Infrastructure

In this project, San Francisco Estuary Partnership (SFEP) will coordinate with partners around the region to develop, implement, and share the successes of green infrastructure projects. Partners include San Francisco Estuary Institute (SFEI), Stopwaste.org / Bay Friendly Landscaping, Caltrans, Napa County, and the cities of Campbell, San Pablo, Richmond, El Cerrito, Albany, Berkeley, Emeryville and Oakland.

In the San Pablo Avenue Green Stormwater Spine element of the project, the San Francisco Estuary Partnership will collaborate with Caltrans, seven cities, and a project designer and engineer in a groundbreaking effort to design and build the first phase of a green stormwater spine on San Pablo Avenue, a highly traveled state roadway stretching from Oakland to the south to the city of San Pablo to the north. The Estuary Partnership will manage all phases of the project, from design through construction, outreach, and monitoring. Caltrans is contributing $1.8 million and is an active partner in the project, along with the cities of San Pablo, Richmond, El Cerrito, Albany, Berkeley, Emeryville, and Oakland. A rater from Stopwaste.org and the Bay Friendly Coalition will rate each project as Bay Friendly. SFEI and SFEP will compile and evaluate the project costs and benefits so they can be used to ensure that future green infrastructure efforts throughout the region can benefit from and build upon these demonstration projects.

The San Pablo Avenue Green Stormwater Spine addresses the ubiquitous problem of stormwater pollutants associated with traffic and impervious surfaces through pilot stormwater treatment facilities in seven cities along San Pablo Avenue. These bioretention treatment facilities will help remove TSS,

copper, mercury and other metals, PCBs, excess nutrients, and pesticides and other pollutants. Studies to date have quantified the water quality benefits from pollutant removal in similar facilities in Seattle, Portland, Daly City, and elsewhere. The facilities will also help alleviate localized flooding along San Pablo Avenue and erosion of local creeks by reducing peak storm flows. The projects will build upon the successful El Cerrito San Pablo Avenue stormwater planters implemented in spring 2010 with federal stimulus funding and managed by SFEP.

Hacienda Avenue "Green Street" Improvement Project

The Hacienda Avenue "Green Street" Improvement project element will convert a portion of Hacienda Avenue in Campbell to a green street with the following objectives: Reduce the roadway width by reclaiming and transforming approximately 25% of the existing roadway surface into a public green space running the length of Hacienda Avenue; including linear parkway options to increase the amount of open space; promote onsite stormwater infiltration and treatment by replacing non-pervious asphalt concrete surfaces with pervious material. The proposed improvements include installing bike lanes, planting street trees, installing bioswales and other stormwater treatment facilities, narrowing the existing pavement from 70' to 50' and using open space or alternative permeable paving surfaces to allow stormwater infiltration. A rater from Stopwaste.org and the Bay Friendly Coalition will rate each project as Bay Friendly. SFEI and SFEP will compile and evaluate the project costs and benefits so they can be used to ensure that future green infrastructure efforts throughout the region can benefit from and build upon these demonstration projects.

Napa Valley Rainwater Harvesting

Napa County will construct up to ten demonstration rain gardens throughout the County capturing and treating up to one acre's worth of polluted stormwater runoff. Additionally, the County will develop and implement a program that converts wine and other barrels to home rain barrels. All projects will be Bay Friendly rated. SFEI and SFEP will compile and evaluate the project costs and benefits so they can be used to ensure that future green infrastructure efforts throughout the region can benefit from and build upon these demonstration projects. The project will coordinate, provide support funding, and conduct performance assessments of rain barrel and rain gardens throughout Napa County to determine what type of rainwater harvesting works best for various purposes in the different environments within the county.

Data Management and Monitoring Deliverables included in the Work Plan

The Work Plan described in Section 2 includes the following data management and monitoring deliverables:

- Regional database of green infrastructure projects that will be posted on the project website.
- Monitoring plans and water quality monitoring for all three projects.
- Geotechnical and soil monitoring studies and stormwater runoff studies to evaluate the quality and quantity of stormwater runoff associated with Hacienda Avenue project location.
- Data on the volume of rainwater collected by the Napa Valley Rainwater Harvesting project and tracking of the final destination of stormwater discharges.
- Quarterly progress reports and Final Report on project close-out.

Consistent with Data Management Standards in the Bay Area IRWM Plan, the data collected from this Program will be made available on the project website as well as the Bay Area IRWMP website and in the quarterly and final reports that will be disseminated to the Functional Areas and other appropriate agencies.

Current Status of Project

Table 2 lists the specific project elements in the Regional Green Infrastructure Capacity Building Program, including the current status of each project in terms of percent completion of design, and the implementation agencies.

Table 2: Current Status of Projects

Project	Current Status (% Completion of Design)	Implementation Agencies
San Pablo Spine and Regional Promotion of Green Infrastructure	10%	San Francisco Estuary Partnership (SFEP); San Francisco Estuary Institute (SFEI); Cities of San Pablo, Richmond, El Cerrito, Albany, Berkeley, Emeryville, Oakland; and Caltrans
Hacienda Avenue "Green Street" Improvement Project	8%	City of Campbell
Napa Valley Rainwater Harvesting	10%	Cities of American Canyon, Napa, St. Helena, and Calistoga, the Town of Yountville; Napa County; Napa County Resource Conservation District; Napa County Agricultural Commissioner; Napa County Farm Bureau; Napa Valley school districts; Napa Valley Grape Growers; Master Gardeners; Napa Valley California Native Plant Society; and Friends of the Napa River

1.4 Integrated Elements of Projects

The project is part of an integrated action plan developed to resolve a local or regional issue

The San Francisco Bay is listed on the 303(d) list as an impaired water body due to high levels of legacy pollutants such as mercury and PCBs. Mercury and PCBs are known to bio-accumulate in the Bay food web. Stormwater runoff is one of the largest pathways through which these pollutants enter San Francisco Bay. The San Francisco Bay Municipal Regional Permit (MRP), adopted in the fall of 2009, is a consolidated NPDES permit that aims to reduce pollutant loading from stormwater runoff. The MRP

calls for the completion of 10 pilot Green Street projects in up to four of the counties surrounding San Francisco Bay that incorporate green infrastructure techniques. The demonstration projects in this proposal support the MRP: they are intended to reduce stormwater flow and volume by capturing and detaining Stormwater. Based upon data from other such projects locally, it is anticipated that pollutants to the Bay will be reduced.

The project has a potential impact on regional policy

The Bay Area has begun to build green infrastructure with small-scale pilot projects. There is a definite need to learn from the successes and failures of completed projects in order to ensure that green infrastructure achieves as many desirable outcomes as possible—treatment and detention of stormwater, reduced strain of stormwater on combined sewer systems, increased urban greening, and reduced loading of pollutants and trash into downstream waterbodies.

Additionally, there may be cost savings associated with green infrastructure. The City of Philadelphia has recently proposed a green infrastructure plan in their NPDES stormwater permit in lieu of more "grey" infrastructure as a way to deal with the City's stormwater issues. Philadelphia estimates that green infrastructure would cost less than the complete overhaul of the sewage/stormwater system that would be needed. Given that much of the Bay Area stormwater infrastructure is at the end of its useful life, demonstration of regional cost benefit opportunities would be particularly beneficial to water and stormwater agencies.

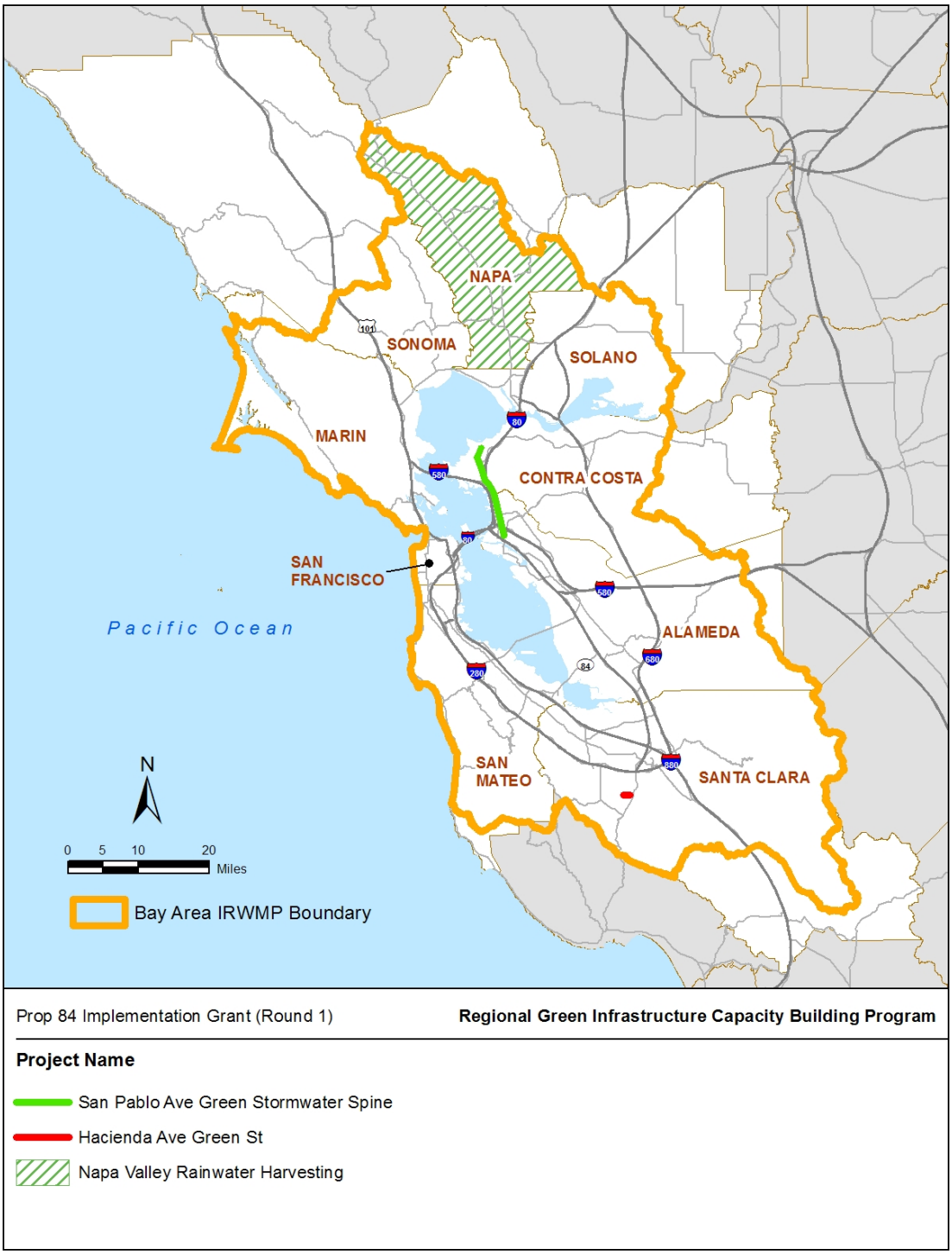
Synergies existing between project implementation strategies

ABAG/SFEP has received funding in the past three years to help implement and/or monitor green infrastructure projects in the City and County of San Francisco, Daly City, the City of El Cerrito, City of Fremont, and Contra Costa County. SFEP has begun a variety of outreach initiatives to educate local governments about the need for and benefits of green infrastructure. Adding additional projects and compiling and distributing the lessons from them will add to the effort to “Green” the Bay Area. Among the synergies between past, present and future efforts will be: updates to the SFEP and ABAG webpages; consistent signage; reports that reference each other with data collected in a consistent fashion, tours for elected officials, resource agencies, and citizens around the bay, as well as green streets forums for city planners, engineers, and landscape architects.

Thirteen of the projects will be Bay-Friendly Rated Landscapes: Each will meet or exceed the requirement on a comprehensive sustainable landscaping rating tool begun within the last decade in Alameda County and now spreading regionally. Bay Friendly Rated Landscapes have low water consumption, reduce pollution, conserve resources by creating drought resistant soils with compost and mulch, reduce or avoid the use of synthetic fertilizers and pesticides, and more. Each of the projects will act as a model and support a regional landscape brand that is transforming the landscape industry, home gardeners and local governments, throughout the Bay Area toward more sustainable, green practices.

1.5 Regional Map

The following map presents the location of each project included in the Regional Green Infrastructure Capacity Building Program.



1.6 Completed Work

A. San Pablo Spine and Regional Promotion of Green Infrastructure

- The seven cities along the San Pablo Avenue Green Stormwater Spine are in the process of conducting preliminary site investigations and feasibility analyses. No actual work will be completed until notification that funding has been received.

B. Hacienda Avenue "Green Street" Improvement Project

- Conceptual (10%) design of the project is currently in progress and is expected to be completed prior to the grant award date of June 1, 2011.
- Preparation of CEQA documentation for the project is in progress and is expected to be submitted for review and approval in November 2010.

C. Napa Valley Rainwater Harvesting

- The project is 10% designed, with multiple existing rainwater harvesting installations identified.
- Prior to June 1, 2011, there will be ongoing coordination of the project with project partners, which includes contracting with Napa RCD to conduct outreach and tracking of facilities.
- A CEQA categorical exemption (Section 15302 – Class 2: Replacement or Reconstruction) for the project was completed in September 2009 and filed with the County Clerk.

Plans and Specifications

The project is only 10% complete: no plans are available at this time. Plans and specifications will be submitted as grant deliverables.

1.7 Existing Data and Studies

This section lists the studies that have been performed that support the projects' site location, feasibility and technical methods.

San Pablo Spine and Regional Promotion of Green Infrastructure

- **Green Infill for Clean Stormwater Preliminary Results**, Nicole David, Presentation to CASQA on monitoring results of Daly City Parking Lot, October 2010
- **San Mateo County Sustainable Green Streets and Parking Lots Design Guidebook** published January 2009 by the San Mateo Countywide Water Pollution Prevention Program. The guidebook provides designers, builders, municipal staff, and other interested groups practical and state-of-the-art information on creating low-impact development roadways and parking lots within San Mateo County.
- **Putting Parking Lots To Work**, Estuary News, August 2010
- **Slow It, Spread It, Sink It Estuary News**, August 2009
- A write up of the El Cerrito stormwater planters installed in 2010 can be found at http://www.sfestuary.org/projects/detail.php?projectID=41. The success of this project is the impetus for the forthcoming San Pablo Avenue Green Stormwater Spine Project.
- **Integrating Stormwater Into the Built Environment & Sustainable Site Development Stormwater Practices For New, Redevelopment and Infill Projects**, have both been issued by the City of Portland Environmental Services (The city has developed a wide variety of downloadable documentation on stormwater treatment units. See http://www.portlandonline.com/bes/index.cfm?c=34602).
- The City of Seattle (Public Utilities Department also has a website of downloadable documents on how to create "natural drainage projects." Per the website, natural drainage systems limit the negative impacts of stormwater runoff by redesigning residential streets to take advantage of plants, trees, and soils to clean runoff and manage stormwater flows. Vegetated swales, stormwater cascades, and small wetland ponds allow soils to absorb water, slowing flows and filtering out many contaminants. See http://www.seattle.gov/util/About_SPU/Drainage_&_Sewer_System/GreenStormwaterInfrastructure/NaturalDrainageProjects/index.htm
- Feasibility analyses are underway.

Hacienda Avenue "Green Street" Improvement Project

- A Pavement Design Report analyzing the existing roadway condition was completed in October 2008.
- **San Mateo County Sustainable Green Streets and Parking Lots Design Guidebook** published January 2009 by the San Mateo Countywide Water Pollution Prevention Program. The guidebook provides designers, builders, municipal staff, and other interested groups practical and state-of-the-art information on creating low-impact development roadways and parking lots within San Mateo County.

Napa Valley Rainwater Harvesting

- Ann Audrey Phillips: **City of Tucson Water Harvesting Guidance Manual**, October 2005
- Brock Dolman and Kate Lundquist: **Roof Water Harvesting for a Low Impact Water Supply Featuring the Brazilian Ball Pre-Filter System: A Case Study, The Water Institute**

1.8 Project Site Maps

Maps showing the location of each project site are listed in the following pages.

Figure 1: San Pablo Spine and Regional Promotion of Green Infrastructure

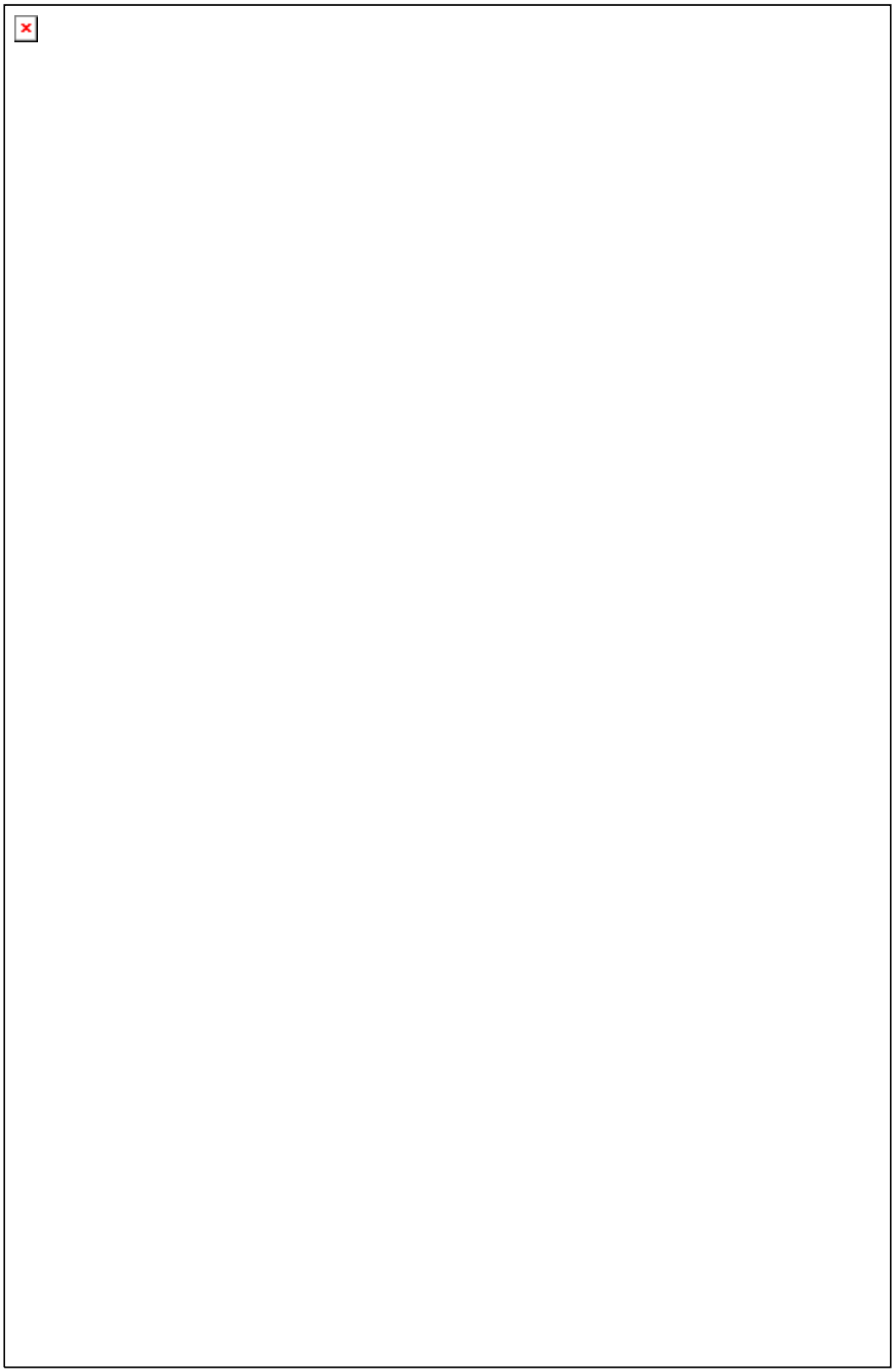


Figure 2: Hacienda Avenue "Green Street" Improvement Project

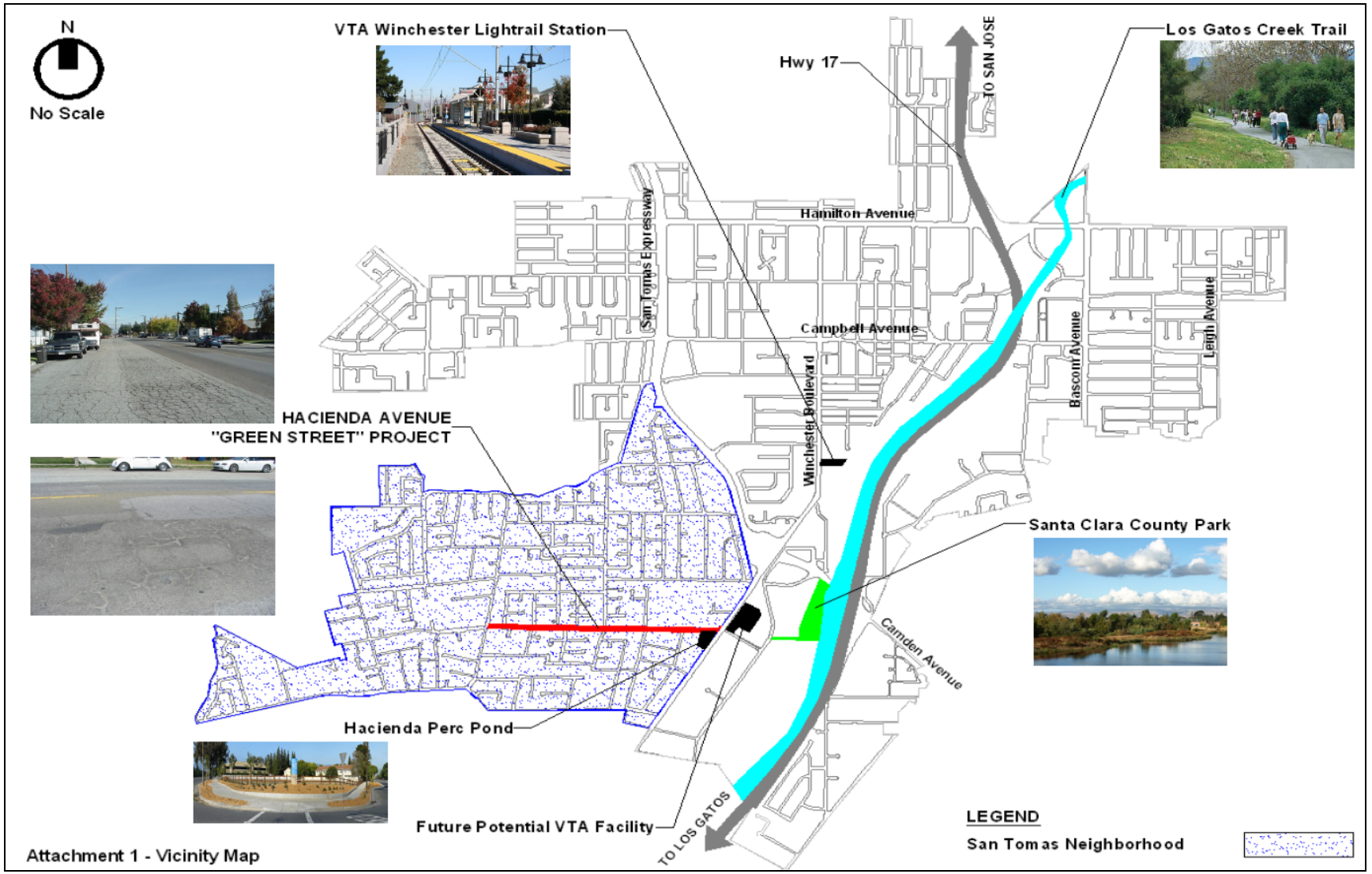
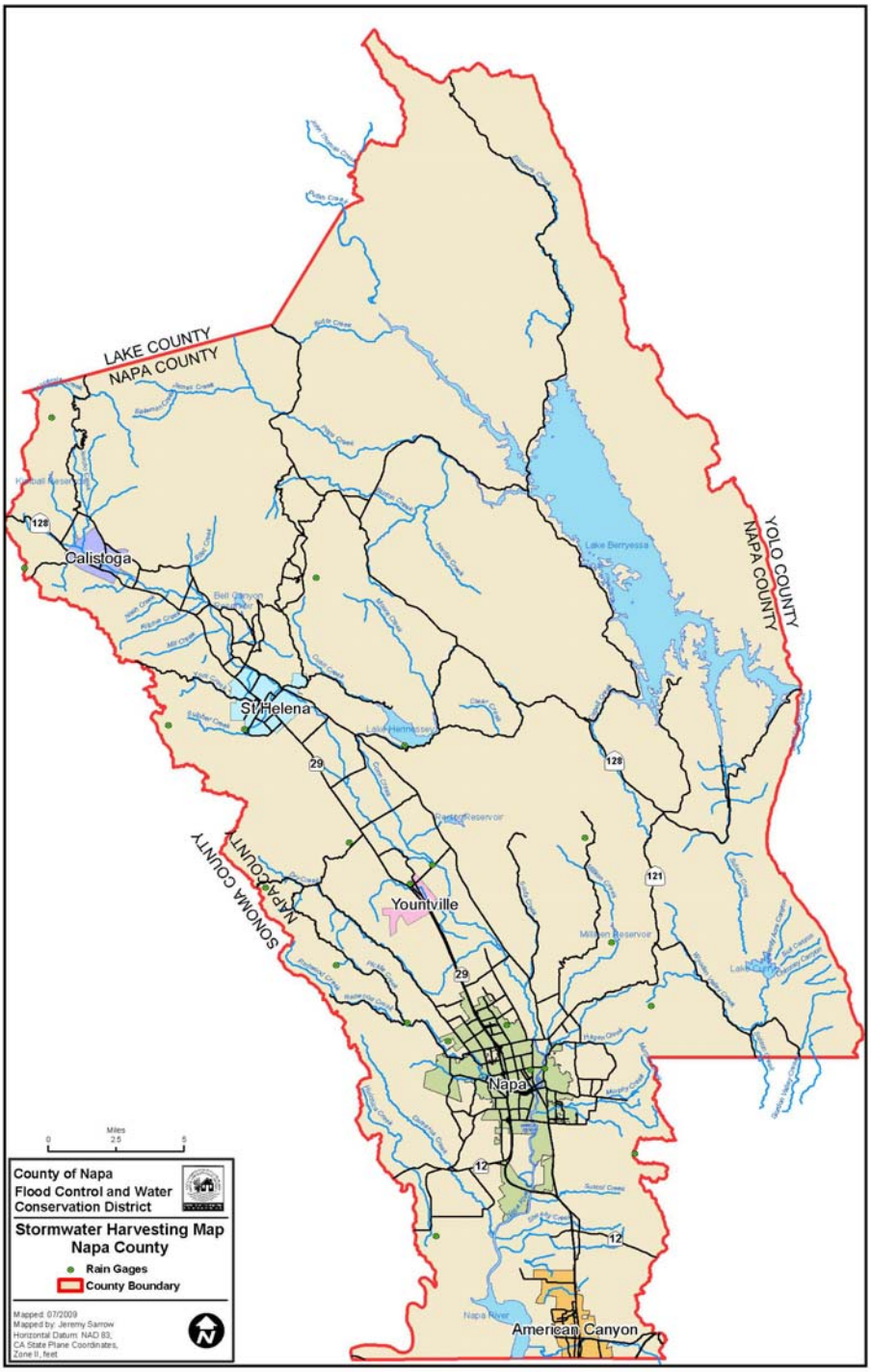


Figure 3: Napa Valley Rainwater Harvesting



1.9 Project Timing and Phasing

The project is not multi-phased and will only commence with the execution of the grant.

Regional Green Infrastructure Capacity Building Program	
Is the project part of a multi-phased project complex?	No
Demonstration that project can operate on a standalone basis (i.e. can be fully functional without the implementation of the subsequent projects)	Not applicable.
Is requested funding for a component of a larger project?	No
If so, describe all of the components of the larger project complex and identify project elements that the IRWM grant is supposed to fund.	Not applicable.
Linkages to other projects that must be completed first or that are essential to obtain the full benefits of the project	Not applicable.

2 Tasks

This section includes a detailed discussion of the various tasks needed to implement each project and collectively this Program. In accordance with the PSP, this section specifically addresses the following:

PSP Requirements

- ✓ Tasks are detailed and complete in order to demonstrate that projects can be implemented
- ✓ Work Item submittals are clearly indicated for each of the tasks
- ✓ A list of project permits and their current status, is provided for each of the projects
- ✓ The status of environmental compliance activities is discussed
- ✓ If applicable, plans and specifications have been submitted to demonstrate consistency with the design tasks noted in the Work Plan
- ✓ For each of the projects, scientific and technical information has been submitted to demonstrate feasibility
- ✓ For each of the projects, there is a discussion of the data management and monitoring deliverables
- ✓ For each of the projects, there is a site map showing the geographical location and site boundaries
- ✓ In addition, each project write-up below includes a discussion of the required items listed on page 31of the PSP:
  - o Description of work to be performed and current status of each task
  - o Procedures by which the applicant will coordinate with its partner agencies
  - o Discussion of standards used in implementation
  - o Development of performance measures and monitoring plans
  - o Discussion of acquisition of land or rights-of-way status
  - o Discussion of merits of materials and computational methods

A. San Pablo Spine and Regional Promotion of Green Infrastructure

Work Tasks

Task 1: Administration
San Francisco Estuary Partnership (SFEP) will be the administrator for this Project and will be responsible for the following administrative tasks:

- Set up financial and project reporting systems
- Prepare monthly billing and invoicing project partners (SFEI and StopWaste.Org/Bay-Friendly)
- Prepare monthly billing and invoicing to submit to the Bay Area Clean Water Agencies (BACWA), the Grant Administrator.

Deliverable(s):

- Project Invoices and backup documentation
- Status on payment of partners and documentation of project completion and budget status

Subtask 1.1: Coordination and Contracts with Participating Agencies
SFEP will undertake coordination and contracting with other participating agencies. This subtask involves developing a standardized Interagency Agreement for execution by each participating agency in order to formalize agency participation in the Program and facilitate matching funds. SFEP will contract with the following entities:

- Negotiate master contract with BACWA
- Negotiate contracts with 7 cities in San Pablo corridor
- Negotiate contracts with SFEI and Stopwaste.org or Bay Friendly Coalition

Deliverable(s):

- Master contract with BACWA
- Interagency Agreements with the 7 cities in San Pablo corridor, SFEI, and StopWaste.Org

Task 2: Labor Compliance Program
There is no program currently in place. The project will adopt and enforce a labor compliance program pursuant to California Labor Code §1771.5(b) before or by the time of awarding a contract for construction or implementation of the project. The Labor Compliance Program will be developed as part of bid specifications and included in the bid package.

Deliverable(s):

- Adopted Labor Compliance Program
- Annual Report

Task 3: Reporting
SFEP will write quarterly progress reports and prepare invoices on the San Pablo Avenue Green Stormwater Spine and Regional Promotion of Green Infrastructure for submittal to Bay Area Clean Water Agencies (BACWA), the grant administrator. Reports will meet generally accepted professional

standards for technical reporting and be proofread for content, numerical accuracy, spelling and grammar prior submittal to the State.

The Quarterly Reports will explain the status of the project and will include the following information:

- Summary of the work completed for the project during the reporting period including attachments or verification of completed deliverables
- Statement of progress compared to the schedule listed in Attachment 5 of this proposal
- Comparison of actual costs to date to the budget listed in Attachment 4 of this proposal

SFEP will prepare a Final Project Report documenting implementation of the Program, to be submitted to DWR via BACWA within ninety (90) calendar days of DWR verification that all tasks associated with a project have been completed. The Final Project Report will include the following information:

- Description of the actual work done
- Final schedule showing actual progress versus planned progress
- Documentation of each deliverable including monitoring reports, outreach pieces, workshop and meeting agendas and minutes, and other documents
- Lessons learned

Deliverables:

- Quarterly Reports and Invoices
- Final Report

Land Purchase Easement
Not applicable. The Project will be constructed within Caltrans right-of-way and city-owned property. The cities and Caltrans are providing access to these lands as contribution to the Project.

Task 4: Assessment and Evaluation
Not applicable. The Project does not involve preparation of assessment or evaluation studies.

Task 5: Final Design
This task involves completing project design plans and specifications at the 10%, 30%, 60%, 90% and 100% final level. SFEP in-house staff will develop draft planting plans (7 designs).

Bid Solicitation Efforts
SFEP will release a RFP and award a contract in accordance with SFEP procedures and standards.

Deliverables:

- RFP documents and Contract for Design
- Design, plans and specifications (10%, 30%, 60%, 90%, final 100%)
- Draft planting plans (7 designs).

Task 6: Environmental Documentation
Caltrans will prepare the necessary CEQA documentation for the Project as in-kind match. It is anticipated that an Environmental Initial Study will be completed, followed by the Mitigated Negative Declaration. SFEP and the seven cities will review CEQA documentation prior to the beginning of the final design of the Project. Per the tribal notification requirement (PRC §75102), the Lytton tribe has

property in the City of San Pablo (San Pablo Lytton Casino), but this is not within the area of the project boundary. All project work will be conducted within Caltrans right-of-way. Therefore this requirement is not applicable to the project.

Deliverables:

- CEQA Documentation

Task 7: Permitting

SFEP and partner agencies will obtain the following permits:

Permit	Approval Date	Status	Purpose of Permit
City construction permits as needed	N/A until grant awarded	N/A until grant awarded	To ensure that the project is in compliance with city codes and regulations
Stormwater construction permits including stormwater management programs (SWPPPs)	N/A until grant awarded	N/A until grant awarded	To ensure that construction does not activities pollute stormwater.

Additional coordination with the following entities for other authorizations for the Project is as follows:

- Cities to determine permits needed for treatment units. Construction contractors will complete permits. SFEP will coordinate permit review by the San Francisco Bay Regional Water Quality Control Board.
- SWPPP grant will be completed by the contractors who construct the treatment units
- SFEP and cities will review plans for completeness and compliance with regulations.

Deliverables:

- Construction permits
- Stormwater management plans

Task 8: Construction/Implementation Contracting

SFEP with work with partner cities to prepare RFP/RFQs and bid solicitation packages for (1) construction contract(s), (2) planting contract(s), and (3) interpretive signage design, fabrication and installation. SFEP will oversee all bid processes and coordinate with partner cities to evaluate bids and award contracts following SFEP's standard procedures.

Deliverable(s):

- Construction contract(s)
- Construction management contract
- Planting contract(s)
- Interpretive signage contract

Task 9: Construction/Implementation

<u>Subtask 9.1: Project Construction</u>

Contractor(s) will install 7 stormwater treatment facilities in seven cities along San Pablo Avenue in Contra Costa and Alameda Counties. Because construction contractor(s) will be hired by SFEP, all mobilization will be handled by contractor(s). Construction entails excavation and/or demolition of existing site, relocating utilities as needed, pouring concrete forms for flow-through planters (depending on design), installing and connecting sub-drain to existing storm drain pipe as needed, adding special soil mix to encourage infiltration, and initial planting the plants.

Subtask 9.2: Plant Establishment, Monitoring and Maintenance

- Per planting plan, native plants will be truck-watered, maintained, and monitored for the first two years of the grant, with plants replaced as needed.
- Plants are expected to survive both very wet (during storms) and drought conditions.

Additional Project Information

Merits of the building materials and/or computational methods that were used for the project development	The building materials used for this project will incorporate recycled content materials, thereby reducing impacts resulting from extraction and processing of virgin materials (Potential LEED Materials and Resources Credit 4.0). In addition, the plantings used for the project will be native vegetation, which supports the use of indigenous resources and reduces the environmental impacts of non-native species.
Construction standards that will be used for project implementation	Construction will follow municipal standards and all applicable State and Federal construction and safety standards.

Subtask 9.3: Develop Monitoring Plan and Conduct Monitoring

San Francisco Estuary Institute (SFEI) will be the lead for the water quality evaluation of this project.

Specifically, SFEI will

- Develop a monitoring plan to cover representative sites along the San Pablo Avenue Stormwater Spine
- Assist Napa and Campbell in developing monitoring plans, consistent with monitoring along the San Pablo Avenue Stormwater Spine and other Green Infrastructure monitoring efforts around the region
- Collect and analyze samples from sites on the Stormwater Spine and Campbell
- Napa County will collect and analyze representative stormwater samples

After completion of the water quality analysis on the various stormwater treatment systems, SFEP and SFEI will write a report on water quality monitoring results. SFEI will also assist SFEP in regional outreach products describing the benefits of green infrastructure

Deliverable(s):

- Monitoring Plans for all three projects
- Stormwater quality monitoring results from the Napa Rainwater Harvesting Project
- Water quality monitoring report
- Outreach products describing the benefits of green infrastructure

Subtask 9.4 Develop Interpretive Signs

- SFEP will design signs that describe the stormwater treatment units, plants, Bay Friendly certification, and water quality impacts of the project
- Contracts will be competitively bid and issued to print and install signs

Deliverable(s):

- Interpretive Signs

Subtask 9.5: Conduct Outreach

Campbell, Napa and the San Pablo Avenue Green Stormwater Spine projects will implement different stormwater treatment designs/concepts (green streets, pervious pavement, rain barrels, rain gardens). SFEP is currently engaged in a variety of green infrastructure projects throughout the region. In this task, SFEP will collaborate with the San Francisco Estuary Institute (SFEI), cities and others interested in green infrastructure to compile a database of regional efforts, post information, including video podcasts about the projects on the internet, produce brochures and other outreach materials, and convene tours, green infrastructure forums and other public events. IRWMP funding will support continuation of this process by furthering the science of green infrastructure retrofits in the Bay Area and expanding recognition of the multiple benefits of green infrastructure and LID.

Subtasks include:

- Development of brochures, articles, flyers, and other outreach materials
- Development of a project web page
- Development of podcasts and/or other web tools
- Production of tours, forums and/or training seminars
- Presentations to Association of Bay Area Governments (ABAG) Executive Board, the Estuary Partnership Implementation Committee, and other forums of public officials, resource agencies, non-profit organizations, and citizens' groups.
- Meetings with cities who express interest in initiating green infrastructure projects.
- Updates to IRWMP Coordination Committee agencies on benefits of green infrastructure

Deliverable(s):

- Outreach materials
- Project web page
- Podcasts and/or other web-based tools
- Tours, forums and/or training seminars
- Presentations

Subtask 9.6: Rating of Projects along the San Pablo Avenue Green Stormwater Spine, Napa and Campbell as Bay-Friendly

Bay-Friendly Landscape Raters will be selected by each project team to verify the sustainable practices implemented in the project.

- 7 San Pablo Spine landscape projects Rated as Bay-Friendly
- 1 Campbell landscape project rated Bay-Friendly
- 2 Napa projects Rated as Bay-Friendly

Deliverable(s):

- Bay-Friendly rated projects

Subtask 9.7: Project Coordination

- SFEP will collaborate with SFEI, Bay Friendly Raters, Campbell and Napa to ensure projects are completed on time and on budget.
- SFEP will ensure that all projects are Bay Friendly Rated, that monitoring plans are complete, that monitoring occurs on schedule, that all project reports are complete and accurate.
- SFEP will coordinate technical transfer of information among project partners. This will be accomplished by emails, conference calls, site visits and periodic meetings.
- SFEP will travel to Sacramento annually to brief DWR staff on the projects.

Task 10: Environmental Compliance/Mitigation/Enhancement

Appropriate best management practices (BMPs) will be used during construction; projects are retrofitted within built-out, urbanized environment so no additional environmental mitigation measures necessary.

Task 11: Construction Administration

Construction administration and inspection will be performed by the construction management contractor hired by SFEP. This task involves providing construction management and inspection services in support of construction to ensure proper construction practices are followed according to all applicable construction plans, construction standards, and health and safety codes. In addition, SFEP will provide oversight of StopWaste.Org's implementation tasks for the regional promotion of green infrastructure.

B. Hacienda Avenue "Green Street" Improvement Project

Work Tasks

Task 1: Administration
The City of Campbell will be the administrator for this Project and will be responsible for the following administrative tasks:

- Prepare monthly project billing and invoicing

Deliverable(s):

- Project Invoices and backup documentation

Subtask 1.2: Coordination and Contracts with Participating Agencies
The City of Campbell will negotiate a contract with BACWA, the grant administrator, and will coordinate with San Francisco Estuary Partnership on quarterly progress reports.

Deliverable(s):

- Contract with BACWA

Task 2: Labor Compliance Program
There is no program currently in place. The project will adopt and enforce a labor compliance program pursuant to California Labor Code §1771.5(b) before or by the time of awarding a contract for construction or implementation of the project. The Labor Compliance Program will be developed as part of bid specifications and included in the bid package.

Deliverable(s):

- Adopted Labor Compliance Program
- Annual Report

Task 3: Reporting
This task involves preparing quarterly progress reports and a final report for submission to DWR. The City of Campbell will submit the reports to SFEP for collation, the lead administrator for the Program. Reports will meet generally accepted professional standards for technical reporting and be proofread for content, numerical accuracy, spelling and grammar prior submittal to the State.

The Quarterly Reports will explain the status of the project and will include the following information:

- Summary of the work completed for the project during the reporting period
- Statement of progress compared to the schedule listed in Attachment 5 of this proposal, including verification of completion of deliverables
- Comparison of actual costs to date to the budget listed in Attachment 4 of this proposal

SFEP will prepare a Final Project Report documenting implementation of the Program, to be submitted to DWR via BACWA within ninety (90) calendar days of DWR verification that all tasks associated with a project have been completed. The Final Project Report will include the following information:

- Description of the actual work done
- Photo-documentation of completed project
- Final schedule showing actual progress versus planned progress
- Lessons learned

Deliverables:

- Quarterly Reports and Invoices
- Final Report

Land Purchase Easement
Not applicable. The project is located within the City of Campbell's right-of-ways and will not require any land purchase easements.

Task 4: Assessment and Evaluation

Subtask 4.1: Preparation of Geotechnical and Soil Study
This task involves preparing a Geotechnical and Soil Study to evaluate existing soil properties in the project location to determine properties of the existing soil as it relates to permeability and suitability for planting.

Subtask 4.2: Preparation of Stormwater Runoff Study
This task involves preparing a Stormwater Runoff Study to evaluate the quantity and quality of stormwater runoff associated with the project location.

Deliverables:

- Geotechnical and Soil Study
- Stormwater Runoff Study

Task 5: Final Design
This task involves completing project design plans and specifications at the 10%, 30%, 60%, 90% and 100% final level. City of Campbell will prepare an Engineer's cost estimate for the project.

Bid Solicitation Efforts
The City of Campbell will release a RFP, solicit proposals, and award a contract in accordance with the City's procedures and standards.

Deliverables:

- RFP documents and Contract for Design
- Design, plans and specifications (10%, 30%, 60%, 90%, final 100%)
- Engineer's cost estimate

Task 6: Environmental Documentation
Not applicable. Because the traffic configuration of Hacienda Avenue will remain the same, the City of Campbell Planning Department requires only a Categorical Exemption for CEQA compliance.

Task 7: Permitting
Not applicable. Because all work will be complete within the city right-of-way, no facilities owned by others will be impacted and no permits are required.

Task 8: Construction/Implementation Contracting
The City of Campbell will prepare the bid documents for construction contracting, and advertise for bids in accordance with local and State requirements. Construction contracting will include preparation of a bid solicitation package which includes the final design and technical specifications. This will be distributed to a list of pre-qualified contractors. The bid solicitation package will include the final design and technical specifications. Once bids are received, the City will analyze and evaluate the bids and award the contract based on the City's standard procedures. City of Campbell will give contractor(s) notice to proceed.

Deliverable(s):
- Bid solicitation package
- Pre-bid contractors meeting
- Evaluation of bids
- Award contract

Task 9: Construction

Subtask 9.1: Mobilization and Site Preparation
Mobilization will include public notification of the impending project construction, defining of construction zone and erecting construction warning signs, etc.

Subtask 9.2: Project Construction
Project construction involves the following:
- Demolition of existing impervious surfaces and other improvements
- Installation of improvement that would capture the stormwater runoff
- Installation of vehicular/bicycle lanes
- Installation of pervious surface and plant material

Subtask 9.3: Performance Testing and Demobilization
A facility for monitoring stormwater and/or groundwater quantity and quality will be installed by the contractor and will be managed by the City of Campbell.

Additional Project Information

Merits of the building materials and/or computational methods that were used for the project development	The building materials used for this project will incorporate recycled content materials, thereby reducing impacts resulting from extraction and processing of virgin materials (Potential LEED Materials and Resources Credit 4.0). In addition, the plantings used for the project will be native vegetation, which supports the use of indigenous resources and reduces the environmental impacts of non-native species.
Construction standards that will be used for	Construction will follow municipal standards and

project implementation	all applicable State and Federal construction and safety standards.

Task 10: Environmental Compliance/Mitigation/Enhancement
Not applicable. The City of Campbell Planning Department has prepared a Categorical Exemption for CEQA compliance, which will not require any environmental compliance or mitigation efforts.

Task 11: Construction Administration
Construction administration and inspection will be performed by the construction management contractor hired by the City of Campbell. This task involves providing construction management and inspection services in support of construction to ensure proper construction practices are followed according to all applicable construction plans, construction standards, and health and safety codes.

C. Napa Valley Rainwater Harvesting

Work Tasks

Task 1: Administration
Napa County Resource Conservation District (RCD) will be the administrator for this Project and will be responsible for the following administrative tasks:

- Prepare monthly project billing and invoicing

Deliverable(s):

- Project Invoices and backup documentation

Subtask 1.2: Coordination and Contracts with Participating Agencies
Napa County RCD will negotiate a contract with BACWA, the grant administrator, and will coordinate with San Francisco Estuary Partnership on quarterly progress reports.

Deliverable(s):

- Contract with BACWA

Task 2: Labor Compliance Program
There is no program currently in place. The project will adopt and enforce a labor compliance program pursuant to California Labor Code §1771.5(b) before or by the time of awarding a contract for construction or implementation of the project. The Labor Compliance Program will be developed as part of bid specifications and included in the bid package.

Deliverable(s):

- Adopted Labor Compliance Program
- Annual Report

Task 3: Reporting
This task involves preparing quarterly progress reports and a final report for submission to DWR. Napa County RCD will submit the reports to SFEP for collation, the lead administrator for the Program. Reports will meet generally accepted professional standards for technical reporting and be proofread for content, numerical accuracy, spelling and grammar prior submittal to the State.

The Quarterly Reports will explain the status of the project and will include the following information:

- Summary of the work completed for the project during the reporting period
- Statement of progress compared to the schedule listed in Attachment 5 of this proposal, including verification of completed deliverables
- Comparison of actual costs to date to the budget listed in Attachment 4 of this proposal

Napa County RCD will prepare a Final Project Report documenting implementation of the Program, to be submitted to DWR via BACWA within ninety (90) calendar days of DWR verification that all tasks

associated with a project have been completed. The Final Project Report will include the following information:

- Description of the actual work done
- Photo documentation of completed projects
- Final schedule showing actual progress versus planned progress
- Lessons learned

Deliverables:

- Quarterly Reports and Invoices
- Final Report

Land Purchase Easement
Not applicable. This project will not require land purchase easements.

Task 4: Assessment and Evaluation
Not applicable. This project does not require preparation of assessment and evaluation studies.

Task 5: Final Design
Conceptual 10% design of the project is completed. This task involves completing project design plans and specifications at the 30%, 60%, 90% and 100% final level.

Bid Solicitation Efforts
Napa County RCD will release a RFP, solicit proposals, and award a contract in accordance with the County's procedures and standards.

Deliverables:

- RFP documents and Contract for Design
- Design, plans and specifications (30%, 60%, 90%, final 100%) for up to 10 rain gardens and 1 cistern installation

Task 6: Environmental Documentation
Not applicable. A categorical exemption has been submitted and NOE issued and on record.

Task 7: Permitting
Permits, if any, will be the responsibility of the property owners.

Task 8: Construction/Implementation Contracting
Napa County RCD will develop formal agreements for property owners for the installation of rain gardens and rain barrels. Property owners are solely responsible for the hiring of contractor(s) for the installation of rain gardens or rain barrels.

Deliverable(s):

- Formal agreements with property owners for rain garden/rain barrel installation

Task 9: Construction/Implementation

Subtask 9.1: Project Construction and Installation

Individual property owners will construct rain gardens and install rain barrels on their property that will be partially or fully funded through this project. Property owners will be responsible for selecting sound building materials and using high quality construction techniques. Napa County RCD will construct at least ten rain gardens throughout the different micro-climates of Napa Valley. Locations will be selected to enable pilot studies to determine their effectiveness for the various rainwater harvesting benefits.

Deliverables:

- At least 10 rain garden installations by Napa County RCD.

Subtask 9.2: Preparation of Stormwater Harvesting in Napa County Study

This task involves preparing a Rainwater Harvesting Utilization Guidance to track and evaluate rainwater harvesting for beneficial uses in Napa County. The study will include collecting data on the volume of rainwater collected by the project and tracking the final destination of stormwater discharges.

Deliverables:

- Rainwater Harvesting Utilization Guidance document including harvesting tracking and evaluation procedures

Additional Project Information

Merits of the building materials and/or computational methods that were used for the project development	Materials to be determined by property owners.
Construction standards that will be used for project implementation	Construction will follow all applicable State and Federal construction and safety standards.

Task 10: Environmental Compliance/Mitigation/Enhancement

Not applicable. This project does not require mitigation/enhancement for environmental compliance.

Task 11: Construction Administration

Not applicable. Property owners will be solely responsible for hiring contractor(s).

San Francisco Bay Area Regional Priority Projects and Programs

Attachment 3 – 5. Integrated Water Quality Improvement, Flood Management and Ecosystem Restoration in Bay Area Disadvantaged Communities

1 Introduction

This is an integrated Program that serves both the greater San Francisco Bay Area Region (as defined in the SF Bay Area IRWMP) and specific disadvantaged communities (DACs) located at all compass points of the Bay. The Program advances the capacity of DACs to reduce polluted waters in their communities by lowering damages from underperforming stormwater systems and overbank flows from natural drainages. In addition, targeted assessments of flood infrastructure, fisheries habitats for key salmonids, and other stream restoration sciences will be addressed as part of the multi-objective approach to manage inundation problems within the context of climate change. This Program also supports a broad-based Bay Area Watershed Network of environmental justice, watershed, and flood protection, educational and scientific organizations. As a result of the IRWMP, the San Francisco Bay Area has organized two new associations of stakeholders to respond to watershed and floodplain management needs. This Program represents a collaboration of these new organizations, the Bay Area Flood Protection Agencies Association (BAFPAA), a consortium of flood district managers, and the Bay Area Watershed Network (BAWN), a broad-based organization of watershed stakeholders including non-profit organizations; watershed practitioners; scientists; and local, state, and federal agencies.

Documentation of the Presence and Needs of Disadvantaged Communities (DACs)

As required by the PSP, we provide both quantitative and qualitative data to show how the DACs and their critical needs have been identified in the Bay Area. More detailed information is provided in **Attachment 12** of this Proposal.

For quantitative analysis, we used census data, specifically the community's median household income (MHI) in comparison to the MHI of the state for the same time-period. Where possible, the newer Census figures from the 2006-08 American Community Survey 3-year estimates have been used. However,

where this information was not available, the older 2000 Census data has been used. This was usually the case while using the zip code census geographies. Whenever a comparison has been made between the MHI of the community and the state, the information is taken from the same data set for the same time-period. All references are provided in detailed footnotes.

Since the PSP also requires a description of efforts to assess and address past environmental justice issues within the region or potential environmental justice issues that may come about due to the project, we provide additional information regarding poverty levels, crime and poverty scenarios, under-performing schools, place-based historical injustices, segregation, sources of contamination, isolation from surrounding wealth, etc, to substantiate our DAC description.

To find the median household income (MHI) of the State of California for comparison, we used the U.S. Census Bureau's 2006-08 American Community Survey 3-year estimates, available on their website, and data for California. The MHI of California from 2006-08 was found to be $61,154.[1] For the older data set, we used the Census Bureau's 2000 Census data, available on their website, and data for California. The MHI of California in 2000 was found to be $47,493[2].

We have also provided information in **Attachment 12** to show that these disadvantaged communities (DACs) most frequently identify their main water management concern as lack of stormwater management and flood-damage control. These communities are also the most vulnerable to the looming impacts of climate change because their communities are located in wetlands and floodplains close to the edge of the Bay, due to historic economic and environmental injustices in these generally racially segregated communities. In addition, in these communities, flood water quality threats are severely exacerbated because the communities are located close to contaminated sites such as power plants, weapons facilities, chemical plants, etc, which severely increase the water quality risk and human health risk of flooding, as flood waters may be highly contaminated with toxic pollutants.

The DACs listed in this project with the greatest project participation are North Richmond, San Pablo, East Palo Alto and Bay Point. These areas are nationally notorious as being pockets of poverty and crime. Both North Richmond and Bay Point are in unincorporated Contra Costa County, and are faced with the revenue and governance disadvantages of being unincorporated. All locations are geographically isolated areas in floodplains and wetlands and have suffered stormwater and flood damages over the years. The areas are known for their high poverty rates. In the 1980s and early 1990s, East Palo Alto had the highest crime rate in the country while North Richmond was a close contender for this unwelcome statistic. Both areas are characterized by under-performing schools, with East Palo Alto and North Richmond ranked among the lowest in the State.

[1] U.S. Census Bureau, 2006-08 American Community Survey 3-year estimates, available at: http://factfinder.census.gov/servlet/ADPTable?_bm=y&-geo_id=04000US06&-qr_name=ACS_2008_3YR_G00_DP3YR3&-context=adp&-ds_name=&-tree_id=3308&-_lang=en&-redoLog=false&-format=, accessed on December 10, 2010

[2] U.S. Census Bureau, 2000 Census, Summary File 1 (SF 1) and Summary File 3 (SF 3), available at: http://factfinder.census.gov/servlet/SAFFFacts?_event=&geo_id=04000US06&_geoContext=01000US|04000US06&_street=&_county=&_cityTown=&_state=04000US06&_zip=&_lang=en&_sse=on&ActiveGeoDiv=&_useEV=&pctxt=fph&pgsl=040&_submenuId=factsheet_1&ds_name=ACS_2009_5YR_SAFF&_ci_nbr=null&qr_name=null&reg=&_keyword=&_industry=

The Program consists of the following projects:

A. Watershed Partnership Technical Assistance
B. Stream Restoration with Schools and Community in Disadvantaged Communities of the North Bay
C. Floodplain Mapping for the Bay Area with Disadvantaged Communities Focus
D. Storm Water Improvements and Flood Reduction Strategies Pilot Project in Bay Point
E. Disadvantaged Communities Richmond Shoreline and City of San Pablo Flood Project
F. Pescadero Creek Watershed Disadvantaged Communities Integrated Flood Reduction and Habitat Enhancement Project
G. Pescadero Creek Steelhead Smolt Outmigrant Trapping
H. Stream Channel Shapes and Floodplain Restoration Guidance and Watershed Restoration in San Francisquito Creek, East Palo Alto, a Disadvantaged Community
I. Steelhead and Coho: Bay Area Indicators for Restoration Success. SF Estuary Steelhead Monitoring Program

The above projects have been identified through a collaborative effort among the Bay Area Flood Protection Agencies Association (BAFPAA), Bay Area Watershed Network (BAWN), the Watershed, Habitat Protection & Restoration functional area of the Bay Area Integrated Regional Water Management Plan Coordinating Committee (CC), and the Environmental Justice Coalition for Water (EJCW) as important keystone projects to address critical water quality needs of DACs in the Bay Area. **Attachment 12** in this Proposal represents the start of a significant effort to improve the identification of disadvantaged communities in the Bay Area, which have not always been clearly defined based on census tract geographies, and as a result, have not been able to receive adequate support from State or federal funding programs to address the critical water quality problems they face.

The implementation of this Program will not only reduce exposure of DACs to serious water quality impairments in their living environments, but will more importantly create the knowledge and momentum that is often lacking in DACs to sustain and expand local watershed protection efforts. The Program will result in the following achievements:

- Restoration and riparian revegetation projects along the Bay shoreline to protect vulnerable communities from the effects of flooding and sea-level rise.

- Detailed mapping of flood infrastructure within vulnerable and high-risk areas in the Bay Area (in this case defined as low-lying floodplain areas with inhabitants of greatly limited economic mobility), that will help agencies improve pre-emptive planning and mitigation for flooding, storm surges and sea level rise.
- A consistent set of restoration design tools addressing water quality needs that will be made available online to enable local organizations or stakeholders in the DACs to establish or improve their watershed protection activities.
- Creation of local environmental stewards and educators within the communities through working with teachers and students on restoration projects, and involving students in project analysis.
- Compilation of data on the health of anchor watersheds in the Bay Area via monitoring of steelhead and coho salmon, which will provide a preliminary assessment of the outcomes of existing or implemented stream restoration projects and inform development of future restoration projects.

1.1 Goals and Objectives

The ultimate goal of this Program is to allow local agencies to better serve low-lying, disadvantaged or underserved communities in ways that address critical water quality issues caused by flooding and stormwater discharges into the community the exacerbating impacts of climate change from sea-level rise, modification in rain patterns, reductions in habitat, and increased greenhouse gasses. The Program intends to compensate for the imbalance in financial and informational resources among the IRWMP functional areas by serving watershed groups and partnerships through the Bay Area Watershed Network in order to increase watershed restoration technical assistance and participation in the IRWMP.

Specific objectives associated with each project element in this Program are listed in **Table 1**.

Table 1: Project Goals and Objectives

Project Element	Project Objectives
A. Watershed Partnership Technical Assistance	• Provide support services and management of the tasks in this DAC proposal to address and integrate water quality, stormwater management, flood damage reduction and habitat restoration. • Assist engagement of disadvantaged communities in the Bay Area IRWMP program and provide the assistance they need to qualify for future implementation grants. • Employ the Bay Area Watershed Network working groups to provide oversight and direction of the tasks in this project for which they have identified the need. Motivate continued participation in integrated projects and assure that good data and information are available and used to direct projects • Provide technical training for DACs to assist projects which address critical water quality, flood and stormwater management.
B. Stream Restoration with Schools and Community in Disadvantaged Communities of the North Bay	• Restore riparian areas through on-the-ground conservation actions in a local context that will positively contribute to the community' economic, social and environmental sustainability through on-the-ground conservation actions. • Improve water quality through invasive removal and revegetation with native plants along creekbanks and wetland

	areas that will improve the quality of water resources through decreased sedimentation, nutrient and metals uptake and cooler water temperatures. • Stabilize creek banks and conduct erosion control activities that will lead to improved flood control and water quality • Restore creeks and wetlands to protect, enhance and maintain environmental resources and habitats through invasive removal and revegetation with native plants.
C. Floodplain Mapping for the Bay Area with Disadvantaged Communities Focus	• Compile existing flood infrastructure data into a regional Geographic Information System (GIS) dataset to identify infrastructure or data gaps, assist in regional planning, and provide information for coordination among managers. • Integrate the flood infrastructure mapping with Bay Area Aquatic Resource Inventory (BAARI) a regional dataset of streams, ditches, stormdrains, and tidal and non-tidal wetlands (Prop 50 funded, to be completed March 2011) that can be used for hydrologic modeling and watershed characterization. • Produce a web-based interactive map of regional flood infrastructure assets to assist flood agencies in regional planning and coordinate management efforts. • Tailor statewide definitions of DACs to SF Bay Area and use to identify geographic areas not currently typified as DAC. • Understand the flood risk to DACs, using the outcome of the SF Bay Area definition and the flood infrastructure maps.
D. Storm Water Improvements and Flood Reduction Strategies Pilot Project in Bay Point	• Map and characterize the condition of flood infrastructure for the Bay Point DAC in Contra Costa County to identify risk of flooding to personal and public property and public safety. Engage the DAC of Shore Acres within Bay Point to identify local stormwater and flood control issues and their interrelationship with natural water bodies within and adjacent to the DAC. • Develop high resolution mapping of existing stormwater and flood control facilities within the DAC. • Define associated flood hazards and risks within the DAC including preparing for climate change in the low lying area. • Define location and nature of potential future improvement projects to correct the problems identified in the inventory • Provide a “project template” for use in other DACs.
E. Disadvantaged Communities Richmond Shoreline and City of San Pablo Flood Project	• Develop stream design guidance for North Richmond coastal creeks. • Develop a schematic design for the Richmond Parkway overpass, a priority of North Richmond and Parchester Village, to correct the hydraulic constriction which floods out safe passage across the Parkway, creates a water quality problem and impacts fish passage and reduces flood protection through backwaters and sedimentation. This project is also to address the impacts of climate change which will exacerbate flooding in this

	problem area • Develop schematic designs for Wildcat Creek restoration at 23rd Street business district to alleviate a chronic flooding and water pollution hazard while restoring ecological function for steelhead.
F. Pescadero Creek Watershed Disadvantaged Communities Integrated Flood Reduction and Habitat Enhancement Project	• Address a chronic public health and hazard issue in the center of this DAC by correcting the flooding along Butano Creek into town. This will be accomplished in a manner to protect critical coastal resources, including steelhead and coho salmon.
G. Pescadero Creek Steelhead Smolt Outmigrant Trapping	• Develop an understanding of the location of key habitat resources and productivity of salmonid in the Pescadero Creek watershed. • Inform fisheries restoration and management efforts in the watershed, based on a better understanding of the current levels of productivity for coho and steelhead. • Inform the development of the flood reduction plan referred to in above task which addresses the need to protect this habitat while reducing flood and pollution risk.
H. Stream Channel Shapes and Floodplain Restoration Guidance and Watershed Restoration in San Francisquito Creek, East Palo Alto, a Disadvantaged Community	• Develop creek restoration design guidance for bankfull and flood plain geometry at three DAC watersheds to help implement multi-objective flood damage reduction projects and reduce public hazards. • Provide science for any stream restoration project applicable to major sub-regions in the Bay based on the field work in the DACs. • Assist the Community of East Palo Alto to identify flood damage alternatives in the San Francisquito Creek area to reduce pollution hazards and property damages.
I. Steelhead and Coho: Bay Area Indicator for Restoration Success SF Estuary Steelhead Monitoring Program	• Improve stream management, projects designs, and water supply operations by increasing our information via monitoring smolt production in six Bay Area watersheds: 1) completion of implementation in three creeks that have previously been assessed, sites selected, and personnel determined and 2) initiating new trapping programs in Alameda, San Francisquito and Corte Madera Creeks. • Establish education and training in communities through the volunteer-assisted trapping projects. • Develop a website that informs the public about relative stream health and quality.

1.2 Purpose and Need

This Program addresses several critical needs in the Bay Area by addressing critical water pollution issues for disadvantaged communities while addressing the flooding that creates the pollution problem. The Program fills the data gaps on watersheds and fish populations needed to help produce multi-objective water quality flood management projects.

The primary need this Program addresses is to provide relief to disadvantaged Bay Area communities from polluted flood and stormwaters in their streets, business districts, and homes. The Program represents an integrated strategy to approaching this problem by providing technical expertise to communities with inadequate resources. This will allow these communities to be able to advance needed projects towards the construction phases and will provide an integrated approach to solving the problems, which also entails enhancing important environmental resources.

One of the primary means of locating disadvantaged communities in the San Francisco Bay Area is to look for the communities located in the lowest elevations next to the bay. The recent historic tradition beginning with World War II is that these geographic areas are where African American populations were forced to live within a segregated society. Later these communities became home to a mix of Laotian, Hispanic and other immigrant groups, who had few choices of where to locate because of the very high land and real estate values in the Bay Area. These communities have been the last to be served with basic infrastructure services such as stormwater and flood control systems. The reasons for the lack of basic functional infrastructure are a combination of disenfranchisement associated with being unincorporated areas, having communities with a low tax base, and, in the case of flood control, the bias of conventional federal cost-benefit and cost-sharing formulas against serving areas with low property values.

This Program levels the "playing field" to help these communities catch up to the standards other communities take for granted in terms of basic health and safety needs. It also recognizes that these communities are the front line in our response to expected sea level rise. The basic purposes of this Program are to provide flood hazard mapping; determine the location of DACs in these hazard areas; support community efforts to address flood reduction through restoration remedies; and integrate fish, riparian and wetland habitat restoration into the strategies. Most of the project tasks integrate local employment and training for youth into project tasks. The project locations center on disadvantaged schools in Bay Point, North Richmond Shoreline, East Palo Alto, Pescadero and the North Bay, which contain communities that have demonstrated a historic concern for the environment as well as to reducing exposure of their residents to pollutants and toxics. The areas also represent an overlap with important fisheries, endangered species, and wetland and stream resources within the context of Bay-wide resource management priorities. These priorities include restoration of wetlands and recovery of salmonid fishery populations.

Participants in the newly formed Bay Area Flood Protection Agencies Association (BAFPAA) and the Bay Area Watershed Network (BAWN) have existing working relationships with most of these communities involved in this Program through watershed partnerships that serve as good communication links for identifying priority needs. One of the purposes of this Program is to assure that the IRWMP serves both well-established water agency programs and the local agencies that struggle the most to cope with water management needs. It represents a commitment from the Bay Area IRWMP to serve a range of interests and communities.

The purposes of the technical assistance portion of this Program are to: enable the on-the-ground stream restoration projects conducted through disadvantaged schools (STRAW program of the Bay Institute); provide basic localized knowledge for designing restoration approaches to problems (fish monitoring and restoration design guidance); and develop flood maps that link information from different sources such as the National Levee Dataset (USACE) and the California State Levee dataset (DWR), with localized information about flooding and stormwater systems.

Reduce Exposure of Disadvantaged Communities to Polluted Storm and Floodwaters
The most critical water management need identified at present for most disadvantaged communities in the Bay Area is relief from the public safety and pollution hazard threats associated with the inundation of

communities by storm and flood waters. The backup of water into streets, neighborhoods, residences and businesses by a combination of inadequate storm drains, tidal backwaters, overbank creek flows and hydraulic constrictions from bridges and culverts in low lying areas near the Bay or ocean creates pollution problems unique to lower income areas. The critical water quality implications of this are that homes and businesses become contaminated with flood waters. Pollutants and toxics are carried though streets and brownfields and are frequently deposited in the structures where people live and work.

Improve Identification of DACs in the Bay Area
Environmental justice and DAC concerns are being further addressed by examining new data that may show areas that were not identified as "disadvantaged" in the previous census block data (as detailed in **Attachment 12** in this Proposal). Because these problems must be addressed in an integrated context so that endangered and protected species such as anadromous fish populations are enhanced, the solutions being devised are based on remedies employing environmental restoration. The Program provides guidance specific to the disadvantaged areas, which the communities can use to understand fish population dynamics, management options and stream restoration options.

Address Disproportionate Impact of Climate Change in DACs
This Program focuses on addressing the impacts of climate change in disadvantaged communities because they tend to be located in the lowest, least drained, more frequently flooded areas located on the rim of the Bay, where the greatest sea level rise impacts will occur. The Program seeks to fill the information and expertise gaps of DACs to help these communities qualify for future funding for priority community project needs. The needs focus on how to restore floodplains and stream channels, remove hydraulic constrictions, and correct stormwater drainage while restoring habitat. Water quality benefits are a substantial part of this integrated effort.

Improve Inventory of Flood and Stormwater Control Infrastructure
After massive flooding from both Hurricanes Katrina and Rita, the Army Corps of Engineers (ACOE) at the Federal level and the Department of Water Resources (DWR) at the State level saw a need and began efforts to inventory their flood control infrastructure. From this effort emerged two primary, but linked datasets, the National Levee Dataset (ACOE) and the California State Levee Dataset (DWR). While these datasets provide a template for regional efforts, their coarse scale and data gaps limit their use in regional planning and may not address specific DAC needs. Furthermore, there are many other types of flood protection infrastructure, other than levees, that should be integrated into a regional analysis of flood protection needs, such as outfalls and grade control structures. This Program will develop a more detailed regional dataset to allow local and regional entities around San Francisco Bay to analyze the risk and benefits of different action scenarios.

Specific purposes and needs for each project in this Program are listed in the following tables.

B. Stream Restoration with Schools and Community in Disadvantaged Communities of the North Bay

Project Purpose

- STRAW will work with students, teachers, and community volunteers on professionally-designed riparian and wetland habitat restorations on ranches and public lands in targeted disadvantaged schools in Marin, Sonoma, Napa, and Solano counties to provide water quality benefits, positively impact economic, social and environmental sustainability.
- STRAW's goals are to protect and restore the health of riparian and wetland ecosystems in Marin, Sonoma, Napa and Solano counties; to increase the knowledge of students and teachers in the STRAW network in the areas of restoration science and stewardship; and to increase and improve the environmental knowledge, skills, attitudes, and behavior of students who participate in the STRAW program. These goals will be accomplished through the implementation of an integrated education and community-based restoration program, using place-based learning methodologies and partnerships with restoration specialists. Specific outputs will include: student-centered restorations to improve habitat; an integrated program of environmental science for students on watershed activities; intensive and sustained classroom support for teachers with the goal of promoting environmental stewardship through hands-on restoration and field investigations of local watersheds and a professional development program for teachers.

Project Need

- STRAW's work focuses on protecting and restoring the aquatic ecosystems of the San Francisco Bay Area. As in any large urban region, the Bay Area's streams have experienced widespread degradation from development impacts such as polluted storm runoff, loss of riparian and wetland habitat, erosion and sedimentation problems, invasive species, and decreased biodiversity. STRAW's restoration work takes place in the urban, suburban, and rural watersheds in Marin, Sonoma, Napa, and Solano counties. Many different types of habitats found in these watersheds. STRAW students and teachers work with agency and nonprofit partners in wetlands to study their ecological function, human impacts upon them, and the potential for restoration. STRAW supports the same types of work on upstream riparian corridors.

C. Floodplain Mapping for the Bay Area with Disadvantaged Communities Focus

Project Purpose

- Provide a comprehensive inventory the Region's flood infrastructure
- Indentify flood prone DACs
- Develop a consistent regional definition of DACs
- Make the Regional flood infrastructure data available via the web for use by flood managers
- Analyze regional flood protection needs in order to mitigate risk and respond to climate change

Project Need

- The region currently lacks a standardized centralized inventory. Currently, information regarding this infrastructure is maintained by individual agencies in different forms and to different standards. This project will close this gap.
- The state and federal levee database lacks the level of detail required for local flood planning purposes.
- It is critical to understand the risk and benefits of various action scenarios to mitigate potential increases in rainfall and other climate change effects.
- Census block and tract data do not accurately capture all DACs.
- Flood protection requires planning on a watershed scale. This work will enhance regional understanding of the relationship between watershed and impacts of flooding.
- Understand the Regional distribution, ownership and maintenance of flood infrastructure.
- The many BAFPAA member agencies need a common geospatial tool to facilitate flood management on a regional scale.

D. Storm Water Improvements and Flood Reduction Strategies Pilot Project in Bay Point

Project Purpose

- Provide hydrologic and hydraulic analysis of stormwater and flood control facilities within a disadvantaged community, which would otherwise not be available to this community.
- Define potential future improvement projects.

Project Need

- Provide access to technical analysis and review of stormwater facilities not generally available to DACs due to lack of funding and/or community awareness and involvement.
- Low-lying DACs adjacent to Bay marshlands are often subject to flooding. Mapping and identification of potential improvement projects will assist local and regional agencies in prioritizing projects within DAC.

E. Disadvantaged Communities Richmond Shoreline and City of San Pablo Flood Project

Project Purpose

- Develop schematic plans and design tools for priority restoration and flood risk abatement actions in disadvantaged communities of North Richmond and San Pablo.

Project Need

- Project is necessary to implement projects that will address water quality and public safety hazards at the Richmond Parkway, North Richmond and Parchester Village locations and business district of San Pablo.

F. Pescadero Creek Watershed Disadvantaged Communities Integrated Flood Reduction and Habitat Enhancement Project

Project Purpose

- Accomplish schematic designs to correct water pollution and flood hazards associated with chronic flooding in the Town of Pescadero.

Project Need

- There is extensive interest in the Pescadero Watershed, including: a working group of public resource agencies focused on fish kills in the Pescadero Marsh, a 2004 assessment of the watershed, the development of sediment TMDLs by the Regional Water Quality Control Board, and some citizen groups that convene independently (including the Environmental Committee of the Pescadero Municipal Advisory Council, local agricultural producers convened by the Farm Bureau, and the Coastal Alliance for Species Enhancement). However, there is no watershed-wide non-regulatory group established to bring together all of the interests in the watershed dedicated to enhancing and protecting the watershed by promoting individual and community actions or undertaking collaborative projects.
- Approximately 0.5 square miles of the town is in a floodplain and regularly floods, including the main road that serves as access and egress and is the only thoroughfare for many. Residents of the town of Pescadero repeatedly identify flooding as a priority resource management and public safety concern.

G. DAC Watershed Restoration Toolbox – Pescadero Creek Watershed Outmigrant Salmonid Study

Project Purpose

- Conduct a 1-2 year outmigrant salmonid trapping study on Pescadero Creek.
- Develop information on the current population of coho and steelhead in the Pescadero Creek watershed.
- Engage a DAC in monitoring and education related to local fisheries resources.
- Inform the design of flooding reduction options

Project Need

- NMFS 2010 Recovery Plan and years of work on Pescadero Marsh all point to the importance of this watershed in recovery of coho salmon as well as recovery of steelhead trout populations south of the Golden Gate.
- Lots of emphasis regarding recovery of these species has been placed on Pescadero Watershed, based on historic information on runs, but there is very little information on current population and population trends.
- This information is of fundamental importance in guiding all watershed restoration efforts and supporting local fisheries. The information will immediately be applied to informing a flood reduction project in the town of Pescadero.

H. Stream Channel Shapes and Floodplain Restoration Guidance and Watershed Restoration in San Francisquito Creek, East Palo Alto, a Disadvantaged Community

Project Purpose

- Provide disadvantaged communities with stream channel and floodplain design guidance to address multi-objective flood damage reduction and water quality improvement needs
- Provide community participation in review and selection of project options to address flood, stormwater and resources protection in the San Francisquito Creek watershed, particularly as it affects the DAC area of East Palo Alto

Project Need

- Watershed scale geomorphic data is required to guide engineers and stream hydrologists with the information required for stream channel design that can both protect fish populations and improve water quality functions while reducing flood risks. This project provides that information in a regional context.
- Conflicts between wetland and stream protection, flood control and land uses must be resolved through the participation of the community in developing flood reduction options.

I. Steelhead and Coho: Bay Area Indicator for Restoration Success SF Estuary Steelhead Monitoring Program
Project Purpose
• Provide information to guide watershed management actions. • Increase monitored area to include some disadvantaged areas
Project Need
• Information needed to judge success of management and restoration actions. • Information is needed for multiple Bay Area anchor watersheds in order to develop multi-objective restoring solutions to water quality and flood damage reduction needs

1.3 Project List

This section describes the specific projects included in the program, the current status of each project in terms of percent completion of design, and the implementing agencies.

Project Abstract

A. Watershed Partnership Technical Assistance
The San Francisco Estuary Partnership will provide support services and technical assistance for the Program, which integrates water quality, stormwater management flood damage reduction and habitat restoration for disadvantaged communities.

B. Stream Restoration with Schools and Community in Disadvantaged Communities of the North Bay
The Bay Institute (TBI)'s Students and Teachers Restoring A Watershed (STRAW) Project will conduct habitat restoration in disadvantaged communities of the North Bay that will have integrated benefits to: restore ecosystem health, address water quality impacts from flooding in highly urbanized areas, and minimize the effects of climate change, especially severe weather events. STRAW will work with teachers and their students on professionally-designed habitat restorations. Methods include removal of invasive plants and revegetation with native plants that will also assist with flood protection for low lying and sensitive areas. The proposed restoration work will promote flood protection, improved stream form and function, fisheries and habitat enhancements, and community involvement. The project will result in 7,500 lineal feet of stream channel restored through stream corridor revegetation.

C. Floodplain Mapping for the Bay Area with Disadvantaged Communities Focus
The San Francisco Estuary Institute (SFEI), with assistance from Clean Water Action (CWA), Environmental Justice Coalition for Water (EJCW), and Bay Area Flood Protection Agencies Association (BAFPAA), will gather, compile and standardize existing flood infrastructure data into a Geographic Information System (GIS) database, with an emphasis on identifying flood prone areas in low-lying disadvantaged communities that are particularly vulnerable to the impacts of flooding on water quality and to impacts of future sea level rise.

D. Stormwater Improvements and Flood Reduction Strategies Pilot Project in Bay Point

A detailed assessment of flood and stormwater infrastructure will be completed in the Bay Point area of unincorporated Contra Costa County to develop methodologies to be implemented to identify and define infrastructure deficiencies in DACs. The reduction of inundation areas is a critical component of reducing the community's exposure to pollution. This assessment will include a number of tasks integrating community-based watershed organizations, educational institutions, public agencies, and other technical experts, leading to high resolution mapping of existing stormwater and flood control facilities, associated flood hazards and risks, and the location and nature of potential future improvement projects. The work plan stresses a hands-on comprehensive assessment approach that carefully considers the connectivity between the physical infrastructure and local creeks and wetlands, to meet the overarching goal of improving flood protection while enhancing natural aquatic environments. This work will be the first step in implementing infrastructure projects in DACs in the Bay area. The final report will include a description of the causes of flooding and potential implementation remedies that Bay Point may pursue. This project will serve to identify flood control infrastructure needs for over 1,200 acres.

E. Disadvantaged Communities Richmond Shoreline and City of San Pablo Flood Project

This starts the project implementation process for two priority projects identified in the Wildcat Creek Restoration Action Plan (2010) to reduce water quality and associated flood hazards in the business district of the City of San Pablo and at the Richmond Parkway crossing of Wildcat Creek in North Richmond. Stream restoration design guidance and site design and engineering work will be used by the City of San Pablo to develop a restoration plan for Wildcat Creek at 23rd St. The City Council of San Pablo has requested assistance to advance this project to the next step, which is to finalize hydraulic and sediment modeling, complete topographic surveys and develop the final schematics to qualify the project for construction grants. Approximately 1000 feet of Wildcat Creek is targeted for restoration. The Richmond parkway concept design will correct a chronic sedimentation and flood hazard which prevents safe pedestrian crossing of the Parkway.

F. Pescadero Creek Watershed Disadvantaged Communities Integrated Flood Reduction and Habitat Enhancement Project

This project will develop design guidance for needed restoration projects and flood management alternatives for implementation in the Pescadero Creek Watershed of coastal San Mateo County. Residents of the town of Pescadero repeatedly identify flooding as a priority resource management concern. The San Mateo Resource Conservation District (RCD) will contract with a hydraulic engineer and hydrologist to do hydraulic modeling and present alternative solutions to help the community select a preferred alternative for environmentally sensitive flood management. The downtown flood damage reduction project will restore approximately 2000 feet of stream channel.

G. Pescadero Creek Steelhead Smolt Outmigrant Trapping

This project provides critical fish population information needs for integration into a flood damage reduction project (described above), fish passage barrier removals, and habitat enhancement projects in the Pescadero watershed, which has been identified as a key watershed for salmonid recovery by State and Federal resource agencies. The project consists of monitoring outmigrating juvenile fish at one sampling site located as far downstream within the watershed as practical. Depending on channel characteristics and hydrology, a rotary screw trap or fyke net trap will be installed and maintained during the outmigration season for juvenile steelhead and coho salmon (*aka* smolts). Smolt trapping is an effective means of measuring the aggregate watershed condition upstream of the trap, and the technique is considered a valuable tool for understanding salmonid populations. A team comprised of qualified biologists and volunteers will coordinate trap installation and monitoring. The trap will be checked daily for captured fish in March 2012 through May 2013. Data on the physical condition (e.g., size, weight, age) of out migrating salmonids smolts will be collected. In addition, scale and DNA samples will be collected for future reference and for submittal to the NOAA Fisheries for inclusion in the agency's genetic database. A small sub-sample of captured salmonids will be marked and released

at a suitable distance upstream of the trap to provide statistical information on trapping efficiency through observed recapture rates. All methods will be consistent with current fisheries practices and applicable permit requirements.

H. Stream channel shapes and floodplain Restoration Guidance and Watershed Restoration in San Francisquito Creek, East Palo Alto, a Disadvantaged Community

This project will develop stream and floodplain restoration design guidance, which enables a restoration strategy for managing creek environments while reducing flood damages to the surrounding community. The poorest communities are often in locations where historic real estate practices and economics have essentially segregated them into flood hazard areas. This project produces design parameters for creeks in disadvantaged areas that experience flooding and the associated contamination of interiors of businesses and homes with polluted sediment and mud. The creeks that will be addressed by this project are Pescadero, San Francisquito, Wildcat, and Rheem Creeks. The disadvantaged areas that will be served are the North Richmond shoreline, East Palo Alto and rural coastal "hamlet" of Pescadero.

Each of these creek design projects needs information about fluvial geomorphology and reference sites, which can inform how to restore natural features to the stream channel and create a more "stable" natural environment and habitat while meeting flood protection goals. This project fills that data gap by developing creek "design curves" which requires field work, data assimilation and evaluation of the correlations of the stable stream morphology with drainage areas. The advantage of this project is that the design curves not only serve these specific project areas but they will be published in San Francisco Bay Water Resources Control Board Steam Protection Circulars and can guide restoration project design in the future for other projects in the coastal South Bay areas and north East Bay area. These design curves will be important supplements to curves being prepared for the North Bay counties of Marin and Sonoma, with the goal of achieving Bay Area coverage.

The San Francisquito Watershed project integrates new stream restoration design guidance and fish population information and adds it to flood and stormwater data to help the East Palo community, located in the floodplain of the creek, to identify remedies to water pollution and inundation in this low lying area by the Bay. The project will identify alternative remedies by combining community-based and professional assessments of options, which include removing and/or relocating levees, and restoring floodplains, wetlands and instream habitat for steelhead.

I. Steelhead and Coho: Bay Area Indicator for Restoration Success -- SF Estuary Steelhead Monitoring Program

This project builds on a first-ever regional steelhead trout monitoring program for watersheds tributary to the San Francisco Estuary, by implementing smolt monitoring in three creeks where preparation work has been completed and by adding three additional watersheds for this assessment, including those in disadvantaged areas. Watershed management and stream restoration plans need to integrate this information in order to advance. The project will implement an existing steelhead trapping program in three Bay Area watersheds (Coyote Creek, Santa Clara Co; Sonoma Creek, Sonoma Co; Napa River, Napa Co) and allow the program's expansion into three remaining "anchor watersheds" in the basin. Anchor watersheds have been defined by a study from the Center for Ecosystem Management and Restoration (CEMAR) as having the majority of the region's prime aquatic habitat for steelhead and other fisheries. The concept is being applied in planning and prioritizing land conservation and restoration activities throughout the region, and the monitoring program proposed here is part of an overall program to improve watersheds. Outputs will consist of trapping results (reported via the Web) from the six locations in important steelhead streams, including information on the progress for the new trapping programs in three additional Bay Area anchor watersheds (Alameda Creek, Alameda Co; San Francisquito Creek, San Mateo Co; Corte Madera Creek, Marin Co), and an information sharing program housed at the project sponsor's website.

Data Management and Monitoring Deliverables included in the Work Plan

- Restoration and revegetation projects will all be entered into the State of California Natural Resources Projects Inventory (NRPI) at the U.C. Davis Center for the Environment, and the California Environmental Information Clearing House (CEIVC) Geofinder, the California Atlas and the California Watershed Portal and Google maps.

- The stream restoration design guidance (stream restoration design curves) data will be sent to the State of California Water Resources Archives Center at U.C. Riverside and UC Berkeley Geology Department, where the existing available data is sent for easy access to practitioners who use this resource.

- The fish population data will be made available to the public and all government agencies through the regional monitoring program website of the center for Ecosystem Management and Restoration (CEMAR).

- The flood mapping data will be added to the San Francisco Estuary Institute web-based inventories on Bay Area wetlands (Wetland Tracker) and other information collected through the federal and state permit programs.
- Quarterly progress reports and Final Report on project close-out.

Consistent with Data Management Standards in the Bay Area IRWM Plan, the data collected from this Program will be made available on the project website as well as the Bay Area IRWMP website and in the quarterly and final reports that will be disseminated to the Functional Areas and other appropriate agencies.

Current Status of Projects

Table 2 lists the specific project elements in the program, including the current status of each project in terms of percent completion of design, and the implementation entities.

Table 2: Current Status of Projects

Project	Current Status	Implementation Entities
A. Watershed Partnership Technical Assistance	The projects included in this Program are new, stand alone projects that will be implemented after the execution of the grant agreement, although several build upon past work that has led to the current project readiness to proceed.	San Francisco Estuary Partnership (SFEP)
B. Stream Restoration with Schools and Community in Disadvantaged Communities of the North Bay		The Bay Institute (TBI)
C. Floodplain Mapping for the Bay Area with Disadvantaged Communities Focus		San Francisco Estuary Institute (SFEI)
D. Storm Water Improvements and Flood Reduction Strategies Pilot Project in Bay Point		Balance Hydrologics
E. Disadvantaged Communities Richmond Shoreline and City of San Pablo Flood Project		Urban Tilth And Restoration Design Group
F. Pescadero Creek Watershed Disadvantaged Communities Integrated Flood Reduction and Habitat Enhancement Project		San Mateo Resource Conservation District (San Mateo RCD)
G. Pescadero Creek Steelhead Smolt Outmigrant Trapping		Center for Ecosystem Management and Restoration (CEMAR)
H. Stream channel shapes and floodplain Restoration Guidance and Watershed Restoration in San Francisquito Creek, East Palo Alto, a Disadvantaged Community		Far West Engineering
I. Steelhead and Coho: Bay Area Indicator for Restoration Success - SF Estuary Steelhead Monitoring Program		Center for Ecosystem Management and Restoration (CEMAR)

1.4 Integrated Elements of Projects

Each project develops an integrated approach to improving water quality, stormwater and flood management, riparian restoration, and anadromous fish recovery on a sub-regional level and for the Bay Region as a whole. On a sub-regional scale, projects G, H and I (which provide stream restoration design guidance and fish population information) are developed to assist the restoration projects listed here by providing the technical environmental information which must inform their design. The information and experience from each project will also benefit the Bay as a whole in developing integrated approaches to water quality, flood damage reduction and habitat enhancement. The stream design guidance project (H) will assist stream restoration design in similar watersheds in the geographic regions where they are located. The restoration guidance information will also fill in data gaps needed to cover the Bay region, requested by the San Francisco Bay Regional Water Quality Control Board, which will distribute the information Bay-wide through its technical Stream Protection Circular and permit application guidance documents. The pilot project to relieve stormwater drainage problems in Bay Point can inform how to integrate community data and involvement in identifying problems, causes and directing priority efforts to get the most relief for the costs. This pilot project will help inform us on how to approach other DAC communities that we hope to locate for future help as identified in Project C (Floodplain Mapping for the Bay Area with Disadvantaged Communities Focus). Project C will help us locate disadvantaged communities in flood hazard areas caused from overbank flows, Bay elevation rise from climate change, and stormwater problems. The steelhead fish population data acquired from projects G and I will fill gaps in our Bay Area-wide knowledge that will be central to a coordinated response for species recovery and resilience in the face of climate change. The purpose of Project A, Watershed Partnership Technical Assistance, is to assure that the experience and information gained by the projects has a Bay Area-wide application by engaging the Bay Area Watershed Network (BAWN) in participating, reviewing and disseminating the information among a wide community and promoting an integrated approach with a combination of expertise and stakeholders.

Watershed Partnership Technical Assistance

The purpose of this task in our project is to assure integration of the best professional advice through the use of the BAWN working groups, which will perform as a Bay Area-wide oversight organization for this project, as assisted by the San Francisco Estuary Partnership (SFEP). The SFEP will also provide for integration of technical help and science through a project coordinator. The BAWN working groups include consultants, NGOs and personnel from all levels of government, including local planners and public works departments.

Stream Restoration with Schools and Community in Disadvantaged Communities of the North Bay

The riparian restoration projects will provide cumulative benefits to habitat connectivity by restoring riparian-wetland interfaces next to San Pablo Bay. The restoration is part of a coordinated effort to link regional restoration efforts. For example, the Sears Point Wetland and Watershed Restoration Project is directly adjacent to the Tolay Creek Tidal Marsh Restoration Project in the east and the Sonoma Baylands Restoration Project in the west. The completion of Sears Point will fulfill a major objective of the 1999 Habitat Goals Report, to protect and restore an uninterrupted swath of tidal marsh from the Petaluma River to Tolay Creek.

Floodplain Mapping for the Bay Area with Disadvantaged Communities Focus

- Outputs from this project will be integrated into and add value to the State and Federal flood infrastructure inventories: California State Levee Dataset, National Levee Dataset, National Hydrographic Dataset.
- Locally-tailored criteria and definitions for identifying DACs will enhance the U.S. Census blocks for Disadvantaged Community locations methodology.

- Integration of the flood infrastructure mapping with the Bay Area Aquatic Resources Inventory (Prop 50 project) will provide a comprehensive look at existing assets and resources available to combat climate change.
- This project supports multiple objectives of the San Francisco Estuary Partnership's Comprehensive Conservation and Management Plan (CCMP) including aquatic resource management, dredging and waterway modification.
- It also informs the San Francisco Bay Conservation and Development Commission (BCDC)'s Regional Sedimentation Management Plan, Proposed Bay Plan Amendment 1-08 Concerning Climate Change, and Head of Tide initiatives through flood facility information including location, ownership, maintenance routines, condition and age.
- This project also supports the Bay Area Flood Protection Agencies Association (BAFPAA)'s mission of integrated flood protection and watershed management and operation and maintenance collaborations that result in cost savings.
- Statewide Flood Needs Assessment
- Green Infrastructure and other multi-objective planning efforts

Storm Water Improvements and Flood Reduction Strategies Pilot Project in Bay Point
This project will integrate information on the location of DACs through the help of the non-profit organizations Clean Water Action and Environmental Justice Water Coalition

- Statewide Flood Needs Assessment
- State and Federal flood infrastructure inventories: California State Levee dataset, California Department of Water Resources FloodSAFE Program,National Levee Dataset, National Hydrologic Dataset
- Watershed restoration efforts

Disadvantaged Communities Richmond Shoreline and City of San Pablo Flood Project
The projects in this proposal are identified in an integrated watershed management plan (2010) formally adopted by the Wildcat- San Pablo Creeks Watershed Council, which is composed of federal, state and local agencies, citizen organizations, schools, park districts, industries, small businesses, and property owners. This Watershed Council received a Governor's Environmental and Economic leadership award in 2003 for its integrated approach to water quality, flood damage reduction, habitat improvement, jobs creation, recreation, education and economic improvement. These projects integrate water quality, flood damage reduction, steelhead habitat improvement, trail development, and business district restoration. Collaboration for these projects will be focused among various stakeholders and agencies, including Urban Tilth, City of San Pablo, North Richmond Municipal Advisory Council, Parchester Village, East Bay Regional Parks District and Contra Costa County.

Pescadero Creek Watershed Disadvantaged Communities Integrated Flood Reduction and Habitat Enhancement Project
The purpose of this project is to advance the ability of local organizations to work cooperatively by considering and adopting integrated plans to address pollution and flood hazards, while protecting and recovering threatened and endangered species populations. The project will integrate existing knowledge and studies on the Pescadero Marsh and some new research from U.C. Berkeley, which is helping the Water Board address the adoption of water quality TMDLs. Collaboration will occur among the San Mateo Resource Conservation District, the Farm Bureau, the Pescadero Municipal Advisory Council, and state and federal agencies.

Pescadero Creek Steelhead Smolt Outmigrant Trapping
This project is linked to the other CEMAR outmigrant trapping programs and is also linked (directly) to the development of a watershed council, flood risk assessment, and regional curve work proposed in the grant for the Pescadero Creek Watershed.

Stream Channel Shapes, Floodplain Restoration Guidance and Watershed Restoration project is linked to all the projects in this proposal. This is a priority watershed assessment need identified by the Bay Area Watershed Network to inform the modification and restoration of stream and floodplains throughout the Bay Region. The stream design guidance provides technical stream restoration design assistance for projects being planned for the North Richmond Shoreline, Pescadero, and San Francisquito Creek Watersheds projects contained in this proposal. The information is also applicable to other watersheds in these sub-regions of the Bay. The information will fill data gaps in the San Francisco Bay Water Board's guidance to permit applicants, which involves stream modification projects. The two key documents that will benefit are the Water Board's *Rapid Permit Assessment* system for proposed stream projects and *Primer on Stream and River Protection for the Regulator and Program Manager*. The guidance provides critical primary information used at the beginning of a steam restoration design process to estimate channel dimensions that will not excessively erode or deposit and will encourage dynamic equilibrium that can support recovery of key aquatic species.

The San Francisquito Creek alternatives project will use two existing watershed organizations, the San Francisquito Watershed Council and the San Francisquito Creek Joint Powers Authority to build upon an integrated Vision Plan completed in 1999. The vision plan calls for: protecting and restoring the native plant and wildlife communities; reducing pollution of the waters of the creek; managing erosion and floods; implementing local ordinances and land use plans as part of the solution package; addressing social issues including the homeless issue; discouraging illegal uses of the creek; and fostering public education and involvement to help solve management issues and increase watershed stewardship.

Steelhead and Coho: Bay Area Indicator for Restoration Success, San Francisco Estuary Steelhead Monitoring Program

A priority of the BAWN Watershed Assessment, Monitoring and Restoration Tools Working group has been to address the critical condition of the populations of salmonids in the San Francisco Bay Region. The working group identified the need to integrate an understanding of where the critical, sustainable fish populations are located into this project, because our projects and actions must ultimately be evaluated on their ability to sustain or improve these fish populations. Therefore this task is linked to all the tasks in this proposal. The project links staffs from counties, RCDs, NGOs, volunteers, and watershed councils to collaborate on the effort.

1.5 Regional Map

The following map presents the location of the disadvantaged communities addressed in this Program.

Figure 1: Location of DACs Addressed in the Program

1.6 Completed Work

By June 1, 2011, the following work will have been completed on the projects included herein:

A. Watershed Partnership Technical Assistance
Dissemination of technical assistance is currently being partially addressed by the Bay Area Watershed Network (BAWN). The project administration for BAWN is currently shared by part time hours of two Water Board employees and contributions from volunteer working group chairs from consulting firms, local agencies and non-profits. At this time, five working groups are set up. Existing work, which informed the preparation of this proposal, includes a consensus-reached priority list of scientific needs and restoration tools to improve watersheds.

B. Stream Restoration With Schools and Communities
The projects proposed are completely new projects, but numerous past projects of the Bay Institute's STRAW program inform the processes to use to engage the community in effective measurable habitat restoration projects.

C. Floodplain Mapping
The San Francisco Estuary Institute (SFEI) has laid the groundwork for this flood mapping project by developing map stewardship protocols and methods for transferring data to maps in order to develop a coordinated map database for the Bay Area Aquatic Resources Inventory (BAARI). SFEI has developed an online catalogue to provide public access to their collection of spatial data, which are searchable by keyword and geographic location. The SFEI also has coordinated the collection of information about streams, rivers and other wetlands to support inventory and regulatory programs. The floodplain mapping will be a complementary project to these current undertakings.

D. Stormwater and flood Management Pilot Project in Bay Point
Contra Costa County has mapped portions of the Bay Point area, and this data is stored in several topographic data bases such as the Contra Costa Ortho Imagery project. Therefore, the county data will start this project with some baseline information in which locally derived information will fill in the important gaps needed to get to a project identification stage.

E. Disadvantaged Communities Richmond Shoreline and City of San Pablo Flood Project

The City of San Pablo has developed a community land use and redevelopment plan for the 23rd Street project area and now needs the specific design parameters to be worked out to move the project towards construction drawings and a construction budget. The East Bay Regional Park District (EBRPD) completed a report in 2008 identifying the stream management and public safety and access issues at the Richmond Parkway and identified project alternatives. The EBRPD, watershed council and community members have selected the alternative project to address the issues but need to advance to the next phase of creating the conceptual designs and final funding strategy.

F. Pescadero Creek Watershed DAC Integrated Flood Protection
Back ground reports have been developed for the lower Pescadero Creek and Marsh by agencies and universities, which are listed in the next section.

G. Pescadero Creek Steelhead Smolt Out Migrant Trapping
Project administration must be coordinated with California Department of Fish and Game and NOAA Fisheries because the project entails trapping threatened and endangered species. The consultants will be soliciting agency technical support for this project, which includes input on methodology and permit

acquisition. The following permits will be sought for the project prior to the grant award date, as listed below:

Permit	Approval Date	Status	Purpose of Permit
ESA Section 10(a)	2011	In progress	Authorizes capturing and handling of federal listed species (i.e., coho salmon and steelhead)
DFG Memorandum of Understanding (MOU) under Fish & Game Code Section 2081(a)	2011	In progress	Authorizes capturing and handling of State listed species (i.e., coho salmon)

H. Stream Channel Shapes and Floodplain Restoration Guidance and Watershed Restoration in San Francisquito Creek

The development of Bay Area-wide guidance for stream channel and floodplain restoration was started in 2009 with a grant from the Environmental Protection Agency and is covering North Bay counties of Marin and Sonoma. The U.S. Forest Service assisted this effort by providing a van, field equipment and staff for summer field work in 2009. Work is continuing on the North Bay counties, and the timing is good for expansion to other regions of the Bay in 2011.

The efforts to involve local agencies and community members in resolving the complex management issues of lower San Francisquito Creek have been assisted through the San Francisquito Creek Joint Powers Authority, which has initiated consultant studies on the watershed conditions that will influence future project options. The San Francisco Foundation supported the Committee for Green Foothills to work in disadvantaged neighborhoods, sponsor a youth-based watershed information and awareness project, and link 17 different ongoing projects that involve wetland restoration, public health issues, water quality and supply, transportation, flood control and establishing wildlife corridors and refuges. A result of the San Francisco Foundation-supported project in 2008-9 was a strong public linkage between public health and the environment.

I. Steelhead and Coho: Bay Area Indicator for Restoration Success, S.F Estuary Monitoring Program
The proposed addition of three more anchor watersheds for assessing steelhead population numbers and locations is currently supplemented by the efforts of the Santa Clara Valley Water District, North Bay Watershed Association and the Napa Resources Conservation District to assess the anchor watersheds of Coyote Creek, Sonoma Creek and the Napa River.

Plans and Specifications

There are no existing plans and specifications associated with this Program because the projects are either in planning/feasibility assessment phases or do not involve design services.

1.7 Existing Data and Studies

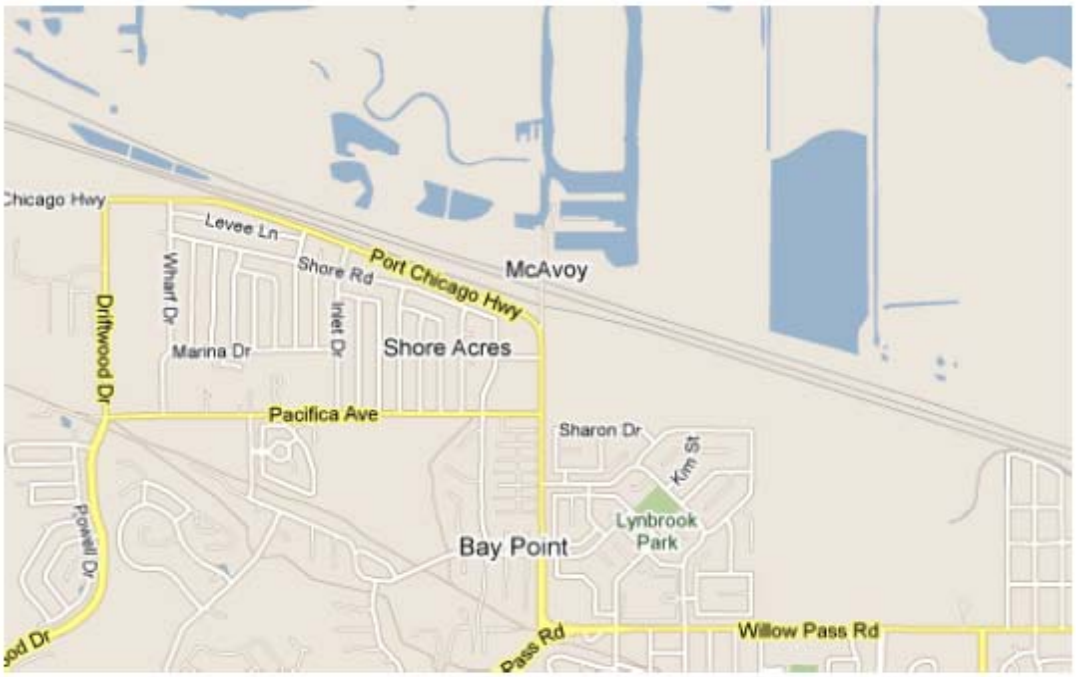
Table 3 lists the studies that have been performed that support the projects' site location, feasibility and technical methods.

Table 3: Existing Data and Studies Supporting the Project

Data/Study	Description	Date
Wildcat Creek Restoration Action Plan	Prepared as a collaborative effort of the Wildcat-san Pablo creeks watershed Council	Formally adopted 2010
Wildcat Creek Trail feasibility Conceptual Engineering and Biological Assessment Study	Prepared by East Bay Regional Park District to identify and eliminate project alternatives to correct public health and safety issues at the Richmond Parkway	2008
San Francisco Bay scenarios for Sea level Rise Index Map and 'Living With a Rising Bay : Vulnerability and Adaptation in SF Bay and on its Shoreline"	Mapping and reporting started by the S.F. Bay Conservation and Development Commission to begin the process of understanding climate change on the bay shoreline	2009-2010
U.S. Army Corps of Engineers levee data base and Statewide levee data base	Will act as starting points for the flood mapping project	On-going updates
Hydrology Issues Regarding Management of Pescadero Marsh	Prepared by Swanson hydrology and Geomorphology to understand conditions and possible causes of problems on Butano Creek in downtown location	2001
"Considerations for Restoration of the Pescadero Marsh"	This is based on a proceedings of a public forum and funded by the California Coastal Conservancy and U.S. fish and Wildlife service	Dec 2010
"Pescadero Marsh Natural Preserve"	Jerry Smith and D.K. Reis prepared for California Parks and Recreation Dept.	1997
Pescadero-Butano Watershed Assessment	Environmental Science Assoc.; focuses on roads and erosion	2004
"A Primer on Stream and River Protection for the Regulator and Program Manager"	Published by SF Bay water Board contains two completed regional stream design curves and will update the publication based on info provided by this project	2003
The San Francisquito Watershed Council Vision Document	Prepared by the San Francisquito Creek watershed council	2005
San Francisquito Creek General Investigation Study	Congressionally authorized feasibility study in preparation by U.S. Army Corps of Engineers and San Francisquito Creek Joint Powers Authority	In progress
Historical Distribution and Current Status of Steelhead (*Oncorhynchus mykiss*) in Streams of the San Francisco Estuary, California	Prepared by Center for Ecosystem Management and Restoration (CEMAR) to identify the most promising watersheds for steelhead restoration in the Bay Area	2005

1.8 Project Site Maps

Figure 2: Project D – Storm Water Improvements and Flood Reduction Strategies Pilot Project in Bay Point



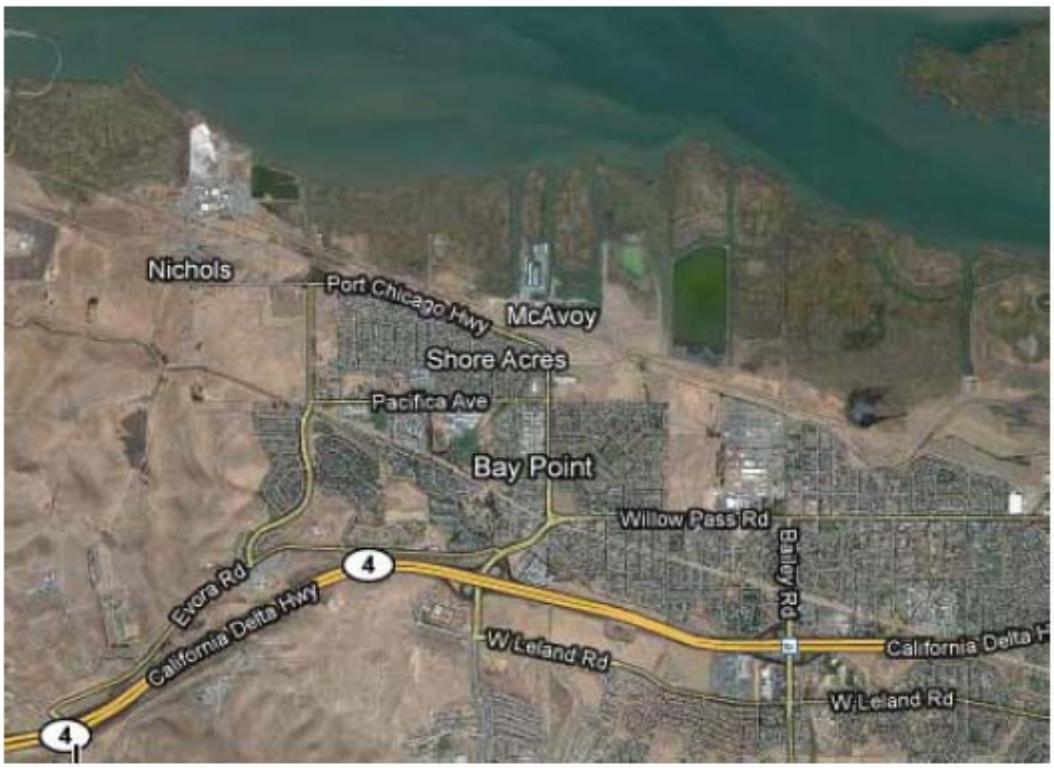
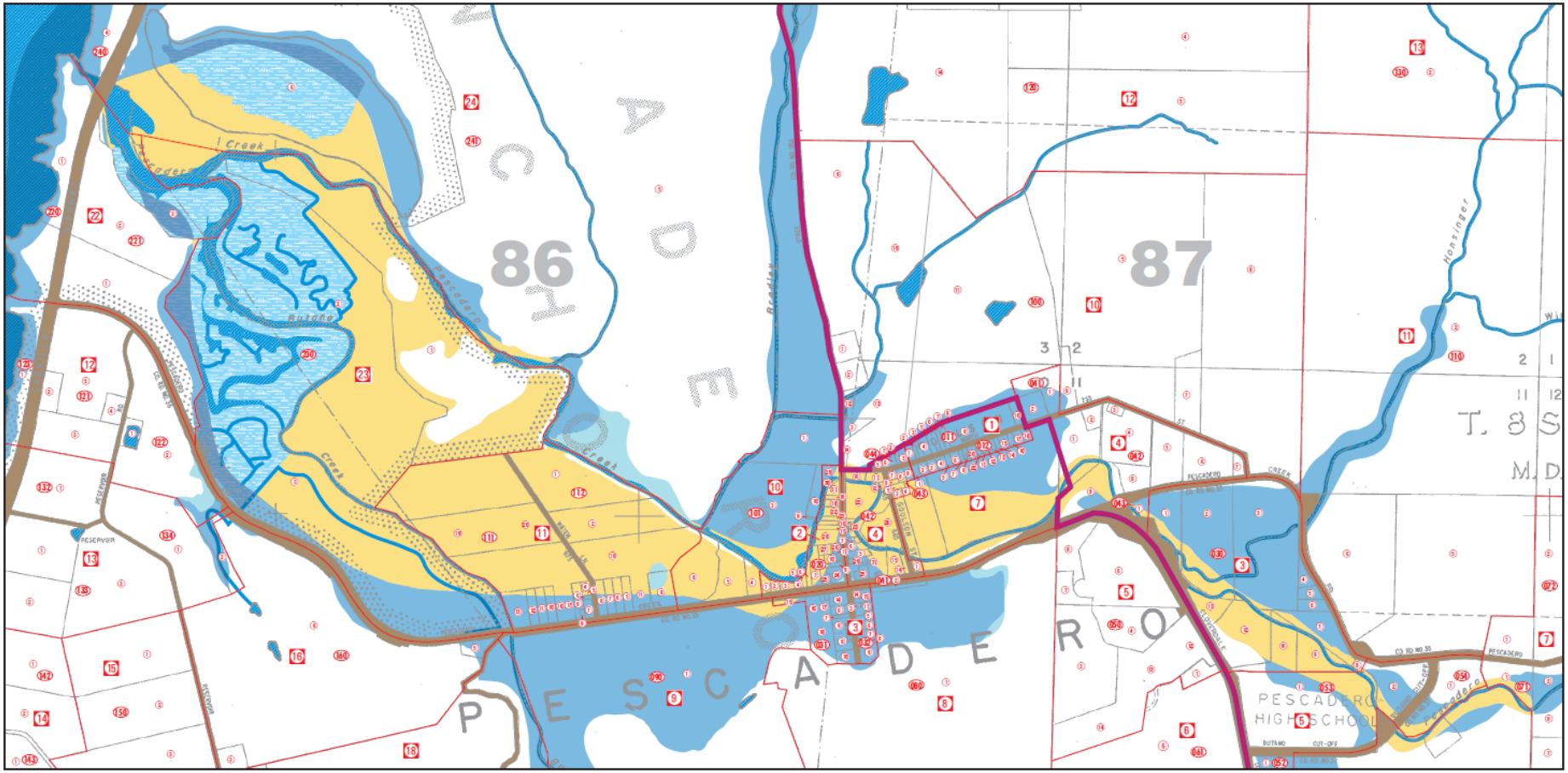


Figure 3: Project E – Disadvantaged Communities Richmond Shoreline and City of San Pablo Flood Project

Figure 4: Projects F and G – Pescadero Creek Watershed Map



Pescadero Floodway Map

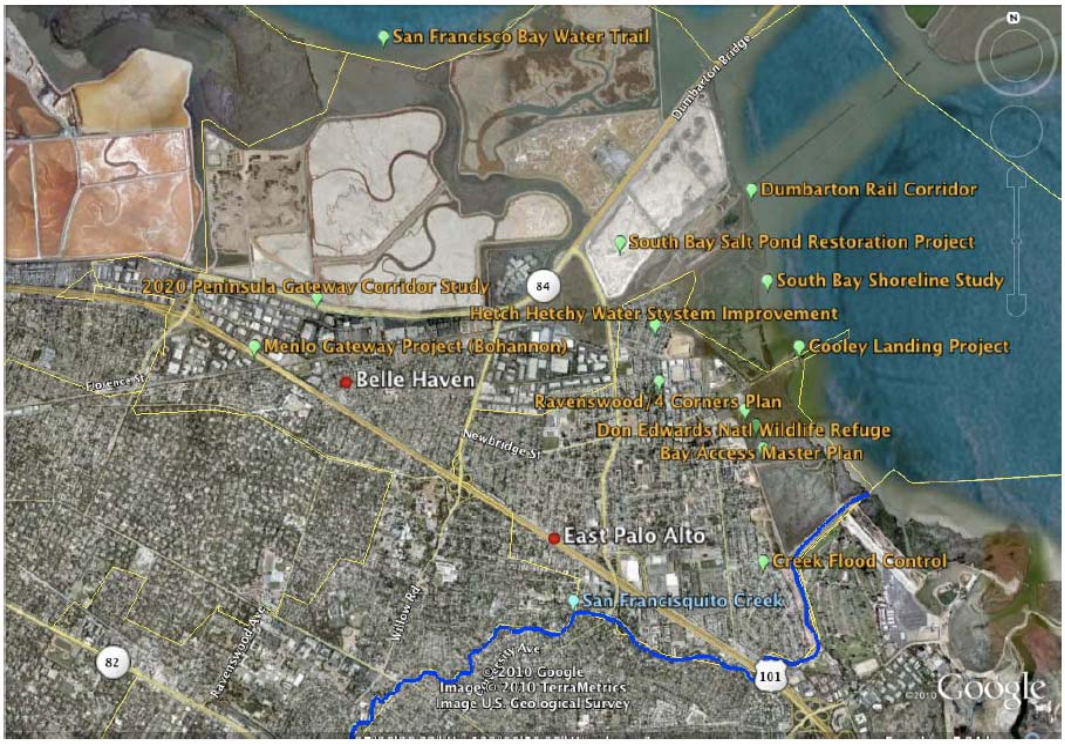
Disclaimer: The digital flood hazard data used on this map was derived from scanned and composited FEMA Floodway maps. The base cartographic map information was derived from a combination of Assessor and Public Works maps. For this reason and several others, including the scale or resolution that the information is displayed at, these maps should be considered an advisory tool for general hazard awareness, education, and flood plain management. This map is **not a legal document** to be used when making a single site flood hazard determination. That determination will have to be made by direct use of the FEMA FIRM or Floodway maps. (This is a non-archival inkjet print and is subject to fading when exposed to direct sunlight. Please store or display accordingly for maximum longevity.)

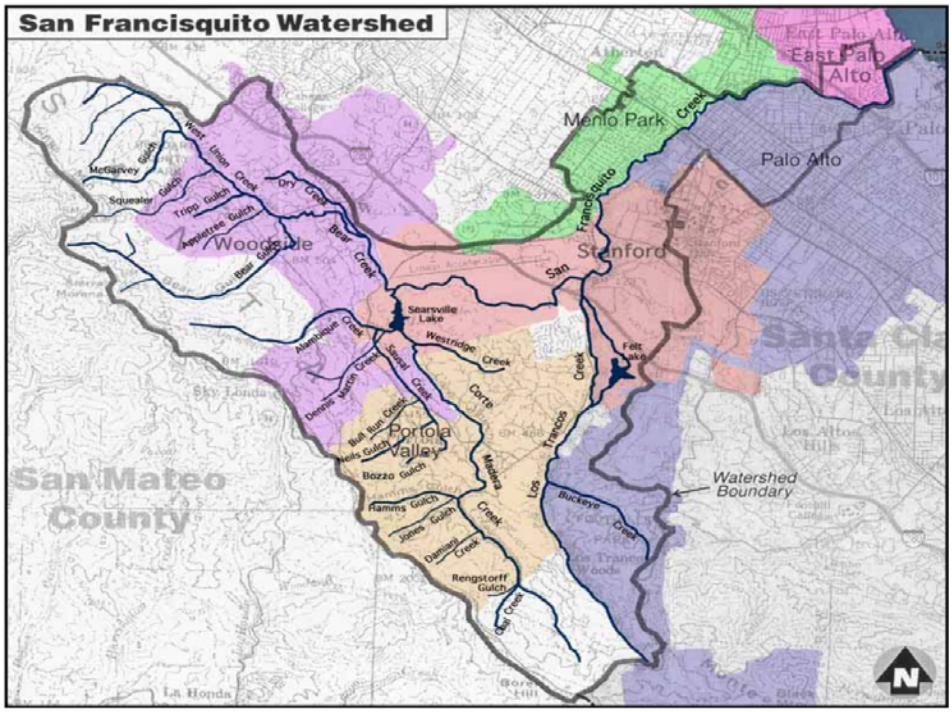
- Flood plain
- Floodway
- 500-yr Flood
- Lake
- Marshland
- Creeks; perenial
- Major Roads
- 87 Assessors book number
- Assessors book boundary
- Assessors page boundary
- 6 Assessors page number
- 081 Assessors block number
- 6 Assessors parcel number
- N

SOURCES: SMC General Plan Map, 1988; FEMA Floodway Map, July 1984 and Geological Survey USGS Map, 1978.
For visual reference only.

pescadero floodway map.cdr rp 11/21/00 disc. rev 2/19/03 rp

Figure 5: Project H – Stream Channel Shapes and Floodplain Restoration Guidance and Watershed Restoration in San Francisquito Creek, East Palo Alto, a Disadvantaged Community





1.9 Project Timing and Phasing

The projects included in this Program are stand alone projects. In several cases, projects build on previous work that has provided the background and methodology to bring the proposed projects to the current stage of implementation, but all projects are discrete and will be completed within the grant timeframe.

Integrated Water Quality Improvement, Flood Management and Ecosystem Restoration in Bay Area Disadvantaged Communities.	
Is the project part of a multi-phased project complex?	No. This Program includes independent, stand alone projects that can be fully functional without implementation of all projects in the Program and subsequent projects.
Demonstration that project can operate on a stand alone basis (i.e., can be fully functional without the implementation of the subsequent projects)	Please see explanation above.
Is requested funding for a component of a larger project?	No.
If so, describe all of the components of the larger project complex and identify project elements that the IRWM grant is supposed to fund.	Not applicable.
Linkages to other projects that must be completed first or that are essential to obtain the full benefits of the project	Not applicable.

2 Tasks

This section includes a detailed discussion of the various tasks needed to implement each project and collectively this Program. In accordance with the PSP, this section specifically addresses the following:

PSP Requirements

- ✓ Tasks are detailed and complete in order to demonstrate that projects can be implemented
- ✓ Work Item submittals are clearly indicated for each of the tasks
- ✓ A list of project permits and their current status, is provided for each of the projects
- ✓ The status of environmental compliance activities is discussed
- ✓ If applicable, plans and specifications have been submitted to demonstrate consistency with the design tasks noted in the Work Plan
- ✓ For each of the projects, scientific and technical information has been submitted to demonstrate feasibility
- ✓ For each of the projects, there is a discussion of the data management and monitoring deliverables
- ✓ For each of the projects, there is a site map showing the geographical location and site boundaries
- ✓ In addition, each project write-up below includes a discussion of the required items listed on page 31of the PSP:
  - o Description of work to be performed and current status of each task
  - o Procedures by which the applicant will coordinate with its partner agencies
  - o Discussion of standards used in implementation
  - o Development of performance measures and monitoring plans
  - o Discussion of acquisition of land or rights-of-way status
  - o Discussion of merits of materials and computational methods

A. Watershed Partnership Technical Assistance

Project Summary

The San Francisco Estuary Partnership (SFEP) will be providing the administration, oversight and participation of the Bay Area Watershed Network in the implementation and dissemination of results from the eight described disadvantaged community (DAC) projects that follow. The SFEP will also provide technical assistance to the DACs and increase their involvement in the Bay Area IRWMP process.

Work Tasks

Task 1: Administration

San Francisco Estuary Partnership will be the administrator for this Project and will be responsible for the following administrative tasks:

- Set up financial and project reporting systems
- Prepare monthly billing and invoicing project partners
- Prepare monthly billing and invoicing to submit to BACWA, the Grant Administrator.
- Compile quarterly progress reports, invoices for submittal to BACWA.
- Compile inputs from project proponents and prepare final report for submittal to BACWA.

Deliverable(s):

- Project Invoices and backup documentation
- Status on payment of partners and documentation of project completion and budget status

Subtask 1.1: Coordination and Contracts with Participating Agencies

San Francisco Estuary Partnership (SFEP) will undertake coordination and contracting with other participating entities. This subtask involves developing a standardized Interagency Agreement for execution by each participating entities in order to formalize agency participation in the Program and facilitate matching funds. SFEP will contract with the following entities for this project

- Bay Area Clean Water Agencies (BACWA)
- San Francisco Estuary Institute (SFEI)
- The Bay Institute (TBI)
- Balance Hydrologics
- Urban Tilth and Restoration Design Group
- San Mateo County Resource Conservation District (RCD)
- Center for Ecosystem Management and Restoration (CEMAR)
- Far West Engineering
- Bay Area Watershed Network(BAWN)
- Bay Area Flood Protection Agencies Association (BAFPAA)

Deliverable(s):

- Master Contract with BACWA
- Interagency Agreements and Agreements with Contractors

Task 2: Labor Compliance Program
Not applicable. This project is not a public works construction project and does not involve any construction work.

Task 3: Reporting
The compilation of quarterly reports, invoices and the final report is included under Task 1: Project Administration. Individual projects included in this Program will be responsible for preparing quarterly reports, invoices and the final report.

Land Purchase Easement
Not Applicable. This project does not require land purchases or easements.

Task 4: Assessment and Evaluation
Not applicable. This project does not involve preparation of assessment and evaluation studies.

Task 5: Final Design
Not applicable. This project does not require design services.

Task 6: Environmental Documentation
Not Applicable. The project is not considered a project under CEQA [CEQA Guideline 15378], because it does not have a potential for resulting in either a direct physical change in the environment, or a reasonably foreseeable physical change in the environment.

Task 7: Permitting
Not applicable. The project does not require any permits.

Task 8: Construction Contracting
Not applicable. This project will not involve any construction.

Task 9: Implementation
This project consists of the following implementation tasks:

Subtask 9.1: Assist the Bay Area Watershed Network (BAWN) and its Working Groups to Participate in the IRWMP
SFEP will assist BAWN and its working groups which were established to involve the broader watershed community of the Bay Area to participate in the IRWMP, over a two-year period. Employ the working groups to assure Bay Area wide over sight and direction on the project tasks. Motivate continued participation in the integrated water management effort and assure that adaptive management strategies and lessons learned are recorded and shared across the community to increase the value of the tasks as pilots. The working groups which will be supported include: the Watershed Assessment, Monitoring and Restoration Tools group which helped identify the priorities contained in the *Integrated Water Quality Improvement, Flood Management and Ecosystem Restoration in Bay Area Disadvantaged Communities Program*; the Watershed Education and Public Outreach working group which is linking schools, NGOs

and conservation corps community to provide hands on training and community building around advancing water quality and habitat projects; and the Policy group which has focused on issues such as sustainable funding and addressing the proposed Army Corps standards on vegetation levees. This group will be used to advance plans for how to address the identification and assistance of disadvantaged communities in the Bay Area.

Subtask 9.2: Develop Program Information Resources

SFEP will develop the following resources:

- A web page to provide access to information on watershed groups and efforts, workshops and technical information.
- A training video for youth groups, students, corps, and small residential property renters or owners explaining how to address localized flooding, water quality issues and erosion control through the use of easily installed vegetated soil bioengineering systems and swale stormwater catchment systems.
- Conduct onsite workshops to install soil bioengineering systems and rain catchment swales in problem areas identified in disadvantaged communities (DACs).

Deliverable(s):

- Program website
- Training video.
- On-the-ground workshops
- San Francisco Estuary News Special Inserts on the IRWMP watershed projects
- Workshop materials

Subtask 9.3 Conduct Data Management

Restoration and revegetation projects will all be entered into NRPI (Natural Resources Projects Inventory) at UC Davis Center for the Environment at http://www.ice.ucdavis.edu/nrpi/ and linked to the CERES California Environmental Information Clearinghouse (CEIC), GeoFinder, the California Digital Atlas, the California Watershed Portal, and Google Maps.

The Regional Curves results will be sent to the Water Resources Center Archives at U.C. Riverside and the Geology Dept. at UC Berkeley.

Task 10: Environmental Compliance/Mitigation/Enhancement

Not Applicable. There are no environmental compliance and mitigation activities associated with this project.

Task 11: Construction Administration

Not Applicable. This project does not involve any construction.

B. Stream Restoration with Schools and Communities in DACs of the North Bay

Project Summary

Students and Teachers Restoring a Watershed (STRAW) will be improving the environmental quality, including water quality, at targeted disadvantaged schools by implementing ten riparian restoration projects. The riparian restoration projects are professionally designed and installation supervised. Teachers, students and community members implement the projects, which replace invasive exotic plants with native riparian species.

Work Tasks

Task 1: Administration

The Bay Institute (TBI) will serve as the administrator for this project, and will be responsible for conducting meetings and workshops with the schools involved, and preparing invoices, and documentation as-needed to administer the project. TBI will work with schools in the following communities: Vallejo, San Rafael (Canal District), and American Canyon. All of these areas are considered disadvantaged as evidenced by high rates of English language learners and ethnically diverse school communities. All of the schools represented are Title I schools that have a high percentage of students who quality for the free/reduced lunch program. These schools are also culturally diverse, the majority of which serve student bodies that are less than 5% Caucasian.

Coordination with project partners:

TBI will coordinate with the following project partners for this project:

- Lincoln Elementary School
- Davidson Middle School
- San Pedro Elementary School
- J.X. Wilson School
- McDowell Elementary School
- American Canyon Middle School

Deliverable(s):

- Meetings and workshops with project partners listed above
- Meeting notes or summaries
- Project invoices and back-up documentation

Task 2: Labor Compliance Program

Not applicable. This project is not a public works construction project and does not involve any construction work.

Task 3: Reporting

The Bay Institute will prepare quarterly progress reports and a final report for submittal to Bay Area Clean Water Agencies (BACWA), the grant administrator. Reports will meet generally accepted

professional standards for technical reporting and be proofread for content, numerical accuracy, spelling and grammar prior submittal to the State.

The Quarterly Reports will explain the status of the project and will include the following information:

- Summary of the work completed for the project during the reporting period
- Statement of progress compared to the schedule listed in Attachment 5 of this proposal
- Comparison of actual costs to date to the budget listed in Attachment 4 of this proposal

The Bay Institute will prepare a Final Project Report documenting implementation of the project, to be submitted to DWR within ninety (90) calendar days of DWR verification that all tasks associated with a project have been completed. The Final Project Report will include the following information:

- Description of the actual work done
- Final schedule showing actual progress versus planned progress
- Lessons learned

Deliverable(s):

- Quarterly Reports
- Final Report

Land Purchase Easement
Not Applicable. This project does not require any land purchase/easements.

Task 4: Assessment and Evaluation
Not applicable. This project does not involve preparation of assessment and evaluation studies.

Task 5: Final Design
Not applicable. The project does not include any design services.

Task 6: Environmental Documentation
Not applicable. This project does not exceed five acres in size and is categorically exempt under CEQA guidelines Section 15333 – Small Habitat Restoration Projects.

Task 7: Permitting
Not applicable. This project does not require any permits.

Task 8: Construction/Implementation Contracting
Not applicable. The Bay Institute will be administering this project.

Task 9: Implementation
The Bay Institute will conduct a total of ten (10) planting days in the following communities: 2 days in Solano, 1 day in Sonoma, 2 days in Napa, and 3 days in Marin. Revegetation is proposed for the following sites and corresponding schools. TBI will provide oversight of all restoration activities and

contribute to teacher professional development and student environmental education in class and in the field. Revegetation is proposed for the following sites and corresponding schools:

Solano
Blue Rock Springs Creek, Lincoln Elementary School, *2 days*

- A total of 60 plants will be installed.

Marin
Mahone Creek, Davidson Middle School, *2 days*

- Over two restoration days, a total of 250 students and 2 teachers will participate in restoration activities. This site requires extensive removal of invasive plants. A total of 60 plants will be installed.

San Pablo Bay, San Pedro Elementary School, *1 day*

- Over 200 plants will be installed.

Sonoma
San Pablo Bay, McDowell Elementary School, *1 day*

- Over 200 plants will be installed.

Napa
Napa River Wetlands, American Canyon Middle School, *2 days*

- Over two restoration days, a total of 230 students and 2 teachers will participate in restoration activities. A total of 160 plants will be installed.

Serving additional schools.
A total of eight planting days are listed above. STRAW will work to develop new partnerships with teachers interested in restoration with their classes in San Mateo and Alameda. Criteria for inclusions will include teachers willing to participate in restoration who teach at Title I schools. If partnerships in these communities do not arise, STRAW will conduct two additional days of restoration at sites mentioned above.

Description of Activities on a typical planting day:
On a typical planting day, students arrive at the project site at about 9:30 am. STRAW conducts an opening circle that orients students to the project site, the restoration activities they will be undertaking, and the need for habitat restoration. All students are prepared for restoration with an in class presentation. Restoration presentations familiarize students with the watershed in which they were working, the significance of restoring habitat for fish and wildlife, and the impact the restoration activities will have to the ecosystem as a whole. During the opening circle, students are also trained on safe tool use, how to prepare the area for planting and install the plants.

The students are guided by adults who supervise their work. After students have installed a plant, installed plant protectors and mulched the area, students call for “Plant inspection” by a STRAW staff member. STRAW staff will ensure that each plant is installed properly. If the planting requires additional attention, students are instructed on what steps to take. Students will once again call for “Plant inspection.” Upon successful planting, students will move on to install additional plants. At the end of the day STRAW conducts a closing circle. During the closing circle, students reflect upon the work they have completed

and the impact they anticipate it will have on the ecosystem. Students work for about four hours at the project site.

Deliverable(s):

- Restore 7,500 lineal feet of stream channels.

Task 10: Environmental Compliance/Mitigation/Enhancement

Not Applicable. There are no environmental compliance and mitigation activities associated with this project.

Task 11: Construction Administration

Not applicable. TBI will be administering this project.

C. Floodplain Mapping for the Bay Area with Disadvantaged Communities Focus

Project Summary

This project will gather, compile and standardize existing flood infrastructure data into a Geographic Information System (GIS) database, with an emphasis on identifying flood prone areas in low-lying disadvantaged communities that are particularly vulnerable to the impacts of flooding on water quality and to the impacts of future sea level rise.

Work Tasks

Task 1: Administration
The San Francisco Estuary Institute (SFEI) will serve as the administrator for this project, and will be responsible for preparing invoices, and documentation as-needed to administer the project.

Coordination with project partners:
SFEI will coordinate with the following project partners for this project:

- Clean Water Action (CWA)
- Environmental Justice Coalition for Water (EJCW)
- Bay Area Flood Protection Agencies Association (BAFPAA)
- Bay Area Watershed Network (BAWN)

Deliverable(s):

- Meetings with project partners listed above
- Meeting notes or summaries
- Project invoices and back-up documentation

Task 2: Labor Compliance Program
Not applicable. This project is not a public works construction project and does not involve any construction work.

Task 3: Reporting
The San Francisco Estuary Institute (SFEI) will prepare quarterly progress reports and a final report for submittal to Bay Area Clean Water Agencies (BACWA), the grant administrator. Reports will meet generally accepted professional standards for technical reporting and be proofread for content, numerical accuracy, spelling and grammar prior submittal to the State.

The Quarterly Reports will explain the status of the project and will include the following information:

- Summary of the work completed for the project during the reporting period
- Statement of progress compared to the schedule listed in Attachment 5 of this proposal
- Comparison of actual costs to date to the budget listed in Attachment 4 of this proposal

SFEI will prepare a Final Project Report documenting implementation of the project, to be submitted to DWR within ninety (90) calendar days of DWR verification that all tasks associated with a project have been completed. The Final Project Report will include the following information:

- Description of the actual work done
- Final schedule showing actual progress versus planned progress
- Lessons learned

Deliverable(s):

- Quarterly Reports
- Final Report

Land Purchase Easement
Not Applicable. This project does not require any land purchase/easements.

Task 4: Assessment and Evaluation
Not applicable. This project does not involve preparation of assessment and evaluation studies.

Task 5: Final Design
Not applicable. The project does not include any design services.

Task 6: Environmental Documentation
Not applicable. This project is categorically exempt from CEQA.

Task 7: Permitting
Not applicable. This project does not require any permits.

Task 8: Construction/Implementation Contracting
Not applicable. The San Francisco Estuary Institute (SFEI) will be administering this project.

Task 9: Implementation

Subtask 9.1: Development of the Technical Advisory Committee
The San Francisco Estuary Institute (SFEI) will develop a Technical Advisory Committee (TAC) largely comprised of liaisons from BAFPAA member agencies. The TAC will meet twice during the project's lifecycle, first to guide decisions about priority flood infrastructure datasets, data standardization, and interactive website user needs. The second meeting will be used to review the collected and standardized data and the interactive web map prototype. Discussions and comments from the TAC meetings will be used to revise methodologies, tools and products.

Deliverable(s):

- TAC organized to provide expertise on flood infrastructure mapping needs
- Notes, outcomes and action items from two (2) TAC meetings.

Subtask 9.2: Flood Infrastructure Data Gathering and Standardization

SFEI with assistance from the Clean Water Action (CWA), Environmental Justice Coalition for Water (EJCW), and Bay Area Flood Protection Agencies Association (BAFPAA) will gather, compile and standardize existing flood infrastructure data into a Geographic Information System (GIS) database. The database will build upon the existing Statewide Levee Database and the existing Army Corps of Engineers Levee Database, but will document a broader range of flood protection and stormwater facilities and information. The database will include location, infrastructure type, level of protection provided, infrastructure age, accreditation by FEMA, facility inspection, and facility maintenance information associated with each feature. The result will be a regional and standardized dataset of flood infrastructure for the SF Bay region and the information will provide a foundation for the Statewide Flood Needs Assessment. This critical information will be provided to flood managers and planners through an interactive web map.

Detailed flood infrastructure data resulting from this task will be integrated into the interactive web map. The detailed flood infrastructure information will gathered through the local community in a way that cannot be captured for the rest of the region due to budget constraints. The Bay Point DAC will be a pilot project that shows the added value of detailed flood infrastructure information for determining future needs, with respect to renewal and replacement of facilities for the prevention of flooding.

Deliverable(s):

- Standardized, regional GIS datasets of flood infrastructure data and associated information
- Integration of the Bay Point DAC pilot project data into the interactive web map

Subtask 9.3: Development of Interactive Web Map

SFEI will develop an interactive map to provide a single repository of the regional flood infrastructure datasets. This will ensure continuous access to the data as well as the access to the most current versions. The web map of regional flood infrastructure will allow managers to view the distribution of infrastructure information and provides a basis for regional planning, coordinating, and prioritizing of management activities. The interactive map will also allow users to query features, for example, by infrastructure type, maintenance activity and age. This will provide managers quick access to information that otherwise would take days to weeks to access. Additional information can be integrated into the web mapping tool including disadvantaged communities and sea level rise to understand the relationship between existing flood infrastructure and “at risk” communities.

Deliverable(s):

- Interactive web mapping site to access and store regional infrastructure data and information.

Subtask 9.4: Fill Data Gaps and Enhance Flood Infrastructure Data

SFEI will identify flood infrastructure data gaps that exist in the collected regional datasets. Data gaps include missing or incorrect spatial or attribute information. SFEI will digitize new datasets or modify existing datasets to complete the regional flood infrastructure picture. This project will also enhance the completed regional flood infrastructure datasets with additional information that the TAT identifies as useful for flood protection planning and flood risk assessment. This project will work with municipalities, flood agencies and special districts to identify, through aerial imagery, field work and ancillary data, flood infrastructure information not already captured in the regional datasets.

Deliverable(s):

- Updated regional flood infrastructure datasets with revised spatial and attribute information.

Subtask 9.5: Enhancements to Functionality of Interactive Web Map

SFEI will add additional enhancements to the interactive web map of flood infrastructure data to increase the efficiency of accessing, editing and querying database information. Additional functionality includes user defined queries on attribution and/or geography. It will also include generation of printable report flood infrastructure information that can be used for communication purposes. Another enhance functionality will be the ability to edit data directly on the website. This will allow flood managers to not only maintain their dataset in one repository, but allow a central point for edits to that dataset to ensure quality and version control.

Deliverable(s):

- Enhanced interactive web map tools for report generation, user defined queries and data editing.

Task 10: Environmental Compliance/Mitigation/Enhancement

Not Applicable. There are no environmental compliance and mitigation activities associated with this project.

Task 11: Construction Administration

Not applicable. This project does not involve any construction.

D. Storm Water Improvements and Flood Reduction Strategies Pilot Project in Bay Point

Project Summary

This project conducts a detailed assessment of stormwater infrastructure and flood hazards in the unincorporated Bay Point area of Contra Costa County. The project engages neighborhood organizations, schools and public agencies to identify water quality and inundation hazards which need to be addressed by infrastructure improvements. Priority locations of needed improvements and solutions to reducing hazards will be identified, so the community can enter the implementation phase of reducing the hazards

Work Tasks

Task 1: Administration
Balance Hydrologics will serve as the administrator for this project, and will be responsible for preparing invoices, and documentation as-needed to administer the project.

Coordination with project partners:
Balance Hydrologics will coordinate with the following project partners for this project:

- Clean Water Action (CWA)
- Environmental Justice Coalition for Water (EJCW)
- Contra Costa County Public Works
- Bay Point Municipal Advisory Council
- Mt. Diablo Unified School District

Deliverable(s):

- Meetings with project partners listed above
- Meeting notes or summaries
- Project invoices and back-up documentation

Task 2: Labor Compliance Program
Not applicable. This project is not a public works construction project and does not involve any construction work.

Task 3: Reporting
Balance Hydrologics will prepare quarterly progress reports and a final report for submittal to Bay Area Clean Water Agencies (BACWA), the grant administrator. Reports will meet generally accepted professional standards for technical reporting and be proofread for content, numerical accuracy, spelling and grammar prior submittal to the State.

The Quarterly Reports will explain the status of the project and will include the following information:

- Summary of the work completed for the project during the reporting period
- Statement of progress compared to the schedule listed in Attachment 5 of this proposal

- Comparison of actual costs to date to the budget listed in Attachment 4 of this proposal

Balance Hydrologics will prepare a Final Project Report documenting implementation of the project, to be submitted to DWR within ninety (90) calendar days of DWR verification that all tasks associated with a project have been completed. The Final Project Report will include the following information:

- Description of the actual work done
- Final schedule showing actual progress versus planned progress
- Lessons learned

Deliverable(s):

- Quarterly Reports
- Final Report

Land Purchase Easement
Not Applicable. This project does not require any land purchase/easements.

Task 4: Assessment and Evaluation
Not applicable. This project does not involve preparation of assessment and evaluation studies.

Task 5: Final Design
Not applicable. The project does not include any design services.

Task 6: Environmental Documentation
Not applicable. This project is categorically exempt from CEQA.

Task 7: Permitting
Not applicable. This project does not require any permits.

Task 8: Construction/Implementation Contracting
Not applicable. Balance Hydrologics will be administering this project.

Task 9: Implementation

Subtask 9.1: Community Outreach and Collection of Local Records
Balance Hydrologics will work with local watershed organizations to initiate the project through contact and meetings with local agencies and community groups (Clean Water Action, Environmental Justice Coalition for Water) describing the goals and objectives of the assessment. Additional work will include coordination with these stakeholders to collect and record information on existing infrastructure and historical accounts and document flooding and drainage issues impacting the community.

Deliverable(s):

- Meetings with local agencies and community groups
- Identification of priority hazard areas which need assessment

Subtask 9.2: Data Collection and Documentation
Data gaps identified in Task 9.1 will need to be addressed prior to detailed flood hazard assessment work. Although the study area has been mapped in several topographic databases (for example, the Contra Costa County Ortho Imagery Project), there will undoubtedly be some critical geographic information missing. This task will fill these data gaps through a targeted data acquisition effort coordinated through the Gateway Continuation High School. Students and other interested community members will use GPS equipment and GIS software to survey key characteristics of both the physical infrastructure and natural creek channels/floodplains. Additional work will include deployment of calibration equipment (rain gages, stream gages, etc.) to inform subsequent modeling work, and further educational efforts through enhancement of watershed awareness.

Deliverable(s):

- Data collection activities

Subtask 9.3: Flood Hazard Assessment
The information previously compiled will be used to perform a detailed flood hazard assessment for the DAC study area. The assessment will include stormwater infrastructure as well as existing stream channels, floodplains, and wetlands in an integrated hydrologic/hydraulic modeling platform so that the interactions between the built and natural environments can be characterized and quantified. Resources will be used to model in detail several square miles of the most densely populated areas in the DAC. The assessment will explicitly model a range of representative design storm events and include sea level rise considerations where appropriate to define both existing and near- to mid-term levels of flood risk.

Deliverable(s):

- Flood Hazard Assessment

Subtask 9.4: Flood Hazard and Infrastructure Deficiency Mapping
Information generated in the flood hazard assessment will be used to create datasets compatible with regional GIS efforts that clearly define flood hazards and risks as well as identified deficiencies in the existing infrastructure. Anticipated GIS layers will include annual flood risk, predicted flood depths for defined risk levels, and the location and character of important deficiencies. The final report will include a description of the causes of flooding and potential implementation remedies that Bay Point may pursue.

Deliverable(s):

- GIS datasets and layers
- Final Report

Task 10: Environmental Compliance/Mitigation/Enhancement
Not Applicable. There are no environmental compliance and mitigation activities associated with this project.

Task 11: Construction Administration
Not applicable. This project does not involve any construction.

E. Disadvantaged Communities Richmond Shoreline and City of San Pablo Flood Project

Project Summary

This effort advances two priority projects contained in the previously adopted Wildcat-San Pablo Creeks Watershed Plan to: 1) reduce the polluted overbank flows of Wildcat Creek in the City of San Pablo's business district and 2) correct the deep mud and inundation problems obstructing passage under the Richmond Parkway. The project advances project designs for the Richmond Shoreline creeks including Wildcat, San Pablo and Rheem Creeks.

Work Tasks

Task 1: Administration
Urban Tilth and Restoration Design Group will serve as the administrator for this project, and will be responsible for preparing invoices, and documentation as-needed to administer the project.

Coordination with project partners:
Urban Tilth and Restoration Design Group will coordinate with the following project partner(s) for this project:

- Far West Engineering (Engineering Design)
- Keep North Richmond Beautiful Project
- North Richmond Municipal Advisory Council
- City of San Pablo
- East Bay Regional Park District
- City of Richmond
- Contra Costa County
- Parchester Village
- Contra Costa Community College
- CALTRANS
- West County Transit Advisory Committee

Deliverable(s):

- Meetings with project partners listed above
- Meeting notes or summaries
- Project invoices and back-up documentation

Task 2: Labor Compliance Program
This project includes topographic and utility surveys. There is no program currently in place. The project will adopt and enforce a labor compliance program pursuant to California Labor Code §1771.5(b) before or by the time of awarding a contract for implementation of the project.

Deliverable(s):

- Adopted Labor Compliance Program
- Annual Report

Task 3: Reporting
Urban Tilth and Restoration Design Group will prepare quarterly progress reports and a final report for submittal to Bay Area Clean Water Agencies (BACWA), the grant administrator. Reports will meet generally accepted professional standards for technical reporting and be proofread for content, numerical accuracy, spelling and grammar prior submittal to the State.

The Quarterly Reports will explain the status of the project and will include the following information:

- Summary of the work completed for the project during the reporting period
- Statement of progress compared to the schedule listed in Attachment 5 of this proposal
- Comparison of actual costs to date to the budget listed in Attachment 4 of this proposal

Urban Tilth and Restoration Design Group will prepare a Final Project Report documenting implementation of the project, to be submitted to DWR within ninety (90) calendar days of DWR verification that all tasks associated with a project have been completed. The Final Project Report will include the following information:

- Description of the actual work done
- Final schedule showing actual progress versus planned progress
- Lessons learned

Deliverable(s):
- Quarterly Reports
- Final Report

Land Purchase Easement
Not Applicable. This project does not require any land purchase/easements.

Task 4: Assessment and Evaluation

Subtask 4.1: Technical Assistance for Stream Restoration Design
Develop stream design guidance for North Richmond coastal creeks including Rheem, San Pablo and Wildcat Creeks. This will be a project coordinated by Urban Tilth, a community-based urban greening program located in Richmond. Urban Tilth will partner with Far West Restoration Engineering to identify local students who can qualify for and participate in stream restoration design and engineering training conducted through the stream restoration curves development project. The restoration curves will inform the design of the project in the following work item in this proposal to produce a creek restoration design in a commercial business district for the City of San Pablo. This community involvement in developing the restoration guidance will involve approximately six students from the Contra Costa Community College. The project manager will select the students, hold an orientation meeting with the students and participating scientists conducting the work, and coordinate with the school teachers and officials to help the students integrate this experience into their course work credits and curriculum.

Deliverable(s):
- Written evaluation of the training experience
- Description of the field techniques used by the students to collect data and survey the streams, prepared by the participating students for a community college class

- Published short illustrated report that can be used to establish similar community college projects on a website.

Subtask 4.2: Finalize Technical Feasibility Evaluations for Wildcat Creek Restoration in the City of San Pablo

This is one of the top priority implementation projects identified in the Wildcat–San Pablo Creeks Watershed Plan (2010) (Plan funded through CalFed) is the restoration of Wildcat Creek at 23rd Street in the City of San Pablo. This strategic project is expected to reduce flood damages by replacing a culvert with a bridge and creating a wider floodplain area through closure of one street lane; improve fish habitat and passage; and provide public access with a trail extension and creekside pocket parks on both sides of 23rd Street. This area is the heart of downtown San Pablo and serves as part of the city's long-term efforts to restore the economy of an economically depressed area that has the highest unemployment rate in the Bay Area. The City Council of San Pablo has requested assistance to advance this project to the next step, which is to finalize hydraulic and sediment modeling, complete topographic surveys and develop the final schematics to qualify the project for construction grants.

Deliverable(s):

- Topographic surveys, hydraulic modeling, sediment transport modeling, utility surveys, pre-construction final schematic plans, community participation workshops

Task 5: Final Design

Coordinate and Design the North Richmond Shoreline Access Project

The Director of the Keep North Richmond Beautiful Project will coordinate the City of Richmond, Contra Costa County, CALTRANS, East Bay Regional Park District, Parchester Village, North Richmond Municipal Advisory Committee, the City of San Pablo and the Wildcat-San Pablo Creeks Watershed Council to produce a schematic design and maintenance and management plan for the highway crossing, to link the Wildcat Creek trail to the Wildcat and San Pablo Creek marshes and North Richmond Shoreline Regional Trail system under development. The design plan will incorporate features to reduce flooding and sediment management needs near the Richmond Parkway as well as improve public access.

The objective of this project is to get the overpass project to a schematic stage so that the community can review and agencies can approve the design, in order to qualify the project for funding from County Measure WW funds, West County transportation funds and potential federal funding and to get it to the construction drawings and implementation phases.

Deliverable(s):

- Community-based design, maintenance and management plan
- Construction budget that can be used by local agencies to apply for or designate local and regional funding to implement a North Richmond Shoreline access project along Wildcat Creek.
- Concept design which includes removal of hydraulic constriction under the Richmond Parkway

Task 6: Environmental Documentation

Not applicable. This project is categorically exempt from CEQA.

Task 7: Permitting
Not applicable. This project does not require any permits.

Task 8: Construction/Implementation Contracting
North Richmond Beautiful Project will finalize agreements with project partners for this project.

Task 9: Construction/Implementation
Not applicable. This project is in the feasibility assessment and design phase and will not be implemented until final design is completed.

Task 10: Environmental Compliance/Mitigation/Enhancement
Not Applicable. There are no environmental compliance and mitigation activities associated with this project.

Task 11: Construction Administration
Not applicable. This project does not involve any construction.

F. Pescadero Creek Watershed DAC Integrated Flood Reduction and Habitat Enhancement Project

Project Summary

This project integrates science from fish population data and stream design guidance from projects G and H below in order to address a chronic sedimentation and flooding issue on Butano Creek, located in the flood hazard zone of the unincorporated area of Pescadero, San Mateo County. This enables a community-based process to identify a multi-objective solution to the problem, which must also accommodate the highly sensitive habitat that the creek affects directly downstream in Pescadero Marsh, which supports numerous threatened and endangered species. This watershed is targeted in the NOAA Fisheries Service Draft Coho Salmon Recovery Plan as well as the upcoming Steelhead Recovery Plan as an important watershed for the recovery of these two species.

Work Tasks

Task 1: Administration
San Mateo County Resource Conservation District (RCD) will serve as the administrator for this project, and will be responsible for preparing invoices, and documentation as-needed to administer the project.

Coordination with project partners:
San Mateo RCD will coordinate and collaborate extensively with watershed stakeholders, including the Pescadero Municipal Advisory Council, the San Mateo County Farm Bureau, and local landowners in order to lay the foundation for ecological restoration and flood management projects. Stakeholders will include De Anza Community College, the San Francisco Bay Regional Water Resources Control Board, California Department of Parks and Recreation, Department of Fish and Game, University of California, Berkeley, NOAA Fisheries Service, and U.S. Fish and Wildlife Service.

Deliverable(s):

- Meetings with project partners listed above
- Meeting notes or summaries
- Project invoices and back-up documentation

Task 2: Labor Compliance Program
Not applicable. This project is not a public works construction project and does not involve any construction work.

Task 3: Reporting
San Mateo RCD will prepare quarterly progress reports and a final report for submittal to Bay Area Clean Water Agencies (BACWA), the grant administrator. Reports will meet generally accepted professional standards for technical reporting and be proofread for content, numerical accuracy, spelling and grammar prior submittal to the State.

The Quarterly Reports will explain the status of the project and will include the following information:

- Summary of the work completed for the project during the reporting period

- Statement of progress compared to the schedule listed in Attachment 5 of this proposal
- Comparison of actual costs to date to the budget listed in Attachment 4 of this proposal

San Mateo RCD will prepare a Final Project Report documenting implementation of the project, to be submitted to DWR within ninety (90) calendar days of DWR verification that all tasks associated with a project have been completed. The Final Project Report will include the following information:

- Description of the actual work done
- Final schedule showing actual progress versus planned progress
- Lessons learned

Deliverable(s):

- Quarterly Reports
- Final Report

Land Purchase Easement

Not Applicable. This project does not require any land purchase/easements.

Task 4: Assessment and Evaluation

Subtask 4.1: Develop Restoration Guidance

San Mateo RCD will develop stream restoration curves with Far West Restoration Engineering (FWRE) to determine healthy width and depth of stream channels to inform creek restoration projects design. The RCD will assist in locating reference sites for different stream types that can serve as guidance for developing the restoration data. The RCD will provide for land owner access for the field data collection. It will also establish contact with instructors at the De Anza Community College or other local institutions to provide field training opportunities for students working with the FWRE.

Deliverable(s):

- Stream restoration curves
- Training opportunities for students at the De Anza Community College or other local institutions

Task 5: Final Design

Develop Technical Solutions to Flooding

The RCD will work with community and regulatory stakeholders to develop project designs and strategies that consider community needs as well as resource protection constraints. Emphasis will be placed on correcting hydraulic constrictions and protecting and enhancing the environment, while addressing the flood damages issue. The RCD will contract with a hydraulic engineer and hydrologist to do hydraulic modeling and present alternative solutions to help the community select a preferred alternative for environmentally sensitive flood management.

Deliverable(s):

- Hydraulic modeling results
- Design alternatives

Task 6: Environmental Documentation
Not applicable. This project is categorically exempt from CEQA.

Task 7: Permitting
Not applicable. This project does not require any permits.

Task 8: Construction/Implementation Contracting
San Mateo RCD will subcontract with the San Mateo County Farm Bureau for the implementation of Task 9.

Task 9: Construction/Implementation

Collaborate with Local Stakeholders to Evaluate Flood Management Alternatives
There is extensive interest in the Pescadero watershed, including a working group of public agencies focused on habitat issues and concerns with fish kills in the Pescadero Marsh. Some citizen groups have convened independently to focus on watershed issues, including the Environmental Committee of the Pescadero Municipal Advisory Council and local agricultural producers convened by the Farm Bureau. Historically there was a Coordinated Resource Management Planning process for the Pescadero-Butano watershed. However, there is no current watershed-wide non-regulatory group established to bring together all of the interests in the watershed dedicated to 1) enhancing and protecting the watershed by promoting individual and community actions and 2) undertaking collaborative projects. The RCD will work with partners to create an organization of community groups, government agencies, businesses, and academia that can work cooperatively to solve problems in the watershed, using an inclusive process to enhance the economic, social, and ecological health of the watershed. The RCD will work with the watershed council and the San Mateo County Farm Bureau (subcontractor) to identify and select project alternatives for the flood damage reduction plan in the task above.

Deliverable(s):

- Development of a watershed council comprising of representatives from community groups, government agencies, businesses and academia to address issues and develop solutions for the Pescadero watershed.

Task 10: Environmental Compliance/Mitigation/Enhancement
Not Applicable. There are no environmental compliance and mitigation activities associated with this project.

Task 11: Construction Administration
Not applicable. This project does not involve any construction.

G. Pescadero Creek Steelhead Smolt Outmigrant Trapping

Project Summary

This project will implement a juvenile salmonid monitoring program within the Pescadero Creek watershed that will provide critically important information on the steelhead and coho salmon populations for ongoing restoration efforts in the estuary complex, while also providing important baseline population data in support of the NOAA Fisheries Service's (NMFS) ongoing recovery planning efforts. This information will inform the design of a water quality flood hazard project being designed in the project 6 described above.

Work Tasks

Task 1: Administration
The San Mateo County Resource Conservation District (RCD) will serve as the administrator for this project, and will be responsible for preparing invoices, and documentation as-needed to administer the project.

Coordination with project partners:
San Mateo County RCD will coordinate with the following project partner(s) for this project:

- Jim Robins Associates
- National Marine Fisheries Service
- California Department of Fish and Game

Deliverable(s):

- Meetings with project partner(s) listed above
- Meeting notes or summaries
- Project invoices and back-up documentation

Task 2: Labor Compliance Program
Not applicable. This project is not a public works construction project and does not involve any construction work.

Task 3: Reporting
San Mateo RCD will prepare quarterly progress reports and a final report for submittal to Bay Area Clean Water Agencies (BACWA), the grant administrator. Reports will meet generally accepted professional standards for technical reporting and be proofread for content, numerical accuracy, spelling and grammar prior submittal to the State.

The Quarterly Reports will explain the status of the project and will include the following information:

- Summary of the work completed for the project during the reporting period
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- Comparison of actual costs to date to the budget listed in Attachment 4 of this proposal

San Mateo RCD will prepare a Final Project Report documenting implementation of the project, to be submitted to DWR within ninety (90) calendar days of DWR verification that all tasks associated with a project have been completed. The Final Project Report will include the following information:

- Description of the actual work done
- Final schedule showing actual progress versus planned progress
- Lessons learned

Deliverable(s):

- Quarterly Reports
- Final Report

Land Purchase Easement
Not Applicable. This project does not require any land purchase/easements.

Task 4: Assessment and Evaluation
Not applicable. This project does not involve preparation of assessment and evaluation studies.

Task 5: Final Design
Not applicable. The project does not include any design services.

Task 6: Environmental Documentation
Not applicable. This project is categorically exempt from CEQA.

Task 7: Permitting
Monitoring outmigrating juvenile steelhead and coho salmon smolts requires handling of these species, which is considered "take" of listed species under both the State and Federal Endangered Species Acts. As such, "take" authorizations (research permits) will need to be obtained from CDFG (for State listed coho salmon) and from NMFS (for federally listed steelhead and coho salmon) prior to initiation of the monitoring study. The lead fisheries biologist, who has been issued such authorizations in the past, will work closely with the permitting agencies to secure authorizations well in advance of the March 2012 start date for the monitoring work. No funding is requested to support this effort as it is a fund match provided by the biologist.

Deliverable(s):

- Copies of the State and federal "take" authorizations.

Task 8: Construction/Implementation Contracting
San Mateo RCD will subcontract with a fisheries biologist for trapping and monitoring activities. No construction will be required in this project.

Task 9: Construction/Implementation

<u>Implement Monitoring Project</u>

The proposed monitoring project consists of gathering juvenile salmonids outmigration data over two spring seasons (March through May 2012 and 2013). Implementation of the project will consist of performing the monitoring study. Depending on channel characteristics and hydrology, a rotary screw trap or fyke net trap will be installed at one site and maintained during the outmigration season for juvenile steelhead and coho salmon. A team comprised of qualified biologists and volunteers will coordinate trap installation and monitoring. The trap will be checked daily for captured fish during the two spring outmigration seasons as noted above. Data on the physical condition (e.g., size, weight, age) of outmigrating salmonids smolts will be collected. In addition, scale and DNA samples will be collected for future reference and for submittal to the National Marine Fisheries Service for inclusion in the agency's genetic database. A small sub-sample of captured salmonids will be marked and released at a suitable distance upstream of the trap to provide statistical information on trapping efficiency through observed recapture rates. All methods will be consistent with current fisheries practices and applicable permit requirements. This task also includes the purchase of trapping equipment. The type of equipment will depend on final site selection, but will most likely consist of a rotary screw trap.

The results of the monitoring study will be summarized in one annual monitoring report summarizing the results of the first (2012) monitoring season, and a final report summarizing the results of the second (2013) monitoring season. The CEMAR project manager will coordinate results from the Pescadero Creek fish monitoring study with the overall Bay Area regional fish monitoring effort described in Project I below.

Deliverable(s):

- Annual monitoring report and final report
- Integration of monitoring results from the Pescadero fish monitoring study with the overall regional fish monitoring effort described in Project I.

Task 10: Environmental Compliance/Mitigation/Enhancement

Not Applicable. There are no environmental compliance and mitigation activities associated with this project.

Task 11: Construction Administration

San Mateo County RCD will be responsible for construction administration. This task will consist of coordinating trap staffing, coordination between the RCD and regulatory agencies (DFG, NMFS), and miscellaneous project management activities required of the fisheries biologist.

H. Stream Channel Shapes and Floodplain Restoration Guidance and Watershed Restoration in San Francisquito Creek, East Palo Alto, a DAC

Project Summary

The project work plan and outputs under this section are divided into the development of a design guidance document for three major regions of the Bay and a second component which provides for community identification of flood damage reduction alternatives for the lower San Francisquito Creek in the East Palo Alto Area.

Work Tasks

Task 1: Administration
Far West Engineering will serve as the administrator for this project, and will be responsible for preparing invoices, and documentation as-needed to administer the project.

Coordination with project partners:
Far West Engineering will coordinate with the following project partner(s) for this project:

- Committee for Green Foothills (CGF), Palo Alto
- Restoration Design Group and Urban Tilth
- San Mateo Resource Conservation District

Deliverable(s):

- Meetings with project partners listed above
- Meeting notes or summaries
- Project invoices and back-up documentation

Task 2: Labor Compliance Program
Not applicable. This project is not a public works construction project and does not involve any construction work.

Task 3: Reporting
Far West Engineering will prepare quarterly progress reports and a final report for submittal to Bay Area Clean Water Agencies (BACWA), the grant administrator. Reports will meet generally accepted professional standards for technical reporting and be proofread for content, numerical accuracy, spelling and grammar prior submittal to the State.

The Quarterly Reports will explain the status of the project and will include the following information:

- Summary of the work completed for the project during the reporting period
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- Comparison of actual costs to date to the budget listed in Attachment 4 of this proposal

Far West Engineering will prepare a Final Project Report documenting implementation of the project, to be submitted to DWR within ninety (90) calendar days of DWR verification that all tasks associated with a project have been completed. The Final Project Report will include the following information:

- Description of the actual work done
- Final schedule showing actual progress versus planned progress
- Lessons learned

Deliverable(s):

- Quarterly Reports
- Final Report providing regional curves for three geographic regions of the bay

Land Purchase Easement

Not Applicable. This project does not require any land purchase/easements.

Task 4: Assessment and Evaluation

Summary for Design Guidance:

Field work will be conducted and reports completed for three watersheds that serve disadvantaged community areas (North Richmond Shoreline, East Palo Alto and Pescadero), which need the information to accomplish multi-objective water quality, flood damage reduction and habitat protection and enhancement needs in the design of stream and floodplain modifications.

Subtask 4.1: Site Selection

Far West Engineering will perform the background evaluations and research to select appropriate sites for field surveying. Work will include background research, review of available USGS and other data and set-up of project logistics. Existing and background information for the watershed and region will be developed and potential sites of stable channel characteristics will be identified for field inspection. Some limited reconnaissance to find field sites may be conducted and access permission attained. Available data from public and private agencies will be collected and reviewed for usefulness. If the channel or nearby site has a stream gage, records will be sought to assess flood frequency and conduct a bankfull calibration. Whenever possible, data collected by others will be utilized when it can be verified as to how the data was collected. Site selection will be focused on stable channel reaches in the first phase of this project but can easily extend the effort to unstable or more altered sites during later phases depending on the availability of funding.

Subtask 4.2: Field Geomorphic Surveying and Data Collection

Far West Engineering will oversee field collection of data for the analysis. The purpose of this subtask is to collect data that will lead to greater insight into the nature of what is controlling channel morphology. Field work will involve the following activities:

- Description of and mapping of site with GPS tools
- Survey cross-section of the site and channel gradient over a length of about five to seven times the bankfull width, depending on channel conditions at the cross section.
- Cross section surveys will extend above the floodprone width
- Determine the bankfull width, mean depth, maximum depth, floodprone width, particle size distribution of bed surface (Wolman pebble count method), and largest particle in cross section.
- In boulder-dominated streams, measure the average protrusion height for estimates of roughness. Percent fines (<2 mm) in the channel banks will be visually estimated. Notes will be taken as to geomorphic, geologic, vegetative, and land use conditions.
- Amount of large woody debris will be noted over the length of the surveyed gradient.

- Observations of artificial structures within the surveyed reach or affecting the reach from up or downstream will be noted.
- Observations of the amount of incision occurring will be noted. If there are indications of the historical channel geometry, such as in abandoned channels, or changes in stream class, the geometry at these sites will also be noted.

Deliverable(s):

- Summary of data collected and description of methodology
- Three regional stream design curves which can be applied to stream design in three large subregions of the Bay: Coastal San Mateo, Bayside San Mateo, and Bayside Contra Costa County

Subtask 4.3: Data Compilation, Analysis and Creek Design Curves Preparation

Field data will be entered into spreadsheets and undergo quality assurance and control (QAQC). Cross sections will be drawn and data entered into a matrix. Cross sectional area, entrenchment ratio, and width/depth ratio, stream gradient, and D26, D50, D84, and percent fines of the bed surface will be computed.

Once data is collected and reduced for each specific field site, additional data will be collected in the office to establish size of drainage area, annual precipitation, name of relevant geologic formation, and where possible, length of channel network. This hydraulic geometry information will be compared to the existing San Francisco Bay Area Curve. The key to developing regional curves is careful data segregation and analysis to assess which parameters exert the most control on channel morphology.

Data for a variety of both stable and unstable streams (as classified by the Rosgen Stream Classification System) will be collected and field verified where deemed necessary to check data quality. Statistical parameters such as goodness of fit and confidence intervals will be developed for the data set to provide realistic error bars on data and ranges of results will be provided when possible. The goal is not to hide the range of natural variation within single value solutions but to make the designer aware of the range of applicable results so that variability can be incorporated into channel design, thereby avoiding the cookie cutter or sine-wave look to some restoration projects. This task includes some limited GIS analysis for drainage area and percent culverted or sewered in the drainage area where this information is available and fits within the project budget.

Deliverable(s):

- Summary of data collected
- Data spreadsheets

Subtask 4.4: Preparation of Technical Memo with Results and Curve Data

Far West Engineering will prepare a draft report summarizing initial results to the local stakeholders for review. The final report and graphs will be developed in electronic format and can be posted on the project partners' websites as directed. All data and graphics from the report will be made available in the form of practical design curves tied to a technical memorandum or report that can be used by stream practitioners in the field or office.

Deliverable(s):

- Draft and final reports summarizing results and curve data information and the proper use of the data

Summary for Watershed Restoration in San Francisquito Creek
This aspect of the work plan addresses the lower watershed of San Francisquito Creek in order to resolve critical water quality, stormwater drainage and flood issues while enhancing valuable riparian and wetland resources. This task integrates stream design science, fish population information from project I and information from professional and community members to identify strategies to accomplish on-the-ground results.

Subtask 4.5: Technical Assistance for Stream and Wetland Restoration Design
Far West Engineering (FWE) will develop stream and wetland design guidance with regional stream restoration design curves and historic landscape information. FEW will identify students who can qualify for and participate in training in stream restoration design and engineering conducted through the Stream Restoration Curves Development Project. The students will receive field training in river science and surveying and engineering skills. This will involve about five students from Foothill-De Anza Community College and possibly Santa Clara University. Students will be given a small stipend for their work. This task will include the selection of the students, an orientation meeting with the students and the scientists conducting the work, and interacting with school teachers and officials to help the students integrate this experience into their course work credits and curriculum. CGF Executive Director will participate in trainings; and provide follow up with students, professors, and scientists for evaluation of the training, dissemination of reports, and general conclusion comments.

Deliverable(s):

- Written evaluation of the training experience
- Description of the field techniques used by the students to collect data and survey the streams, prepared by the participating students for a community college class
- Published short illustrated report that can be used to establish similar community college projects on a website.

Subtask 4.6: Organize and Convene Watershed Partners to Improve Opportunities for Implementing a Coordinated Network of Restoration and Water Quality Projects for the Region
Recently published information on the impact of global climate change and resulting sea level rise in San Francisco Bay and surrounding communities indicates that the areas we address with this project are expected to receive a permanent rise of 1.5 feet of water that will blanket the entire community. San Francisquito Creek has historically flooded every 11 years; the last flood of 1998 was considered a 70-year event and impacted the entire project area. Salt Ponds around the bay, including some along the project area, are being restored to native wetlands. The levees that were built to operate the salt ponds were never built for flood protection, leaving this area subject to devastating flooding.

The numerous planning projects mentioned below have created a situation where there is multiple jurisdictional overlap, resulting in confusion and frustration among community members. Among the numerous agencies involved, none have emerged as a leader to bring the visions together for this small, historically underserved community.

CGF will coordinate with Project Managers of over a dozen independent ongoing local projects including:

- South Bay Salt Pond Restoration Project (federal and state)
- Army Corps of Engineers Shoreline Project (levees around the bay where ponds will be restored)
- San Francisquito Creek Joint Powers Authority/Corps of Engineers flood plan
- Dumbarton Commuter Rail from East Bay to Menlo Park
- Vision 2020 – Transportation Regional Plan (Dumbarton Bridge to Hwy 101 relief)
- Cooley Landing Visioning
- East Palo Alto Redevelopment Zone

- Bay Trail and Water Trail
- Various private development proposals along Hwy 84
- Palo Alto airport and golf course

Deliverable(s):

- Identification and coordination of restoration/enhancement opportunities for the region
- Coordination of flood control efforts within each project

Subtask 4.7: Coordinate Community Campaigns/Workshops to Develop Integrated Strategies and Implementation Actions

CGF will coordinate community workshops involving local residents; San Mateo County; Cities of Palo Alto, East Palo Alto, and Menlo Park; Caltrans, Santa Clara Valley Water District, the San Francisquito Creek JPA; U.S. Fish & Wildlife Service; State Coastal Conservancy; Regional Water Quality Control Board; California Department of Fish and Game; local businesses; and other representatives of projects mentioned above.

Workshops will include local, state, and federal agencies and be facilitated by qualified local community members. The goal of workshops is to create a community-supported vision for natural resource restoration and enhancement of flood control projects to be done within the existing planned projects. Particular focus will be placed upon improving citizen involvement in the design of a lower San Francisquito Creek multi-objective flood damage reduction and stream and floodplain restoration project and at other sites identified.

Deliverable(s):

- Identification of an array of potential project alternatives for lowering flood damage risk, climate change adaptation and environmental restoration.
- Six workshop with local, State, and federal agency representatives.

Subtask 4.8: Document Community Vision

The community supported vision developed in workshops will be documented through a report containing descriptions and budgets for priority project enhancements and wetlands and stream restoration projects for integration into the IRWMP priority implementation projects. These tasks will be completed by a college level intern with oversight by CGF.

Deliverable(s):

- A report to identify and map locations of projects, detail existing conditions and opportunities, and provide some level of prioritization for project implementation.

Task 5: Final Design

Not applicable. This project does not include any design services.

Task 6: Environmental Documentation

Not applicable. This project is categorically exempt from CEQA.

Task 7: Permitting

Not applicable. This project does not require any permits.

Task 8: Construction/Implementation Contracting
Not applicable. There is no construction involved in this project and therefore no need for construction contracting.

Task 9: Construction/Implementation
The San Francisquito Creek Joint Powers Authority, which includes two counties, a water district, three cities, the watershed council, and citizen organizations as collaborators, will have ultimate responsibility to adopt the project concepts, evaluate further through the formal EIS/EIR environmental review process and advance to design and construction phases

Subtask 9.1: Design Visual Tool
CGF will design and produce a visual tool (map/brochure) that represents the findings of both the workshops and report. This tool would be made available to promote and encourage continued support for implementation of the projects identified in a regional, collaborative manner; will give citizens a tool to communicate with the project managers; and will act as a guide for future plans.

Deliverable(s):

- Marketing and planning tool to coordinate and guide future plans in the area.

Subtask 9.2: Work with Local Youth in Underserved Communities on Planting and Restoration Projects
This subtask includes the following components:

1. CGF will work within existing local youth programs to initiate community and youth involvement in the creek and shoreline stewardship projects for planting and restoration projects, trash management, etc. Many of the projects mentioned previously have opportunities for local youth involvement that are not being maximized. CGF will work with area youth programs to promote, match, and assist youth engagement.

2. CGF's program and project coordinator will also represent the East Palo Alto Shoreline area and San Francisquito Creek Watershed in the Bay Area Watershed Network's IRWMP Working Group, Watershed Education and Outreach Working Group, and Policy Working Group. As with the entire project, CGF will bring representation of underserved communities into the IRWMP process, thereby aiding in improving IRWMP outreach.

Deliverable(s):

- Photos and descriptions of community-based trash removal and restoration projects.

Task 10: Environmental Compliance/Mitigation/Enhancement
Not Applicable. There are no environmental compliance and mitigation activities associated with this project.

Task 11: Construction Administration
Not applicable. This project does not involve any construction.

I. Steelhead and Coho: Bay Area Indicator for Restoration Success – SF Estuary Steelhead Monitoring Program

Project Summary

This project 1) implements smolt monitoring in three watersheds (Coyote Creek in South Bay and Sonoma and Napa Creeks in the North Bay) for which preparatory assessment, site selection, personnel selection, volunteer recruitment and permitting have been completed (funded by cost share with the Santa Clara Valley Water District and grant/cost-share from the North Bay Watershed Association) and 2) adds three creeks which have been previously identified as "anchor watersheds", those which are known to contain the Bay Area's majority of anadromous salmonid habitat, to this ongoing Bay Area-wide steelhead trout monitoring and assessment program. The project therefore sustains critical existing monitoring efforts and also adds San Francisquito Creek in Santa Clara County, Corte Madera Creek in Marin County, and Alameda Creek in Alameda County, to the program. Multi-objective projects for flood management and habitat restoration will be dependent on the information provided by this project.

Work Tasks

Task 1: Administration
The Center for Ecosystem Management and Restoration (CEMAR) will serve as the administrator for this project, and will be responsible for preparing invoices, and documentation as-needed to administer the project.

Coordination with project partners:
CEMAR will coordinate with the following project partner(s) for this project:
- California Department of Fish and Game
- San Francisco Bay Regional Water Quality Control Board
- Santa Clara Valley Water District
- City of San Jose
- Southern Sonoma County resources Conservation district
- Sonoma County
- Sonoma Water Agency
- Napa Resource Conservation District
- Napa County Flood Control and Water Conservation District

Deliverable(s):
- Meetings with project partners listed above
- Meeting notes or summaries
- Project invoices and back-up documentation

Task 2: Labor Compliance Program
Not applicable. This project is not a public works construction project and does not involve any construction work.

Task 3: Reporting
CEMAR will prepare quarterly progress reports and a final report for submittal to Bay Area Clean Water Agencies (BACWA), the grant administrator. Reports will meet generally accepted professional standards

for technical reporting and be proofread for content, numerical accuracy, spelling and grammar prior submittal to the State.

The Quarterly Reports will explain the status of the project and will include the following information:

- Summary of the work completed for the project during the reporting period
- Statement of progress compared to the schedule listed in Attachment 5 of this proposal
- Comparison of actual costs to date to the budget listed in Attachment 4 of this proposal

CEMAR will prepare a Final Project Report documenting implementation of the project, to be submitted to DWR within ninety (90) calendar days of DWR verification that all tasks associated with a project have been completed. The Final Project Report will include the following information:

- Description of the actual work done
- Final schedule showing actual progress versus planned progress
- Lessons learned

Deliverable(s):

- Quarterly Reports
- Final Report

Land Purchase Easement
Not Applicable. This project does not require any land purchase/easements.

Task 4: Assessment and Evaluation
Not applicable. This project does not involve preparation of assessment and evaluation studies.

Task 5: Final Design
Not applicable. The project does not include any design services.

Task 6: Environmental Documentation
Not applicable. This project is categorically exempt from CEQA.

Task 7: Permitting
Monitoring outmigrating juvenile steelhead and coho salmon smolts requires handling of these species, which is considered “take” of listed species under both the State and Federal Endangered Species Acts. As such, “take” authorizations (research permits) will need to be obtained from CDFG (for State listed coho salmon) and from NMFS (for federally listed steelhead and coho salmon) prior to initiation of the monitoring study. The lead fisheries biologist, who has been issued such authorizations in the past, will work closely with the permitting agencies to secure authorizations well in advance of the October 2011 start date for the monitoring work. No funding is requested to support this effort as it is a fund match provided by the biologist.

Deliverable(s):

- Copies of the State and federal “take” authorizations.

Task 8: Construction/Implementation Contracting
CEMAR will subcontract with a fisheries biologist for trapping and monitoring activities. No construction will be required in this project.

Task 9: Construction/Implementation

Subtask 9.1: Plan Trapping
CEMAR will identify trap locations, develop protocols and train staff to implement trapping activities in Coyote Creek, Sonoma Creek and the Napa River.

Subtask 9.2: Develop Additional Watersheds
CEMAR will identify and implement the assessment, site selection, personnel and permitting activities for new trapping programs in three additional Bay Area anchor watersheds (Alameda Creek in Alameda County; San Francisquito Creek in San Mateo County and Corte Madera Creek in Marin County). CEMAR will also coordinate with local stakeholders in the identified watersheds to form stakeholder groups.

Subtask 9.3: Implement Monitoring Project
CEMAR will conduct these steelhead trapping activities in the three watersheds noted above in Subtask 9.1. Depending on channel characteristics and hydrology, a rotary screw trap or fyke net trap will be installed at one site and maintained during the outmigration season for juvenile steelhead and coho salmon. A team comprised of qualified biologists and volunteers will coordinate trap installation and monitoring. The trap will be checked daily for captured fish during the outmigration season. Data on the physical condition (e.g., size, weight, age) of outmigrating salmonids smolts will be collected. In addition, scale and DNA samples will be collected for future reference and for submittal to the National Marine Fisheries Service for inclusion in the agency's genetic database. A small sub-sample of captured salmonids will be marked and released at a suitable distance upstream of the trap to provide statistical information on trapping efficiency through observed recapture rates. All methods will be consistent with current fisheries practices and applicable permit requirements.

The results of the monitoring study will be summarized in a final monitoring report.

Subtask 9.4: Develop Project Information Sharing Resources
CEMAR will create a website to share information on the steelhead monitoring program and results of the monitoring efforts. The website will help to advance resource agencies' ability to track and recover steelhead populations throughout the region.

Deliverable(s):

- Identify trap locations
- Develop trapping protocols and training
- New trapping programs and stakeholder groups in three additional Bay Area anchor watersheds
- Final monitoring report
- Project website

Task 10: Environmental Compliance/Mitigation/Enhancement
Not Applicable. There are no environmental compliance and mitigation activities associated with this project.

Task 11: Construction Administration

CEMAR will be responsible for construction administration. This task will consist of coordinating trap staffing, coordination between CEMAR and regulatory agencies (DFG, NOAA Fisheries), and miscellaneous project management activities required of the fisheries biologist.