Attachment 3
Work Plan: Introduction and Proposed Work

I. Introduction

1. Goals and Objectives of the Proposal

The Greater Monterey County IRWM region represents an expansion of a former IRWM region, the Salinas Valley region, which was created under Proposition 50. The new region was created to address significant IRWM Plan coverage voids in the Central Coast Funding Area. A Regional Water Management Group (RWMG) for the new Greater Monterey County region was formed in January 2009, expanding the former Salinas Valley RWMG from just three organizations to 18 organizations, including government agencies, nonprofit organizations, academic institutions, water service districts, private water companies, and organizations representing agricultural, environmental, and community interests. The new IRWM Plan for the Greater Monterey County region has just been completed. The Plan has been formally adopted by resolution by the governing boards of each of the 18 RWMG members, and will be adopted by vote of the RWMG at a regularly scheduled RWMG meeting on April 17, 2013.

Expanding the Salinas Valley IRWM region has brought several key geographic areas into the IRWM planning process that had not been previously represented, including: the Big Sur coastal watersheds and communities on the western side of the Santa Lucia Range; the larger Salinas River Watershed from the Salinas River National Wildlife Refuge at the Pacific Ocean south to the San Luis Obispo County line and including the east and west ranges of the valley; the troubled Gabilan Watershed in the northern part of the Salinas River Watershed; and portions of western San Benito County. Expanding the boundary has also served to make the region more inclusive, inviting more partners and stakeholders to the table and opening up new opportunities for cooperation and integration of efforts.

The projects contained in this application have been carefully selected to address some of the most pressing needs of the Greater Monterey County IRWM region, as described more fully in the "Purpose and Need" section below. In addition to selecting projects based on regional need, the RWMG has also aimed to achieve certain objectives related to the proposal itself. Those objectives include:

- To provide diverse and multiple water resource and environmental benefits for the region;
- To provide broad coverage of different geographic areas of the Greater Monterey County region;
- To include a mix of partners in implementing projects for the region, in order to reflect the diversity of stakeholders and the collaborative spirit of the IRWM planning process; and
- To include a strong public education component.

The nine projects in this proposal consist of the following (implementing agency/project title):

1. County of Monterey: San Lucas Water District Public Water Supply Project
2. Pajaro/Sunny Mesa Community Services District: Springfield Water Project
3. City of Salinas and Monterey Regional Water Pollution Control Agency: Dry Weather Runoff Diversion Program
4. Resource Conservation District of Monterey County: Salinas River Watershed Invasive Non-native Plant Control and Restoration Program

5. Resource Conservation District of Monterey County: Monterey County Farm Water Quality Assistance Program
6. Ecology Action: Monterey Bay Green Gardener Training and Certification Program
7. Elkhorn Slough Foundation: Ridgeline to Tideline - Water Resource Conservation in Elkhorn Slough
8. Central Coast Wetlands Group: Deployment of the Greater Monterey County Regional Water Quality Monitoring Network
9. Save Our Shores: Watershed Protection Program - Annual Coastal Cleanup Day in Monterey County

In selecting projects for this application, it was important to the RWMG that the final mix of projects reflect the region's new, more inclusive approach to IRWM planning—from the former Salinas Valley region to the significantly expanded Greater Monterey County IRWM region. The proposal includes nine projects that cover almost all of the major geographic areas of the region (as shown on the Regional Maps below), and engages a diverse mix of partners in the IRWM planning process, including a local municipality, a local water supply district, a regional wastewater management agency, the County of Monterey, a federal government entity (via its non-profit arm), an academic research institution, a local Resource Conservation District (RCD), and two environmental non-profit organizations. From the outset, the Greater Monterey County IRWM planning effort has been characterized by *cooperation*, *collaboration,* and *engagement*; the RWMG feels that the mix of projects included in this application reflects that spirit fully.

Another objective of this proposal has been to ensure a strong educational component. Public education is a high priority for the RWMG, as indicated by the fact that six out of the seven IRWM Plan goal categories each contain an objective to "promote public education" about that issue (e.g., water supply, water quality, flood protection, etc.). By including extensive educational outreach, the RWMG aims to educate and engage more citizens in practices that conserve water, protect water quality, reduce flooding, and enhance environmental systems. The ultimate goal is to create a healthier and more resilient ecosystem and a more robust "water system"—through locally driven efforts—as protection against the potential impacts of climate change. Five of the nine projects included in this proposal contain a strong educational element, reaching broad segments of the population throughout the Greater Monterey County region:

- *RCD's "Farm Water Quality Assistance Program"* targets growers throughout the Salinas Valley, communicating the need for and methods of managing on-farm water quality.
- *RCD's "Invasive Non-native Plant Control Program"* targets landowners along the Salinas River and its tributaries, and will engage South County students in demonstration revegetation projects. The project will provide public information about the problem of arundo (*Arundo donax*) and tamarisk (*Tamarix ramosissima*), the need for treatment, and the value of the local water resource that the project aims to protect and enhance.
- *Ecology Action's "Green Gardener Training Program"* targets landscape industry professionals, home gardeners, and municipal/school landscapers and trains them to make water conservation and watershed stewardship the guiding principles of their landscape business or practice. The project will also include public demonstration sites that will incorporate and promote low impact development practices.
- *Central Coast Wetlands Group's "Regional Water Quality Monitoring"* project will provide important data to local scientists, government agencies, and other decision makers to help them

document the effectiveness of water quality protection efforts implemented throughout the Monterey Bay region, and to track early warning signs of climate change.

- *Save Our Shores' "Annual Coastal Cleanup Day"* will involve more than 2,000 community members of all ages annually in hands-on coastal stewardship, and will teach them how to help protect rivers and coastal waters.

Together the nine projects included in this proposal will provide important and multiple benefits to the region, including increased and improved groundwater in the Salinas Valley Groundwater Basin (the primary source of water supply in the region); improved water quality for surface, groundwater, estuarine, and coastal waters; improved habitat and other ecosystem benefits; and enhanced flood protection and floodplain function. All of these benefits, together, will help the region develop a more resilient ecosystem and a more robust water system, which will provide greater protection against the potential impacts of climate change. The table on the following page shows how the different projects will provide these various benefits.

Table 1. The Multiple Water Resource Benefits that Projects in this Proposal will Provide for the Greater Monterey County Region

Benefits	Benefits Provided from Projects
Water Supply	
Drinking Water	▪ *County of Monterey "San Lucas Water District Public Water Supply":* Urgently needed drinking water supplies will be provided for the disadvantaged farmworker community of San Lucas (south County). San Lucas Water District's existing groundwater source does not meet primary water quality standards for potable water supplies due to ongoing nitrate and TDS contamination. ▪ *Pajaro/Sunny Mesa Community Services District "Springfield Water Project":* Urgently needed drinking water supplies will be provided for a disadvantaged farmworker community in the Pajaro/Sunny Mesa district (north County). The Springfield water system has not met drinking water standards since at least 1986 due to excessive nitrates.
Groundwater	▪ *RCD "Farm Water Quality Assistance":* The project will help growers refine their application of nitrogen fertilizers and irrigation water with improved soil nitrate tracking and irrigation system and flow auditing, which will reduce the potential for leaching nitrates to groundwater. ▪ *Ecology Action "Green Gardener Training":* Increased water conservation will be achieved through educational outreach to landscape industry professionals, municipal/school landscapers, and home gardeners. ▪ *Elkhorn Slough Foundation "Ridgeline to Tideline":* Increased water conservation and groundwater recharge will be achieved through the acquisition and removal of approximately 95 acres of farmland from production. Reduced stormwater runoff from improved management practices will also enable increased infiltration and recharge into the underlying groundwater basin. ▪ *RCD "Invasive Non-native Plant Control":* Groundwater uptake by non-native invasive plant species (particularly arundo, which has been known to draw as much as three times the amount of water from the aquifer as native vegetation) will be reduced in the Salinas River watershed.
Recycled Water	▪ *City of Salinas/Monterey Regional Water Pollution Control Agency (MRWPCA) "Dry Weather Runoff Diversion":* A potential new source of recycled water (from captured City of Salinas stormwater) may become available for agricultural use in the coastal region. This would help offset groundwater pumping in an area of critical overdraft and seawater intrusion. The project will also enable diversification of water supply sources by including a source not utilized in the past—stormwater from the City of Salinas—and optimizing conjunctive use.
Water Quality	
Surface Waters	▪ *City of Salinas/MRWPCA "Dry Weather Runoff Diversion":* Surface waters will be protected from contamination and the threat of contamination by diverting dry weather urban runoff to the regional wastewater treatment facility. ▪ *RCD "Farm Water Quality Assistance":* The program will assist growers in identifying and implementing the on-farm practices necessary to meet their water conservation goals, especially in light of the new agricultural water quality regulations to protect surface waters and groundwater basins from contamination and the threat of contamination. ▪ *Ecology Action "Green Gardener Training":* The program will help protect surface waters from contamination through reduced use of pesticides and soluble nitrogen fertilizers, and will improve the quality of urban runoff to surface waters. ▪ *RCD "Invasive Non-native Plant Control":* Arundo treatment in the Salinas River watershed will reduce the potential for erosion and improve water quality in terms of reduced turbidity as well as any legacy pesticides that might be carried along in soils mobilized by streambank erosion. ▪ *Central Coast Wetlands Group "Regional Water Quality Monitoring Network":* The project will enable project proponents, government agencies, and other decision makers to document the effectiveness of best management practices toward improving surface

	water quality, and to thereby make better use of future resources in implementing water quality protection projects (including agricultural best management practices and low impact development practices).
Groundwater	▪ *RCD "Farm Water Quality Assistance":* The project will help improve the quality of agricultural runoff through on-farm best management practices and thereby mitigate its effects in groundwater. ▪ *Ecology Action "Green Gardener Training":* Laundry-to-landscape greywater irrigation system installations that result from Green Gardener workshops will protect groundwater quality by relieving stress on failing or poorly maintained septic system leach fields in households that may not be able to afford constructing an alternate leach field. Reduced pesticide and soluble nitrogen fertilizer use in landscaping practices will also help protect the underlying aquifers. ▪ *Elkhorn Slough Foundation "Ridgeline to Tideline":* Reduced fertilizer applications on an acquired farm parcel in Elkhorn Slough will reduce the risk of groundwater contamination by nitrates; reduced groundwater pumping on the acquired farmland will help prevent seawater intrusion; and retirement of farm fields on steep slopes and more efficient management of remaining farm fields will significantly reduce major sources of erosion in the Elkhorn Slough watershed. ▪ *County of Monterey "San Lucas Water District Public Water Supply":* Improvement of the municipal water source in San Lucas will result in improved wastewater effluent quality (reduced TDS), which will in turn help protect the groundwater resource.
Estuarine Waters	▪ *Elkhorn Slough Foundation "Ridgeline to Tideline":* Land acquisition and improved farm management in the Elkhorn Slough area will improve surface water quality in downhill estuarine habitat. The project will establish tidal marsh in areas presently occupied by intertidal mudflats; the restored marsh will retain carbon in the soil, reducing the high rates of decomposition that lead to low dissolved oxygen concentrations. Tidal marsh is also associated with increased rates of denitrification and higher sedimentation rates. These processes improve water quality directly by reducing the concentration of nitrate in the water column and making water in the slough clearer and more hospitable for native eelgrass.
Coastal Waters	▪ The cumulative surface water quality benefits achieved through the projects in this proposal will result in improved coastal water quality downstream, in the Monterey Bay National Marine Sanctuary. ▪ *Save Our Shores "Coastal Cleanup Day":* By removing litter along with associated contaminants in coastal rivers and on beaches, the project will help improve the quality of coastal waters.
Environment	
Improved Habitat and Ecosystem Functioning	▪ *Elkhorn Slough Foundation "Ridgeline to Tideline":* The project will directly restore salt marsh in Elkhorn Slough. Over the last 150 years approximately 50% of Elkhorn's marshes have been lost due to human modifications, and their restoration is critical for the long-term health of the estuary. Raising the marsh elevation in lower Elkhorn Slough will reduce the volume of water moving in and out of the estuary each day, decreasing the system's overall tidal prism and helping to reduce erosion of the slough's benthic habitats and tidal creeks. This project is also a first step to recovering critical habitat for special status species, including the federally endangered California clapper rail and the federally threatened southern sea otter. Farm acquisition and improved land management will significantly reduce sedimentation into North Marsh wetlands; several acres of estuarine marsh in the project area have been buried up to 10 feet deep by past sedimentation. Habitat restoration in the uplands above North Marsh will restore rare marsh-to-upland ecotone habitat, and will significantly reduce the abundance of non-native iceplant. ▪ *RCD "Invasive Non-native Plant Control":* Arundo treatment and native vegetation recruitment and restoration will directly improve the river and tributary stream ecology, including improved habitat for threatened steelhead trout and reduced bank erosion and associated downstream sedimentation. ▪ *Ecology Action "Green Gardener Training":* The Green Gardener training helps protect environmental resources by reducing adverse impacts of sedimentation into streams, reducing the use of pesticides and nitrate fertilizers, and preventing and controlling invasive species in landscapes.

	▪ *RCD "Farm Water Quality Assistance":* Water quality protection practices taught on-farm benefit downstream habitat for state and federally listed species by reducing their potential for exposure to agrichemicals and associated biological effects in runoff, and reducing sedimentation of downstream habitat. ▪ *Save Our Shores "Coastal Cleanup Day":* The project will protect and enhance state and federally listed species and their habitats through the annual river cleanups, which will result in improved habitat for steelhead and other threatened species by removal of debris. Ocean health will also be improved due to a reduction in the amount of marine debris in the ocean, thus protecting and enhancing the habitat of endangered and threatened marine species in the Monterey Bay National Marine Sanctuary.
Flood Control and Floodplain Management	
Flood Control	▪ *RCD "Invasive Non-native Plant Control":* Arundo, while either standing or as rafts of rhizomes and stalks, impedes high water flows, exacerbating potential for flooding of adjacent lands as well as forming debris dams at bridges and other river-crossing structures. Arundo treatment will help limit this potential in reaches of river that are particularly choked with the weed. In addition, by removing potential flow constrictions and barriers posed by arundo, the project supports management of flood waters so that they do not contaminate fresh produce in fields adjacent to the Salinas River. ▪ *Elkhorn Slough Foundation "Ridgeline to Tideline":* Farm fields on steep slopes will be retired and erosion control practices will be improved on the project site, which will result in reduced agricultural/flood runoff during storms and will protect a public road from sedimentation. In addition, marsh restoration will provide some flood protection for adjacent upland property: water flows are significantly dampened as they pass through salt marsh plants, and thus marsh plains can provide adjacent uplands with protection against coast flooding and wave erosion. The sediment for marsh restoration is being provided by Pajaro River Bench Excavation Project, which will provide a beneficial reuse of that sediment and assist Santa Cruz County flood control efforts. ▪ *RCD "Farm Water Quality Assistance":* The project supports flood protection on a localized scale by supporting the development and implementation of farm-by-farm runoff management practices that will reduce downstream flooding and sedimentation. On-farm runoff management practices serve to protect on-farm and downstream infrastructure and property from flood damage, including prevention of flooding and associated contamination of downstream produce fields. ▪ *Ecology Action "Green Gardener Training":* Green Gardener low impact development (LID) workshops promote projects and practices to protect infrastructure and property from flood damage, and educate the public about methods that residents can implement to slow the flow of stormwater and reduce downstream flooding in their neighborhoods. ▪ *Central Coast Wetlands Group "Regional Water Quality Monitoring Network*": This monitoring project will include flow metering that will quantify real time flow measurements that can be made available online for multiple users. Real time flow at coastal confluence and the resulting loading data will help IRWM Plan partners in the Greater Monterey County region to improve their understanding of watershed processes and better model rainfall driven flow patterns of these drainages. ▪ *County of Monterey "San Lucas Water District Public Water Supply":* The project will be engineered to protect the San Lucas municipal water supply from potential effects of flooding in Salinas River.
Climate Change	
Water Supply Reliability	▪ *County of Monterey "San Lucas Water District Public Water Supply":* The community of San Lucas presently has no emergency drinking water source due to nitrate contamination of its existing well. The proposed project will provide this and help create a more reliable drinking water supply for the community. ▪ *Pajaro/Sunny Mesa Community Services District "Springfield Water Project":* The water supply system is currently on demand status without storage and the well is located in a flood prone area. This leaves residents vulnerable to water shortages during electrical outages and flood events. Proposed construction of a storage tank and new distribution system will make the community more resilient to disruptive events and will provide a more reliable water supply.

	▪ *RCD "Invasive Non-native Plant Control":* Treating arundo in the Salinas River watershed will result in more water available for groundwater recharge and in-stream flow, promoting water conservation within the wild landscape to reduce drought stress in other systems (water to be pumped for human use, native vegetation and in-stream habitat), potentially enhancing the system's flexibility to respond to or accommodate potential climate change impacts of warming and associated increased evapotranspiration rates (environmental and agricultural water needs). ▪ *RCD "Farm Water Quality Assistance":* Assisting growers with water conservation will give them flexibility in dealing with changing water supplies and demands associated with climate change. ▪ *Ecology Action "Green Gardener Training":* Green Gardeners are trained to plan landscape design and maintenance around the potential impacts of future climate change, including increased storm intensity, drought conditions leading to mandatory water restrictions for landscaping, and increased costs of both water and fuel for landscaping equipment. The Green Gardener Certification Program contributes to mitigating climate change impacts by educating landscape professionals and home gardeners about best management practices that reduce landscape water use. ▪ *City of Salinas/ MRWPCA "Dry Weather Runoff Diversion":* The project will result in a potential new source of recycled water—from captured City of Salinas stormwater—for agricultural irrigation in the coastal region. This will help offset groundwater pumping in an area of critical overdraft and seawater intrusion, and help provide a more reliable source of water for agriculture. The project will also enable diversification of water supply sources by including a source not utilized in the past—stormwater from the City of Salinas—and optimizing conjunctive use.
Protection against Sea Level Rise	▪ *Central Coast Wetlands Group "Regional Water Quality Monitoring Network*": The project will include two coastal confluence monitoring stations that will continuously measure critical data necessary to track early warning signs of climate change. These monitoring stations will quantify water elevation, flow rates and direction, salinity and temperature—all data needed to respond to the future coastal inundation of the Salinas Valley that is described in the IRWM Plan. Future actions to minimize inland flooding will require these data in order to appropriately design tide gates and other control structure to ensure proper function while protecting other wetland and aquatic resources. ▪ *Elkhorn Slough Foundation "Ridgeline to Tideline":* Planning for North Marsh improvements will include designs to protect sensitive wetland habitat and transportation infrastructure from predicted sea level rise. The marsh restoration portion of this project helps ensure longevity of Elkhorn Slough's fragile salt marshes by increasing their resilience to climate change. The project will be designed to raise wetland elevations to a level appropriate to withstand predicted sea level rise in order to prevent marsh drowning. In addition, mudflats provide less erosion protection for uplands against wind waves and storm surges; restoring the existing mudflats to tidal marsh will help sustain the wetland and upland landscapes of Elkhorn Slough into the future.
Reduced GHG Emissions	▪ *RCD "Farm Water Quality Assistance":* Assisting growers with water conservation will enable them to reduce their energy use associated with water pumping. ▪ *Pajaro/Sunny Mesa Community Services District "Springfield Water Project":* The project will reduce future GHG emissions by the district. The newer pumps and construction of a new gravity fed system will be more energy efficient and will emit less gas. ▪ *Ecology Action "Green Gardener Training":* Graduates of the program achieve GHG redutions associated with groundwater pumping and conveyance of treated water by replacing lawns and high water use landscapes with drought tolerant plants, retrofitting inefficient irrigation systems, and installing alternative water supplies for landscape irrigation such as graywater and rainwater harvesting systems. Graduates reduce GHG emissions by their industry by discontinuing the use of 2-stroke motorized equipment and replacing inefficient equipment with either newer 4-stroke models that meet EPA Clean Air Act standards, electric models, or using manual equipment. Green Gardener graduates market services that conserve fossil fuel use in the form of on-site composting of green waste and the use and transport of locally recycled mulch and compost.

2. Purpose and Need

The projects contained in this proposal address some of the most pressing problems of the Greater Monterey County IRWM region. These problems include:

1. Lack of access to safe drinking water in many disadvantaged communities (DACs) in the region
2. Seawater intrusion in the Salinas Valley Groundwater Basin
3. Water quality impairments in surface waters, groundwater aquifers, estuarine and coastal waters
4. Ecosystem degradation due to water quality impairments and invasive non-native plant species

This section provides a brief overview of these problems and explains how the projects included in this proposal address these water resource management issues. This section also demonstrates how the proposal addresses the goals and objectives of the adopted IRWM Plan, and how the projects will implement a diverse array of the water resource management strategies outlined in the IRWM Plan.

a. Significant Problems in the Region and How the Proposed Projects Address Them

1. Lack of Access to Safe Drinking Water in Disadvantaged Communities

A recent study completed by the University of California, Davis, "Addressing Nitrate in California's Drinking Water," reports that one third of wells in the northern, eastern and central areas of the Salinas Valley tested for nitrates are in excess of the State standard of 45 mg/l that is considered acceptable for safe drinking water (Harter et al. 2012). One in ten public supply wells are estimated by the UC study to exceed the nitrate levels before treatment. In addition, many communities in the area are among the poorest in California and have limited economic means or technical capacity to maintain safe drinking water.

According to US Census data, four disadvantaged communities (DACs) have been identified in the Greater Monterey County region: Boronda, Castroville, Chualar, and San Ardo. A tract-level search using 2006-2010 ACS data has identified 20 additional DAC census tract areas outside of these communities, primarily in or near the cities of Salinas, King City, Gonzales, and Marina, and in North County. Five of those census tract areas qualify as "severely DACs," with MHIs that are less than 60 percent of the statewide MHI.

The Greater Monterey County RWMG has been making a concerted effort to find long-term solutions to the problem of drinking water quality and affordability for DACs in the region. The RWMG includes three organizations—Environmental Justice Coalition for Water, Rural Community Assistance Corporation, and San Jerardo Cooperative, Inc.—that specifically represent DAC interests in the region. In 2012, the RWMG received Round 1 IRWM Planning Grant funds to expand outreach to DACs and to enable additional assistance to help increase DAC participation in the IRWM planning effort. A DAC Outreach Plan for the Greater Monterey County region has been developed, and two additional organizations—California Rural Legal Assistance and Nilsen & Associates—have been brought on to assist the RWMG in implementing the plan. Two of the projects included in this grant application—the County of Monterey's "San Lucas Water District Public Water Supply Project" and Pajaro/Sunny Mesa Community Services District's "Springfield Water Project"—are a direct result of that effort:

- *County of Monterey: "San Lucas Water District Public Water Supply Project":* The community of San Lucas is a small (population 400) impoverished, predominately Hispanic, farmworker village in southern Monterey County. The San Lucas Water District operates the community's drinking water and wastewater systems, and has approximately 85 service connections. The

District has very limited financial capacity and operational capacity. Since 2006 the County of Monterey Redevelopment and Housing Office has been providing on-going assistance to the Water District with the goal of supporting the existing community and providing additional affordable housing.

Since March 2011 all customers of the Water District have been on an indefinite "Do Not Drink" order from the Monterey County Division of Environmental Health due to excessive levels of nitrates in water being pumped from the District's single well. Community residents are required to purchase bottled water for drinking and cooking, while still paying an average of $70 per month for water service. Nitrate levels are currently running over 70 ppm. The groundwater from this well also contains excessive levels of Total Dissolved Solids (TDS, secondary standard), running at about 2,000 ppm. The Monterey County Division of Environmental Health has directed the Water District to implement a new source of water that meets all public water quality requirements as soon as possible. Until that time, the "Do Not Drink" order will remain in effect. In addition, the State RWQCB has been unable to certify approval of the District's recently upgraded wastewater treatment and disposal system due to high TDS in the treated effluent, which is a direct result of high TDS in the community's water source. As a result, the District cannot approve any new service connections to the sewer system until this issue is resolved.

The San Lucas Water District Public Water Supply Project will implement preparation of a Feasibility Study to evaluate all available feasible options for long-term solutions to the water supply problem and will result in construction of a new water supply system for this impoverished community.

- *Pajaro/Sunny Mesa Community Services District: "Springfield Water Project":* Springfield Terrace is a disadvantaged community of about 165 residents in North County, many of whom are farmworkers. The Springfield Mutual Water system has not met the drinking water standards since at least 1986, due to excess nitrates in the groundwater supply. The current nitrate levels run around 300 mg/l (where nitrates in excess of 45 mg/l present a risk to health of humans when continuously used for drinking purposes). Residents of this community do not have the financial capacity to absorb increased water rates in order to finance the replacement of their contaminated well. Even so, they must frequently travel several miles to purchase bottled water for drinking and cooking purposes.

  Engineering, geotechnical and hydrological studies are required to determine the feasibility of potential options under consideration to replace an existing drinking water well that has high nitrate levels and is at risk of seawater intrusion. The first option would include development of a new well, storage tank and associated distribution system. The second option would be to connect to the Moss Landing Water System to the south of the community. Environmental planning (CEQA), permitting and project coordination are included in the request. In addition to conceptual design and feasibility analysis, the goal is to develop plans and specifications for the selected project in preparation for construction bidding.

In addition to addressing critical water supply needs of two DACs in the region, it is worth noting that several of the other projects included in this application also address DAC needs and/or environmental justice concerns in the region. These include:

- *Ecology Action's "Green Gardener Training Program"* will provide a bilingual curriculum for members of DACs about water resource protection, pollution prevention, conservation, water quality, and watershed health. The Green Gardener program makes both an economic and environmental justice impact for those who complete training. Green Gardener certification

increases the earned income of a population of these English language learners who lack skills to successfully attend community college level classes in horticulture. Graduates are often promoted to foreman positions in their companies after becoming certified, and graduates are more likely to find and retain employment within the local landscaping industry if they have obtained Green Gardener certification. In addition, less than 10 percent of Green Gardener students entering the program who are in the landscape maintenance business have a Qualified Applicators License or Certificate from the Department of Pesticide Regulation. Green Gardener training provides bilingual training in Integrated Pest Management and refers students to the County Agricultural Commissioner to take advantage of licensing training and opportunities.

- *Elkhorn Slough Foundation's "Ridgeline to Tideline"* proposed project area lies just north of Castroville, a DAC identified in the Greater Monterey County IRWM Plan. The project will reduce stormwater flooding and sedimentation and increase public safety on a primary county road used by Castroville residents. It will also protect local water from poor surface and groundwater quality. In addition, salt marsh restoration through sediment addition will provide indirect benefits to a DAC that lies outside the Greater Monterey County IRWM region, the community of Pajaro. Pajaro is directly impacted by Pajaro River flooding. The Pajaro River Bench Excavation Project is designed to reduce the frequency and degree of flooding of this community. That project is limited by the availability of suitable sediment placement sites. The beneficial reuse of this sediment for marsh restoration in Elkhorn Slough will enable this flood management project to proceed more predictably and efficiently, benefitting this community.

- *RCD's "Farm Water Quality Assistance Program"* will serve water quality needs of DACs by promoting practices that are designed to benefit gradual improvement of groundwater throughout the region and by including Spanish-language outreach and technical assistance for Hispanic growers and farmworkers.

- *Save Our Shores' "Annual Coastal Cleanup Day"* will promote public education in DACs about pollution prevention, conservation, and watershed health. Save Our Shores will engage under-represented youth in cities within Monterey County providing in-class presentations about watersheds and pollution prevention prior to Annual Coastal Cleanup Day as well as training students to participate in the cleanup efforts as leaders.

- *RCD's "Invasive Non-native Plant Control Program"* will actively engage south county students, some of whom are members of DACs, through participation in revegetation projects.

2. Seawater Intrusion

Groundwater is the main source of water for most water users in the Greater Monterey County planning region (with the primary exception of residents along the Big Sur coast, who depend entirely on surface water and shallow wells for their water supply). The largest groundwater basin in the planning region is the Salinas Valley Groundwater Basin.

Seawater intrusion was first observed in a few wells in the Salinas Valley Groundwater Basin area in 1932, and was documented in Bulletin 52 (DWR 1946). By the 1940s, many agricultural wells in the coastal Castroville area had become so salty that they had to be abandoned. In 2011, the total acres overlying the seawater intrusion front in the Pressure 180-Foot Aquifer equaled 28,142 acres, having advanced 351 acres since 2009. The total acres overlying the seawater intrusion front in the Pressure 400-Foot Aquifer in 2011 equaled 12,573 acres, having advanced 476 acres since 2009 (MCWRA website: http://www.mcwra.co.monterey.ca.us/). Seawater has intruded approximately seven miles inland in the

180-Foot Aquifer and three miles inland in the 400-Foot Aquifer. As a result of seawater intrusion, urban and agricultural supply wells have been abandoned, destroyed, and relocated.

Despite best efforts on the part of water managers and water users in the region to reverse the trend of seawater intrusion, the problem is expected to become worse as a result of climate change in future years. One of the most serious anticipated consequences of climate change for the Monterey Bay region is sea level rise. Projections suggest possible sea level rise of approximately 14 inches (36 cm) by 2050 and up to approximately 55 inches (140 cm) by 2100. Sea level rise will significantly increase the pressure of saltwater on the coastal Salinas Valley Groundwater Basin aquifers, causing increased seawater intrusion in critical groundwater supplies.

Given the seriousness of seawater intrusion now, and the anticipated exacerbation of this problem due to climate change in the future, the RWMG considers the implementation of projects that help reverse the trend of seawater intrusion and/or that help create water supply reliability to be a high priority for the region. Almost all of the projects included in this application address this issue in some way. The following briefly describes how:

- *County of Monterey's "San Lucas Water District Public Water Supply"* project addresses critical drinking water supply needs of a DAC, and provides an emergency back-up source of water.

- *Pajaro/Sunny Mesa Community Services District's "Springfield Water Project"* addresses critical drinking water supply needs of a DAC, and provides greater water supply reliability.

- *City of Salinas/MRWPCA's "Dry Weather Runoff Diversion Program"* may result in a potential new source of recycled water—from captured City of Salinas stormwater—for agricultural irrigation in the coastal region. This would help offset groundwater pumping in an area of critical overdraft and seawater intrusion, and help provide a more reliable source of water for agriculture. The project will also enable diversification of water supply sources by including a source not utilized in the past, i.e., stormwater from the City of Salinas.

- *RCD's "Invasive Non-native Plant Control Program"* will result in more water available for groundwater recharge by eradicating the noxious weed arundo (which has been known to draw as much as three times the amount of water from the aquifer as native vegetation) and other invasive non-native plants.

- *RCD's "Farm Water Quality Assistance Program"* will reduce groundwater pumping by promoting on-farm water conservation management practices.

- *Ecology Action's "Green Gardener Training Program"* will educate landscape professionals and home gardeners about best management practices that reduce landscape water use, thereby contributing to region-wide water conservation efforts and reduced groundwater pumping.

- *Elkhorn Slough Foundation's "Ridgeline to Tideline"* project will result in increased water conservation and groundwater recharge, which will be achieved through the acquisition and removal of approximately 95 acres of farmland from production. Reduced stormwater runoff from improved management practices will also enable increased infiltration and recharge into the underlying groundwater basin, which is located in the coastal area where seawater intrusion occurs.

3. Water Quality Impairments

The Greater Monterey County region suffers from significant water quality impairments in surface

waters, groundwater aquifers, estuarine and, to a lesser extent, coastal waters.

Within the Greater Monterey County IRWM region, 29 water bodies have been determined by the Central Coast RWQCB to be impaired under Section 303(d) of the Clean Water Act. The quality of surface waters in the region is greatly influenced by land use practices. Primary causes of pollutants to surface waters include agricultural runoff, urban runoff, erosion and sedimentation, and septic systems. Agricultural runoff is of particular concern since agriculture represents the primary land use in Monterey County, accounting for about 56% of the total land area and occupying more than 1.4 million acres of land. Erosion is a widespread problem, due in part to the erosive nature of local soils as well as from land use practices (including farming on steep slopes).

The region has 332 miles of impaired rivers (20 rivers/creeks, including over 100 miles of the Salinas River), 2,339 acres of impaired estuaries (mostly Elkhorn Slough), 79 acres of impaired harbor, and 5,580 acres of impaired lakes/reservoirs (mainly the San Antonio Reservoir). The water bodies in the lower Salinas Valley have some of the worst pollutant impairments on the Central Coast. The Lower Salinas River has the most pollutant impairments identified on the 303(d) list of any other water body on the Central Coast, with 19 impairments.

Water quality impairments in the upper watersheds of the region from urban and agricultural sources directly impact sensitive habitats downstream, including estuarine and coastal marine ecosystems. Environmental resources of particular significance in the Greater Monterey County region are the Monterey Bay National Marine Sanctuary and the Elkhorn Slough National Estuarine Research Reserve. Offshore areas of the Sanctuary are in relatively good condition, but nearshore coastal areas show a number of problems resulting largely from nonpoint sources of pollution, including elevated levels of nitrates, sediments, persistent pesticides, metals, bacteria, pathogens, detergents, and oils.

Elkhorn Slough, located in the northern coastal area of the region, provides some of the most important estuarine marsh habitat for wildlife and is one of the few coastal wetlands remaining in California. Over the past 150 years, human actions have altered the tidal, freshwater, and sediment processes in Elkhorn Slough and its watersheds. Such impacts have substantially changed the water quality conditions and have increased the levels of pollution and eutrophication in the slough (Elkhorn Slough Tidal Wetland Project Team 2007). Control structures have caused many sites in Elkhorn Slough to have very restricted tidal exchange, thus resulting in poor water quality conditions, as evident through low dissolved oxygen and elevated levels of organic matter accumulation. Relatively high levels of nutrients and legacy agricultural pesticides, such as DDT, have been documented within the Elkhorn Slough wetlands complex. Pathogens, pesticides, sediments, low dissolved oxygen levels and ammonia have impaired sections of Elkhorn Slough and waterbodies adjacent to the slough.

The entire Salinas Valley Groundwater Basin, which includes four sub-basins, is listed as impaired under Section 303(d) of the Clean Water Act and as only partially supporting beneficial uses due to nitrate contamination and seawater intrusion (RWQCB 2002). The problem of seawater intrusion has been described above. Nitrate contamination in the Salinas Valley was first documented in a report published by the Association of Monterey Bay Area Governments in 1978. Nitrate contamination in the Salinas Valley is due primarily to use of nitrogen-based synthetic fertilizers for irrigated agriculture. Nitrate contamination is present throughout the Salinas Valley, with concentrations highest in the 180-foot aquifer. In 2007, 37 percent of the 152 wells sampled in the Salinas Valley Groundwater Basin showed nitrate levels greater than the maximum drinking water standard (DWS) of 45 mg/l NO_3, with concentrations highest in the Upper Valley and East Side Subareas. In the Upper Valley Subarea, 68 percent of wells had nitrate concentrations reported at greater than the DWS, with a maximum concentration of 425 mg/L NO_3 and a mean concentration of 90 mg/L NO_3; and in the East Side Subarea, 60 percent of wells had nitrate concentrations reported at greater than the DWS, with a maximum

concentration of 502 mg/L NO_3 and a mean concentration of 106 mg/L NO_3. All of the Salinas Valley cities have had to replace domestic water wells due to high nitrate levels that exceed the drinking water standard. The State Water Resources Control Board ranked the Salinas Valley as their number one water quality concern due to the severity of nitrate contamination in a July 1995 staff report. As a result, development and implementation of a nitrate management program for the Salinas Valley has become a priority for the State Board.

Almost all of the projects included in this grant application address the issue of water quality impairment in the Greater Monterey County region. The following briefly explains how each project contributes to water quality improvements throughout the region:

- *RCD's "Farm Water Quality Assistance Program"*—a bilingual on-farm erosion, irrigation, and nutrient management education, evaluation and improvement program—will help protect surface waters and groundwater basins from contamination by encouraging farmers to reduce excess soil, water, and nutrient movement off their farms to meet regional water quality requirements while optimizing farm productivity.

- *Ecology Action's "Green Gardener Training Program"* will help protect surface waters from contamination by encouraging landscape professionals and home gardeners to reduce use of pesticides and soluble nitrogen fertilizers. The program will improve the quality of urban runoff to surface waters and help protect the underlying aquifers. In addition, laundry-to-landscape greywater irrigation system installations that result from Green Gardener workshops will protect groundwater quality by relieving stress on failing or poorly maintained septic system leach fields in households that may not be able to afford constructing an alternate leach field.

- *City of Salinas/MRWPCA's "Dry Weather Runoff Diversion Program"* will protect surface waters from contamination and the threat of contamination by diverting dry weather urban runoff to the regional wastewater treatment facility for treatment, preventing pesticides, nitrates, toxins, and other contaminants from entering underlying aquifers and downstream coastal waters.

- *RCD's "Invasive Non-native Plant Control Program"* will improve surface water quality in the Salinas River, its tributaries, and downstream coastal waters in terms of reduced turbidity as well as any legacy pesticides that might be carried along in soils mobilized by otherwise arundo-induced streambank erosion. Large banks or midstream bars armored with arundo force storm flows into other banks, exacerbating erosion and associated downstream sedimentation. Arundo treatment of approximately 100 net acres in the project area will reduce that potential for erosion.

- *Elkhorn Slough Foundation's "Ridgeline to Tideline"* project, by retiring farm fields on steep slopes and implementing more efficient management of remaining farm fields, will significantly reduce major sources of erosion in the Elkhorn Slough watershed. Reduced fertilizer applications on the acquired farm parcel will reduce the risk of groundwater contamination by nitrates; and reduced groundwater pumping on the acquired farmland will help prevent seawater intrusion. Improved farm management will also improve surface water quality in the downhill estuarine habitat.

- *County of Monterey's "San Lucas Water District Public Water Supply Project"* will help protect the Salinas Valley Groundwater basin by improving the municipal water source in San Lucas, which will result in improved wastewater effluent quality (reduced TDS).

- *Central Coast Wetlands Group's "Regional Water Quality Monitoring"* project will enable project proponents, government agencies, and other decision-makers to document the effectiveness of water quality management practices, and to thereby make better use of future

resources in implementing water quality protection projects (including agricultural best management practices and low impact development practices). This project is critical to helping the RWMG document the effectiveness of water quality improvement projects implemented through the IRWM Plan and to measure the success of the IRWM Plan over time.

4. Ecosystem Degradation

All of the projects cited above that contribute to water quality improvements for surface waters in the region also contribute to healthier in-stream, riparian, and coastal habitats by reducing sedimentation and/or toxins in downstream waterways. The region's creeks and streams provide habitat for several federally protected species, including most notably South-Central California Coast steelhead (*Oncorhynchus mykiss*), federally listed as threatened in 1997 (and reconfirmed in 2006). The South-Central California Coast steelhead populations have declined from annual runs totaling 27,000 spawning adults to less than 500. Critical habitat has been designated for South-Central California Coast steelhead within the Salinas River basin, including the Salinas River, the Salinas River Lagoon, Gabilan Creek, Arroyo Seco River, Nacimiento River, the San Antonio River, and their tributaries.

The National Marine Fisheries Service has identified seven principal threats that have contributed to the destruction, modification, or curtailment of the habitat or range of the South-Central California Coast steelhead. These include: 1) alteration of natural stream flow patterns; 2) physical impediments to fish passage; 3) alteration of floodplains and channels, including the degradation or elimination of riparian areas; 4) sedimentation; 5) urban and rural waste discharges; 6) spread and propagation of exotic species (such as bass and bullfrogs that prey on juvenile steelhead, and non-native plants such as arundo and tamarisk); and 7) loss of estuarine habitat. Projects included in this application address these threats in the following ways (NMFS 2007).

Projects that will promote healthier habitat by contributing to the reduction of sediment, pesticides, nutrients, other potential toxins, and debris in the region's waterways and downstream coastal waters, as described previously, include the following:

- City of Salinas/MRWPCA: Dry Weather Runoff Diversion Program
- RCD of Monterey County: Salinas River Watershed Invasive Non-native Plant Control and Restoration Program
- RCD of Monterey County: Monterey County Farm Water Quality Assistance Program
- Ecology Action: Monterey Bay Green Gardener Training & Certification Program
- Elkhorn Slough Foundation: Ridgeline to Tideline - Water Resource Conservation in Elkhorn Slough
- Central Coast Wetlands Group: Deployment of the Greater Monterey County Regional Water Quality Monitoring Network
- Save Our Shores: Watershed Protection Program - Annual Coastal Cleanup Day in Monterey County

Projects that will promote healthier habitat by directly removing non-native invasive plants and revegetating with native plant species include the following:

- *RCD's "Invasive Non-native Plant Control Program"* will remove arundo (*Arundo donax)*, tamarisk (*Tamarix ramosissima*), and other invasive non-native plant species from the Salinas River and its tributaries. Unlike native riparian plants, both arundo and tamarisk provide little shading for in-stream habitat, leading to increased water temperatures and reduced habitat quality

for aquatic wildlife. Wildlife at risk include the federally threatened California red-legged frog (*Rana aurora draytonii*), the federally endangered least Bell's vireo (*Vireo bellii pusillus*), the federally endangered arroyo toad (*Bufo microscaphus californicus*) and the federally threatened southern steelhead trout (*Oncorhynchus mykiss*). The project will promote increased stream shading and temperature improvements for steelhead, enhanced navigability and fish passage, and other in-stream and riparian habitat improvements.

- *Ecology Action's "Green Gardener Training Program"* will educate participants about preventing and controlling invasive species in landscapes using the California Invasive Plant Council's "Don't Plant a Pest!" materials.

- *Elkhorn Slough Foundation's "Ridgeline to Tideline"* project will promote habitat restoration in the uplands above North Marsh in Elkhorn Slough, restoring rare marsh-to-upland ecotone habitat. The project will significantly reduce the abundance of non-native iceplant, a California Invasive Plant Council (Cal-IPC) high priority invasive species, and non-native eucalyptus, which Cal-IPC claims has high ecological impacts in coastal areas.

Projects that will directly restore and/or improve estuarine and coastal habitat include the following:

- *Elkhorn Slough Foundation's "Ridgeline to Tideline"* project will result in much-needed habitat improvements for Elkhorn Slough. Over the last 150 years approximately 50% of Elkhorn's marshes have been lost due to human modifications; their restoration is critical for the long-term health of the estuary. The project will directly address loss of estuarine habitat in Elkhorn Slough by: 1) planning, design, and environmental compliance for increasing tidal range and circulation in North Marsh, a part of the Slough with consistently poor water quality and greatly reduced estuarine function, and restoring an adjacent upland buffer; 2) acquiring adjacent farmland property that is a chronic source of Slough degradation, with retirement of 95 acres of that land from production and more efficient management of the remaining farm fields; and 3) restoring 7 acres of a nearby marsh through the addition of sediment.

- *Save Our Shores' "Annual Coastal Cleanup Day"* will improve marine habitat in the Marine Bay National Marine Sanctuary coastal waters by removing plastic and other litter from beaches and coastal waterways and thereby preventing it from becoming marine debris. Seabirds, sea turtles, fish, and marine mammals often ingest marine debris that they mistake for food, which can lead to malnutrition or starvation. Marine life can also become entangled in marine debris, causing serious injury or death. Save Our Shores' project will not only result in a safer, healthier coastal environment for marine life but in a cleaner, safer, and more enjoyable recreational experience for residents and tourists in the region.

b. How the Projects Address Goals and Objectives of the Adopted IRWM Plan

While projects for this proposal were selected to address the region's most pressing water resource management problems, they were also selected to address as many goals and objectives of the region as possible, as outlined in the Greater Monterey County IRWM Plan. Together, the nine projects address *all* of the goals and objectives of the IRWM Plan (including 57 objectives). The table beginning on the following page demonstrates how the projects in this proposal address IRWM Plan objectives.

Table 2. How Projects Address Goals and Objectives of the Greater Monterey County IRWM

	San Lucas Water District	Pajaro/ Sunny Mesa CSD	City of Salinas/ MRWPCA	RCD – Invasive Plants	RCD – Farm WQ	Ecology Action	Elkhorn Slough Foundation	Central Coast Wetlands Group	Save Our Shores
WATER SUPPLY GOALS & OBJECTIVES									
Goal: *Improve water supply reliability and protect groundwater and surface water supplies.*									
Increase groundwater recharge and protect groundwater recharge areas.				X	X		X		
Optimize the use of groundwater storage with infrastructure enhancements and improved operational techniques.		X							
Increase and optimize water storage and conveyance capacity through construction, repair, replacement, and augmentation of infrastructure.	X	X							
Diversify water supply sources, including but not limited to the use of recycled water.	X		X			X			
Maximize water conservation programs.					X	X	X		
Capture and manage stormwater runoff.			X		X	X	X		
Optimize conjunctive use where appropriate.		X	X						
Support research and monitoring to better understand identified water supply needs.								X	
Support the creation of water supply certainties for local production of agricultural products.	X		X				X		
Promote public education about water supply issues and needs.		X		X	X	X		X	
Promote planning efforts to provide emergency drinking water to communities in the region in the event of a disaster.	X	X							
WATER QUALITY GOALS & OBJECTIVES									
Goal: *Protect and improve surface, groundwater, estuarine, and coastal water quality, and ensure the provision of high-quality, potable, affordable drinking water for all communities in the region.*									
Promote practices necessary to meet, or where practicable, exceed all applicable water quality regulatory standards (for drinking water, surface and groundwater quality).	X	X	X	X	X	X	X	X	
Promote projects to prevent seawater intrusion.			X		X		X		
Incorporate or promote principles of low impact development where feasible, appropriate, and cost effective.						X	X		
Protect surface waters and groundwater basins from contamination and the threat of contamination.	X	X	X		X	X	X	X	
Support research and pilot projects for the co-management of food safety and water quality protection.					X				
Improve septic systems, sewer system infrastructure, wastewater treatment systems, and manure management programs to prevent water quality contamination.	X					X			
Support research and other efforts on salinity management.	X				X			X	
Support monitoring to better understand major sources of erosion, and implement a comprehensive erosion control program.				X	X		X		
Promote programs and projects to reduce the quantity and improve the quality of urban and agricultural runoff and/or mitigate their effects in surface waters, groundwater, and the marine environment.			X	X	X	X	X	X	
Promote regional monitoring and analysis to better understand water quality conditions.	X		X		X		X	X	

	San Lucas Water District	Pajaro/ Sunny Mesa CSD	City of Salinas/ MRWPCA	RCD – Invasive Plants	RCD – Farm WQ	Ecology Action	Elkhorn Slough Foundation	Central Coast Wetlands Group	Save Our Shores
Support research and utilization of emerging technologies (enzymes, etc.) to develop effective water pollution prevention and mitigation measures, and source tracking.					X			X	
Promote public education about water quality issues and needs.		X		X	X	X			X
FLOOD PROTECTION AND FLOODPLAIN MANAGEMENT GOALS & OBJECTIVES									
Goal: *Develop, fund, and implement integrated watershed approaches to flood management through collaborative and community supported processes.*									
Promote projects and practices to protect infrastructure and property from flood damage.	X			X	X	X	X		
Improve flood management infrastructure and operational techniques/strategies.				X			X	X	
Implement flood management projects that provide multiple benefits such as public safety, habitat protection, recreation, agriculture, and economic development.				X			X		
Develop and implement projects to protect, restore, and enhance the natural ecological and hydrological functions of rivers, creeks, streams, and their floodplains.			X	X			X		
Support research and monitoring efforts to understand the effects of flooding on transport and persistence of pathogens in food crop production areas.				X				X	
Support management of flood waters so that they do not contaminate fresh produce in the field.				X	X				
Promote public education about local flood management issues and needs.				X	X	X			
ENVIRONMENT GOALS & OBJECTIVES									
Goal: *Protect, enhance, and restore the region's ecological resources while respecting the rights of private property owners.*									
Support science-based projects to protect, improve, enhance, and/or restore the region's ecological resources, while providing opportunities for public access and recreation where appropriate.				X	X	X	X		X
Protect and enhance state and federally listed species and their habitats.				X	X	X	X		X
Minimize adverse environmental impacts of water resource management projects.	X	X	X	X					
Support applied research and monitoring to better understand environmental conditions, environmental water needs, and the impacts of water-related projects on environmental resources.							X	X	
Implement fish-friendly stream and river corridor restoration projects.				X			X		X
Reduce adverse impacts of sedimentation into streams, particularly from roads and non-point sources.	X		X	X	X	X	X		
Promote efforts to prevent, control, reduce, and/or eradicate high priority invasive species.				X		X	X		
Promote native drought-tolerant plantings in municipal and residential landscaping.						X			
Consider opportunities to purchase fee title or conservation easements on lands from willing sellers that provide integrated water resource management benefits. Ensure adequate funding and infrastructure to manage properties and/or monitor easements.							X		
Support research and monitoring efforts to understand the effects of wildfire events on water resources.								X	
REGIONAL COMMUNICATION AND COOPERATION GOALS & OBJECTIVES									
Goal: *Promote regional communication, cooperation, and education regarding water resource management.*									
Facilitate dialogue and reduce inconsistencies in water management strategies/regulations between local, regional,	X	X	X	X	X	X		X	

	San Lucas Water District	Pajaro/ Sunny Mesa CSD	City of Salinas/ MRWPCA	RCD – Invasive Plants	RCD – Farm WQ	Ecology Action	Elkhorn Slough Foundation	Central Coast Wetlands Group	Save Our Shores
state, and federal entities.									
Promote dialogue between federal and state regulators and small water system managers to facilitate water quality regulation compliance.	X	X							
Foster collaboration between regional entities to minimize and resolve potential conflicts and to obtain support for responsible water supply solutions and improved water quality.	X	X	X	X	X	X	X	X	
Build relationships with federal, state, and local regulatory agencies and other water agencies to facilitate the permitting, planning, and implementation of water-related projects.	X	X	X	X	X		X		
Increase stakeholder input and public education about the need, complexity, and cost of strategies, programs, plans, and projects to improve water supply, water quality, flood management, coastal conservation, and environmental protection.	X	X		X	X	X			
DISADVANTAGED COMMUNITIES GOALS & OBJECTIVES									
Goal: *Ensure the provision of high-quality, potable, affordable water and healthy conditions for disadvantaged communities (DACs).*									
Seek funding opportunities to ensure all communities have a water system with adequate, safe, high-quality drinking water.	X	X							
Seek funding opportunities to ensure all communities have adequate wastewater treatment.	X	X							
Ensure that disadvantaged communities are adequately protected from flooding and the impacts of poor surface and groundwater quality.	X	X			X	X	X		
Provide support for the participation of disadvantaged communities in the development, implementation, monitoring, and long-term maintenance of water resource management projects.	X	X				X			
Promote public education in disadvantaged communities about water resource protection, pollution prevention, conservation, water quality, and watershed health.	X	X		X	X	X			X
CLIMATE CHANGE GOALS & OBJECTIVES									
Goal: *Adapt the region's water management approach to deal with impacts of climate change using science-based approaches, and minimize the regional causal effects.*									
Plan for potential impacts of future climate change.	X	X		X	X	X	X	X	
Support increased monitoring and research to obtain greater understanding of long-term impacts of climate change in the Greater Monterey County region.								X	
Support efforts to research alternative energy and to diversify energy sources appropriate for the region.		X							
Seek long-term solutions to reduce greenhouse gas producing energy use.	X	X			X	X			
Seek long-term solutions to maintain and protect existing pristine natural resources from the impacts of climate change.				X	X	X	X		
Support research and/or implementation of land-based efforts such as carbon-sequestration on working lands and wildlands in the Greater Monterey County region.							X		
Promote public education about impacts of climate change, particularly as it relates to water resource management in the Greater Monterey County region.		X			X	X			

c. How the Projects Address Resource Management Strategies of the Adopted IRWM Plan

Another objective of this proposal was to implement as diverse a mix of resource management strategies as possible. Together, the nine projects contained in this proposal will implement 30 of the 37 water resource management strategies identified in the Greater Monterey County IRWM Plan. These include:

- Agricultural Water Use Efficiency
- Urban Water Use Efficiency
- Conveyance – Regional/local
- Water Transfers
- Conjunctive Management & Groundwater Storage
- Drinking Water Treatment and Distribution
- Groundwater/Aquifer Remediation
- Matching Water Quality to Use
- Pollution Prevention
- Salt and Salinity Management
- Urban Runoff Management
- Agricultural Lands Stewardship
- Economic Incentives (Loans, Grants, and Water Pricing)
- Ecosystem Restoration
- Forest Management
- Land Use Planning and Management
- Recharge Area Protection
- Water-Dependent Recreation
- Recreation and Public Access
- Watershed Management/Planning
- Flood Risk Management
- Environmental and Habitat Protection and Improvement
- Storm Water Capture and Management
- Wetlands Enhancement and Creation
- Water and Wastewater Treatment
- Infrastructure Reliability
- Surface Storage
- Regional Cooperation
- Education and Outreach
- Monitoring and Research

3. Project List

The table below summarizes the projects contained in this proposal, including project abstract, implementing agency, current status, and requested funds.

Table 3. Project Summary
Greater Monterey County IRWM Region Implementation Grant Request, Round 2
Total Grant Request: $7,567,669

Project (Implementing Agency/Project Title)	Abstract	Status	Requested IRWM Funds
1. County of Monterey: San Lucas Water District Public Water Supply Project [DAC PROJECT]	The community of San Lucas is an impoverished, predominately Hispanic, farmworker village. Since March 2011 all customers of the San Lucas Water District have been on an indefinite "Do Not Drink" order from the Monterey County Division of Environmental Health (DEH) due to excessive levels of nitrates. In addition, the Regional Water Quality Control Board has been unable to certify approval of the District's recently upgraded wastewater treatment and disposal system due to high TDS in the treated effluent, which is a direct result of high TDS in the community's water source. As a result, the District cannot approve any new service connections to the sewer system until this issue is resolved. The proposed project will implement preparation of a Feasibility Study to evaluate all available feasible options for long-term solutions to the water supply problem and identify a Preferred Option. Preliminary engineering analysis of the Preferred Option will be completed, leading to preparation of a Project Description and a CEQA Initial Study. Upon completion of the CEQA process, final engineering plans, specifications, and bid documents will be completed and permits and rights-of-way will be obtained. The County and District will then advertise for bids and construct the project.	Ready to proceed.	$2,362,500
2. Pajaro/Sunny Mesa Community Services District: Springfield Water Project [DAC PROJECT]	Pajaro/Sunny Mesa Community Services District (PSMCD) is requesting funds for predevelopment costs to replace the water supply for the Springfield disadvantaged community in rural Monterey County. The Springfield water system is made up of 35 connections supplying water to about 165 low-income farmworkers in northern Monterey County. The system has exceeded the nitrate MCL since at least 1986; the current level of nitrates in the Springfield water system is 293 ppm. Engineering, geotechnical and hydrological studies are required to determine the feasibility of potential options under consideration to replace an existing drinking water well that has high nitrate levels and is at risk of seawater intrusion. The first option would include development of a new well, storage tank and associated distribution system. The second option would be to connect to the Moss Landing Water System to the south of the community. Environmental planning (CEQA), permitting and project coordination are included in the request. In addition to conceptual design and feasibility analysis, the goal is to develop plans and specifications for the selected project in preparation for construction bidding.	Ready to proceed.	$580,072
3. City of Salinas and Monterey Regional Water Pollution Control Agency: Dry Weather Runoff Diversion Program	This project proposes to divert dry weather urban polluted runoff from the City of Salinas and reclaim it for agricultural water supply. The project will lower pollution loads to the Salinas River and provide water supply to an area of Monterey County where seawater intrusion limits water supplies. Specifically, the project will divert dry weather urban surface water discharge from south Salinas into the City of Salinas's Blanco Detention Basin, which will then be sent to the MRWPCA regional wastewater treatment plant. Water in the basin will settle and filter through the soil as a pretreatment, then flow into a junction point for transfer to the MRWPCA-operated	Ready to proceed.	$428,400

	conveyance system. Shoulder-season wet weather events could be similarly diverted. All diversions will reduce the amount of pollutants entering the Salinas River. Once reclaimed, diverted water could be used for dry-season water supply (e.g., as agricultural irrigation water). Another component of the proposed project will involve mining data from existing water quality sampling reports and/or analyses, possibly installing, operating and maintaining one or more flow meters and automatic water quality samplers.		
4. Resource Conservation District of Monterey County: Salinas River Watershed Invasive Non-native Plant Control and Restoration Program	Wildlife habitat, flood control and water availability on the Salinas River and its tributaries are compromised and threatened by invasive nonnative plants. Arundo is a nonnative aggressive perennial grass that has overtaken 1,869 acres of the Salinas River, forming enormous monocultures with virtually no food or habitat value for native wildlife. Arundo is also known to draw over three times as much water from the aquifer as native vegetation, increasing the likelihood of fire and flooding. Aerial GPS-linked photo reconnaissance of the Salinas River and several tributaries by the RCDMC in May 2011 identified tamarisk as another major invasive plant that is displacing native vegetation and actively migrating into the Salinas River from several tributaries. The project proposal is a 3-year stage of treatment (out of a 10+ year program) and will target arundo and tamarisk and other invasive weeds in the channel, floodplain and terraces of the Salinas River between King City and Soledad.	Project methods are established. Project permits are 80% complete. Plans for each individual site treatment will be based on the standard methods and permit conditions and are included in project scope.	$1,275,701
5. Resource Conservation District of Monterey County: Monterey County Farm Water Quality Assistance Program	The RCD of Monterey County, in close partnership with University of California Cooperative Extension Crop Advisors and USDA Natural Resources Conservation Service, will provide a bilingual on-farm erosion, irrigation, and nutrient management evaluation and BMP assistance program for Monterey County farmers. The service will: 1) evaluate erosion potential, irrigation system and application efficiency, and nutrient budgeting; 2) develop recommendations as needed for field configuration, soil stabilization, and refined water and nutrient applications; and 3) assist growers' voluntary implementation of those recommendations to help reduce excess soil, water and nutrient movement off area farms while optimizing farm productivity. This work is already underway on a smaller scale, and requested funding will support development of a full program for the next three years.	Ready to proceed. Permits not required. Plans for each individual site treatment will be based on standard methods and are included in project scope.	$584,850
6. Ecology Action: Monterey Bay Green Gardener Training and Certification Program	The Monterey Bay Green Gardener Certification Program provides bilingual, hands-on training in ecological landscaping methods for landscaping industry professionals, public agency landscape maintenance staff, and home gardeners. Green Gardener 10-week certification-level course topics include efficient irrigation system design and management, applying mulches and compost to build the soil food web, improving water retention capacity of soil and preventing erosion, drought-tolerant plant selection and natural landscaping based on plant communties in a watershed, integrated pest and weed management strategies that reduce pesticide applications in the landscape, fertilization practices that protect water quality, and natural pruning and plant selection practices that reduce green waste and carbon emissions. The proposed project will expand Green Gardener training opportunities in the cities of Salinas, Soledad, and King City. Trainings will incorporate hands-on learning experiences through the construction of water-wise demonstration sites on both public and private properties. Ecological landscape practices reinforced at training demonstration sites include strategies for turf replacement with low-water use plants, irrigation system efficiency retrofits that achieve	Ready to proceed.	$40,873

	MWELO compliance, graywater irrigation design, installation and maintenance, and stormwater management with low-impact design methods.		
7. Elkhorn Slough Foundation: Ridgeline to Tideline: Water Resource Conservation in Elkhorn Slough	"Ridgeline to Tideline" is a comprehensive approach to addressing water resource issues in an estuarine watershed. The three stages of this project include: 1) planning, design, and environmental compliance for increasing tidal range and circulation in North Marsh, a part of the Slough with consistently poor water quality and greatly reduced estuarine function, and restoring an adjacent upland buffer; 2) acquiring adjacent farmland property that is a chronic source of Slough degradation; and 3) restoring a nearby marsh through the addition of sediment. Planning for increased tidal flushing in North Marsh will ultimately lead to improved water quality, flood protection, and habitat value in estuarine waters. Reduced groundwater extraction on adjacent farmland will improve water balance in the basin, resist seawater intrusion, prevent nitrate pollution and promote freshwater spring re-emergence. Requested funds will support improvement of tidal circulation through site evaluation, planning, evaluation of design alternatives, compilation of a restoration plan, 30% design and CEQA; and land acquisition through due diligence costs. These funds will also support restoration of buffer uplands at North Marsh and 7 acres of a nearby marsh through sediment addition.	1. North Marsh: Conceptual planning phase. 2. Land acquisition: Planning phase; non-match State funds identified for purchase costs 3. Salt marsh restoration: Advanced planning phase: match secured, consulting firm hired.	$1,613,226
8. Central Coast Wetlands Group: Expansion of a Coastal Confluence Water Monitoring System	The cumulative results of water quality projects implemented through the Greater Monterey County IRWM Plan and through other efforts are expected to lead to improvements in the water quality of receiving waters. However, we currently do not have the robust monitoring system in place needed to successfully document these improvements. This project will provide the necessary data to quantify the effectiveness of the various water quality management efforts within priority watersheds of the Greater Monterey County region. The project will expand the coverage of the continuous LOBO (Land/Ocean Biogeochemical Observatory) buoy monitoring array to two additional priority coastal confluence locations that drain significant portions of the Salinas Valley. The LOBO technology is highly advanced with the ability to test and record water quality every hour. Additional nutrient monitoring equipment will be installed at the confluence of multiple sub-drainages in order to further document the cumulative effects of nutrient management strategies. The project will also provide synthesis and analysis of existing data to correlate to on-the-ground work.	Ready to proceed.	$644,247
9. Save Our Shores: Watershed Protection Program - Annual Coastal Cleanup Day in Monterey County	The Annual Coastal Cleanup Day (ACC) event is the largest volunteer event in the state. ACC is hosted internationally by the Ocean Conservancy, state-wide by the California Coastal Commission, and in Santa Cruz and Monterey Counties by Save Our Shores (SOS). This one-day cleanup event not only helps prevent ocean pollution by removing trash from local beaches and coastal rivers, but it is a highly publicized event that raises the public's awareness of marine pollution. In 2011, SOS coordinated over 200 cleanups and collected 38,000 pounds of trash. The requested IRWM grant funds will support three years of ACC for beaches and coastal rivers in Monterey County. This is being proposed as an interregional IRWM project. The project will provide important habitat improvements for coastal water systems as well as educational and recreational benefits for the Greater Monterey County, Pajaro River Watershed, and Monterey Peninsula, Carmel Bay, and South Monterey Bay IRWM regions.	Ready to proceed.	$37,800

4. Integrated Elements of Projects

Important synergies exist between the different water resource management projects included in this proposal that promise to result in significant added value.

The nine projects provide broad geographic coverage of the region, spanning from South County to North County, inland to coastal. All of the projects in this proposal lie "upstream" of the Monterey Bay National Marine Sanctuary, and almost all of the projects overlie the same groundwater basin, the Salinas Valley Groundwater Basin (with the exception of the Springfield Water Project, which overlies the Pajaro Valley Groundwater Basin). The Regional Maps in Section 5 below illustrate how the projects are located in relation to one another, how the surface waters affected by each of these projects physically connect, and their physical relation to the groundwater basins.

The combined effects of these nine projects will have cumulative benefits for both water quality and water supply for the region's water system. Projects that implement surface water quality improvements in the upper watersheds of the region will provide added value for those implementing surface water quality improvements downstream. And all of the projects that provide surface water quality improvements will contribute to improved water quality and aquatic habitat in the receiving waters below, and ultimately in the coastal waters of the Monterey Bay National Marine Sanctuary into which all watersheds in this region flow. In addition, those projects will also provide cumulative water quality benefits for the Salinas Valley Groundwater Basin, via cleaner source waters percolating into the underlying aquifers. Some of those projects will also provide cumulative water supply benefits for the Salinas Valley Groundwater Basin in terms of increased recharge (e.g., via better stormwater management or arundo removal) and/or reduced pumping (e.g., via water conservation practices).

Below is a brief summary of the projects that will provide these cumulative water quality and water supply benefits, directly or indirectly, for the region's water system (more detail on how the projects will provide these benefits can be found in Sections 1 and 2 above):

Table 4. Cumulative Beneficial Impacts of Projects on the Region's Water System

Project	Water Quality Benefits: Coastal Waters	Water Quality Benefits: Salinas Valley Groundwater Basin	Water Supply Benefits: Salinas Valley Groundwater Basin
County of Monterey: San Lucas Water Supply		x	
City of Salinas/MRWPCA: Dry Weather Runoff Diversion Program	x	x	x
RCD: Invasive Non-native Plant Control	x	x	x
RCD: Farm Water Quality Assistance	x	x	x
Ecology Action: Green Gardener Training	x	x	x
Elkhorn Slough Foundation: Ridgeline to Tideline	x	x	x
Central Coast Wetlands Group: Regional Water Quality Monitoring	x	x	
Save Our Shores: Annual Coastal Cleanup Day	x		

Note that special linkages exist between some of the individual projects listed above. For example, a synergy exists between Ecology Action's "Green Gardener Training" program and the RCD's "Farm Water Quality Assistance Program." Both programs extol similar messages but target different audiences (the RCD targets growers whereas Ecology Action targets private landowners, the landscape industry, municipalities and schools). Together these two programs will achieve broader reach in educating the

region's citizenry about water quality and water conservation, and will enable implementation of beneficial management practices to occur on a broader geographic scale. Note that the RCD program will assist growers in meeting the new agricultural water quality regulations, and the Ecology Action program will help local municipalities meet the public education requirements of their municipal stormwater permit programs. Both of these programs (along with several of the other projects listed above) will help the region meet water quality standards established by TMDLs.

Ecology Action's "Green Gardener Training" program may also have synergistic links with the two DAC water supply projects in this application, the San Lucas Water District project and the Pajaro/Sunny Mesa District Springfield Water System. Laundry-to-landscape greywater irrigation system hands-on trainings will potentially be conducted in Spanish at private residences or laundry facilities in the Pajaro/Sunny Mesa or San Lucas Water District.

In addition, Ecology Action's "Green Gardener Training" program will lend synergistic support to RCD's "Invasive Non-native Plant Control Program" by targeting a different audience about the impacts of non-native plant species (particularly arundo), and promoting its eradication throughout the Salinas Valley. This type of broad coverage is particularly crucial for the success of any non-native invasive plant control program within a particular watershed. Elkhorn Slough Foundation's "Ridgeline to Tideline" project, through removal of weeds in the wetland buffer at North Marsh in the Elkhorn Slough, will also support the RCD's invasive species removal on the Salinas River. The Salinas River is seasonally connected to Elkhorn Slough, so both projects represent efforts to improve ecological conditions in this interconnected waterway/wetland. Likewise, a synergistic link exists between Elkhorn Slough Foundation's salt marsh restoration and RCD's habitat restoration along the Salinas, for the same reasons.

Any local efforts to improve water quality in the Salinas River, Tembladero Slough, and/or Moro Cojo Slough will directly improve conditions in Elkhorn Slough. Elkhorn Slough receives freshwater from all three of these waterways, and because of agricultural pollution it is highly eutrophic, which may be contributing to loss of salt marsh, according to recent scientific work. Agricultural pollution contributes to hypoxia, which is detrimental to Slough life. Efforts to decrease nutrients in local rivers and sloughs enhance the Elkhorn Slough Foundation's efforts to restore/protect salt marsh, and to improve water quality in North Marsh.

The City of Salinas and Monterey Regional Water Pollution Control Agency's "Dry Weather Runoff Diversion Program" will help protect the region's limited water supply from urban pollution while reclaiming polluted water for productive reuse. The net effect is that small communities, some disadvantaged, on limited water systems will have a more secure water supply. Ecosystems, including the Monterey Bay National Marine Sanctuary, and multi-billion dollar industries (agriculture and tourism) will be better protected from pollution. Any projects that are downstream from the City of Salinas storm outfall into the Salinas River will benefit from improved dry weather water quality if the diversion project is implemented. The project will also impact the amount of water being released from the Nacimiento and San Antonio reservoirs. The need to release water to help dilute pollutants could be reduced, therefore enabling more water to be maintained in the reservoirs during the dry season and allowing for greater flexibility in the time and duration of water releases for key environmental events.

Finally, there is an important linkage between Central Coast Wetlands Group's "Greater Monterey County Regional Water Quality Monitoring" project and all of the projects in this application that aim to achieve surface water quality benefits (i.e., Ecology Action, Elkhorn Slough Foundation, the City of Salinas/MRWPCA, and the two RCD projects). The "Regional Water Quality Monitoring" project is specifically designed to link all of the efforts implemented with IRWM funding and other State grant resources focused on surface water quality management by providing the necessary data to document project effectiveness. This project has been called for by organizations in the region for the past decade.

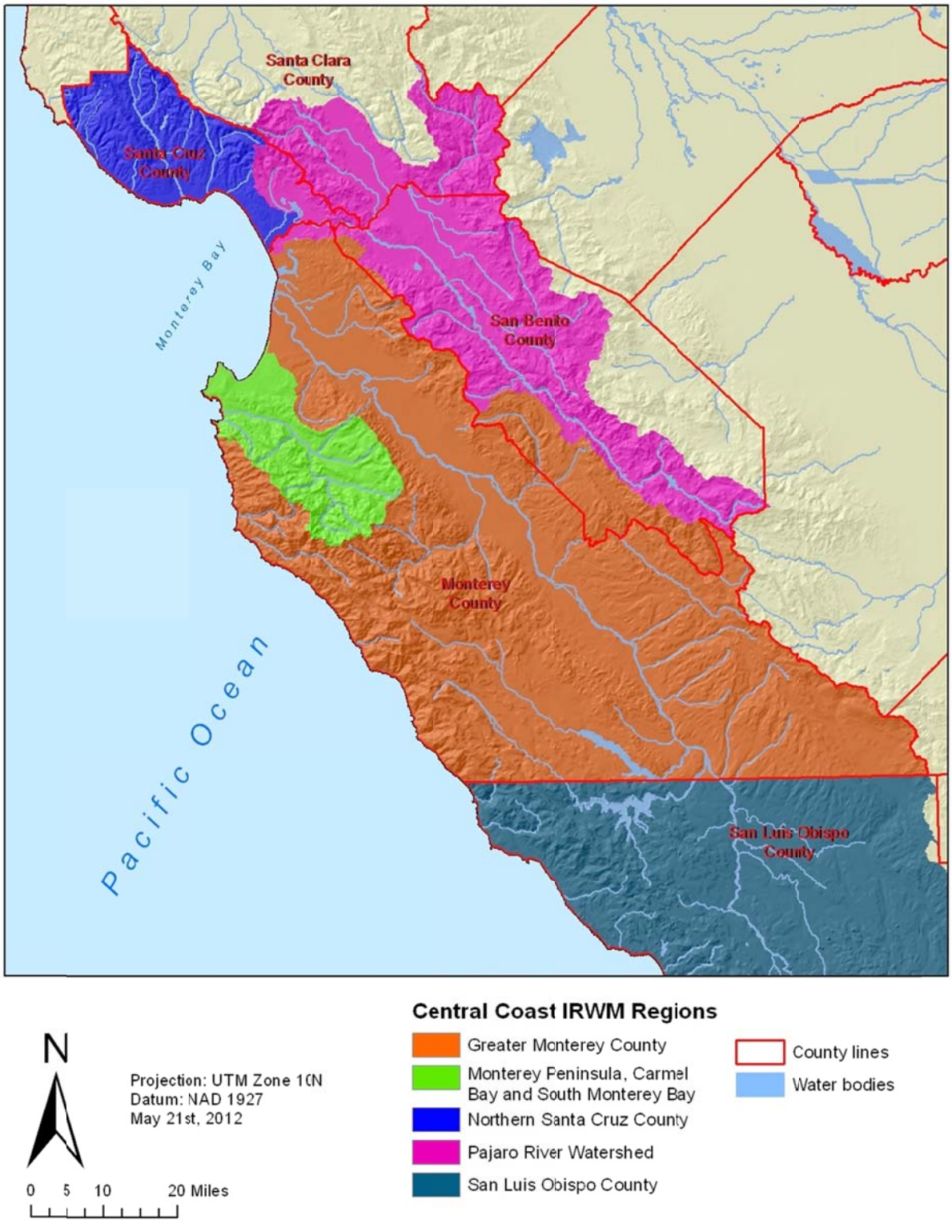
The proposed project aims to expand coverage of an existing continuous buoy monitoring array to two additional priority coastal confluence locations that drain significant portions of the Salinas Valley (the Moro Cojo Slough and Salinas River mouth). The data generated by the expanded monitoring network will provide the baseline data needed to better establish current loads, and will track results of the cumulative efforts of agencies, organizations, and individuals to improve surface water quality in key watersheds of the Greater Monterey County region. The project will provide important feedback to the implementing partners in this application, as well as to other project proponents in the targeted watersheds.

The project will also play a critical role in tracking IRWM Plan performance. A primary goal of the Greater Monterey County IRWM Plan is to support improvements in surface water quality. The Central Coast Wetland Group's proposed monitoring program will quantify the load reductions from 80% of the Greater Monterey County IRWM drainage area, including the Salinas River watershed and the priority Gabilan watershed. This information is necessary for the region to implement adaptive management that will support and recognize effective management strategies, which in turn will lead to progressive reductions in water quality impairments.

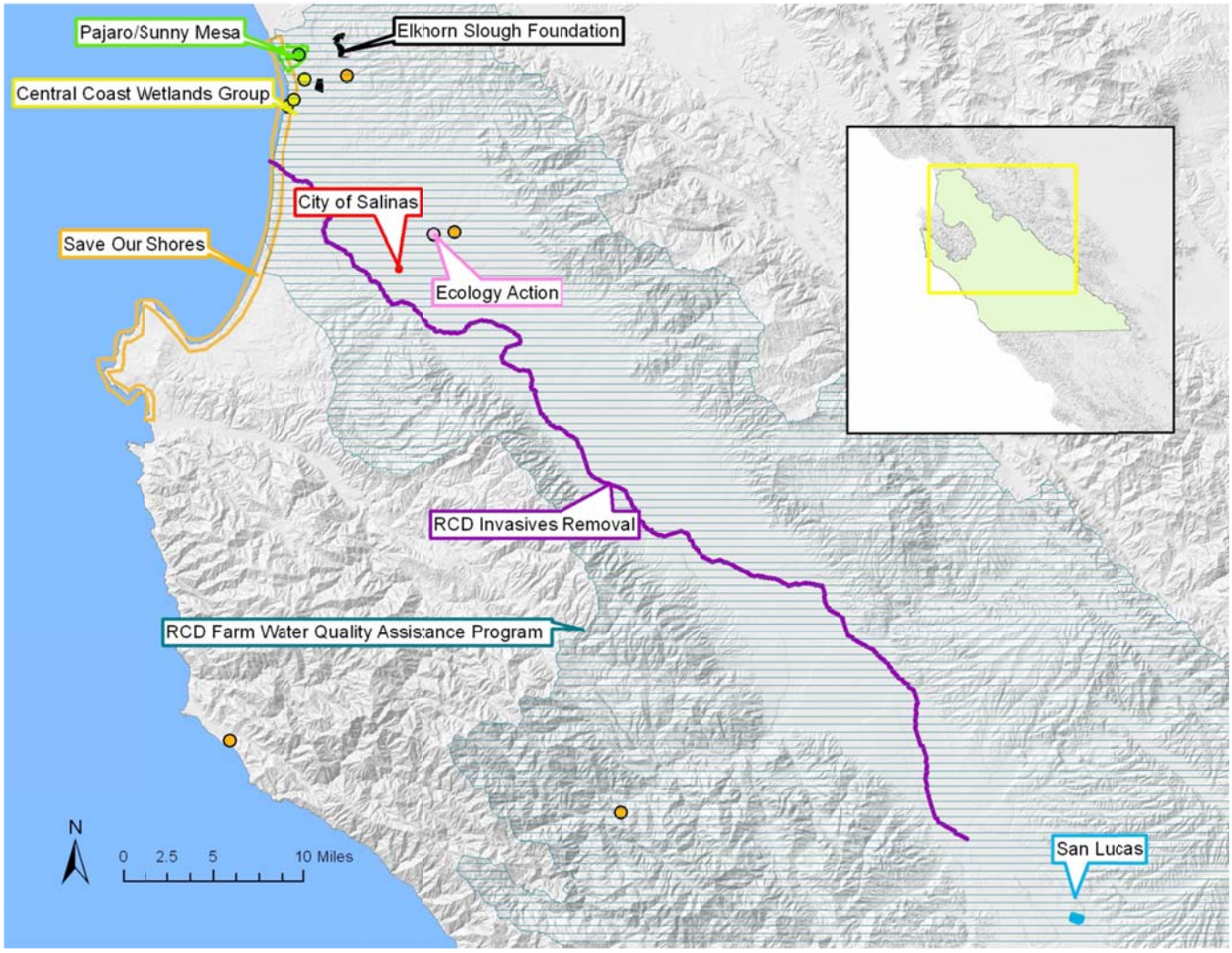
5. Regional Maps

The Regional Maps on the following pages illustrate the Greater Monterey County IRWM region in context with the other Central Coast IRWM regions, locations of the proposed projects contained in this proposal (including monitoring sites), the surface waters and groundwater basins affected by the projects, and locations of disadvantaged communities in the region.

Greater Monterey County IRWM Region
(in context with other Central Coast IRWM Regions)

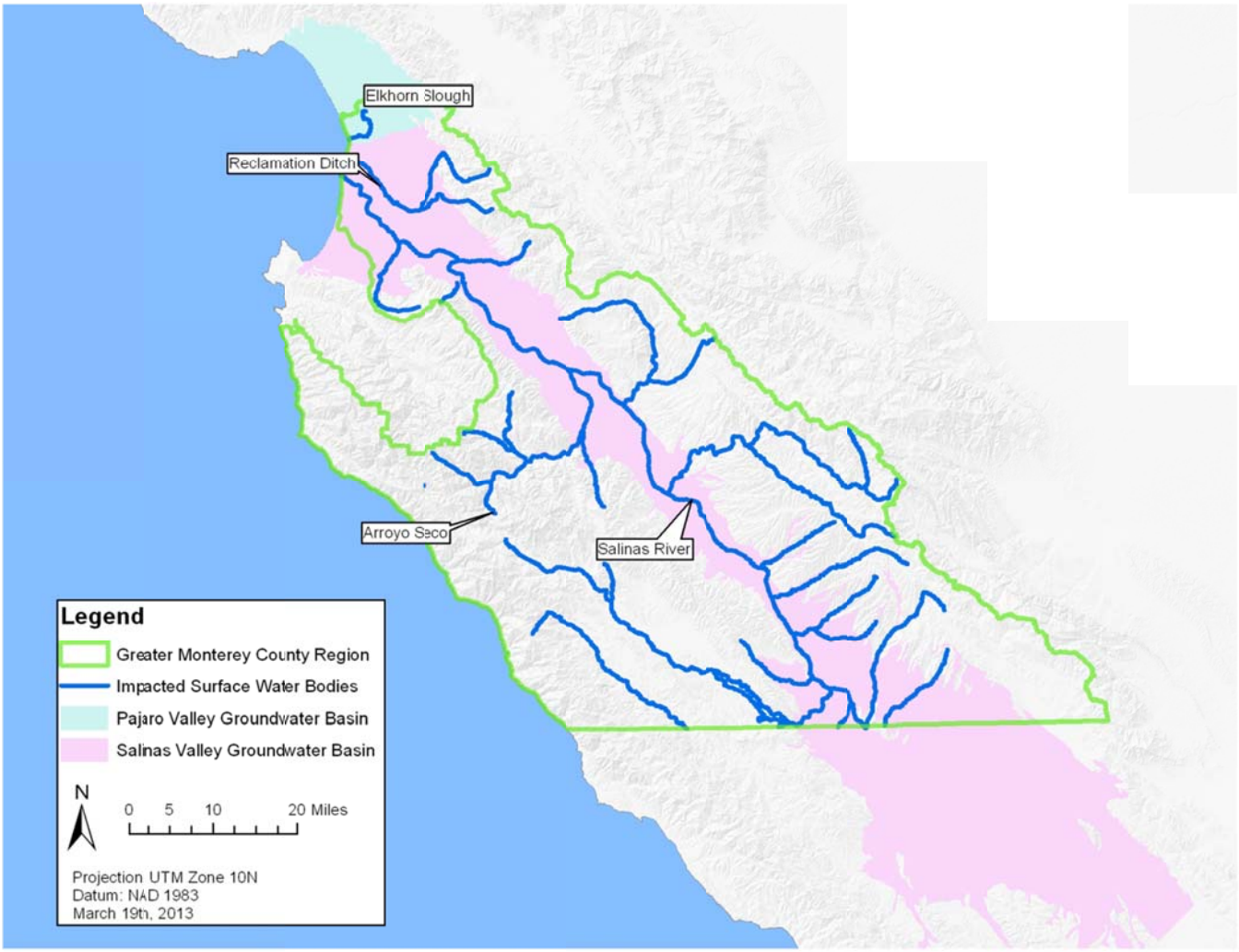


Location of Projects Included in this Proposal
(Including Monitoring Locations)

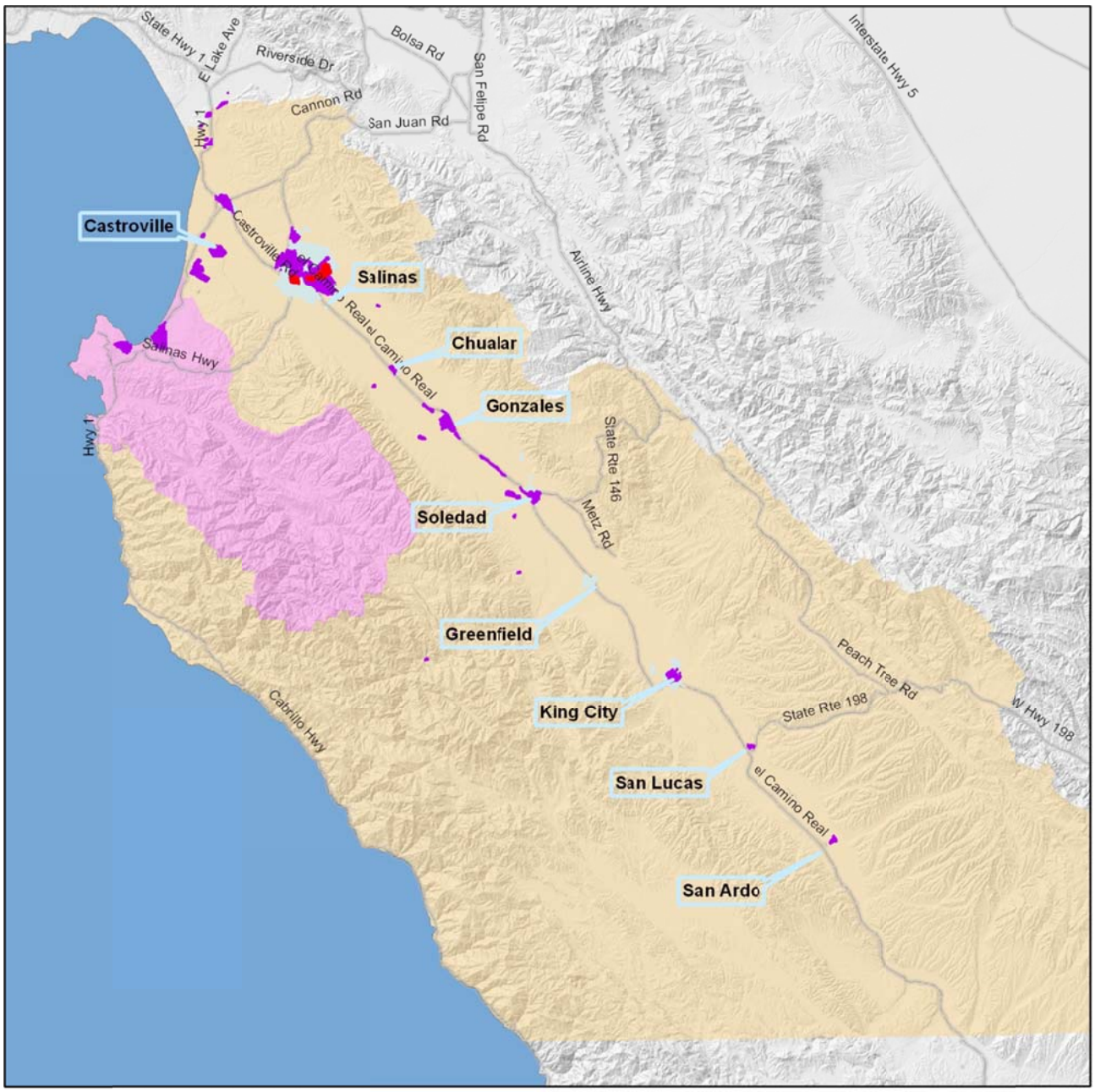


(Note: The RCD Farm Water Quality Assistance Program project location is illustrated by shaded area)

Water Resources that will be Affected by this Proposal



Disadvantaged Communities in the Greater Monterey County Region



A Disadvantaged Community is defined as a community with an annual median household income (MHI) that is less than 80% of the statewide MHI—and Severely Disadvantaged Community as a community with less than 60% of the statewide MHI.

Source: Disadvantaged status based on the years 2006-2010 ACS data and 2010 US Census tabblocks. Non-populated areas eliminated based on 2010 FMMP mapping data.

0 4 8 16 Miles

N

- Disadvantaged Community
- Severely Disadvantaged Communities
- Greater Monterey County IRWM Region
- Monterey Peninsula, Carmel Bay, and South Monterey Bay IRWM Region
- City/Town/CDP
- Major Roads

Projection: UTM Zone 10N
Datum: NAD 1983
March 19th, 2013

References for Work Plan Introduction

California Department of Water Resources (DWR). 1946. Bulletin 52: Salinas Basin Investigation. Sacramento, CA.

California Regional Water Quality Control Board, Central Coast Region (RWQCB). 2002. *Watershed Management Initiative Chapter (January 2002).* Prepared by Alison Jones. Available at: http://www.waterboards.ca.gov/centralcoast/publications_forms/publications/basin_plan/docs/wmi.pdf

Elkhorn Slough Tidal Wetland Project Team. 2007. *Elkhorn Slough Tidal Wetland Strategic Plan.* 100pp. Available at: http://www.elkhornslough.org/tidalwetland/strategic_plan.htm

Harter, T., J.R. Lund, J. Darby, G.E. Fogg, R. Howitt, K.K. Jessoe, G.S. Pettygrove, J.F. Quinn, J.H. Viers, D.B. Boyle, H.E. Canada, N. DeLaMora, K.N. Dzurella, A. Fryjoff-Hung, A.D. Hollander, K.L. Honeycutt, M.W. Jenkins, V.B. Jensen, A.M. King, G. Kourakos, D. Liptzin, E.M. Lopez, M.M. Mayzelle, A. McNally, J. Medellin-Azuara, and T.S. Rosenstock. 2012. *Addressing Nitrate in California's Drinking Water with a Focus on Tulare Lake Basin and Salinas Valley Groundwater*. Report for the State Water Resources Control Board Report to the Legislature. Center for Watershed Sciences, University of California, Davis. 78 pp. Available at: http://groundwaternitrate.ucdavis.edu.

National Oceanic and Atmospheric Administration National Marine Fisheries Service (NMFS). 2007. *2007 Federal Recovery Outline for the Distinct Population Segment of South-Central Coast Steelhead*. Produced by NMFS Southwest Regional Office, Long Beach, CA.

II. Proposed Work

The following outlines the specific activities that will be performed to implement the nine projects contained in this proposal for the Greater Monterey County IRWM region, by project. Note that supporting materials for each of the projects are provided in electronic format as attachments in Attachment 7, Technical Justification (as noted within each project description below).

Project 1. County of Monterey: San Lucas Water District Public Water Supply Project

1. Project Description

The community of San Lucas is an impoverished, predominately Hispanic, farmworker village. A recent median household income survey conducted by a third party contractor for the California Department of Public Health has identified the community of San Lucas as a disadvantaged community (DAC). The San Lucas Water District operates the community's drinking water and wastewater systems, and has approximately 90 service connections. The District's water supply is derived from a single groundwater well located in the center of an agricultural field about one mile south of the community. The water system does not have a backup well. If the existing well becomes non-operational, there would be no water for sanitation or fire protection.

In 2003, the County of Monterey was awarded a grant to help fund improvements to the existing municipal water system serving San Lucas. The project included replacement of the existing water tank and transmission lines. At that time, the quality of the water supply met all local and state standards. The funding was awarded based on the affordable housing that would be provided by a proposed 33-unit affordable housing project. In 2005, the County was awarded another grant to make improvements to the wastewater system necessary to support the proposed affordable housing units. The improvements were completed in 2007 but the Regional Water Quality Control Board (RWQCB) discharge permit could not be issued for the treatment facility due to excessive amounts of total dissolved solids (TDS) found in the treated effluent. Preliminary investigation determined the cause of the problem was the source of the community's existing water well. The County Health Department notified the Water District that it would not be allowed to approve any new service connections until the TDS contamination was removed from the water supply. TDS levels are currently running about 2,000 ppm.

In March 2011 all customers of the San Lucas Water District were placed on an indefinite "Do Not Drink" order from the Monterey County Division of Environmental Health due to excessive levels of nitrates in water being pumped from the District's single well. This order remains in effect (24 months to date) and will remain in effect until the nitrate contamination is remediated. Nitrate levels are currently running 60-70 ppm. Community residents are required to purchase bottled water for drinking and cooking. The current financial burden on the residents of this impoverished farmworker community to purchase bottled water in addition to their on-going cost for municipal water and sewer services is extreme, and approaching crisis condition.

The Monterey County Division of Environmental Health has directed the Water District to implement a new source of water that meets all public water quality requirements as soon as possible. Until that time, the "Do Not Drink" order will remain in effect, and no new service connections will be permitted to the system until the water quality issues are resolved.

A "Hydrogeologic Characterization and Test Well Feasibility Analysis" was prepared in September 2010 regarding the TDS issue. A supplemental Technical Memorandum regarding the nitrate contamination issue was prepared in June 2011. Both reports recommend relocation of the well to a location about 1,800

feet west of the existing well, closer to the Salinas River.

The first phase of implementation will be to acquire a temporary construction easement and drill a test well at the indicated location, and implement a comprehensive sampling and testing regime. If the testing program indicates the selected location is appropriate for a long-term reliable public water source, the next steps will be to prepare a Project Description, conduct CEQA environmental review (expected to be a Negative Declaration), acquire permanent easements for the production well and pipeline, prepare final engineering plans and specifications, advertise for bids, and construct the improvements.

2. Completed Work

No work has been completed for this project to date.

3. Existing Data and Studies

In 2008, routine monitoring of the San Lucas Water District's well began to reveal increasing levels of TDS in the groundwater source from which the Water District obtained its public water supply. The source of this contamination was traced back to the high levels of TDS in the community's water source.

As a result of these concerns, the Water District's consulting civil engineer prepared a draft "reconnaissance-level" feasibility report that indicated the most likely source of the increased TDS was a result of recently increased agricultural activity on the field in which the Water District's well is located. This report recommended a new well be constructed at an alternate location. In 2010 a consulting hydrogeologic firm was retained to analyze and identify potential locations for a test well project that could most likely lead to implementation of a new production well.

During this time TDS levels in the Water District's well continued to rise. Continued monitoring also determined concentrations of nitrates were also increasing, and began to exceed State-mandated maximum contaminant levels, resulting in the "Do Not Drink" order in March 2011 by the Monterey County Health Department. This was followed in May 2011 by the issuance of Compliance Order No. 11-006, which prohibits the Water District from allowing their public water supply to be consumed.

In May 2012 the RWQCB issued a Notice of Violation to the landowner on which the Water District's existing well is located, stating the landowner's agricultural activities had contaminated the Water District's public water supply, and in December 2012 issued a Draft Cleanup and Abatement Order directing the landowner to remediate this contamination.

Copies of the following reports and documents are provided electronically in Attachment 7, Technical Justification:

- *Draft Feasibility Study for Source Water Evaluation, San Lucas County Water District, San Lucas, California*, Springer & Associates, Inc., March 10, 2008
- *Hydrologic Characterization and Test Well Feasibility Analysis for San Lucas County Water District, Monterey County*, Pueblo Water Resources, Inc., September, 2010
- "Do Not Drink" Notification Order, County of Monterey Health Department, March 15, 2011
- *Compliance Order No. 11-006*, County of Monterey Health Department, May 23, 2011
- Technical Memorandum: *Nitrate Concentration in Groundwater near San Lucas*, Pueblo Water Resources, Inc., June 6, 2011
- *Irrigated Agriculture Program: Notice of Violation and Water Code Section 13260 and 13267 Order For Information, Naraghi Farms Property – 56395 Cattlemen Road, San Lucas, Monterey*

County, California Regional Water Quality Control Board, Central Coast Region, May 15, 2012

- *Agricultural Order No. R3-2012-0011: Transmittal of Draft Cleanup and Abatement Order for Naraghi Farms Property; Las Colinas Ranches 1-4, 56395 Cattlemen Road, San Lucas, Monterey County*, California Regional Water Quality Control Board, Central Coast Region, December 14, 2012

4. Project Timing and Phasing

The project can proceed as a standalone project. The project phasing and timing is as follows:

- Feasibility analysis of possible solutions and selection of the Preferred Option can be completed within six months of the time funding is secured.
- Preliminary engineering, CEQA determination, final engineering, and securing of water rights and permits can be completed within twelve months of completion of the feasibility analysis.
- Construction of the required improvements can be completed within twelve months of securing funding and starting construction.

5. Plans and Specifications: N/A – see above.

6. Standards

All aspects of the proposed project will adhere to the requirements of State law regarding public water supplies.

7. Performance Measures and Monitoring Plans

The goal of this project is to eliminate nitrate and TDS contamination in the San Lucas Water District public water supply on a long-term sustainable basis in order to achieve a long-term potable public water supply consistent with requirements of State law for public water systems. The District will conduct ongoing sampling and testing of the public water supply per State law. Performance of the project overall is described in more detail in Attachment 6, Monitoring, Assessment, and Performance Measures.

8. Acquisition of Land or Rights-of-Way and Landowner Agreements

Each of the possible feasible options for the project will likely require acquisition for rights of entry, easements, or encroachment permits from landowners or public agencies. The exact requirements will not be determined until a Preferred Project is determined from the completed feasibility report.

9. Permits

The exact requirements for environmental permits or water rights for the project cannot be determined until a Preferred Project is selected from the completed feasibility report and preliminary engineering and CEQA analysis of that project is completed. When the requirements are determined, applications will be prepared and submitted to the appropriate agencies.

10. Environmental Compliance

The proposed scope of work includes the required and appropriate environmental analysis and review. At this time, no federal funding is anticipated for the San Lucas Water Supply project, so only CEQA compliance is anticipated.

11. **Scope of Work:** Project 1 – San Lucas Water District Public Water Supply Project

Task 1.1 Project Administration

Task 1.1.a Administration: The project proponents will conduct all general grant administration tasks throughout the duration of the project period, will conduct activities necessary to meet labor compliance requirements, and will submit invoices and progress reports to the lead applicant as required. The lead applicant, Coastal Conservation and Research, will be responsible for administering the grant contract on behalf of the project proponents included in this grant application.

Current Status: Pending grant award.

Deliverables:

- Preparation of invoices as required
- Submission of Labor Compliance Program requirements
- Submission of quarterly and annual reports as required

Task 1.2 Land Purchase/Easement

Task 1.2.a Land Purchase/Easements: Depending on the Preferred Project selection, easements, rights-of-way, and/or encroachment permits may be required. These costs will not be known until the feasibility report is completed, the Preferred Project is selected, and Preliminary Engineering is completed. At that time budget estimates will be prepared, and upon completion of CEQA, legal descriptions will be prepared, appraisals performed, and acquisition will commence.

Current Status: Not yet begun. Will come out of Preliminary Engineering phase.

Deliverables:

- Legal descriptions and exhibits
- Appraisals of market value
- Deeds
- Purchase agreements
- Recording of deeds/easements as appropriate

Task 1.3 Planning/Design/Engineering/Environmental Documentation

Task 1.3.a Assessment and Evaluation: Review/update water quality deficiencies in District's existing water supply.

Task 1.3.b Feasibility Study/Report: Evaluate in one document all available feasible options for long-term solutions to the water supply problem. The report will be prepared by a combination of qualified County staff and consultants retained by the County. The options to be considered will include *at a minimum*:

- Wellhead Treatment: existing well
- Drill new well – groundwater (no treatment) at either site of existing well or new location
- Drill new well – groundwater under influence of surface water (including treatment) at either site of existing well or new location

- Intertie or import water from King City/California Water Service Company (service agreement, construct new pipeline)

The report will discuss for *each option*:

a. Type of project
b. Where infrastructure will be located
c. Availability/long-term sustainability/reliability of source
d. Project budget – total amount of funding needed: feasibility study/selection of option, acquire funding, preliminary design, site acquisition/right-of-way, CEQA, permits, Plans, Specifications, and Engineering, construction contract, and testing
e. Funding sources (probably multiple)
f. Physical challenges/obstacles to each option (site acquisition, permits, environmental)
g. Economic challenges (relative cost, local match for grants, community's ability to pay for treatment or increased water bills)
h. Schedule/dates for delivery of each phase of activity leading to project completion and delivery of new potable water supply to the community
i. The report will identify a Preferred Option for further study and implementation

Task 1.3.c Preliminary Engineering/Project Description: "Pre-environmental" preliminary engineering analysis of the Preferred Option will be completed, leading to preparation of a Project Description. This will include sufficient discussion of the water rights, permits, right-of-way, and engineering improvements required to implement CEQA/NEPA analysis and final engineering design of the recommended project.

Task 1.3.d Environmental Documentation (CEQA): An RFQ will be circulated and a consultant retained to prepare a CEQA Initial Study and NEPA Environmental Assessment, determine the necessary level of evaluation, implement preparation of the required environmental studies and reports, and assist the County and District to adopt the necessary findings required to comply with State and federal environmental law for implementation of the project.

Task 1.3.e Final Plans and Specifications: Upon completion of the CEQA/NEPA process, final engineering plans, specifications, and bid documents will be prepared to a sufficient level of detail to advertise for bids and construct the project.

Current Status: Not yet begun. Will implement upon receipt of funding.

Deliverables:

- RFP and selection of design consultant. Consultant report summarizing historical and current water quality testing, identification of contaminants.
- Feasibility Report analyzing alternative projects; identification of Preferred Project.
- Preliminary Engineering (30% Design); Project Description.
- RFP and selection of environmental consultant; Initial Study and NOD; Draft Negative Declaration or EIR; comments and responses to comments; Final Negative Declaration or EIR.
- Plans, Specifications, and Bid Documents.

Task 1.4 Construction/Implementation

Task 1.4.a Advertise for Bids, Award Contract: Implement the advertising and opening of bids, and award of the construction contract. The work will be performed by administrators and clerks in the Contracts/Purchasing Department, Clerk to the Board of Supervisors, Office of the County Counsel, and project management staff.

Task 1.4.b Construction Contract: The actual project to be implemented will not be known until completion of the feasibility analysis described in Task 1.3.b above. For purposes of this application, it is assumed the most expensive option will be implemented: a 4"-diameter intertie pipeline approximately 8.5 miles from San Lucas to King City. It is anticipated the pipeline will be constructed in the shoulder of existing County roads with two crossings of State Highway 101. Construction will include: mobilization and site preparation, the project construction, and performance testing and demobilization.

Current Status: Not started. Will come after Task 1.3 (Planning/Design/Engineering/Environmental Documentation) and Task 1.5 (Environmental Compliance/Mitigation/Enhancement).

Deliverables:

- Advertisement for bids
- Contract
- Notice to Proceed
- Completion of Improvements
- Water Quality Sampling and Testing – sign-off by County Health Department
- Notice of Completion

Task 1.5 Environmental Compliance/Mitigation/Enhancement

Task 1.5.a Determination and Acquisition of Water Rights, if applicable: The Project selected for implementation will consist of either constructing a new inter-tie pipeline in existing roads, or drilling a new well, either with or without a treatment facility, on already-disturbed property. The Preferred Project selected for implementation may or may not require the acquisition of water rights.

Task 1.5.b Application for Environmental Permits, if applicable: Likewise, the Preferred Project selected for implementation may or may not require environmental permits.

Current Status: Not yet begun. Will come out of Task 1.3.c (Preliminary Engineering/Project Description) and Task 1.3.d (Environmental Documentation).

Deliverables:

- Granting of Appropriative Water Rights, if appropriate
- Environmental permits, if applicable

Task 1.6 Construction Administration

Task 1.6.a Construction Management and Inspection: A consultant will be hired to provide construction management and inspection.

Task 1.6.b Construction Materials Testing and Water Quality Sampling/Testing: A consultant will be hired to provide construction materials testing and water quality sampling/testing.

Current Status: Not yet begun. Will come from Task 1.3.e (Final Plans and Specifications).

Deliverables:

- RFP and selection of consulting firms to provide construction management and inspection, materials testing, and water quality sampling and testing
- Performance of required scopes of services

Task 1.7 Other Costs

Other costs include Technical, Managerial, Financial (TMF) Analysis, Water District staff and legal support, and County staff support:

Task 1.7.a Technical, Managerial, Financial (TMF) Analysis: Because the community of San Lucas has been determined to qualify as a DAC based on median household income, CDPH has determined to provide this work at no cost to the Water District or the County.

Task 1.7.b Water District Staff and Legal Support: The work for this project will be performed as needed by Water District staff and the District's consulting attorney. This work will be funded from an anticipated grant from the California Department of Public Health Safe Drinking Water State Revolving Fund program.

Task 1.7.c County Staff Support and Legal Support: The work for this project will also be performed as needed by County staff and in-house attorneys in the Office of the County Counsel. This work will be funded from an anticipated grant from the California Department of Public Health Safe Drinking Water State Revolving Fund program.

Current Status: TMF not yet begun. The Water District has not yet started tracking costs related to fundraising or design of project. County staff tracking costs relative to non-eligible fundraising.

Deliverables:

- TMF Analysis

Task 1.8 Construction Contingency

Task 1.8.a Construction Contract Contingency: The construction contract contingency is based on 10% of the estimated construction contract cost.

12. Supporting Materials

The following documents are being submitted electronically as supporting materials for this section, and can be found in Attachment 7, Technical Justification:

- *Draft Feasibility Study for Source Water Evaluation, San Lucas County Water District, San Lucas, California,* Springer & Associates, Inc., March 10, 2008
- *Hydrologic Characterization and Test Well Feasibility Analysis for San Lucas County Water District, Monterey County,* Pueblo Water Resources, Inc., September, 2010
- "Do Not Drink" Notification Order, County of Monterey Health Department, March 15, 2011
- *Compliance Order No. 11-006,* County of Monterey Health Department, May 23, 2011

- Technical Memorandum: *Nitrate Concentration in Groundwater near San Lucas*, Pueblo Water Resources, Inc., June 6, 2011
- *Irrigated Agriculture Program: Notice of Violation and Water Code Section 13260 and 13267 Order For Information, Naraghi Farms Property – 56395 Cattlemen Road, San Lucas, Monterey County,* California
- Regional Water Quality Control Board, Central Coast Region, May 15, 2012
- *Agricultural Order No. R3-2012-0011: Transmittal of Draft Cleanup and Abatement Order for Naraghi Farms Property; Las Colinas Ranches 1-4, 56395 Cattlemen Road, San Lucas, Monterey County*, California Regional Water Quality Control Board, Central Coast Region, December 14, 2012

13. Project Site Map

Site maps for this project are shown on the following pages.

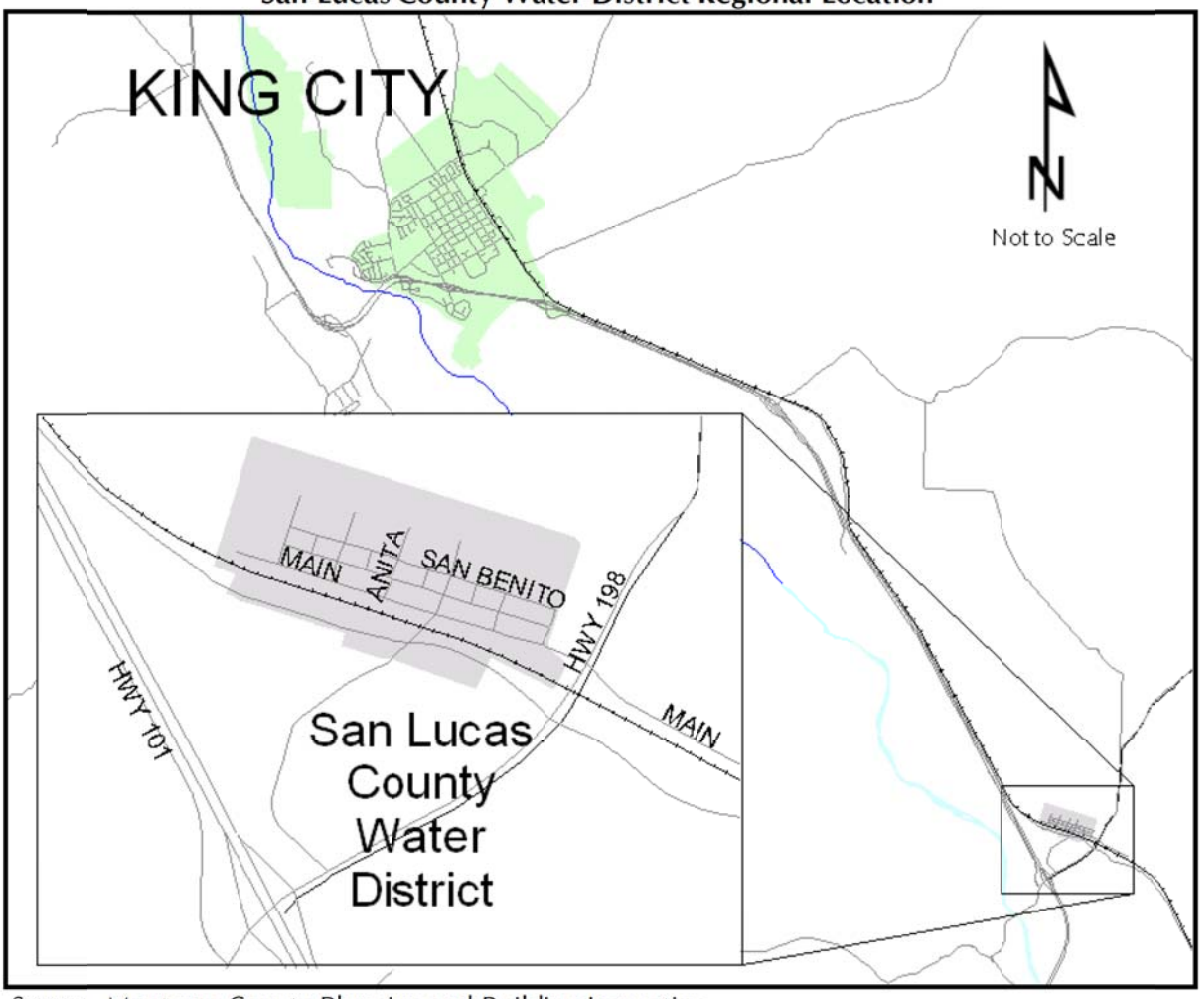
Project 1. San Lucas Water District Public Water Supply Project: SITE MAP

Source: LAFCO of Monterey County: Municipal Services Review for South/Central Monterey County, 2006

SAN LUCAS COUNTY WATER DISTRICT
SERVICES PROVIDED AND SERVICE AREA

The San Lucas County Water District is an independent special district formed in 1965 to provide potable drinking water and sewer services (collection, treatment and disposal) to residential and commercial users within the unincorporated community of San Lucas. The boundaries of the district (**Figure 16.2**) encompass the community of San Lucas, a small unincorporated community area approximately 20 square blocks in size adjacent to the intersection of Highway 101 and San Lucas Road.

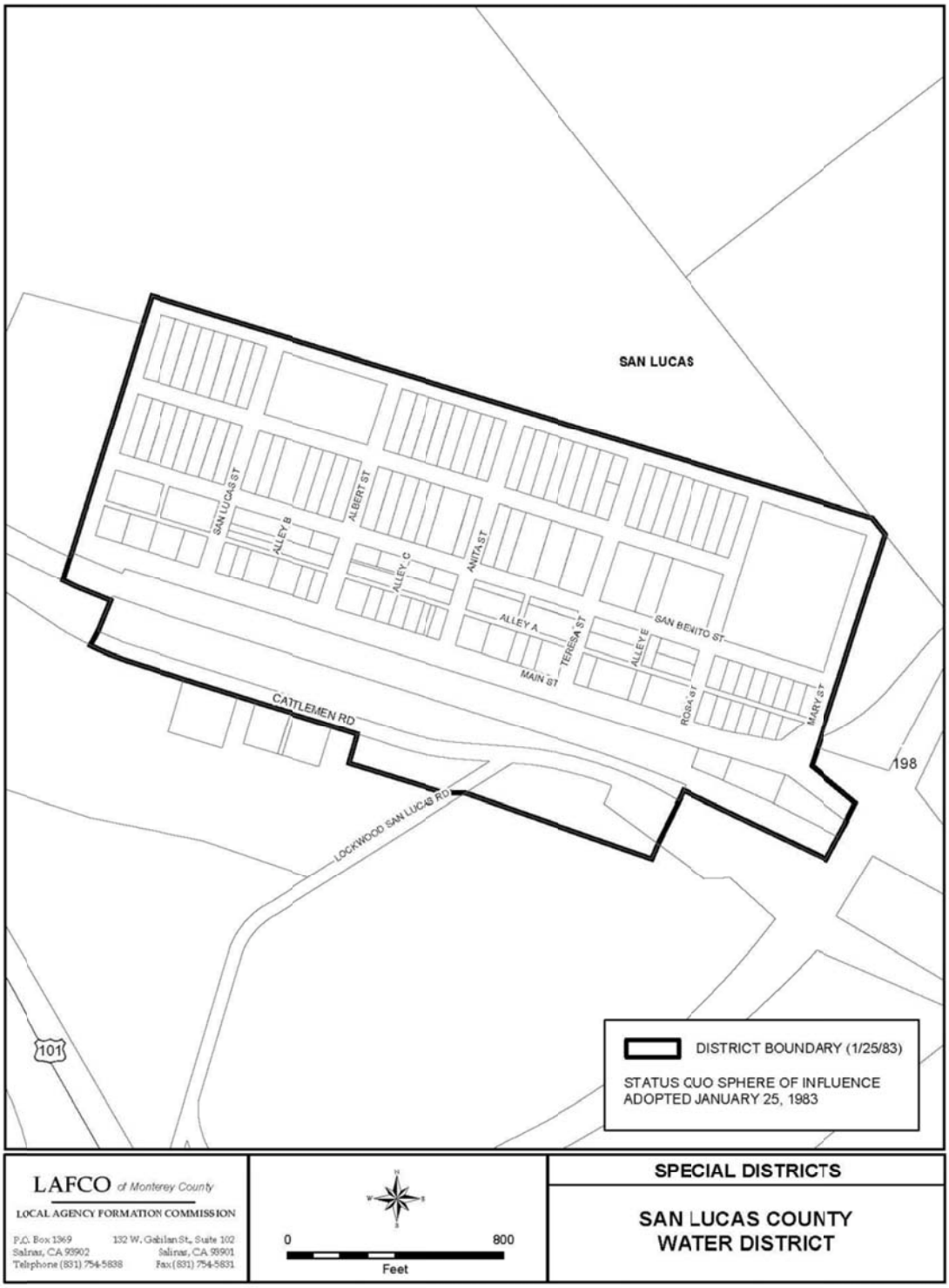
Table 16.1
San Lucas County Water District Regional Location



Source: Monterey County Planning and Building Inspection

Project 1. San Lucas Water District Boundaries

Source: LAFCO of Monterey County: Municipal Services Review for South/Central Monterey County, 2006



Project 2. Pajaro/Sunny Mesa Community Services District: Springfield Water Project

1. Project Description

Pajaro/Sunny Mesa Community Services District (PSMCSD) is requesting funds for planning and studies, engineering to 90% design completion, and permitting for a replacement water supply for the Springfield disadvantaged community (DAC) in rural North Monterey County. Development of a new water supply that will meet local, State and Federal water quality and other code requirements is needed because of water quality problems including high levels of nitrate and total dissolved solids (TDS) in evidence since at least 1986. The Springfield water system consists of an existing well and distribution system serving 34 connections and supplying water to about 165 primarily low-income individuals. It is currently on a Bottled Water Order from the Monterey County Health Department, Environmental Health Bureau Drinking Water Protection Program. Water containing nitrates in excess of 45 ppm presents a known health risk for human consumption. Nitrates averaged 282 ppm over the last four quarters according to 2012 reported laboratory water quality test analysis, and TDS were reported at 2900 ppm. The system is also on the California Department of Public Health ACS Violation List for Monterey County for Nitrates and is in an area known to be at risk of seawater intrusion due to its proximity to the Monterey Bay and low elevation. Further, the existing water system does not provide water storage or a backup power supply as required by the fire and health and safety codes.

PSMCSD has operated the system since 2004 on behalf of Springfield Mutual Water Company. PSMCSD developed a plan to replace the existing well with a new production well and water storage facility to be located on a site next to the Moss Landing Middle School on Springfield Road approximately one mile from the current location. An easement was secured, and a test well drilled on the site in 2008 was determined to produce an adequate supply of water meeting safe drinking water requirements for the school and the residential area. The planned drinking water well was to be connected to the Springfield community through a new pipeline to be constructed concurrently with the well development. However, the replacement project has been delayed for multiple reasons: primarily because the cost of water would have been economically infeasible for the DAC community (monthly rates increasing to more than $520 per household at the time), and grant funding to reduce those costs did not materialize because a partner, Monterey Unified School District, closed the school adjacent to the site and no longer was able to access grant funds. An application to the California Department of Public Health (CDPH) for project development did not move forward and plans were put on hold for several years. No further testing, assessment or design was undertaken for the replacement project until it was revisited as part of the IRWM planning process subsequent to adoption of the Disadvantaged Community Outreach Plan for the Greater Monterey County Regional Water Management Group and implementation of outreach efforts in mid-2012.

In February 2013, the Pajaro Valley Water Management Agency (PVWMA) was consulted regarding the planned replacement well, as the proposed site is located within the Springfield Terrace area of PVWMA's jurisdiction. Hydrology and geotechnical issues, including the long-term potential for seawater intrusion, were raised by PVWMA's hydrologist during these discussions and have been conveyed to the District's consulting engineer. It has been determined by PSMCSD and the engineer that further evaluation of the test well site would be prudent before additional design work is considered. Hydrology and geotechnical studies and additional water quality testing and analysis are recommended to investigate both current conditions at the Springfield well site and the likelihood of its continued suitability for drinking water production.

PSMCSD has begun to explore other options and opportunities such as the potential for consolidation with the Moss Landing Water System to the south of the Springfield DAC. This option would require connection through a pipeline extension with an added pump station, water storage tanks and generator to

prevent disruption in supply. Connection to the Moss Landing system is a greater distance than to the Springfield Road well site and preliminary estimates to date show that consolidation may be higher in cost than the first option. However, the source of groundwater is much further inland and less likely to be affected by seawater intrusion long term than the Springfield Road site. Alternative well site locations may also be considered if hydrology studies and analysis suggest a suitable area to obtain the replacement drinking water supply at a lower connection cost than conceptual Moss Landing consolidation estimates.

The recommended hydrology and geotechnical studies, coupled with planning and feasibility analysis proposed in the Work Plan, will enable PSMCSD to determine the most cost-effective solution for the water supply needs of the Springfield DAC.

Two underserved areas within the DAC boundaries and near the Springfield system are also under evaluation: the immediately adjacent mobile home park with 105 homes and a small, primarily single family residential area on Springfield Road. Preliminary cost estimates have been prepared and are included with the technical reports. Production levels at Moss Landing and reports from the test well site show adequate supply to accommodate the needs of the residents of the adjacent areas of the DAC in addition to the Springfield system. However, the cost of connecting these homes will need to be evaluated as planning and design progresses and the feasibility analysis proposed in the Work Plan is completed. It may be necessary to add these connections in a later phase of the project as dictated by the availability of funding and prioritization of need. However, these areas are also highly vulnerable to nitrate and seawater intrusion risks as confirmed by Monterey County Environmental Health Bureau and PVWMA and therefore, are recommended for inclusion in technical and other studies.

Development of Financing: PSMCSD will be exploring the financial feasibility of the project for development and will look at financing opportunities and constraints as part of the feasibility analysis to be funded by this grant. Prospective funding programs and resources will also is evaluated as they become available. Any future applications will be completed by PSMCSD or its consultants and will not be included in grant funded activities. PSMCSD has determined that it is infeasible to pursue formation of an assessment district, an option that is available to many public agencies, due to affordability constraints for this economically disadvantaged community and the disproportionate cost per connection. A previous CDPH application was unsuccessful but may be resubmitted in the next application round. PSMCSD is working with Rural Community Assistance Corporation, the Environmental Justice Coalition for Water and other agencies to pursue other funding opportunities. Completion of predevelopment activities proposed in this application will enable PSMCSD to meet project readiness requirements of additional funding sources.

2. Completed Work

As discussed above, conceptual plans and estimates for two alternative projects are complete. A test well had been drilled on Springfield Road. An Engineer's Report and Well Driller's Report have been completed to date for the Springfield Well site. These plans, estimates and reports are attached electronically in Attachment 7 (Technical Justification) and page numbers are referenced below.

3. Existing Data and Studies

Water quality problems in the Springfield DAC are well documented. The system is on a Bottled Water Order from the County for exceeding the maximum contaminant level for nitrates. The Notice of Violation and other documentation of deficiencies are included in Attachment 7 as shown below.

Documentation of Need and Water Supply Deficiencies:

- Monterey County Health Department, Springfield Notice of Violation, pages 1-2
- CDPH Violations by County, pages 3-4
- Monterey County Springfield Water System Inspection Report, pages 5-11
- PSMCSD Springfield Water Laboratory Analysis Summaries, pages 12-14
- Engineer's Report for Springfield Road and Struve Road Water Systems, page 21

Completed Work:

- Engineer's Report for Springfield and Struve Roads Water Systems, pages 16-33
- Well Driller's Well Completion Report Springfield Road Site, pages 34-35
- Conceptual Cost Estimate Springfield Road Site, pages 36-37
- Conceptual Cost Estimates Moss Landing and Added DAC Connections, pages 38-40
- Conceptual Design and Springfield Well Site Plans, pages 41-43

4. Project Timing and Phasing

This project is a standalone project, and is ready to proceed. Planning, technical studies, feasibility analysis and design, and other activities proposed can be completed within 20 months. Construction of the project resulting from this work is dependent upon securing sufficient funding to undertake the Springfield System improvements, at minimum. Connection to the adjacent mobile home park and the small residential area to the north may proceed in a later phase or in two separate phases as financial feasibility is determined. PSMCSD is ready to issue Requests for Proposals/Qualifications for the technical studies consultants and project engineer upon grant approval or earlier if feasible in consideration of PSMCSD's budget constraints. The consultants for the project will be selected by PSMCSD and approved by the PSMCSD Board according to established policies and procedures.

5. Plans and Specifications

Conceptual design has been completed for two alternative replacement supply alternatives. Geotechnical and hydrology studies will be required before design can proceed. A conceptual plan for the Springfield Road test well and connecting pipeline is included in Attachment 7, Project 2: Springfield Water Supply, Pages 41-43.

6. Standards

The Springfield Replacement Water Supply Project is required in order to provide safe drinking water for this disadvantaged community in Monterey County. Compliance with California Health and Safety Codes including 64463.4, CEQA and other State and local codes and standards will be considered in the evaluation of project alternatives and engineering design and specifications. The project engineer will consult with the Monterey County Environmental Health Bureau, CalTrans, the North Monterey County Fire District and other agencies with code compliance jurisdiction during the design process. Plans and specifications will be submitted to Monterey County for interdepartmental review and approval at 90% design completion to ensure compliance with all pertinent codes and regulations.

7. Performance Measures and Monitoring Plans

Performance will be measured by the completion of tasks that will result in a determination of the most cost-effective drinking water replacement supply alternative for the Springfield DAC. Primary activities are included in the Scope of Work and further performance measures are specified in Attachment 6. Submittal of Plans and permit processing and approvals including CEQA are among the measureable predevelopment tasks.

Monitoring and reporting will be administered by PSMCSD as the system operator with water quality tests performed by a third party lab under an arrangement with the District. Reports are submitted to the Monterey County Environmental Health Bureau. Ongoing violations will continue to be reported to the California Department of Public Health until the replacement project is complete and nitrate and TDS levels are within acceptable levels.

Testing during development of the new well and/or consolidation and installation of pipelines will be overseen by the project engineer and selected consultants. The County of Monterey, Environmental Health Bureau will review plans for the proposed improvements in the system and drinking water production and quality test results prior to approval of new water improvement connections.

8. Acquisition of Land or Rights-of-Way and Landowner Agreements

PSMCSD has an easement for the Springfield Road well site and was granted title to the existing well site by Springfield Mutual Water Company, which is a defunct corporation. Under the current concept designs, pipelines will be placed in the public rights of way along existing roadways. CalTrans Rights of Way may be needed along Highway 1, depending on final project determination. Monterey County approval will be required for Springfield and Struve Road or others to be specified during the design process.

9. Permits

PSMCSD has not yet applied for permits for the Springfield DAC Water Supply Replacement Project. Permit applications will begin once the project alternatives have been refined through the feasibility analysis process. Permits and fees will be similar for the project alternatives under consideration at present. The exceptions would be well permits for the Springfield Road site or system consolidation permits for the Moss Landing extension alternative. The following list is limited to applications, permits and fees identified for these options:

- Monterey County Health Department, Environmental Health Bureau Permits including:
  - Well Destruction or Abandonment, Soils Boring, Water System Change of Ownership
  - Water System Permit Amendment, Well Construction or Water System Consolidation Permits
- CEQA Permits (County and State, as required)
- Monterey County Land Use and Coastal Zone Permits, Use Permit for site identified
- Public Works Encroachment and Rights of Way Permits
- CalTrans Encroachment and Rights of Way Permits (as Needed)
- North Monterey County Fire Protection District Permit
- Monterey Bay Unified Pollution Control District Permit
- Other permits that may be required in connection with the project alternative selected.

10. Environmental Compliance

In order to comply with IRWM CEQA environmental requirements, PSMCSD will contract with an environmental planning consultant for completion of a CEQA Initial Study and supporting surveys or reports. As described in the Scope of Work below, the consultant will assist the District and the County in processing environmental approvals including Coastal Zone permitting. Consultation with DWR, CalTrans and California Fish and Game will be required and notification of tribal representatives will be

completed per IRWM requirements if tribal lands will be included in the study areas. CEQA document will be provided to DWR for review.

11. **Scope of Work:** Project 2 – Springfield Water Project

Task 2.1 Project Administration

Task 2.1.a General Administration: PSMCSD will conduct all general administrative tasks including financial recordkeeping and preparation of invoices; and perform project management, including issuing Requests for Proposals/Qualifications or obtaining bids from design engineers, environmental planning consultants and other professionals and the oversight of the selection process. PSMCSD and its project team will manage and review the work of selected consultants in order to complete planning, design, permitting and coordinating activities. The lead applicant, Coastal Conservation and Research, will be responsible for administering the grant contract on behalf of the project proponents included in this grant application.

Labor Compliance: PSMCSD will contract for Labor Compliance as needed for this project or work cooperatively with one of the grantees with an approved Labor Compliance Plan. The Scope of Work for the Project Engineer will include ensuring that State Prevailing Wage Compliance provisions are included in bid documents. Contracts with all consultants will require compliance with the approved Labor Compliance Plan. Since construction is not included in this proposal, construction period compliance monitoring will not be required.

Task 2.1.b Reporting: PSMCSD will prepare the quarterly reports, project completion report and post completion reports for submittal to the IRWM grant administrator as required in DWR's Agreement with the lead agency for the grant.

Current Status: Administrative staff is assigned to the project. The Request for Proposal process will be initiated for technical consultants in advance of the expected grant award date.

Deliverables: Preparation of invoices as required. Submission of Labor Compliance Program requirements. Submission of quarterly and annual reports.

Land Purchase/Easement

The proposed project does not include costs related to purchase of land or easements. There is an existing easement for the site of the test well and water storage tank under consideration as the first option. The second option would consolidate Springfield with the Moss Landing system. The planned pipeline in either case will be in the public right of way. If it is infeasible to develop the test well or connect to Moss Landing, as determined through studies to be funded by IRWM, an alternative site may be required and land purchase or rights of access costs would be budgeted in a later development project which is not included in this application.

Current Status: Easement for test well site in place.

Deliverables: N/A

Task 2.2 Planning/Design/Engineering

Task 2.2.a Engineering and Design: This task includes preparation of plans to the 90% design level for the replacement water supply development, storage tank, distribution system and other water supply improvements under a consulting contract with the selected engineering firm. If the Springfield Road site project is determined to be infeasible during the initial assessment, this task will include completed plans and specifications for an alternative project. All engineering work will be overseen by PSMCSD and approved by their Board. An Engineer's Cost Estimate will be developed along with a construction implementation timetable. Plans and specifications for the well, if developed, pipeline, equipment, and other improvements will be developed in consultation with the permitting agencies including the Monterey County Environmental Health Bureau, Drinking Water Protection Program and comply with all applicable Federal, State and local codes, including fire code that pertaining to water quality and supply.

The Scope of Work for the engineer will include the following:

- Review test well water quality, geotechnical, and hydrogeology/groundwater reconnaissance studies.
- Review water quality deficiencies in existing water supply.
- Evaluate current and 20-year water supply demand and seawater intrusion projections for the area.
- Preliminary engineering design of pipeline system for review by CalTrans and County Environmental Health.
- Determine required institutional agreements, water rights, and/or permits, if any for alternate sites.
- Prepare Engineer Cost Estimate at 90%.
- Submit draft and plans and specifications to CalTrans, County Environmental Health Bureau and other regulatory agencies.
- Assist in the determination of acquisition of rights of access and/or easements for pipelines and associated facilities (pump stations, etc.) for the selected project.
- Complete plans and specs to sufficient level of detail to enable District to submit plans for final review (90% design review), and bid the project when/if funding is identified, to apply for and acquire rights-of-way/easements, environmental permits, and regulatory (encroachment) permits.
- Submit 90% design plans and specs to CalTrans, County Environmental Health Bureau and other regulatory agencies for approval.

Current Status: Conceptual design for Springfield Well site complete. Conceptual estimates prepared for site and Moss Landing connection. Preliminary Engineering and Test Well Reports (2008) complete (See Technical Justification).

Deliverables: Design and specifications for Selected Project. Engineer’s Cost Estimate at 90% Design.

Task 2.2.b Planning and Analysis: Project planning, feasibility analysis and determinations are needed in order for PSMCSD to select a preferred project, evaluate and prioritize recommended alternate solutions and explore financing methods. This work will be performed by a project

consultant or team, which has not yet been selected and will be based upon review of existing reports, draft hydrology, geotechnical and environmental consultant reports and in consultation with the County, PVWMA, other stakeholders and regulatory agencies. The anticipated scope of work will include working with PSMCSD and the selected project engineer in evaluating options for long-term solutions to water supply problems including consolidation with Moss Landing Water, extending connections to adjacent underserved DAC areas and consideration of land use and environmental constraints at alternative sites. Affordability will be key additional criteria for project evaluation and selection.

Current Status: Request for proposals will be ready prior to grant award. Preliminary discussions held with Engineer and Consultants.

Deliverables: Planning and Feasibility Analysis Report.

Task 2.2.c Environmental Documentation: A CEQA Initial Study (IS) was completed in 2002 when PSMCSD acquired a number of systems through consolidation and began exploration of the improvements needed for Springfield. A new CEQA IS will be required for consideration of potential water supply sites that were not included in the original approved IS and Mitigated Negative Declaration. The CEQA IS will likely conclude in a Mitigated Negative Declaration based on the previous findings for approval and other environmental determinations completed recently in the area. PSMCSD will contract with an environmental planning firm to be selected upon notice of grant approval. The selected firm will assist Monterey County in processing CEQA approvals and coastal zone plan review. Draft CEQA documents will be submitted to DWR for review and comment. Stakeholder consultations and notifications will include PVWMA and tribal representatives if any tribal lands may be affected by the project, California Department of Fish and Wildlife, CalTrans and the State Clearinghouse. CEQA documentation will be forwarded to DWR upon final approval and recording by the County of Monterey. The IS will include all project alternatives then under evaluation for the project in accordance with CEQA guidelines.

Current Status: PSMCSD has consulted with an environmental planning firm and it has been determined that an additional environmental study will be required for the project. Based on the consultant's recommendation, the scope of the environmental review will include the expanded number of connections, Moss Landing consolidation, Springfield and other potential well sites.

Deliverables: CEQA documentation.

Task 2.2.d Hydrology and Geotechnical Studies, Surveys: Preparation of geotechnical and hydrology studies is required prior to determination of the feasibility of project alternatives and for mapping, surveying and geo-technical work to complete project design. The work will be performed by one or more registered engineers or consulting engineering firms, which have not yet been selected. PSMCSD will begin the RFP/RFQ process after review of its ability to support the cost of consultants' expenses in advance of IRWM grant award approval. The anticipated scope of work will include:

- Geotechnical studies of soils conditions, soils borings and testing, site planning and evaluation of sites under consideration. Engineering studies for pump station, generator and storage tank footings and foundations depending on site option selected after feasibility analysis. Geotechnical work such as land surveying and mapping may be required depending on the determination of project feasibility.

- Hydrology studies including research and analysis of sites under evaluation for existing conditions and consultation regarding soils testing results and preliminary site evaluations with geotechnical firm, the project engineer, PSMCSD, other local agencies and stakeholders regarding modeling projections for seawater intrusion followed by recommendations for site selection.

Current Status: Requests for Proposals/Qualifications to be completed by prior to grant award.

Deliverables: Reports.

Construction/Implementation /Environmental Compliance/ Construction Management:

N/A: These tasks are not included in the Scope of Work. Completion of technical studies and design specifications and other tasks such as approval of permitting and obtaining financing, will allow PSMCSD to successfully implement construction of the Springfield Water Supply Project.

Task 2.3 Other Costs

Task 2.3.a Permits and Fees: This task will result in approved permits and fees required to begin implementing the selected project and complete the planning and permitting process. Permits and approvals will be required from the Monterey County Environmental Health Bureau (application, system transfer, well abandonment fees among others). Fees charged by the California Department of Fish and US Fish and Wildlife (Section 7) will be paid if such permits are determined to be necessary during the CEQA review process. Standard Monterey County Entitlement (CEQA processing, interdepartmental project review, permit approval, filing and recording, etc.) and Coastal Zone review processing and related fees are included in this section. Additional permitting will be required by the North Monterey County Fire District, Monterey Bay Unified Air Pollution Control District and other agencies that may be identified during the review and permitting process. County Public Works and CalTrans are expected to charge fees for encroachment permits or rights of access for the water distribution pipeline system. PSMCSD's project team will coordinate activities with permitting agencies in initial consultations and follow-up once the preferred project is identified through the feasibility analysis.

Current Status: Discussions have been held with PSMCSD's consulting engineer, County staff and environmental review consultants regarding permitting and priorities for applications. No action will be taken until funding is approved. Soils Boring permits and Planning permitting will be initiated immediately upon approval.

Deliverables: Permits.

Task 2.3.b Project Coordination and Technical Assistance: Project coordination and technical assistance during project predevelopment will be required over a period of two years. PSMCSD plans to retain the services of a project manager to coordinate the planning, technical studies, design, permitting and environmental review process including interagency and stakeholder coordination. The project manager/coordinator will provide technical assistance to PSMCSD in preparing applications for permits, planning, and developing data and reports as necessary to obtain approvals and coordinate the project to construction implementation. Rural California Assistance Corporation (RCAC) has agreed to provide assistance to PSMCSD in meeting the County's requirements to demonstrate technical, managerial, and financial capacity for transfer of the Springfield System and consolidation with Moss Landing and adjacent areas within the DAC area or other options. RCAC will provide other technical assistance as needed to facilitate the project.

Current Status: Upon approval of the grant award, PSMCSD will issue a request for proposals for project coordination and technical assistance. RCAC staff is currently assisting PSMCSD with the Springfield project.

Deliverables: System transfer application and quarterly project reports.

Task 2.3.c Monitoring and Testing: *New well or consolidation feasibility analysis:* Production and water quality sampling will be supervised by the project engineer in consultation with District and Monterey County Environmental Health Bureau staff. Water quality will be tested for nitrates and other constituents of concern as directed by permitting authorities. Laboratory reports are submitted to the Environmental Health Bureau, which may also perform independent analysis. Required sampling protocols will be followed through future well development or consolidation improvement work and final approval by Environmental Health.

Ongoing water monitoring plan after development: Water quality will be sampled and tests will be conducted in accordance with Monterey County and CDPH protocols and the County's Drinking Water Protection requirements, State and Federal codes and regulations. Quarterly monitoring of nitrates and monthly monitoring for coliform are the minimum tests expected to be required in the first year. The County maintains a well inspection database and the District issues Consumer Confidence Reports to the residents as required by State and Federal regulations. Monitoring data will be maintained and distributed in accordance with protocols as outlined in the IRWM Data Management Plan. However, standard quarterly testing and reporting for the existing well is not included in the Springfield Work Plan and will be funded as an on-going operating cost of the system (not with grant funds).

Current Status: The Springfield System is on a Bottled Water Order from the Monterey County Environmental Health Bureau due to excessive nitrates and it is on the CDPH ACR List of Violations by County (2011). Water quality reports are provided to the Monterey County Environmental Health Bureau as scheduled. Test well results in 2008 at the Springfield Road site were acceptable. However, it has been recommended that the well be re-sampled and tested for water quality including evidence of seawater intrusion. The Moss Landing Water System is currently in compliance with water quality regulations.

Deliverables: Water quality and production reports.

12. Supporting Materials

The following documents are being submitted electronically as supporting materials for this section, and can be found in Attachment 7, Technical Justification:

- Monterey County Health Department, Springfield Notice of Violation, pages 1-2
- California Department of Public Health: Violations by County 2011 ACR, pages 3-4
- Monterey County Environmental Health: Springfield Water System Inspection Report, pages 5-11
- PSMCSD Springfield Water Laboratory Analysis Summaries, pages 12-14
- Engineer's Report for Springfield Road and Struve Road Water Systems, page 16-33
- Well Driller's Well Completion Report Springfield Road Site, pages 34-35
- Conceptual Cost Estimate Springfield Road Site, pages 36-37

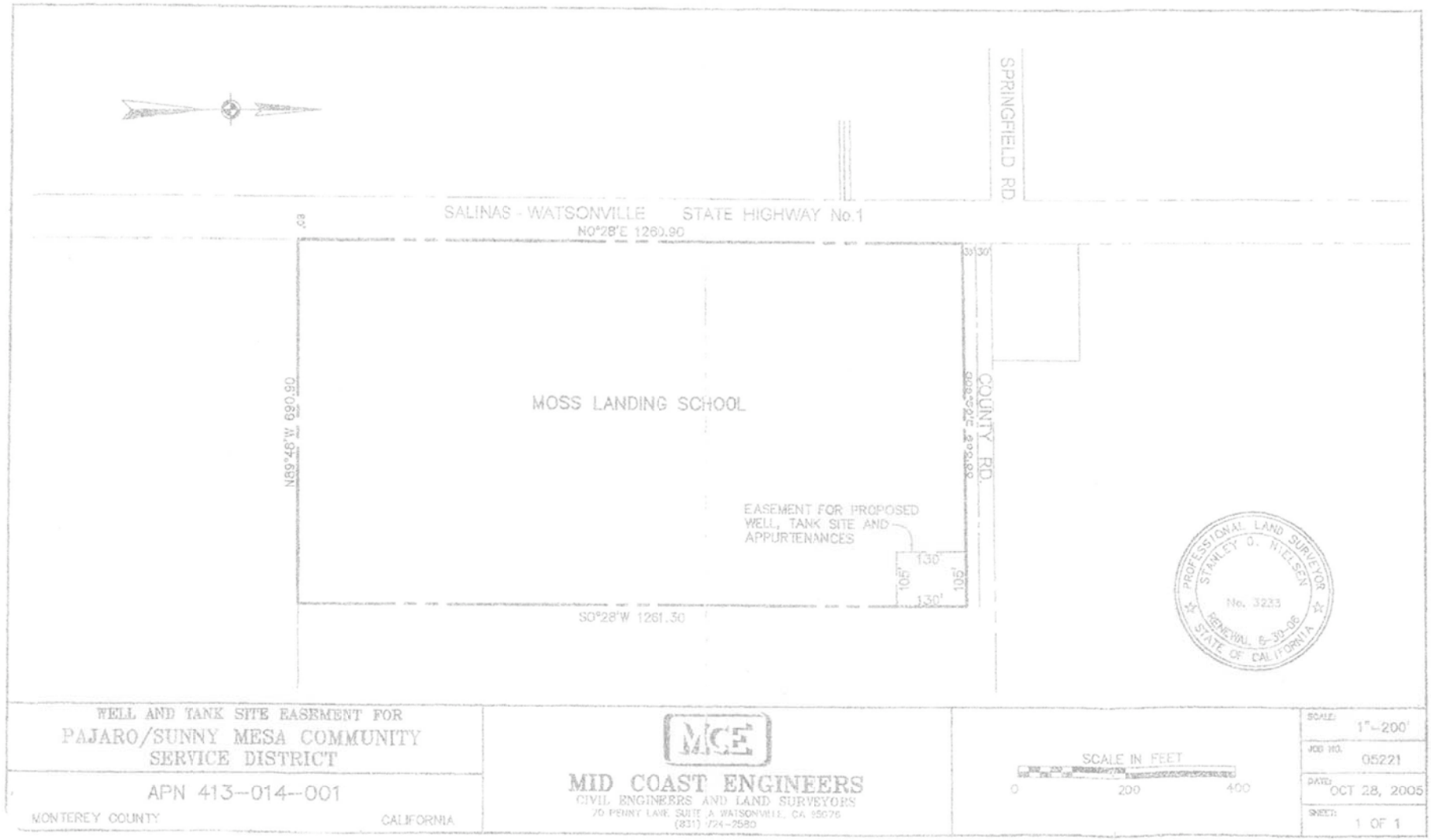
- Conceptual Cost Estimates Moss Landing and Added DAC Connections, pages 38-40
- Conceptual Design and Springfield Well Site Plans, pages 41-43

13. Project Site Map

A site plan for the Springfield Road well site and conceptual plan for this project alternative are attached below.

Project 2. Springfield Water Project: SITE MAP 1

Project 2. Springfield Water Project: SITE MAP 2



Project 3. City of Salinas and Monterey Regional Water Pollution Control Agency: Dry Weather Runoff Diversion Program

1. Project Description

The lower Salinas River and the Reclamation Ditch are two of the most polluted water bodies within the state. Each has segments that have continually failed to meet established minimum beneficial use standards, and have therefore been federally listed on the 303d list for non-attainment. Urban water runoff from the City of Salinas currently flows to receiving waters untreated. Water from south Salinas flows into the Salinas River via a series of stormwater conveyance pipes. The remainder of the city drains into the Reclamation Ditch. Water carries with it pollutants from a number of point urban sources. Left untreated these pollutants can adversely affect downstream environments. The proposed project will help mitigate some urban contributions of contaminants to the Salinas River (south Salinas area) from the City of Salinas and, depending upon the scope, receiving waters of the Reclamation Ditch in north Salinas.

The City needs to reduce pollutant discharges to surface waters to the maximum extent practicable. The City has reviewed opportunities and has identified two opportunities to accomplish this goal. For south Salinas, it is highly feasible to divert dry weather flows and possibly first flush storm-generated flows and flows from infrequent smaller storms into a small earthen detention basin to utilize biological processes in degrading possible pollutants. This water would then be diverted into a force main that flows to the Monterey Regional Water Pollution Control Agency (MRWPCA) wastewater treatment plant in Marina. Flows would combine with raw sewage from the City. MRWPCA would treat the combined flow to tertiary standards and pump it through an existing recycled water distribution system in northern Monterey County during dry weather periods. MRWPCA's wastewater treatment plant has the capacity to generate approximately 21,600 AFY of recycled water. Of that amount, 13,300 AFY of tertiary treated recycled water is currently delivered to the Castroville area for agricultural irrigation during the irrigation season, irrigating approximately 12,000 acres of agricultural fields and substantially reducing the need to pump groundwater for irrigation in a seawater intrusion-affected area (the Castroville Seawater Intrusion Project, or CSIP); the remaining 8,300 AFY of available capacity would be generated during the non-irrigation season, but cannot directly be delivered for irrigation purposes due to current lack of seasonal storage facilities (though plans exist to expand the current storage facilities). The proposed Dry Weather Runoff Diversion Program would contribute to the source wastewater supply that is reclaimed and used for agricultural irrigation in Castroville.

A second opportunity includes a diversion facility in north Salinas. The City and MRWPCA plan to study north Salinas, to determine if acceptable water quality and stormwater flows could be diverted into the sanitary sewer system, also a tributary to MRWPCA's wastewater treatment plant, to further add to the recycled water production for agriculture in northern Monterey County.

Another component of the project will involve mining data from existing water quality sampling reports and/or analyses, possibly installing, operating and maintaining one or more flow meters (to determine how much water might be available) and automatic water quality samplers (if further data are required). Analyzing the water samples for appropriate constituents and preparing a report describing such work will be completed. This component will also determine if and how the City should proceed with diversions of flow from the Reclamation Ditch into the sanitary sewer system.

As noted above, the City is striving to reduce or eliminate pollutants from stormwater discharges to surface waters and it is incumbent upon the City to proceed expeditiously. In addition, the proposed project will help increase recycled water supplies used for agricultural production in the northern coastal region, an area severely impacted by seawater intrusion. The regional economy is tied to production

agriculture, which represents a $4 billion industry for Monterey County. The growers in the northern coastal region of the County rely upon recycled water to reduce their groundwater pumping requirements. Recently, MRWPCA has seen reduced flows to its wastewater treatment plant from the City, resulting from water conservation and from reduction of infiltration and inflow due to repairs or replacement of sanitary sewers. Activities that would increase dry weather flows to the wastewater treatment plant would be beneficial to MRWPCA's recycling program and the associated water resources benefits.

If the proposed project is not implemented, the City of Salinas will have to embark on a very expensive solution for controlling dry weather runoff. Estimates for designing, building, and operating a facility to treat the pollutants from urban dry weather runoff will be in the multi-million dollar range. The City is already facing tough economic conditions, which are forcing city officials to reduce or scale back many of their core services. The proposed project is easily implementable, relatively economical, and can accomplish multiple benefits, including contributing to the region's recycled water supply for agricultural irrigation and thereby helping to reduce seawater intrusion in coastal aquifers. This project would serve as a model for other cities or communities to follow for finding alternative ways to utilize dry weather urban runoff.

2. Completed Work

The City of Salinas and MRWPCA have done extensive preliminary work preparing the project's work plan. A preliminary project plan and specification has been completed (submitted as part of the supporting materials in Attachment 7).

The project site is located within the property of the City and the system is already in place; the project is expected to be declared a Negative Declaration with minimal modifications to a system already existing and functioning. Environmental compliance efforts are in process of being completed with the City's Planning Department and the environmental determination proposed by the City is currently being discussed. Once the City process is cleared, the appropriate Negative Declaration documents may be filed with Monterey County for the standard 30-day review period.

3. Existing Data and Studies

The surface water quality in and around the Salinas River and tributaries as well as the groundwater in the area has been researched and monitored for long periods of time. Groundwater quality is very important to the area since it is the region's primary source of water supply. Nitrates and elevated levels of chlorides present the greatest problems for the region's groundwater basins. Nitrate accumulating in the groundwater supplies has been linked to production agriculture, and increasing levels of chlorides in wells can be attributed to seawater intrusion due to overdrafting of groundwater supplies.

The regional economy is tied to agricultural production. Many acres along the coast have been impacted by seawater intrusion. The growers in that area have relied upon recycled water to reduce their groundwater pumping requirements (thereby helping to reduce seawater intrusion). Ironically, however, as several urban water suppliers' areas have embraced water conservation strategies, the end result is a reduction in the amount of water that is being treated at the regional treatment plant and ultimately being sent to the growers. Finding additional water supplies that can be easily integrated into the existing infrastructure is highly desirable. The dry weather runoff diversion program can be one type of additional water supply for the growers in the region. The benefits of treating water for a higher, more beneficial use as well as reducing the amount of pollutants reaching various water bodies is a very strategic, integrated and regional approach to water management planning.

Studies and reports that support the project concept are included in Attachment 7, Technical Justification,

as follows:

1) Microbial Degradation of Pollutants
   - Urban Runoff Pollutants Removal of Three Engineered Soils (2008 study by Xiao and McPherson)
   - Biotic Degradation of Pollutants (1989 study by Matsumura)

2) Regional Wastewater Treatment Information
   - MRWPCA Regular Meeting Notice/Consent Agenda/Waste Discharge Report

3) Water Supplies – Groundwater and Recycled Water
   - Monterey Wastewater Reclamation Study for Agriculture (April 1987)
   - Irrigated Lands Regulatory Program
   - Historic Seawater Intrusion Map – 180 ft. Aquifer
   - Historic Seawater Intrusion Map – 400 ft. Aquifer

4) Local Water Quality Reports and Regulations
   - Monterey Bay Sanctuary Citizen Watershed Monitoring Network: Monitoring Report for NPS Pollution (June 2007)
   - Salinas MS4 NPDES Permit – Appendix C
   - Central Coast Regional Water Quality Control Board: TMDL for Fecal Coliform in Lower Salinas River Watershed
   - Central Coast Regional Water Quality Control Board: TMDL for Chlorpyrifos and Diazinon in Lower Salinas River Watershed
   - Central Coast Regional Water Quality Control Board Nutrient Guideline (Developing a Nitrate Guideline Value for Aquatic Life)
   - CCA Salinas River
   - Salinas Lift Station Monitoring Results
   - UC Davis Study: Addressing Nitrate in California's Drinking Water

4. Project Timing and Phasing

The project can proceed as a standalone project. The engineering and design of the shunt at the main project location is easily implementable because this system already exists. The stormwater pipes from south Salinas are in close proximity to the Salinas Pump Station and the Blanco detention basin. Monitoring the flows and water quality of the Reclamation Ditch will be as equally feasible as the diversion project.

5. Plans and Specifications

A preliminary project plan and specifications has been completed (and provided in Attachment 7).

6. Standards

The City follows the 2008 City of Salinas Standard Specifications and Design Standards and references the California Department of Transportation (CalTrans) Standard Specifications format. The City also follows specialty construction standards, and follows all applicable health and safety standards. On this project, the City will adopt MRWPCA's standards for any and all work related to connecting to their facility. Once the project is in construction implementation phase, a City inspector will oversee all contractors' work. MRWPCA staff will oversee any construction work performed on their facilities.

7. Performance Measures and Monitoring Plans

Monitoring of current south Salinas dry weather runoff will be accomplished by the use of a flow meter. The meter and subsequent readings will allow the project partners to accurately determine how much water is being sent into the outfall during the dry season. Water quality samples will also be taken of the south Salinas dry weather runoff to establish baseline water quality parameters. The same measurements will be implemented for the other component of the project at the Reclamation Ditch. Performance of the project overall is described in more detail in Attachment 6, Monitoring, Assessment, and Performance Measures.

8. Acquisition of Land or Rights-of-Way and Landowner Agreements: N/A

9. Permits: None required.

10. Environmental Compliance

This project site is located within existing City property. Most of the required system already exists today, with minor modifications needed to divert the stormwater from going to the Salinas River via re-routing it to the detention basin and ultimately the MRWPCA pump station.

The project will be proposed as a Negative Declaration with minimal modifications to a system already existing and functioning. Environmental compliance efforts are in process with the Department of Public Works and the City's Planning Department with both entities currently discussing the appropriate environmental determination being proposed by the Department. Once the City process is cleared, the Negative Declaration documents may be filed with Monterey County for the standard 30-day review period.

Other environmental laws may not be affected because this system is in place and currently operating. The proposed project will be taking the polluted dry weather urban runoff currently going to the Salinas River and re-directing it into the MRWPCA system for further treatment and re-use for farm irrigation. This process provides benefits to both the farm community and the Salinas River ecosystem.

11. **Scope of Work:** Project 3. Dry Weather Runoff Diversion Program

Task 3.1 Project Administration

Task 3.1.a Administration: The project proponents will conduct all general grant administration tasks throughout the duration of the project period. The lead applicant, Coastal Conservation and Research, will be responsible for administering the grant contract on behalf of the project proponents included in this grant application.

Task 3.1.b Labor Compliance Program: The Labor Compliance Officer from the City of Salinas will oversee the Labor Compliance for the Dry Weather Run Off Diversion Program project to assure that the contractor complies with the State Labor Laws during the construction phase.

Task 3.1.c Reporting: The project proponents will submit invoices and progress reports to the lead applicant as required. The City of Salinas and MRWPCA will work with the lead applicant to provide all relevant reporting information on this project to DWR.

Current Status: Pending grant award.

Deliverables: Preparation and processing of invoices as required. Submission of Labor Compliance Program requirements. Submission of quarterly and annual reports as required.

Task 3.2 Planning/Design/Engineering/Environmental Documentation

Task 3.2.a Assessment and Evaluation: One component of this project calls to assess the north Salinas flows, to determine if acceptable water quality and stormwater flows could be diverted into the sanitary sewer system, a tributary to MRWPCA's wastewater treatment plant. This task would involve mining data from water quality sampling and analyses, and installing a data logger and a flow metering device on the Reclamation Ditch with an automated grab sampler to collect water samples and analyze the water quality of the water body (for six months test). Analyzing the water samples for appropriate constituents, and preparing a report describing such work will be completed. This component will help determine if and how the City should proceed with diversions of flow from the Reclamation Ditch into the sanitary sewer system.

Task 3.2.b Preliminary Design: The City and MRWPCA will complete a preliminary design concept for the diversion facility.

Task 3.2.c Final Design: For the final design, the City and MRWPCA will work on completing the final project plans and specifications. The services of an engineering consultant will be obtained to complete the pump station design specialty item and incorporate this into the project plans and project specifications.

Task 3.2.d Environmental Documentation: The City of Salinas and MRWPCA staff will work internally to complete and clear the environmental documentation for the project. The process will include completing an Environmental Report and posting it for public view at the County office for 30 days.

Task 3.2.e Permitting: The City and MRWPCA will work together in the preparation of any permitting documents for connecting this water supply to the MRWPCA conveyance system to be pumped to the Marina Regional Treatment Plant.

Current Status: Pending grant award. Preliminary Project Plans and Specifications are currently at the 90 percent level. The Environmental Negative Declaration document will be submitted to Monterey County prior to project implementation.

Deliverables: Final Project Plan and Specifications. Environmental Report. Permits.

Task 3.3 Construction/Implementation

The construction implementation process for the diversion facilities project are outlined below and not limited to include: 1) obtain authorization from DWR to begin project; 2) construction contracting; and 3) construction's phase to direct stormwater into MRWPCA system for water recycling and re-use.

Task 3.3.a Construction Contracting: The City and MRWPCA will prepare the project for bidding and take the project to Council/Board for awarding the project to the lowest responsible bidder.

Task 3.3.b Mobilization and Site Preparation: After Notice to Proceed is issued to the contractor, the City and MRWPCA inspectors will oversee and inspect the contractor's mobilization and site preparation to be conformant to the project plans and specifications. Construction staking will be performed as necessary. Contractor equipment and materials will be brought to the site.

Task 3.3.c Project Construction: The project items of work identified on the attached Engineer's Estimate include: performing percolation tests on the Blanco retention basin; constructing a low flow dry weather diversion connection with SCADA and valves to divert water into MRWPCA System; installation of 4" ADS perforated plastic pipe laterals installed within the basin to collect percolated water and collect this water on an 8" PVC pipe to convey this water into a new automatic pump station with a SCADA system. This stormwater will be pumped to MRWPCA Salinas Pump Station through a 6" pipe force main with a backflow preventer valve and a flow metering device. During construction, the City inspector and MRWPCA staff will oversee all connection and installations of electronic equipment.

Task 3.3.d Performance Testing and Demobilization: The City and MRWPCA will provide any specialty testing including soil sampling and compaction, and will oversee the demobilization of construction activities once all items of work are completed by the contractor at the time the project is ready for final inspection.

Current Status: Pending grant award.

Deliverables: Advertisements of bids. Contract awarded. Notice to Proceed to the contractor.

Task 3.4 Environmental Compliance/Mitigation/Enhancement

Task 3.4.a Best Management Practices: Implement environmental compliance measures/mitigation procedures. Promote any and all Best Management Practices for all pre and post project construction practices. As part of construction, the contractor will be required to set up the Best Management Plan/Practices (BMPs) for the project to comply with the City of Salinas and State Water Board NPDES permit applicable regulations.

Current Status: Pending grant award.

Deliverables: Best Management Plan/Practices submitted by the contractor for the construction portion of the project.

Task 3.5 Construction Administration

Task 3.5.a Construction Oversight: Project partners will oversee the construction processes for the duration of the project. The City and MRWPCA will perform the construction oversight to inspect all items of work performed by the contractor under this project and to be in compliance with the approved project plans and specifications. This task also involves reviewing invoices and payments to the contractor; settling any disputes or disagreements with the contractor in a systematic and timely manner; requiring progress updates from the contractor on a weekly basis; and performing inspection of the work product for final approval.

Current Status: Pending grant award.

Deliverables: Copies of invoices/payments. Progress reports, as required.

Task 3.6 Other Costs

Task 3.6.a Legal Advice: The City and MRWPCA will work with their respective legal departments for any legal advice needed during the course of the project. This will involve reviewing with legal

counsel any and all contracts or related documents; providing legal opinion as needed; and providing an intermediary for project partners during any contract disputes up to project completion.

Current Status: Pending grant award.

Deliverables: Letters and/or legal documents, if applicable.

Task 3.7 Construction/Implementation Contingency

Project construction material and implementation contingency amounts will be used to keep the project moving and complete the project in a timely manner.

Task 3.7.a Construction Contingency: Due to unforeseen costs during the course of the project, it is estimated that roughly $35,500 ($33,900 in material or related expenses plus 15 man hours) will be needed to complete the project. This will be contributed in matching funds by the City and MRWPCA.

Current Status: Pending grant award.

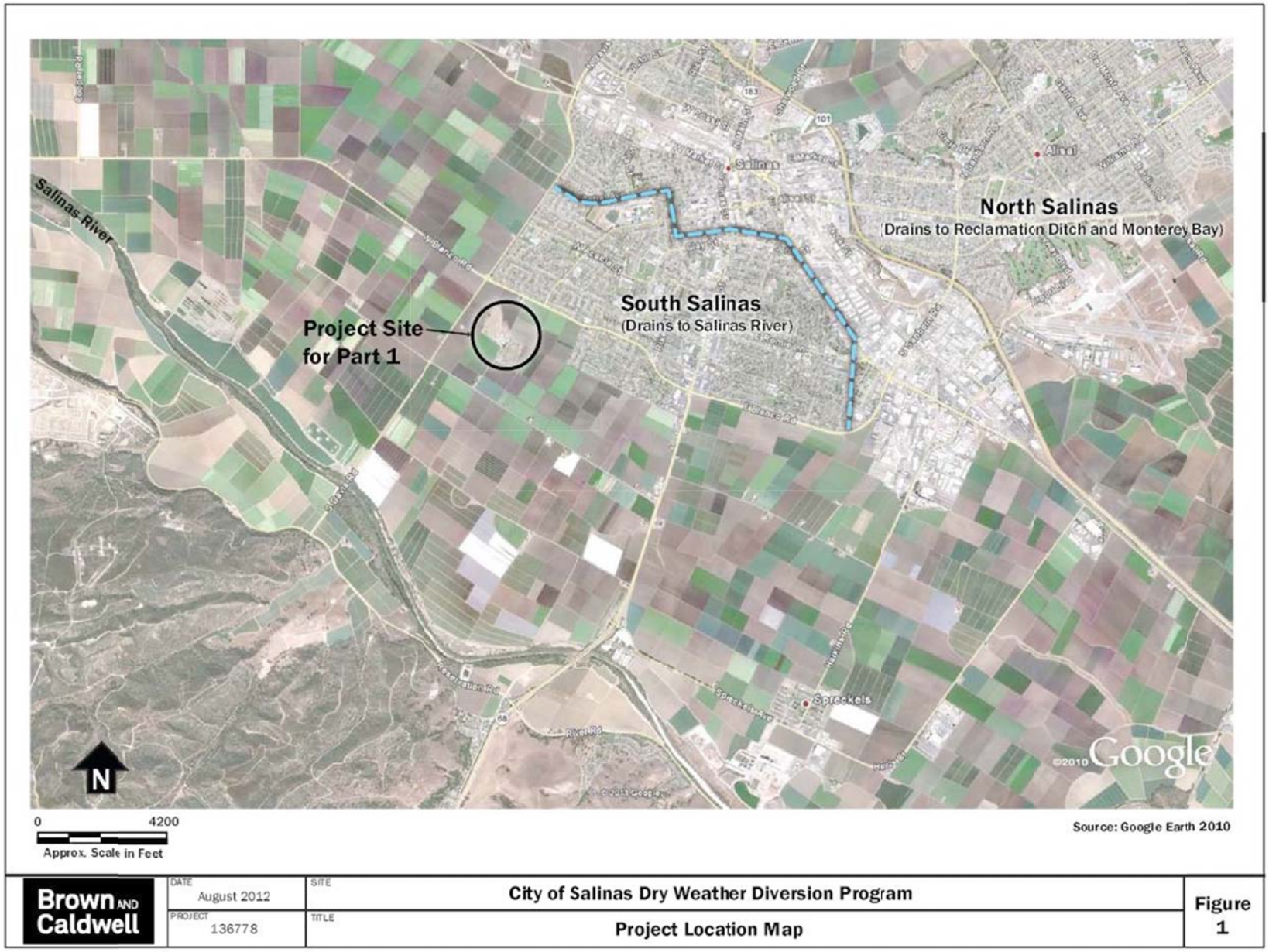
Deliverables: Documentation of accounts payable, available upon request. Project Contract Change Order, if applicable.

12. Supporting Materials

The following documents are being submitted electronically as supporting materials for this section, and can be found in Attachment 7, Technical Justification:

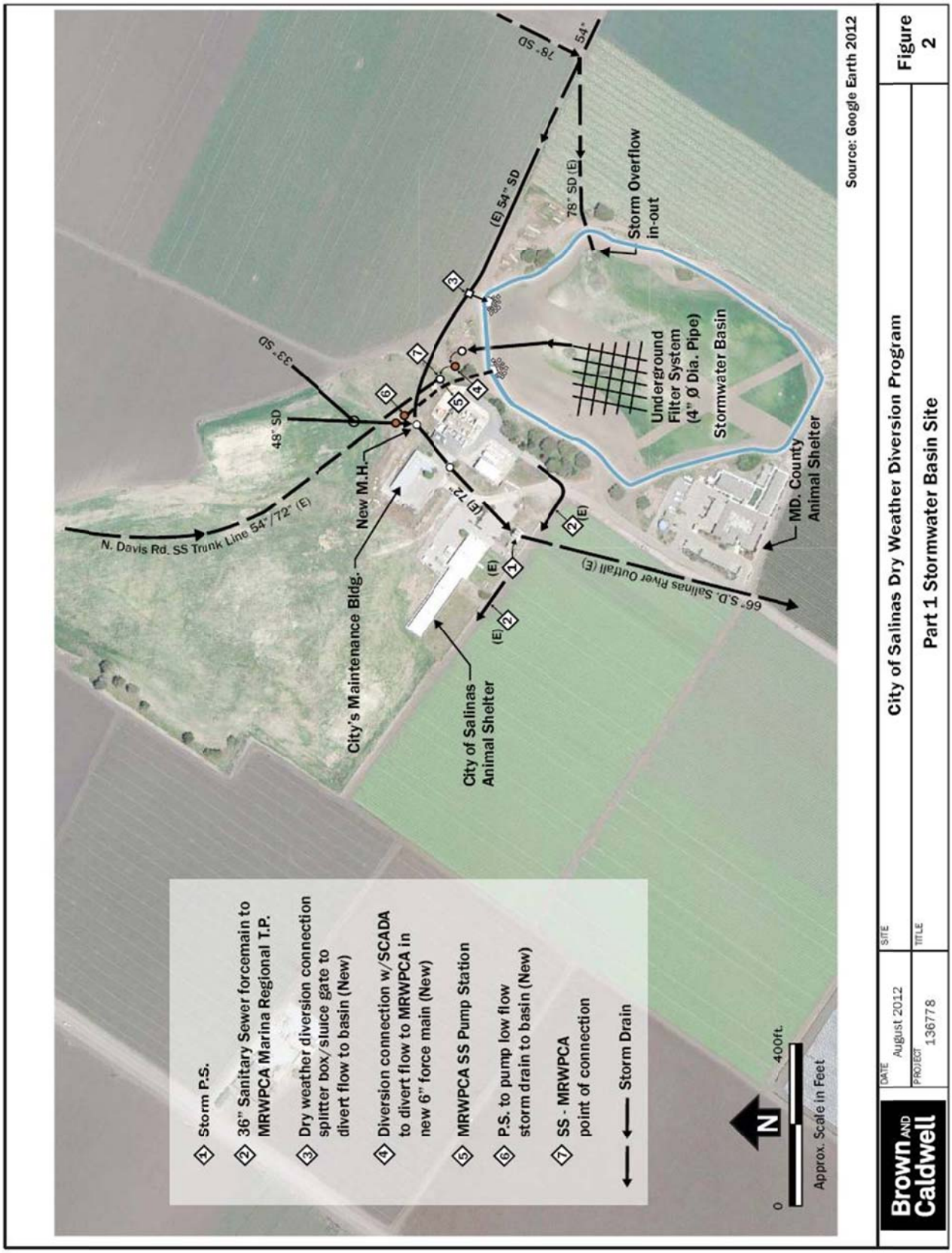
-
- Dry Weather Run Off Diversion Program Specifications (Draft)
- Urban Runoff Pollutants Removal of Three Engineered Soils
- Biotic Degradation of Pollutants
- MRWPCA Regular Meeting Notice/Consent Agenda/Waste Discharge Report
- Monterey Wastewater Reclamation Study for Agriculture
- Irrigated Lands Regulatory Program
- Historic Seawater Intrusion Map – 180 ft. Aquifer
- Historic Seawater Intrusion Map – 400 ft. Aquifer
- Monterey Bay Sanctuary Citizen Watershed Monitoring Network: Monitoring Report for NPS Pollution
- Salinas MS4 NPDES Permit – Appendix C
- Central Coast Regional Water Quality Control Board: TMDL for Fecal Coliform in Lower Salinas River Watershed
- Central Coast Regional Water Quality Control Board: TMDL for Chlorpyrifos and Diazinon in Lower Salinas River Watershed
- Central Coast Regional Water Quality Control Board Nutrient Guideline (Developing a Nitrate Guideline Value for Aquatic Life)
- CCA Salinas River
- Salinas Lift Station Monitoring Results
- UC Davis Study: Addressing Nitrate in California's Drinking Water

Project 3. Dry Weather Runoff Diversion Program: SITE MAP 1



Brown AND Caldwell	DATE August 2012	SITE	City of Salinas Dry Weather Diversion Program	Figure 1
	PROJECT 136778	TITLE	Project Location Map	

Project 3. Dry Weather Runoff Diversion Program: SITE MAP 2



Project 4. Resource Conservation District of Monterey County: Salinas River Watershed Invasive Non-native Plant Control and Restoration Program

1. Project Description

The goal of this project is to improve habitat quality, channel conveyance capacity, enhance recharge, and reduce unnatural bank erosion by eradication of 120 net acres of the noxious riparian weed, *Arundo donax*, and strategic revegetation with native plants in the channel of the Salinas River and nearby tributaries in the vicinity of King City and downstream towards Soledad. Supplemental objectives are to educate landowners and the public regarding the importance of riparian vegetation management, to expand participation and support for the long-term program, and to expand our understanding of the function of the Salinas River to inform future work on the river including the additional arundo control work that will continue downstream to the river mouth over the ensuing decades.

Statement of Need:

The Salinas River is the dominant riparian corridor along California's Central Coast, draining a watershed that covers 4,000 square miles of land in Monterey and San Luis Obispo Counties. The headwaters begin in the La Panza Range in central San Luis Obispo County and flow north for more than 150 miles before emptying into Monterey Bay. The Salinas River provides valuable fish and wildlife habitat as it recharges the aquifer for the water used for irrigation for Monterey County's $4 billion thriving agricultural industry.

Habitat, flood control and water availability in the Salinas Valley are compromised and threatened by the second-largest invasion of the noxious weed, *Arundo donax*, in California. Arundo is a non-native aggressive perennial grass that has overtaken 1,869 gross acres of the Salinas River, forming enormous monocultures with virtually no food or habitat value for native wildlife. Arundo is known to draw over three times as much water from the aquifer as native vegetation, increasing the likelihood of fire and flooding. Exacerbated flooding poses an additional food safety risk for riverside vegetable farms, for which flooded fields mean crop loss; and those fields cannot be planted for many months afterwards.

A secondary weed threat is the growing population of tamarisk (*Tamarix ramosissima*), which, like arundo, displaces native vegetation and quality habitat. Unlike native riparian plants, both weeds provide little shading for in-stream habitat, leading to increased water temperatures and reduced habitat quality for aquatic wildlife. Wildlife at risk include the federally threatened California red-legged frog (*Rana aurora draytonii*), the federally endangered least Bell's vireo (*Vireo bellii pusillus*), the federally endangered arroyo toad (*Bufo microscaphus californicus*) and the federally threatened southern steelhead trout (*Oncorhynchus mykiss*). The Salinas River and its tributaries have been designated by the National Marine Fisheries Service as critical habitat for steelhead. Any control of these invasive plants will have a direct impact on the quality of this habitat and prevent their further proliferation downstream.

After initial treatment of more diffuse stands in the upper watershed, we have initiated preparation for a comprehensive vegetation management program to address the daunting threat remaining (and for long-term maintenance). With arundo in the river corridor upstream of King City treated in San Luis Obispo County and Monterey County, we anticipate it will require an additional 10-12 years of focused treatment to manage the remaining 1,869 riparian acres infested by arundo and tamarisk from King City downstream to the river mouth at Monterey Bay.

Approach and Methods:

The Resource Conservation District of Monterey County (RCDMC) will work with the consulting firm DENDRA Inc. to eradicate arundo and tamarisk. The project proposal is for the first 3-year stage of large scale, coordinated treatment and revegetation in and along the Salinas River and its tributaries. Treatment in this first stage will cover infestations in the San Lorenzo Creek watershed (which drains into the Salinas River at King City) and the channel, floodplain, and terraces of the Salinas River between King City and Soledad. The overall approach and weed treatment methods we will employ are based on successful arundo and tamarisk eradication efforts conducted throughout California, utilizing a combination of spray and labor crews throughout other multi-year eradication programs. Jason Giessow of DENDRA Inc. is the recognized authority on arundo treatment in California and brings his extensive experience in Southern California control programs to our program for site-by-site treatment prescriptions, permit completion, and compliance and project effectiveness monitoring and mapping.

The RCDMC employs an integrated pest management approach, and to the extent possible, we will emphasize methods for arundo and tamarisk removal that leave intact (but dead) roots and rhizomes to minimize disturbance to slopes and to minimize the possibility of erosion. Our primary and most cost-effective technique will be foliar applications of glyphosate and imazapyr (in aquatic-approved formulations where needed) without biomass removal. This treatment would occur during the fall when the chemical would most actively translocate from leaves to rhizomes as the plant is storing nutrition in preparation for winter dormancy and when nesting birds are not present. This work will be performed by an experienced contractor who will utilize a combination of equipment and laborers to apply the herbicide directly to arundo plants.

In areas where arundo infestations are extensive, or in areas where there may be concerns about leaving too much dead plant biomass in the river system, arundo stands may require mechanical control through the utilization of heavy equipment and labor crews. This method involves mechanically or manually chopping and shredding the stalks and above-ground portions of rhizomes and root masses in place with either a large bulldozer equipped with a “masticator” capable of chipping to ¼-to-1 inch pieces. These actions prevent or strongly inhibit re-growth. Herbicide is then applied to control re-sprouting during the following year or months, depending on timing. The cut and spray method may also be used in situations where overspray from foliar applications could potentially damage native habitat.

In coordination with the Monterey County Weed Management Area (WMA), the California Department of Food and Agriculture (CDFA), and Animal and Plant Health Inspection Service (APHIS) we also hope to coordinate work with the use of biological control agents for tamarisk and arundo: the tamarisk leaf beetle and *Tetramesa romana* (wasp), respectively. Combining biological controls with physical and chemical eradication methods enhances treatment program flexibility and longevity. Adding this control method will also provide data and modeling of the efficacy of combined eradication methods and strategies, providing value both in the immediate term to the Salinas River watershed, and in the long term to the myriad of rivers and watersheds infested with arundo and tamarisk throughout California and around the country.

We will avoid the spraying and cutting of native plant species by training crews in plant identification, controlling direction of spray and drift, and flagging sensitive species on-site before treatment. RCDMC and DENDRA, Inc. have already consulted with regulatory agencies regarding appropriate protection measures for water, plants, and wildlife and have incorporated that into CEQA compliance documentation (currently in public review). We will have the necessary permits by summer 2013. Both entities are experienced at developing and managing watershed-based programmatic permit programs with all of the state and federal regulatory agencies concerned with work on the Salinas River.

Where appropriate with willing landowners, RCDMC and the Central Coast Wetlands Group (CCWG) will implement revegetation plans to enhance the riparian habitat and bank protection in the project area. No excavation, grading, or ground preparation activities for revegetation will occur. Revegetation will be limited to planting willow or mulefat cuttings or small container stock of flexible riparian species into the dead thatch of previously treated non-native vegetation.

CCWG and DENDRA, Inc. will lead the program monitoring activities, which will include assessments of riparian habitat, vegetation control success, and sediment. As this project is one step in a 10-20 year invasive plant control program, it is important that the information collected benefits not only this project, but also the overall program.

2. Completed Work

- 30 net acres of arundo treated in the 35.5 river miles between the Monterey County border and King City
- Population of arundo on the Salinas River mapped
- Initial contact made with landowners and Salinas River Channel Coalition (landowner organization) made along with regular updates regarding permitting process and the work ahead
- CEQA documentation (Mitigated Negative Declaration) complete
- Section 1600 CA Dept of Fish and Wildlife "Streambed Alteration Agreement" submitted to DFW and in notification period from DFW
- Notification submitted to Army Corps of Engineers for Nationwide Permit 27
- Informal consultation with NOAA National Marine Fisheries Service (NMFS) underway and should be finalized by July 2013
- Informal consultation with US Fish and Wildlife Service (in tandem with NOAA NMFS) underway and should be finalized by July 2013
- Section 401 Water Quality Certification from Regional Water Quality Control Board expected by August 2013

3. Existing Data and Studies

In 2011, the California Invasive Plant Council (Cal-IPC) published a thorough study of the physical extent and impacts of arundo on streams in coastal California, including the populations on the Salinas River, entitled *Arundo donax Distribution and Impact Report*. Although The Nature Conservancy has also conducted vegetation mapping focused on the Salinas River, the Cal-IPC study was focused solely on arundo, and provides the most detailed reference in terms of characterizing the arundo population to be treated. This study has informed the permitting and planning necessary for this project. The Cal-IPC study also details the most current and tested methodology for arundo treatment and provides experience-based cost estimates for treating the remaining acreage on each waterway studied, including the Salinas. Our project, as detailed in our CEQA documentation, follows that methodology, and the document's cost estimates for the Salinas River likewise have informed the RCD's cost estimates for this project, in consultation with the primary author (Jason Giessow of DENDRA, Inc.), who is a consultant to the County of Monterey and the RCD on this project.

4. Project Timing and Phasing

This project is part of a 10-20 year watershed-based effort, each 3- to 5-year stage of which is conducted

from the uppermost untreated site in the watershed, working downstream, stage-by-stage. As such, this stage and each successive downstream stage can stand alone, as arundo can only propagate itself downstream because it has sterile seed and can only grow from plant segments as they are carried by water. Even if there is a lapse in work on subsequent stages due to breaks in funding, those stages can begin as they would otherwise, albeit with a period of delay.

5. Plans and Specifications

Plans will be developed on a site-by-site basis with landowners after grant work is funded. Specifications are those of standard procedures as outlined in the project description of project CEQA documentation on pages 6-8.

6. Standards

The standards for the proposed work are detailed in the project CEQA documentation on pages 6-8, and are consistent with the most current and effective treatment measures used in California by major arundo treatment programs. The CEQA documentation is attached as part of the supporting materials in Attachment 7, Technical Justification.

7. Performance Measures and Monitoring Plans

Performance measures and monitoring plans are integral to project success and therefore detailed in the Task descriptions below under Task 4.5

8. Acquisition of Land or Rights-of-Way and Landowner Agreements

Due to the scale of the Salinas River and the number of affected parcels on the river, we solicit the appropriate Rights-of-Entry/landowner agreements only as funding is acquired for each project stage. As in the most recently completed stage, we acquire ROE's through direct landowner contact and mailed solicitations with assistance from the Salinas River Channel Coalition and the County of Monterey Agriculture department. In this manner, we have already secured the consent of 31 willing private and public landowners representing more than 77 properties along the Salinas River upstream of King City. With the detailed mapping information developed by Cal-IPC and parcel boundary, ownership and contact information from the County of Monterey, we have identified the areas of infestation along the river and overlaid them with parcel data to enable coordination with individual cooperating landowners for control work, and will continue to do so during the project duration to affect the maximum amount of acreage requiring treatment. Based on prior experience managing similar programs in other watersheds, we are fully aware that some landowners will require time and "proof" before consenting to participate in the program, but at this writing, the vast majority of landowners we have contacted are supportive of the project.

9. Permits

- Section 1600 CA Dept of Fish and Wildlife "Streambed Alteration Agreement" submitted to DFW and in notification period from DFW
- Notification submitted to Army Corps of Engineers for Nationwide Permit 27
- Informal consultation with NOAA NMFS underway and should be finalized by July 2013
- Informal consultation with US Fish and Wildlife Service (in tandem with NOAA NMFS) underway and should be finalized by July 2013

- Section 401 Water Quality Certification from Regional Water Quality Control Board expected by August 2013

10. Environmental Compliance

- CEQA documentation (Mitigated Negative Declaration) completed in 2011 and attached to this application.

11. **Scope of Work:** Project 4 – Salinas River Watershed Invasive Non-native Plant Control and Restoration Program

Task 4.1 Direct Project Administration

Task 4.1.a General Administration: The project proponent will conduct all general grant administration tasks throughout the duration of the project period, including Labor Compliance requirements and invoicing/reporting, as required. The lead applicant, Coastal Conservation and Research, will be responsible for administering the grant contract on behalf of the project proponents included in this grant application.

Current Status: Pending grant award.

Deliverables: Preparation of invoices as required. Submission of Labor Compliance Program requirements. Submission of quarterly and annual reports as required.

Task 4.2 Planning/Design/Engineering/Environmental Documentation

Task 4.2.a Project Technical Direction and Contractor Selection: This task involves project technical oversight, coordination, further program development, and contractor selection by RCDMC staff with project partners.

Task 4.2.b Permitting and Permit Compliance: RCDMC personnel and DENDRA, Inc. will train contractors and ensure compliance with wildlife and water quality protection measures outlined in permit conditions.

Current Status: CEQA complete, CDFW 1600 permit application in review, ACOE, NMFS and USFWS informal consultation underway; only SWRCB 401 Certification remains once ACOE consultation complete.

Deliverables: Contracts, Summarized permit documentation. (CEQA included as an attachment to this application.)

Task 4.3 Construction/Implementation

Task 4.3.a Riparian Weed Control: Riparian weed control will involve the following subtasks:

Task 4.3.a.1 Landowner Recruitment and Right-of-Entry Coordination: RCDMC staff will direct coordination with cooperating landowners and the County Agricultural Commissioner for access approvals and parcel-by-parcel program participation. This is already underway with many parcels enrolled and expressed support from the primary riparian landowner organization, the

Salinas River Channel Coalition. No work will be conducted without landowner consent in the form of a standard agreement.

Task 4.3.a.2 Arundo Treatment by Independent Contractor: RCDMC staff will contract and oversee professional vegetation management specialists and crews licensed to conduct weed control using the chemical and mechanical methods described above. With IRWM funding we plan to treat an estimated 500 gross (or 120 net) riparian acres with the balance of downstream arundo treated with other funding, some of which we anticipate to precede IRWM funding. IRWM funding will be substantially augmented by match from landowner investment of labor and equipment as well as USDA grant programs.

Task 4.3.b Revegetation: Revegetation will involve the following subtasks:

Task 4.3.b.1 Revegetation Site Selection and Coordination: In coordination with the County Agricultural Commissioner's Office, willing landowners, and the CCWG, we will select sites (approximately 10 acres total) on which to follow control work with native vegetation restoration where natural recruitment of natives is determined insufficient. CCWG and RCDMC staff, with assistance from USDA NRCS soil conservationists and engineers, will develop appropriate plans for revegetation using plant materials selected to match site soil and hydrologic conditions, with nearby resident native vegetation as a reference. As much as possible, plant materials (especially willow and mulefat cuttings) will be derived locally for the best plant site adaptability.

Task 4.3.b.2 Revegetation Implementation: CCWG crews will oversee revegetation work according to the plans developed in subtask 4.3.b.1. There will be a small amount of planting from greenhouse plants, but the majority of new plants will be from cuttings of existing sandbar willow, mulefat, and other native vegetation from the project site vicinity.

Task 4.3.b.3 Student Volunteer Revegetation Projects: After the first season of treatment, two restoration sites will be implemented with the Return of the Natives (RON) program, a project of the California State University Monterey Bay Watershed Institute. RON works closely with local natural resource agencies and non-profit organizations to engage private citizens in regional restoration work. In coordination with this project, RON will bring up to 30 students from local high schools to assist with riparian planting projects on two occasions. This opportunity allows us to reach out to youth in the region, connecting them with the natural landscape in ways they ordinarily would not experience. Hands-on participation by youth in restoring their watershed will broaden their understanding of their own role in the environment and foster confidence that they can make a difference in an immediate way in the places they live. This brings a collateral benefit associated with youth involvement in restoration and conservation programs: namely, an increased awareness within the broader community about the project and the relationships between the river, the natural resources dependent on the river's health, and the people who work and live along it.

Task 4.3.c Program Technical Education and Outreach: We will utilize the most successful project sites with willing landowners as demonstrations to provide education about control and restoration techniques and methods to other landowners and land managers, and to recruit more willing Salinas Valley landowners to participate in future phases of the program. We will host at least one large public field workshop each year of the program at successful project sites. Workshops will feature testimonials or demonstrations from participating landowners; presentations by vegetation management and restoration experts; site tours; and materials and training in plant/weed identification and project maintenance and monitoring. Outreach will also include communication of project

successes in regional and agricultural press and presentations at professional and agricultural meetings.

Additionally, CCWG personnel will develop and maintain a website to provide a portal to allow landowners and other concerned stakeholders to educate themselves on why invasive weeds are a problem, treatment techniques, benefits of arundo control, and who to contact with questions. CCWG will develop this site, ensuring it is easy to find, easy to navigate, and that it provides the information people may seek, including links to partner and related vegetation management programs throughout the state.

Current Status: Treatment of 120 acres pending grant award. Initial 30 acres of treatment completed in 2009.

Deliverables: 4.3.a: ROE documentation, copies of articles, brochures, fliers and presentations. Summary of treatments by parcel indicating degree of infestation, and gross and net acres treated. **4.3.b:** Summary of revegetation activities indicating number of sites, acreage planted, species and numbers and forms (stakes, container stock, etc.) of plants installed, non site-identifiable photodocumentation of activities; numbers of students and names of schools involved, photodocumentation of events.

Task 4.4 Construction Administration

Task 4.4.a Labor Compliance Monitoring: RCDMC personnel will ensure that all contracted crews are compliant with the relevant labor regulations with the assistance of a third-party verification resource.

Current Status: Pending grant award.

Deliverables: Summary of communications with third-party compliance review firm indicating successful compliance of contractors.

Task 4.5 Other Costs

Task 4.5.a Project Effectiveness Monitoring and Mapping: Along with guidance from technical consultants at the County Agricultural Commissioner's Office, CCWG and DENDRA, Inc., we will use the Monterey County Weed Management Area as a technical review committee to evaluate project progress and effectiveness according to the above criteria to inform an adaptive management approach that would result in changes in method or technique as needed for the best effect on channel habitat and weed control. Such meetings will occur each year of the project, with direct feedback from landowners, the County, and DENDRA occurring on a more frequent, ad hoc basis.

DENDRA, Inc., RCDMC, and CCWG personnel will develop and carry out a project monitoring plan, and train landowners about ongoing monitoring and application of follow-up treatments on their own. The plan will track progress in the following categories:

1. Weed control effectiveness, which includes estimation of initial weed infestation and percentage controlled (dead).
2. Revegetation survivorship (number alive/number planted of trees and shrubs or quadrant-based sampling of herbaceous vegetation).
3. Assessment of existing and native vegetation growth over the life of the project.

4. Assessment of overall impact on the larger watershed, residents and users.

Program success will be measured using the following indicators:

- Number of acres treated
- Percent noxious weed cover and change in cover on project treatment sites
- Percent cover of native plants on a subset of sites left for natural recruitment post-treatment
- Percent survival and cover of native plants on revegetation sites
- Percent landowner participation
- Extent of agency and other partner participation
- Survey of workshop participants and Salinas River Watershed residents regarding educational impact in terms of increased appreciation for riparian weed problems and restoration and interest in performing control work and program cooperation

Task 4.5.b Vegetation and Habitat Monitoring: CCWG will conduct California Rapid Assessment Method (CRAM) assessments at 20 locations prior to treatment and at the end of the project. Additionally, they will conduct an ambient assessment of 30 locations along the entire stretch of the long-term invasive plant removal program to get a baseline condition of the river. The CRAM is a monitoring system called for in the IRWM Plan for projects that involve wetland improvement and restoration. A CRAM assessment involves two trained practitioners going out to assess a stretch of creek ranging from 100-200m in length. For the assessed stretch, practitioners rank various attributes including landscape and buffer context, hydrology, physical structure and biotic structure.

Task 4.5.c Sediment Monitoring: CCWG will conduct cross-sectional profiles of 10 locations along the project area in year one and year three of the project. The data will be used to quantify the effect of arundo removal on sediment transport in the main stem of the Salinas River.

Current Status: Pending grant award.

Deliverables: 4.5.a: Project effectiveness report. **4.5.b:** CRAM assessments report. **4.5.c:** Sediment monitoring report.

12. Supporting Materials

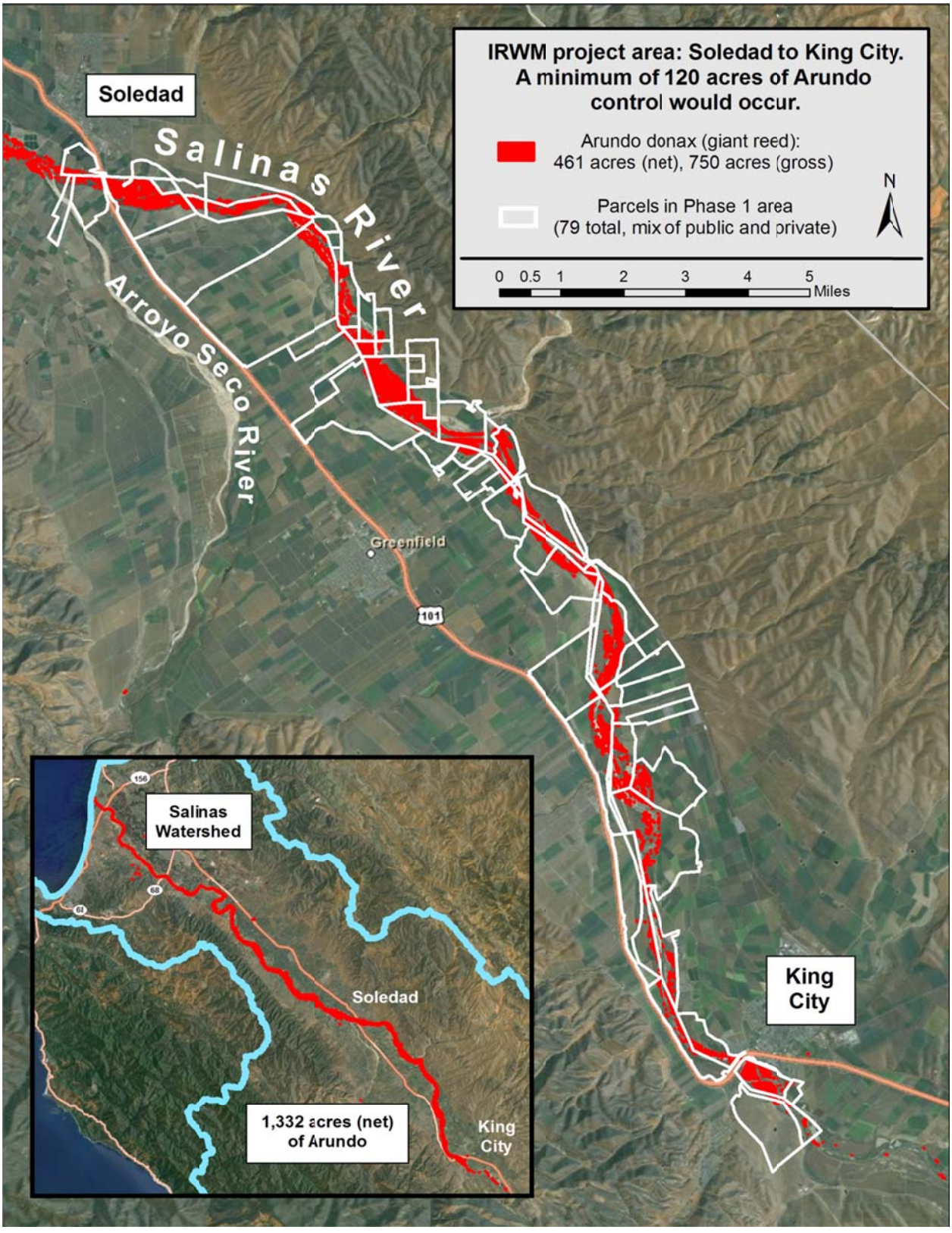
The following documents are being submitted electronically as supporting materials for this section, and can be found in Attachment 7, Technical Justification:

- California Invasive Plant Council, *Arundo donax Distribution and Impact Report (2011)*
- RCD of Monterey County, *Initial Study – Salinas Watershed Invasive Non-native Plant Control and Restoration Program* (2011)

13. Project Site Map

A site map for this project is shown on the following page.

Project 4. Salinas River Watershed Invasive Non-native Plant Control and Restoration Program: SITE MAP



Project 5. Resource Conservation District of Monterey County: Monterey County Farm Water Quality Assistance Program

1. Project Description

The Resource Conservation District of Monterey County (RCDMC), in close partnership with University of California Cooperative Extension (UCCE) Crop Advisors and USDA Natural Resources Conservation Service (NRCS), will provide a bilingual on-farm erosion, irrigation, and nutrient management evaluation program for Monterey County farmers. The service will 1) evaluate erosion potential, irrigation system and application efficiency, and nutrient budgeting; 2) develop recommendations as needed for field configuration, soil stabilization, and refined water and nutrient applications; 3) assist growers' voluntary implementation of those recommendations to help reduce excess soil, water and nutrient movement off area farms while optimizing farm productivity; and 4) monitor and verify the effectiveness of the implemented management changes and practices.

Statement of Need

The Regional Water Quality Control Board has identified farm runoff and leached water as significantly impacting surface and ground water quality in the Greater Monterey County region, with special emphasis on the Salinas River watershed. Most farmers, especially limited-resource and Hispanic (including non-English speakers) farmers are facing a significant challenge in how to meet the array of farm management and reporting changes that the Regional Board is requiring. This project will assist those growers in English and Spanish in effectively identifying and making management changes and implementing new practices to help meet the necessary regional water quality improvements in the manner most efficient for their businesses.

Irrigation, nutrient and vegetation management are key among the focal elements of the regulation, and local agronomic and conservation professionals anticipate a lag in local technical assistance capacity available to growers to address them efficiently. This is especially true for Spanish-speaking farmers, for whom technical materials are either limited or not in formats appropriate to their modes of learning. Our proposal addresses this lag by providing services and education for growers and collaborating with private service providers to build local capacity, partnerships, and grower awareness of resources available to them.

Project Approach

In this program we will engage growers in four stages: 1) focused program outreach, building on existing relationships in the agricultural community and a project advisory committee to communicate in English and Spanish the need, methods and benefits of agricultural water quality improvement practices; 2) initial interviews and introductory field visits with interested growers in order to schedule and strategize likely needed services; 3) detailed individual site assessments and targeted system and management evaluations and recommendations; and 4) financial and technical implementation support for recommended improvements or changes coupled with evaluation of the effectiveness of improvements in achieving farmers' water quality goals.

Modes of outreach will include individual contact (word-of-mouth); presentations at grower, shipper and commodity group meetings; field demonstrations and workshops; media and educational materials production and/or dissemination. Also, information will be embedded in local and regional commodity groups' communications in formats most meaningful to them to be available long-term beyond the time

span of this grant. During outreach we will communicate the opportunity for direct project support and solicit grower participation.

We expect to provide direct technical service to at least 50 farms over the project term in English and Spanish, depending on grower need. Depending upon the site, we will provide participating growers with direct technical assistance with a subset of the following: preliminary site erosion assessment; irrigation distribution uniformity, system audit and season-long efficiency evaluation; nutrient budgeting; follow-up recommendations; implementation assistance and guidance with cost-share programs through NRCS and others; and implementation effectiveness evaluation. Each evaluation will be presented and reviewed with the farmer for their feedback to maximize relevance to the site and grower's operation and, correspondingly, to enhance grower buy-in and potential application of recommendations.

For up to 10 of those growers that implement our recommendations, we will assist project cooperators with confirmation of the effectiveness of their water, nutrient and soil stewardship efforts. We anticipate potential savings on average of 30-40% in fertilizer materials costs/acre, and 10% reduction in water pumping or delivery costs. We have developed a Performance Monitoring Plan (PMP) for systematic assessment of project effectiveness and successful completion of project objectives and achievement of the proposed measurable outcomes with review by a Technical Advisory Committee.

2. Completed Work

Work to be completed prior to the award date will be that of educational information development, partnership building, and on-going communications with growers and industry regarding the most pressing water quality management issues facing agriculture and the region. While the project does not require preliminary work as a precondition for implementation, all of this information will serve to enhance project effectiveness and relevance.

3. Existing Data and Studies

Over the past twenty years, University of California Cooperative Extensionists (Farm Advisors) have been studying the dynamics of fertilizer and water relative to crop use and local water quality and in doing so have demonstrated straightforward and effective methods for more closely matching nutrient and water applications with estimated crop needs. These demonstrations have repeatedly confirmed opportunities to reduce nitrogen fertilizer applications by up to 30% and irrigation water applications by over 10% over the course of a crop season without sacrificing crop yields or quality in the cool season vegetable crops that are predominant in the Salinas Valley. These same UCCE Farm Advisors will work with us under this project as technical advisors and irrigation and nutrient management assessment partners, using and refining their established techniques and standard operating procedures for berry crops as well as vegetables. Studies documenting these techniques and their effectiveness include:

- Cahn, Michael, and Richard Smith, UCCE, Monterey County, "Summary of 2008-9 Large Scale Irrigation and Nitrogen Fertilizer Management Trials in Lettuce," *UCCE Monterey Crop Notes*, March -April 2010 pp. 5-9.
- Smith, Richard, and Michael Cahn, UCCE, Monterey County; and Tim Hartz, University of California, Davis, "Evaluation of best management irrigation and nutrient management practices (BMP) and treatment of nitrate in tile water to safeguard water quality," California Leafy Greens Research Board. 2012
- Smith, Richard, and Michael Cahn, UCCE, Monterey County; and Tim Hartz, University of California, Davis, "Evaluation and demonstration of best management irrigation and nutrient management practices (BMP) to safeguard water quality." California Lettuce Research Board.

2011.

- Smith, Richard, UCCE, Monterey County, "Evaluation Low-residue Cover Crops to Reduce Nitrate Leaching, and Nitrogen and Phosphorous Losses from Winter Fallow Vegetable Production Fields in the Salinas Valley," CDFA Fertilizer Research and Education Program. 2008.
- Cahn, Michael, Husein Ajwa, and Richard Smith, UCCE, Monterey County, "Evaluation of Polyacrylamide (PAM) for Reducing Sediment and Nutrient Concentration in Tail Water from Central Coast Vegetable Fields." CDFA Fertilizer Research and Education Program. 2005.

Sediment and erosion management techniques to be employed in this project have been refined over decades and standards established and formalized in the USDA NRCS *Field Office Technical Guide*. Techniques such as furrow alignment, furrow cover crops, underground outlets and sediment control basins as installed by cooperating farmers according to these specifications over the past two decades with technical and financial assistance from the RCDMC and NRCS personnel have shown demonstrated soil stabilization and (as a result) downslope and downstream water quality benefits and reduced flooding and sedimentation as documented by RCDMC and NRCS in the *Elkhorn Slough Watershed Project 1994 to 2005 Summary Report.*

4. Project Timing and Phasing

This project is part of an ongoing effort, but is not crafted in phases and stands alone as an independent project.

5. Plans and Specifications

N/A. These will be developed on a site-by-site basis per the project work plan.

6. Standards

Implemented practices standards will be those of the USDA Natural Resources Conservation Service *Field Office Technical Guide*, with specific agronomic direction from UC Cooperative Extension Farm Advisors.

7. Performance Measures and Monitoring Plans

For those that implement our recommendations, we will assist project cooperators with confirmation of the effectiveness of their water, nutrient and soil stewardship efforts. A Performance Monitoring Plan will guide systematic assessment of project effectiveness and successful completion of project objectives and achievement of the proposed measurable outcomes. Interim results will be shared semi-annually with the project Technical Advisory Committee under Task 5.2.b for critical feedback to guide adjustments or refinements to the program in order to enhance its effectiveness and utility for area farmers and the affected natural resources.

For each implementation site, RCDMC and UCCE personnel will evaluate the efficacy of system or management changes on cooperator farms either in the form of changes in inputs (reductions in recorded water or nutrient use) or changes in outputs (runoff flow or constituent reductions) through grower communications, flow measurements, water sample analysis, and estimation tools. We will also track costs associated with the practice changes and aggregate results for estimated cumulative benefits where enough growers are located along the same drainage or waterway to elicit a significant cumulative impact.

To track overall program performance, we will track the number of sites receiving site assessments; the number of growers adopting recommended practices or irrigation system improvements; the number of growers receiving cost-share assistance through this program's guidance; comparison of actual versus anticipated resource improvements of implemented recommendations; the number of growers receiving information through workshop presentations, newsletters, and email lists; web-page hits; and surveys of those receiving assistance regarding the perceived benefit and challenges of the program.

8. Acquisition of Land or Rights-of-Way and Landowner Agreements

Per our standard procedure, we will develop individual landowner agreements with each participating grower as needed (prior to start of any work on their properties) during the course of the project.

9. Permits

In the cases in which recommended water quality improvement projects necessitate significant enough earthwork to trigger a Building Permit from the County of Monterey, we will guide landowners through the process individually. Landowners cooperating with RCD and NRCS using NRCS practice specifications will be eligible for streamlined project review, thanks to an agreement in development between the NRCS and County of Monterey.

10. Environmental Compliance: N/A

11. **Scope of Work:** Project 5 – Monterey County Farm Water Quality Assistance Program

Task 5.1 Direct Project Administration

Task 5.1.a General Administration: The project proponent will conduct all general grant administration tasks throughout the duration of the project period, including Labor Compliance requirements and invoicing/reporting, as required. The lead applicant, Coastal Conservation and Research, will be responsible for administering the grant contract on behalf of the project proponents included in this grant application.

Current Status: Pending grant award.

Deliverables: Preparation of invoices as required. Submission of quarterly and annual reports as required.

Task 5.2 Planning/Design/Engineering/Environmental Documentation

Task 5.2 Program Direction and Quality Assurance

Task 5.2.a Project Technical Oversight and Coordination: This task involves project technical oversight and coordination by the core project team of RCDMC, NRCS, and UCCE technical leads.

Task 5.2.b Project Technical Committee Coordination and Communication: RCDMC and UCCE project partners will form a project technical advisory committee to provide ongoing professional review for best matching program actions with local needs, program progress critique, and recommendations for adaptive management. The TAC will meet semi-annually and will consist of representatives from commodity groups, the County Agriculture Department, USDA NRCS, and other local technical resources.

Current Status: Pending grant award.

Deliverables: Meeting minutes.

Task 5.3 Construction/Implementation

Task 5.3.a Outreach: In the first few months of the program RCDMC staff will conduct focused outreach to communicate in English and Spanish the need, methods and benefits of agricultural water quality improvement practices. Throughout the project period we will continue outreach and information dissemination through individual contact (word-of-mouth); presentations at grower, shipper and commodity group meetings; field demonstrations and workshops; media and educational materials production and/or dissemination. Also, information will be embedded in local and regional commodity groups' communications in formats most meaningful to them to be available long-term beyond the time span of this grant. During outreach we will communicate the opportunity for direct project support and solicit grower participation. Subtasks include the following:

Task 5.3.a.1 Presentations and Newsletter Articles for Program Outreach and Education: This includes presentations at others' events and submissions to partner newsletters (Strawberry Commission, UCCE, Ag Commissioner, etc.). RCDMC staff will provide informational articles and presentations for standing industry meetings as well as co-coordinate special grower educational meetings in partnership with commodity groups in their efforts to assist their growers with water quality management requirements.

Task 5.3.a.2 Development of Supplemental English and Spanish Technical Educational Materials: Development of English and Spanish project brochure and translation (as needed) and dissemination of other agricultural water quality management resources through outreach meetings and by request. RCDMC will partner with UCCE, commodity groups and neighboring RCDs to update and expand educational materials targeting the most relevant methods for meeting grower water quality management needs with careful consideration of overlaid food safety management requirements. Example documents to be updated and used include: *Handbook of Agricultural Conservation Practices*; and irrigation efficiency, nutrient management, furrow alignment, road-seeding and erosion control brochures.

Task 5.3.a.3 Three Demonstration Field Days/Tours for Growers: RCDMC, in coordination with partners, will direct or co-direct at least three demonstration field tours each featuring one or more sites with established or newly-installed water quality improvement projects or plans. Each meeting will include farmer, commodity group and technical expert presentations regarding the realities and benefits of practice or plan implementation, educational information described in Task 5.3.a.2, and outreach for program participation to arrange site visits as described under Task 5.3.b. All events will be announced through industry networks and press releases to radio, web and print media.

Task 5.3.b Preliminary Farm Site Assessments: This task involves farm visits and initial assessments for technical assistance needs. Throughout the project term we will receive, schedule and record farm site visit requests—each with unique anonymous cooperator code, after which we will conduct introductory site visits with initial recommendations for detailed site assessments, evaluations, and/or design development growers would need to best address farm-specific water quality concerns.

Task 5.3.c On-Farm Evaluations: This task involves on-farm irrigation and nutrient evaluations and vegetation recommendations, as described in the following subtasks:

Task 5.3.c.1 Schedule, Plan and Conduct 50 On-farm Water Quality Management Evaluations: Schedule, plan and conduct 50 on-farm water quality management evaluations over the course of the program. These could include: season-long tracking of water use relative to crop need, irrigation system efficiency audits and distribution uniformity, nutrient budgeting and erosion and runoff assessments.

Task 5.3.c.2 Evaluation Reports and Follow-up with Growers: Write summarized evaluation reports and follow up with growers regarding results and associated recommendations. Recommendations could include treatments for individual farms or sub-watershed treatments for multiple farms where multiple neighboring growers are participating.

Task 5.3.d BMP Implementation Assistance: This task involves implementation assistance with cost-share application guidance as needed, as described in the following subtasks:

Task 5.3.d.1 Provide or Facilitate Financial and Technical Assistance: Process implementation assistance requests and provide or facilitate financial and technical assistance as needed (average $1,000/grower with IRWM funding and possible other additional funding as available). Typical recommended practices may include:

- pumping plant and irrigation system improvements
- tailwater treatment systems
- nutrient application modifications
- moisture and evapotranspiration monitoring and information systems
- row arrangement for strawberry growers farming on sloped ground
- furrow cover crops to increase infiltration and reduce sediment loss
- grassed farm roads to reduce soil loss on sloped ground
- water and sediment control basins
- gully stabilization
- underground outlets

Task 5.3.d.2 Track Implementation of BMPs or Practice Changes and Assist as Needed: RCDMC, UCCE, and NRCS personnel will oversee, advise and directly assist (as needed) grower implementation of practices for quality assurance. Only practices completed according to recommendations and associated specifications will be eligible for reimbursement under Task 5.3.d.1.

Current Status: Commencement of work pending grant approval.

Deliverables: 5.3.a: Copies of materials developed (presentations, articles, educational materials, handouts, and event announcements/flyers); photodocumentation and summary outcomes of events. **5.3.b:** Summary table of preliminary site assessments identifying number of sites visited, crop types, acreages, and resource issues encountered. **5.3.c**: Summary table of on-farm evaluations anonymously listing individual site information including crop type, acreage, system challenges and recommendations. **5.3.d:** Anonymously-presented project implementation documentation for each project site, including site identification codes and general site descriptions (crop type, acreage, resource concerns addressed), designs, and specifications.

Task 5.4 Environmental Compliance/Mitigation/Enhancement

Task 5.4.a Environmental Compliance: This includes USDA NRCS technical coordination with County Planning Department staff for permit compliance, plus grading permit time and expenses possible for at least one grower with a project with substantial grading (over 500 cy).

Current Status: Commencement of work pending grant approval.

Deliverables: Documentation of environmental compliance when required, with confidential information redacted.

Task 5.5 Construction Administration

Task 5.5.a BMP Implementation Oversight: The RCDMC Program Manager and Technical Assistant will provide on-site technical guidance and implementation quality assurance. This task also includes NRCS technical compliance review for EQIP-funded sites.

Current Status: Commencement of work pending grant approval.

Deliverables: Summary table of project completions and any noted challenges or variances and measures taken to overcome them; photodocumentation of sites before, during and after project installation.

Task 5.6 Other Costs

Task 5.6.a Evaluate Effectiveness of Installed BMPs: For those that implement our recommendations, we will assist project cooperators with confirmation of the effectiveness of their water, nutrient and soil stewardship efforts. A Performance Monitoring Plan will guide systematic assessment of project effectiveness and successful completion of project objectives and achievement of the proposed measurable outcomes. Interim results will be shared semi-annually with the project Technical Advisory Committee under Task 5.2.b for critical feedback to guide adjustments or refinements to the program in order to enhance its effectiveness and utility for area farmers and the affected natural resources.

Task 5.6.a.1 Track Practice Changes through Grower Communication and On-site Evaluations: This will include up to two nutrient management "strip trials" with UCCE per season as well as 2nd season of irrigation and nutrient monitoring, and/or runoff sampling depending on practices employed. For each implementation site, RCDMC and UCCE personnel will evaluate the efficacy of system or management changes on cooperator farms either in the form of changes in inputs (reductions in recorded water or nutrient use) or changes in outputs (runoff flow or constituent reductions) through grower communications, flow measurements, water sample analysis, and estimation tools. We will also track costs associated with the practice changes and aggregate results for estimated cumulative benefits where enough growers are located along the same drainage or waterway to elicit a significant cumulative impact.

Task 5.6.a.2 BMP Evaluation Reports to Growers: Write summarized evaluation reports and follow up with growers regarding results and associated recommendations. For the sake of grower confidentiality, all project results will be aggregated by practice or system type in program reporting documentation.

Task 5.6.b Program Effectiveness Evaluation and Results Outreach: RCDMC and UCCE personnel will summarize implementation and assessment results and costs into a program summary report for communication to industry, partners and the public. To track overall program performance, we will track the number of sites receiving site assessments; the number of growers adopting recommended practices or irrigation system improvements; the number of growers receiving cost-share assistance through this program's guidance; comparison of actual versus anticipated resource improvements of implemented recommendations; the number of growers receiving information through workshop presentations, newsletters, and email lists; web-page hits; and surveys of those receiving assistance regarding the perceived benefit and challenges of the program.

Current Status: Commencement of work pending grant approval.

Deliverables: 5.6.a. Tabulated summary of practice evaluation results. **5.6.b.** Program effectiveness and results report.

12. Supporting Materials

The following documents are being submitted electronically as supporting materials for this section, and can be found in Attachment 7, Technical Justification:

- Cahn, Michael, Husein Ajwa, and Richard Smith, UCCE, Monterey County. 2005. "Evaluation of Polyacrylamide (PAM) for Reducing Sediment and Nutrient Concentration in Tail Water from Central Coast Vegetable Fields." CDFA Fertilizer Research and Education Program.
- Cahn, Michael and Richard Smith, UCCE, Monterey County. 2010. "Summary of 2008-9 Large Scale Irrigation and Nitrogen Fertilizer Management Trials in Lettuce," *UCCE Monterey Crop Notes*, March-April 2010.
- Smith, Richard, UCCE, Monterey County. 2008. "Evaluation Low-residue Cover Crops to Reduce Nitrate Leaching, and Nitrogen and Phosphorous Losses from Winter Fallow Vegetable Production Fields in the Salinas Valley," CDFA Fertilizer Research and Education Program.
- Smith, Richard and Michael Cahn, UCCE, Monterey County, and Tim Hartz, University of California, Davis. 2011. "Evaluation and demonstration of best management irrigation and nutrient management practices (BMP) to safeguard water quality." California Lettuce Research Board.
- USDA NRCS, *Elkhorn Slough Watershed Project 1994 To 2005 Summary Report.*

13. Project Site Map

A site map for this project is shown on the following page.

Project 5. Monterey County Farm Water Quality Assistance Program: SITE MAP

Project 6. Ecology Action: Monterey Bay Green Gardener Training and Certification Program

1. Project Description

The Monterey Bay Green Gardener Certification Program is a bilingual professional development and skill sharing opportunity that trains landscapers and gardeners to make water conservation and watershed stewardship the guiding principles of their landscape business or practice. Green Gardener training participants are either home gardeners, self-employed maintenance gardeners and/or employees of licensed landscape contractors, school districts or public agencies. Green Gardener classes are sponsored in Santa Cruz and Monterey Counties by participating water utility and stormwater agencies. Certification is for individuals, and graduates that have licensed landscape businesses are promoted to the community for hire at http://www.green-gardener.org.

The Green Gardener Certification Program teaches a comprehensive approach to watershed management in the landscape. Green Gardener 10-week certification-level course topics include efficient irrigation system design and management, applying mulches and compost to build the soil food web, improving water retention capacity of soil and preventing erosion, drought-tolerant plant selection and natural landscaping based on plant communties in a watershed, integrated pest and weed management strategies that reduce pesticide applications in the landscape, fertilization practices that protect water quality, and natural pruning and plant selection practices that reduce green waste and carbon emissions.

Green Gardener Demonstration Site

In addition to the certification level course, the Monterey Bay Green Gardener program offers hands-on public workshops on water-wise landscaping, irrigation efficiency retrofits, laundry-to-landscape graywater irrigation, and low impact development (LID) practices that slow, spread, and sink stormwater. Landsape contractors from the Central Coast Chapter of the California Landscape Contractors Association and Ecological Landscaping Association partner with the program as guest lectures to provide technical expertise and mentoring to Green Gardener students. Green Gardener students that are English language learners are given tools to communicate with their English-speaking clients. A bilingual ecological landscaping maintenance client agreement and ecological landscape maintenance contract template help Spanish-speaking Green Gardeners educate their clients about ecological landscaping practices they have learned to implement during Green Gardener training.

The goals of the Proposition 84 IRWM grant funded Green Gardener Progam in the Salinas Valley are to:

- Provide one, 10-week Green Gardener Certification course
- Provide four Green Gardener public workshop opportunities for residents of the Salinas Valley.
- Integrate into Green Gardener trainings and workshops the design and construction of four water-wise landscape sites on public and private properties that will provide hands-on learning experiences for training participants and raise community awareness about landscape water conservation methods.
    - Two publically visible demonstration sites will provide training opportunities in turf replacement with low-water use plants, irrigation system efficiency retrofits that meet

Model Water Efficient Landscape (MWELO) requirements, and stormwater management with LID best management practices such as permeable hardscapes, rainwater harvesting, and downspout diversion to rain gardens and swales.

- Two smaller demonstration sites at private residences will provide students the opportunity to design and install residential laundry-to-landscape greywater irrigation systems that meet the requirements of California Uniform Plumbing Code Title 24, Part 5 Chapter 16A.

Statement of Need: The Central Coast Regional Water Board has found that water quality of stormwater discharges within the City of Salinas are impaired by nitrate/nitrate, ammonia, and pesticides, among several other others.[1] The EPA has listed the middle Salinas River as impaired for warm, fresh water habitat by pesticides originating from non-point source pollution.[2] Surveys of Green Gardener alumni reveal that on average, a Green Gardener graduate makes land use decisions for 17 landscapes. Some gardeners manage more than 50 landscapes. Ecological landscape maintenance practices implemented by certified Green Gardeners will reduce dry-weather flows and prevent non-point source pollution from fertilizers and pesticides used on turf and landscapes in the urbanized zones of the Gabilan watershed and tributaries of the lower and middle Salinas watersheds. Green Gardeners that install and/or retrofit water-wise landscapes during and after training help to meet multiple IRWM Plan objectives to reduce water demand through improved landscape water use efficiency, promote native drought-tolerant plantings in municipal and residential landscaping, improve water quality through pollution prevention, capture and manage storm water runoff with LID methods, diversify water supply sources in ways that match water quality to water use, and maximize water conservation incentive programs offered by local water utilities.

Green Gardeners converting turf with irrigated by sprinklers to CA native landscaping irrigated by low volume (drip) irrigation.

The Monterey Bay Green Gardener Certification program has strong, ongoing regional support in the County of Santa Cruz and the Monterey Peninsula, but has struggled to secure the level of funding necessary to offer classes in the Salinas Valley. A certification-level class has not been offered in Salinas since 2011. Salinas Green Gardener alumni that are landscape business owners or employees live and prefer to take classes in the Salinas Valley, but frequently commute to the more affluent areas of Monterey Peninsula and Carmel Valley to work. Although education offered in the Salinas Valley may result in improvements in watershed health and a reduction in landscape water demand outside of the Greater Monterey County IRWM area, water utilities and the Monterey Regional Stormwater Management Group on the Monterey Peninsula are reluctant to fund a class that is physically located outside of their jurisdiction boundaries. Proposition 84 IRWM Implementation Grant funding of the Green Gardener Program in the Greater Monterey County IRWM region will restore the bilingual training

[1] September 2011, Central Coast Water Board: Fact Sheet/Rationale Technical Report for Order No. R3-2012-00XX, Waste Discharge Requirements for the City of Salinas Municipal Storm Water Discharges.

[2] EPA, 2010, Watershed Assessment, Tracking & Environmental Results, 2010 Waterbody Report for Salinas River (Middle, Near Gonzales Rd Crossing To Confluence With Nacimiento River.

opportunities for Salinas Valley residents, and expand the program's workshop offerings in the communities of the upper Salinas Valley.

A 2011 Green Gardener program evaluation study revealed a positive association between the amount of time students spent in hands-on training on a certain practice, student intent to change a practice, and actual implementation of this change at the majority of client sites. Green Gardener training made the biggest behavior change impact within the category of irrigation management, as evidenced by results showing that 70% of graduates increased the frequency of irrigation system evaluations and weather-based irrigation controller programming. Grant funding for training/demonstration site construction will enable the Green Gardener program to provide hands-on learning experiences that increase student confidence and skills necessary to effectively implement ecological landscaping practices. After the grant term, public demonstation sites will continue to provide a living example of a landscape that enhances watershed health, and will continue to be used as an outdoor classroom space to instruct future Green Gardener classes and workshops.

2. Completed Work

- Since the program's inception in 2005, the Monterey Bay Green Gardener Program has matriculated 422 graduates, 209 of whom graduated from certification-level courses held at the Salinas Adult Education Center.
- The Green Gardener Spanish/English curriculum was developed through a grant from the State Water Resources Control Board in partnership with the County of Santa Barbara Water Agency. The curriculum is updated annually based on Monterey Bay Green Gardener Technical Advisory Committee recommendations and student evaluations.
- The Green Gardener Greywater Design, Installation, and Maintenance training curriculum was completed through an ARRA Clean Energy Workforce stimulus grant in partnership with Hartnell College.
- Artwork and content for promotional flyer templates are well developed for Green Gardener certification-level training and workshops.
- In 2011, a B-WET grant from the Monterey Bay National Marine Sanctuary provided funding for a landscape retrofit that converted 1,832 sq ft of turf medians at the building entrance to California native landscaping irrigated with low-volume irrigation.

3. Existing Data and Studies: N/A

4. Project Timing and Phasing

The proposed project can be conducted as a standalone project. The Green Gardener project will be completed within two years of the grant implementation start date. The certification-level classes will precede public workshop offerings.

5. Plans and Specifications: N/A

6. Standards

- 2010 California Model Water Efficient Landscape Ordinance (MWELO)
- EPA/Low Impact Development Center – Urban Design Tools (http://www.lid-stormwater.net)
- California Uniform Plumbing Code Title 24, Part 5 Chapter 16A - Non Potable Water Reuse Systems

7. Performance Measures and Monitoring Plans

The project's success will be evaluated with the following measureable objectives:

- 25 landscape industry workers from the Salinas Valley will become Certified Green Gardeners.
- 100 Salinas Valley residents will participate in bilingual Green Gardener trainings and workshops.
- 80% of Green Gardener certification training and workshop participants will implement two or more landscape water conservation and/or water quality protective practices after completing training.
- Water-wise demonstration sites will reduce landscape water demand by 30% and/or maintain a landscape water budget that is 70% of ETo.

8. Acquisition of Land or Rights-of-Way and Landowner Agreements

Installations of water-wise demonstration/training landscapes will take place on property owned by participating school districts, municipalities, and/or private residences near or on the same property as the Green Gardener classroom. Landowners will sign agreements that ensure understanding that the maintenance of installed training/demonstration sites is the property owner's responsibility.

9. Permits

- Training/demonstration projects to rehabilitate landscapes on public agency properties will be less than 2,500 sq ft and will not require a building landscape permit, plant check, or design review.[3] Landscape designs will be submitted for approval to the appropriate business and operations manager before construction commences.
- A construction permit is not required for clothes washer systems that do not require cutting of the existing plumbing piping provided the system is in compliance with CPUC Chapter 16A. Section 1603A.1.1. [4]

10 Environmental Compliance: Not required for this project.

11. **Scope of Work:** Project 6. Monterey Bay Green Gardener Training and Certification Program

Task 6.1 Direct Project Administration

Task 6.1.a Administration and Labor Compliance Program: The project proponent will conduct all general grant administration tasks throughout the duration of the project period, and will conduct activities necessary to meet labor compliance requirements. The lead applicant, Coastal Conservation and Research, will be responsible for administering the grant contract on behalf of the project proponents included in this grant application.

Task 6.1.b Reporting and Invoicing: The project proponent will submit invoices and progress reports to the lead applicant as required.

[3] MWELO § 490.1 Applicability (1)

[4] 1601*A*.0 Graywater Systems – General (D).

Current Status: Pending grant award.

Deliverables: Preparation of invoices as required. Submission of Labor Compliance Program requirements. Submission of quarterly and annual reports.

Task 6.2 Planning/Design/Engineering/Environmental Documentation

Task 6.2.a Recruit and Select Four Water-Wise Demonstration Landscapes

- Meet with school district maintenance and operations staff to scope and confirm area (<2,500 sq ft) of two public demonstration sites that will include site-specific LID best management practices.
- Market the greywater laundry-to-landscape installation opportunity among local sustainability groups, Green Gardener alumni, and program partners. Meet with residential property owners to vet the suitability of laundry-to-landscape greywater system at each proposed project site. Select two project sites appropriate for laundry-to-landscape greywater system installations.
- Develop MOUs with school district(s) and homeowners outlining the landscape maintenance responsibilities of the property owner after installation of training/demonstration landscapes is complete.

Task 6.2.b Complete Designs for Four Water-wise Demonstration Landscapes: A landscape designer will be hired to create landscape designs for two public water-wise demonstration landscapes that will include site-specific LID best management practices. Ecology Action staff will calculate minimum irrigation field requirements and design two laundry-to-landscape greywater irrigation systems at selected private residences.

Current Status: Exact locations of training/demonstration site installations to be determined based on Green Gardener workshop locations.

Deliverables: Completed landscape designs for four training/demonstration sites.

Task 6.3 Construction/Implementation

Task 6.3.a Training/Workshop Coordination

- Coordinate training/workshop classroom locations, schedules, and outlines.
- Recruit and schedule expert guest instructors from the landscape industry.

Task 6.3.b Training/Workshop Promotion

- Develop content and coordinate printing of bilingual promotional flyers for certification-level training and public workshops.
- Coordinate volunteer mailing of certification-level training and public workshop flyers to Salinas Valley landscape contractors, landscape maintenance businesses, and garden supply centers.
- Develop and coordinate release and purchasing of Spanish radio PSA/ads.
- Post training opportunities on www.green-gardener.org, partner websites, social media, and industry publications.

Task 6.3.c Training/Workshop Staffing

- Prepare instructional materials for, staff and provide Spanish interpretation for one Green Gardener certification-level training course.
- Prepare instructional materials for, staff and provide Spanish interpretation for four Green Gardener workshops focusing on LID best management practices and laundry-to-landscape greywater irrigation systems.

Task 6.3.d Demonstration Landscape Construction: Construct four water-wise demonstration landscapes with Green Gardener students:

- Solicit Bids from Landscape Contractors. Develop MOU and Scope of Work with a Landscape Contractor to provide materials for and supervise Green Gardener student installations of two public water wise demonstration landscapes.
- Modify existing volunteer and homeowner liability waivers.
- Construct Demo Site #1 during Green Gardener certification level course.
- Construct Demo Site #2 during Green Gardener LID workshop(s).
- Construct Demo Sites #3 and #4 during laundry-to-landscape greywater irrigation workshop(s).
- Develop educational signage for Demo Sites #1 and #2, recognizing DWR and project sponsors.

Task 6.3.e Training/Workshop Participant Evaluation

- Three months after training completion, conduct a phone survey of Green Gardener students to determine the impact of Green Gardener training and workshops on student landscaping practices.
- Obtain customer permission to contact water utilities supplying water to demonstration sites to request pre and post construction water use records. Analyze water use records to determine impact of retrofit on landscape water use.

Current Status: Bilingual Green Gardener curriculum (including PowerPoints and hand-outs) is well developed and tested. Bilingual promotional flyer templates have been developed for certification-level and public education workshops. California Uniform Plumbing Code Chapter 16A provides guidelines for code-compliant clothes washer greywater systems; Ecology Action and the Central Coast Greywater Alliance have developed extensive educational resources and local materials sources for greywater irrigation systems. Guest instructors and class coordinators have previous experience instructing Green Gardener classes. A Green Gardener pre- and post-training evaluation survey has been developed and vetted by Green Gardener Technical Advisory Committee.

Deliverables: Promotional flyers; contractor mailing lists; copy of bilingual radio PSAs; student learning objectives and agendas for one certification-level course and four public workshops; contract and scope of work with landscape contractor; volunteer and homeowner liability waivers; pre and post construction photo documentation; Green Gardener post-training evaluation forms; completed program evaluation report; updated graduate listings on www.green-gardener.org.

12. Supporting Materials

The following documents are being submitted electronically as supporting materials for this section, and can be found in Attachment 7, Technical Justification:

- Bilingual Green Gardener promotional flyer examples from previous classes, and pre and post-training evaluation forms

13. **Project 6.** Monterey Bay Green Gardener Training and Certification Program: SITE MAP

The Green Gardener Certification and Training Program takes place at the Salinas Adult Education Center, located at 20 Sherwood Place, Salinas. The Salinas Adult Education Center is located in the Gabilan Watershed, and is bordered by the Reclamation Ditch.

Green Gardener public workshops may take place at satellite locations throughout the Salinas Valley, including

- Hartnell College Alisal Campus Center for Sustainable Design and Construction, 1752 E Alisal St, Salinas, CA
- Hartnell College King City Education Center, 117 North Second St. King City, CA
- Mission Trails ROP Soledad Community Education Center, 690 Main St. Soledad, CA 93960

Graduates implement ecological landscaping methods where they live and work throughout the Greater Monterey County IRWM Region.

Project 7. Elkhorn Slough Foundation: Ridgeline to Tideline - Water Resource Conservation in Elkhorn Slough

1. Project Description

Ridgeline to Tideline is a comprehensive approach to addressing water resource issues in an estuarine watershed. The project area encompasses 359 acres of Elkhorn Slough and uplands set in a 4,000-acre block of protected lands. The three stages of this project include: 1) planning, design, and environmental compliance for increasing tidal range and circulation in North Marsh—a part of the Slough with consistently poor water quality and greatly reduced estuarine function—and restoring an adjacent upland buffer, 2) acquiring adjacent farmland property that is a chronic source of Slough degradation, and 3) restoring a nearby marsh through the addition of sediment.

Planning for increased tidal flushing in North Marsh will ultimately lead to improved water quality, flood protection, and habitat value in estuarine waters. Reduced groundwater extraction on adjacent farmland will improve water balance in the basin, resist seawater intrusion, prevent nitrate pollution and promote freshwater spring re-emergence. Over the past three decades we have demonstrated these integrated actions can measurably improve ecological function, tidal, freshwater and groundwater quantity and quality, and provide habitat for a diverse array of plants and animals. The marsh restoration will be done through the beneficial reuse of sediment excavated during a nearby flood control project. Requested funds will support improvement of tidal circulation through site evaluation (biological data, habitat extent, water quality, wetland delineation, topography, bathymetry, hydrology, soil/sediment characteristics, modeling impact on tidal scour), planning, evaluation of design alternatives, compilation of a restoration plan, 30% design and CEQA (restoration of this tidal wetland will be funded through another source), and land acquisition through due diligence costs (appraisals/environmental inspection and cleanup/legal review/surveys/closing costs). These funds will also support restoration of buffer uplands at North Marsh and 7 acres of a nearby marsh through sediment addition.

<u>Statement of Need:</u>

Improvements at North Marsh: The Elkhorn Slough Foundation (ESF) and Elkhorn Slough National Estuarine Research Reserve (ESNERR) have been actively and effectively protecting and restoring land and waters in the Elkhorn Slough watershed for 30 years. This proposal builds on that long-term investment and experience, and continues recent efforts to restore and protect the North Marsh and Elkhorn Highlands on the east side of Elkhorn Slough. It also advances salt marsh restoration in the southwestern portion of Elkhorn Slough. In the last 24 months, ESF completed a tidal improvement project for the wetlands north of Kirby Park, and ESNERR has completed a project designed to reduce tidal erosion in Parsons Slough. Between these two wetlands lies the North Marsh, which has some of the worst water quality in the estuary due to restricted tidal exchange. The existing water control structures in North Marsh have been damaged and their functioning is compromised; North Marsh exhibits only 10% of the tidal range of the adjacent estuary. Without extensive work, these structures are at risk of failure. Seasonal high tides overtop the Union Pacific (UP) Railroad tracks that border North Marsh, occasionally resulting in the closure of the railroad for up to three days. Operation of the existing structure to protect the railroad results in flooding, which closes Elkhorn Road, a major county transportation artery, triggers major mosquito breeding and results in foul odors and stagnant, low quality water in the wetlands. Highly invasive weeds, including eucalyptus, iceplant, jubata grass, and poison hemlock threaten remnant marsh-to-upland ecotone, native grassland, and coastal scrub habitat adjacent to the wetland.

Land acquisition: In the 1980s large parts of the wooded-sandy hills draining into these wetlands were cleared for strawberry cultivation, mostly on very steep slopes. Episodic heavy rainstorms have since eroded these exposed fragile soils into sediment fans across Elkhorn Road and deposited them

downstream onto tidal and freshwater wetlands. These farmland sediments bury wetlands in their path and establish willow stands, and are discharging farm-related nutrients and chemicals into the wetlands. These sediment fans also create periodic vehicle safety hazards on public roads thus requiring Monterey County Public Works road clean-up expenses using heavy equipment.

Freshwater for farms and residences in this region is entirely dependent on groundwater, which is being pumped faster than it is being replenished. Groundwater depletion has dried freshwater springs known to have occurred in the area, and is causing seawater intrusion into the upper aquifer. The remaining groundwater is, in portions of the area, polluted by nitrates and other chemicals from runoff, thus jeopardizing local residential well water quality. In the past decade, ESF has eliminated groundwater extraction on over 600 acres of land in the Elkhorn Highlands. This has resulted in the savings of as much as 2,000 acre feet, or 650,000,000 gallons, of water per year left in the ground. This represents a substantial portion of the calculated overdraft for this area of the Elkhorn Highlands, based on reports by the Monterey County Water Resources Agency. In addition to this reduction in groundwater extraction, ESF and ESNERR have restored native vegetation on hundreds of acres of formerly bare fields. We believe that this not only stabilizes upland soils, it increases the capture and infiltration of rainfall to the aquifer.

Salt marsh restoration: Over the past 150 years, human actions have altered the tidal, freshwater, and sediment processes in the Elkhorn Slough. This has caused wetland habitat loss and degradation that continue today. Elkhorn Slough has lost 1,000 acres of tidal marsh since the 1850s, and is predicted to lose 500 more acres (80% of those remaining) without action. Sediments are needed to rebuild lost and degraded marshes and offset sea level rise, but are expensive to procure unless combined with other sediment management activities.

One hundred years ago, tidelands in ESNERR's western region was dominated by salt marsh. By the 1930s and '40s the salt marsh on the project sites had been diked and drained. Decades later, these dikes began to fail, reintroducing tidal waters to the reclaimed wetlands. The years of draining had led to land subsidence, however, which made the land too low and wet to support salt marsh. Now these areas are high elevation intertidal mudflats that are less productive than native tidal flats along the main channels.

The additional tidal water that fills and drains these areas accelerates currents in other parts of the slough, leading to a process referred to as "tidal scour." Soft sediment habitats in Elkhorn Slough are eroded as a result. Raising the marsh elevation with sediment additions will reduce the "tidal prism," the volume of water moving in and out of the estuary each day, and help reduce the erosion of the slough's benthic habitats and tidal creeks. The hardened subtidal habitat is less suited for the production of large invertebrates and more prone to invasion by non-native species.

The viability of tidal marsh in Elkhorn Slough is limited by the availability of fine sediment. Tidal scour exports fine sediment from the slough. Tidal scour and subsidence have both created an extensive "accommodation space," deep areas where any available sediment tends to deposit. These areas compete with tidal marsh for fine sediment. The volume of the accommodation space in Elkhorn Slough related to past subsidence totals over two million cubic yards, roughly one third of the estuary volume.

The beneficial reuse of sediment can restore this habitat, providing a win-win for agencies responsible for flood management and navigation and those responsible for ecosystem preservation and stewardship. The Pajaro River Bench Excavation Project, which reduces the risk of flooding in the low lying city of Watsonville and town of Pajaro (a disadvantaged community), is anticipated to generate approximately 190,000 cubic yards of sand and silt that is low in contaminants and the perfect texture for tidal marsh restoration. This project provides an economical option for sediment reuse.

2. Completed Work

North marsh: The proposed project will be led by ESF in partnership with ESNERR, a partnership that is now 30 years strong. ESF is a community non-profit and land trust, and serves as the fiscal agent for the support of ESNERR staff. ESNERR, a member of the national network of estuarine research reserves, is a partnership between the National Oceanic and Atmospheric Administration (NOAA) and the California Department of Fish and Wildlife (CDFW). The project is the outcome of an extensive planning effort. Since 2004 the Elkhorn Slough Tidal Wetland Project (TWP) has engaged over 100 scientists, agency staff, and elected officials in planning and implementing activities to restore estuarine habitats. The TWP Strategic Plan identifies the improvement of water quality and estuarine habitat as a high priority for Elkhorn Slough management.

Muted tidal flow was returned to previously diked wetlands by CDFW in 1985, using tide gates to prevent full tidal range which would flood a County road. Nearly 30 years later, the water control structure is failing and unable to provide sufficient tidal flushing to maintain acceptable water quality or healthy estuarine habitat. Key partners will be transportation, county, and regulatory agencies. Preliminary conversations with Union Pacific Railroad, Monterey County Public Works, and Mosquito Abatement have occurred about the project at this conceptual phase.

Removal of high priority invasive species has been occurring on the uplands flanking the North Marsh for over ten years, but is in need of additional funds to complete the work. Since 2000, weed control has included the eradication of an acacia tree grove, jubata grass removal, and hand pulling of iceplant, using volunteer help.

Land acquisition: In the past 10 years ESF has completed dozens of land transactions protecting close to 4,000 acres of Elkhorn Slough watershed property while implementing the 1999 Elkhorn Slough Watershed Conservation Plan. This includes acquiring the fee interest and conservation easements of these properties. We have developed internal acquisition capacity and experience with the hiring of a Land Acquisition Specialist in 2001. We have worked with experienced partners in conservation land acquisition, including legal analysis, a title company, an environmental investigation company, property appraisers, and funding agencies and organizations. Acquisition of the Minhoto Ranch by CDFW, site of the salt marsh restoration project, and match for this grant request, is complete.

Other State funds (State Coastal Conservancy) have been identified for the proposed purchase of farmland uphill of North Marsh. This request will support that effort by covering due diligence costs.

Salt marsh restoration: Other funds have been secured for portions of this work. CEQA is complete for sediment stockpiling on ESNERR land. We have hired a consulting firm to complete the project's site assessment, engineering, and regulatory compliance. Prior to the grant award date we expect to have 1) completed the existing conditions report, 2) completed the restoration plan, 3) received and stockpiled available Pajaro River sediments, and 4) received a Notice of Determination for CEQA for remaining project actions.

3. Existing Data and Studies

Because this project is associated with a National Estuarine Research Reserve, with permanent long-term research staff on-site, many studies have been performed that support this work. Additionally, ESF and ESNERR have developed Elkhorn Slough's Tidal Wetland Program, a collaborative effort to develop and implement strategies to conserve and restore estuarine habitats in the Elkhorn Slough watershed. As noted above, this collaboration, initiated in 2004, involves over 100 coastal resource managers, scientific experts, and representatives from key regulatory and jurisdictional entities, leaders of conservation

organizations, and community members, who help guide management strategies in Elkhorn's tidal wetland. Highly relevant studies are described below.

North Marsh:

- Elkhorn Slough Tidal Wetland Project Team. 2007. *Elkhorn Slough Tidal Wetland Strategic Plan.* A report describing Elkhorn Slough's estuarine habitats, main impacts, and broad conservation and restoration recommendations. 100 pp. Plan identifies the enhancement of water quality in North Marsh as a top priority for habitat management in Elkhorn Slough.
- Hughes, Brent B., John C. Haskins, Kerstin Wasson, and Elizabeth Watson. 2011. Identifying factors that influence expression of eutrophication in a central California estuary. *Marine Ecology Progress Series* 439:31-43. Study identifies North Marsh as a site in need of water quality improvement, and recommends increased tidal exchange as a possible solution. See page 36, Figure 2. North Marsh is Site 7, with a "high-to-hyper" eutrophication score. See also supplement, page 10, site #7 (Reserve North Marsh) for details on eutrophication index.
- Wasson, K. and A. Woolfolk. 2011. Salt marsh-upland ecotones in central California: vulnerability to invasions and anthropogenic stressors. *Wetlands* 31:1-14. Study documents the effects of very muted tidal management and weeds on marsh-to-upland ecotone at North Marsh (called "Estrada" in this paper).
- Woolfolk, Andrea, Kerstin Wasson, and Nina D'Amore. 2009. Making room for native grasses: physical control of coastal weeds. Proceedings: California Invasive Plant Council Symposium 13: 94-96. www.cal-ipc.org/symposia/archive/pdf/Proceedings_2009_small.pdf. Study completed in North Marsh buffer, demonstrating that the removal of invasive iceplant results in native grass and marsh plant recolonization.

Land acquisition:

- Scharffenberger, T. 1999. *Elkhorn Slough Watershed Conservation Plan.* Elkhorn Slough Foundation and The Nature Conservancy. Plan identifies: 1) sedimentation and contamination of marshes, due to uncontrolled agricultural runoff from steep fields, and 2) severe depletion of groundwater resources due to excessive pumping of wells as two of the most significant threats to Elkhorn Slough. Recommends several actions, including acquisition, to address threats.
- Gee, A. K., K. Wasson, S. L. Shaw, and J. Haskins. 2010. Signatures of restoration and management changes in the water quality of a central California estuary. *Coasts and Estuaries 33:1004-124.* Study done on land acquired/managed by the Elkhorn Slough Foundation demonstrates that restoration of agriculturally intensive lands in the Elkhorn Slough watershed can result in improvements to water quality.

Salt marsh restoration:

- ESNERR and Moffatt & Nichol. 2010. *Parsons Slough Complex Wetland Restoration Plan.* Prepared for the California State Coastal Commission. Plan includes restoration alternatives and plans for former salt marshes in ESNERR tidal wetlands.
- Elkhorn Slough Tidal Wetland Project Team. 2007. *Elkhorn Slough Tidal Wetland Strategic Plan.* A report describing Elkhorn Slough's estuarine habitats, main impacts, and broad conservation and restoration recommendations. 100 pp. Plan identifies salt marsh restoration through sediment addition as a top priority for habitat management in Elkhorn Slough.

Data Sets: Key data of the project sites include LiDAR elevation data, water quality stations with records going back 15 years with continuous data and 25 years with monthly data. Biological data include long-

term monitoring of estuarine plant communities, watershed habitats, marine mammals, shorebirds, fish, benthic invertebrates, and amphibians, which use freshwater habitats in the watershed. The bibliography of papers on Elkhorn Slough includes over 900 entries. It is available at: www.elkhornslough.org/research/bibliography.htm.

4. Project Timing and Phasing

The proposed project is divided into three components:

1) Planning, design, and environmental compliance for increasing tidal range and circulation in North Marsh, and restoring an adjacent upland buffer. This project, as described, can operate on a standalone basis. However, additional funds from other sources will be required to complete wetland engineering designs, permitting, and construction. Buffer restoration is standalone and does not require other components to be completed.
2) Acquisition of farmland. This is a standalone project and requires only the matching funds from the California State Coastal Conservancy to be completed.
3) Salt marsh restoration: This is a standalone project. Round 1 IRWM funds are funding planning phases of this project, including planning, engineering designs, environmental documentation and permitting, as well as some construction contracting. Additional funds from USACE Habitat Restoration and the California State Coastal Commission are supporting planning and design and compliance tasks. Construction of 7 acres of salt marsh will occur after planning and permitting are complete.

5. Plans and Specifications

North Marsh: N/A. To be developed as part of this proposed project.

Land acquisition: N/A

Salt marsh restoration:

- Preliminary restoration plan: ESNERR and Moffatt & Nichol. 2010. *Parsons Slough Complex Wetland Restoration Plan.* Prepared for the California State Coastal Commission. Plan includes restoration alternatives and plans for former salt marshes in ESNERR tidal wetlands.
- Project Request for Proposals (consultants hired in 2012): Elkhorn Slough Tidal Marsh Restoration. Phase II: Site Assessment, Engineering Design and Regulatory Compliance. June 1, 2012. Available at http://www.elkhornslough.org/tidalwetland/tidal_marsh_restoration.htm.
- Project plans and engineering designs in progress.

6. Standards

North Marsh: For planning effort, N/A. For weed removal, work complies with Department of Pesticide Regulation and CDFW health and safety regulations.

Land acquisition: In performing the land acquisition work, ESF will adhere to the Land Trust Alliance's 2004 Standards and Practices. The due diligence parts of these standards and practices cover transaction legal review, appraisals, and environmental review.

Salt marsh restoration: Construction standards will be developed as part of engineering designs and technical specifications, Phase 2b, as outlined above, using matching funds.

7. Performance Measures and Monitoring Plans

Project monitoring is provided as match. ESNERR has a strong track record of carrying out rigorous monitoring for a variety of parameters (see http://www.elkhornslough.org/research/index.htm for an overview of the water quality, habitat and biological monitoring programs coordinated by the Reserve). Reserve scientists work at the interface of academic and applied science, working closely with land managers and decision-makers while publishing in peer-reviewed journals. Over recent years, they have conducted research and monitoring to inform salt marsh conservation and restoration at the estuary (see http://www.elkhornslough.org/research/conserv_marsh.htm).

For North Marsh planning efforts, targets include the completion of 30% designs and NEPA/CEQA compliance. For land acquisition, the target is the purchase of farmland uphill of North Marsh, with this grant request funding due diligence. For restoration of the buffer/ecotone at North Marsh and salt marsh in the lower Slough, we will conduct robust assessments of restoration activities in order to determine whether implementation was conducted as designed and planned. Specific performance indicators and monitoring methods for restoration/construction are provided in Attachment 6. ESNERR is committed to a scientific approach to restoration, where lessons learned from restoration projects can directly inform future restoration and conservation work in the estuary in an adaptive management framework.

8. Acquisition of Land or Rights-of-Way and Landowner Agreements

Acquisition of the Minhoto Ranch, site of the salt marsh restoration project, was completed in January 2009. For the new property acquisition of farmland uphill of North Marsh, preliminary conversations have occurred between the farm owner and ESF staff. ESF has expressed an interest in acquiring the property and the landowner has expressed an interest in selling the property. Non-matching State funds from the Coastal Conservancy have been identified to cover the purchase price, with this grant request funding due diligence.

9. Permits

North Marsh: Planning: N/A
Weed removal: Coastal Development Permit for eucalyptus removal

Land acquisition: N/A

Salt marsh restoration: The proposed project falls under the jurisdiction of many different regulatory agencies. All of the relevant agencies are familiar with the issues of wetland restoration in Elkhorn Slough through collaboration in the Tidal Wetland Project. This will make the permitting process efficient and collaborative. Phases 2a and 2b of the proposed project will establish the necessary groundwork for permit issuance. The permitting itself will be conducted during Phase 2b. While an extensive environmental review and permitting process is anticipated, this is because of construction activity in wetlands and waters of the United States, not because of controversy surrounding the project. The project proponent recently completed similar permitting processes for the Parsons Slough Sill Project (winter of 2010/2011), and Whistlestop Wetland and Public Access Enhancement (2012/2013) which required consultation with all of the same agencies, and both went well. This should enable a smooth and efficient regulatory compliance process.

The following documents have been identified as likely to be required by the agencies in the development of the salt marsh-sediment addition project.

Federal Agency Authorizations and Permits

- Army Corps of Engineers (individual Section 404 Permit anticipated)
- Monterey Bay National Marine Sanctuary (permit or waiver anticipated)
- US Fish and Wildlife Service (Biological Opinion)
- US Fish and Wildlife Service (Incidental Harassment Authorization Endangered Species Act)
- National Marine Fisheries Service (Incidental Harassment Authorization under the Marine Mammal Protection Act)

State Agency Authorizations and Permits

- Regional Water Quality Control Board (401 Water Quality Certification/WDR/NPDES anticipated) California Department of Fish and Game (Right of Entry Permit)
- California Department of Fish and Game (LSA/Section 1602 Agreement)
- Coastal Commission/Monterey County (Coastal Development Permit)

Local Agency Authorizations and Permits

- Monterey County (Design Review)
- Monterey County (Grading Permit)
- Monterey County (Construction Permit)

10. Environmental Compliance

North Marsh:

- *Tidal wetland enhancement:* Requested funds will support the preparation and completion of environmental compliance documents. This work will begin when requested funds are awarded.
- *Buffer restoration:* Buffer weed removal and native species planting will be described in the Reserve's Management Plan update, expected in 2014. The plan will go through CEQA with CDFW as the lead agency.

Land acquisition: N/A

Salt marsh restoration: CEQA is complete for sediment stockpiling. For remaining project components, the lead agency for CEQA compliance has not yet been determined, but recent experience with two other wetland projects on ESNERR suggests it will be CDFW. The project team is operating under the assumption that CEQA compliance can be completed by filing a Mitigated Negative Declaration (MND), and NEPA compliance can be fulfilled with an Environmental Assessment (EA) and subsequent Finding of No Significant Impact (FONSI). The consulting firm of ESA-PWA has been hired to lead preparation of CEQA compliance documents. The US Army Corps of Engineers (USACE) will lead preparation of NEPA compliance documents, using information provided by the consultant.

Tasks included in matching funds:

- Complete field studies as part of site assessment.
- Conduct a Multi-Agency Coordination Meeting that will be hosted at ESNERR for the purpose of scoping CEQA.
- Complete a detailed Draft Initial Study (IS), including a final Project Description.
- Support USACE's development of EA/FONSI by provision of information.
- Complete Final IS/MND.
- Respond to inquiries from NOAA.

11. Scope of Work: Project 7 – Ridgeline to Tideline - Water Resource Conservation in Elkhorn Slough

Task 7.1 Direct Project Administration

Task 7.1.a Administration: The Elkhorn Slough Foundation will conduct all project administration tasks, including managing payroll, invoicing, and communication between ESF staff, project consultants, contractors and project partners throughout the duration of the project period. The lead applicant, Coastal Conservation and Research, will be responsible for administering the grant contract on behalf of the project proponents included in this grant application.

Task 7.1.b Labor Compliance Program: The Elkhorn Slough Foundation will conduct activities necessary to meet labor compliance requirements, and submit to the lead applicant. Labor compliance will be implemented to meet new Department of Industrial Relations (DIR) Compliance Monitoring Unit (CMU) requirements.

Task 7.1.c Reporting: Quarterly reports will be prepared assessing the progress and accomplishments of the project. A final project completion report will also be prepared at the end of the project, as well as annual reports and grant invoices.

Current Status: Pending grant award.

Deliverables: Preparation of invoices as required. Submission of Labor Compliance Program requirements. Submission of quarterly and annual reports.

Task 7.2 Land Purchase/Easement

Task 7.2.a Land Acquisition: The Minhoto parcel, provided as match, was acquired in January 2009.

Task 7.2.b Due diligence: Due diligence will be performed for proposed acquisition of the farmland property uphill of North Marsh in Elkhorn Slough watershed. Purchase costs are covered by non-matching State funds. Due diligence tasks include:

- Property appraisal
- Legal review
- Phase I-IV environmental investigation
- Water quality test
- Well test
- Property clean-up
- Close of escrow

Current Status: Minhoto acquisition complete. Proposed due diligence tasks pending grant award.

Deliverables: Property appraisal, title report, results from environmental investigation, water quality and well tests.

Task 7.3 Planning/Design/Engineering/Environmental Documentation

This task will be done primarily for North Marsh wetland enhancement, and it includes project assessment and evaluation, planning and community engagement, engineering design, and environmental documentation. Permit preparation activities will occur for weed control in North Marsh's buffer.

Task 7.3.a Assessment and Evaluation: During this task North Marsh wetlands will be assessed, and site will be characterized for restoration design and regulatory compliance purposes. Specific tasks include:

- Compile and process existing site data. This will include biological data, habitat extent, water quality, topography, bathymetry, hydrology, and soil/sediment characteristics.
- Collect and process restoration needs, including modeling impacts on tidal scour, and staging areas and access routes required for restoration.
- Conduct wetland delineation and fish and wildlife assessments as necessary for regulatory compliance purposes.
- Evaluate alternatives.
- Develop a restoration plan.

Task 7.3.b Planning and Community Engagement: This task, to support planning for North Marsh wetland enhancement, will include: 1) two meetings with ESF staff, key stakeholders, project consultants and the project's technical advisory committee to refine the project goals and objectives; 2) a meeting with regulatory agency staff to receive feedback on the project and facilitate agency coordination of key documents and decisions; and 3) an evening meeting open to the public to discuss the project. The purpose of the public meeting is to inform the public of the project and address any concerns. The meeting will be held during the CEQA process.

Task 7.3.c Project Description and 30% Design: Project engineering designs for the North Marsh tidal wetland will be completed by consulting engineers.

Task 7.3.d Environmental Documentation: In order to be compliant with CEQA, a project-specific Mitigated Negative Declaration (MND) will be completed for the North Marsh tidal wetland project.

Task 7.3.e Permitting: A Monterey County Coastal Development Permit will be obtained for eucalyptus removal in the North Marsh buffer. Requested funds do not include permitting for North Marsh tidal wetland enhancement.

Current Status: Pending grant award.

Deliverables. Existing conditions report, project alternatives technical memorandum, meeting notes, completed Restoration Plan, 30%, engineering designs, and permits required by Monterey County for eucalyptus removal in North Marsh buffer.

Task 7.4 Construction/Implementation

Construction elements include: 1) construction contracting; 2) construction to restore the upland-to-wetland buffer at North Marsh; and 3) construction for salt marsh restoration through sediment addition in lower Elkhorn Slough, as described below.

Task 7.4.a Construction Contracting: ESF will advertise construction projects (weed control at North Marsh and sediment addition at Minhoto) for competitive bidding between qualified contractors. The process includes the following tasks: advertising, pre-bid meeting, bid opening, bid review, contract awarded, and execution of contract documents. Contracts will be established for construction administration, for the construction of the staging area, and for the establishment of the native grass buffer.

Task 7.4.b Construction (North Marsh Buffer): This task includes the following subtasks:

Task 7.4.b.1 Mobilization and Site Preparation: Construction staking will be performed as necessary. Equipment and materials will be brought to the site.

Task 7.4.b.2 Project Construction: Tree removal contractors will cut and remove eucalyptus from North Marsh buffer. Qualified Applicators will spray herbicide on iceplant and jubata grass in North Marsh uplands. Native seed will be procured from the remnant native grass and scrub patches in North Marsh buffer. Seeds will be propagated and grown in ESNERR's greenhouse, based on biological surveys of remnant native habitat at North Marsh. Resulting plants will be planted as needed in North Marsh buffer by ESNERR staff and volunteers.

Task 7.4.b.3 Performance Testing and Demobilization: Construction environmental training and BMP inspection will be performed by an ESF qualified biologist. During and after construction, ESNERR stewardship staff will monitor the site for effectiveness invasive weed control, following up with additional control as needed.

Task 7.4.c Construction (Minhoto – Salt Marsh Restoration): This task includes the following subtasks:

Task 7.4.c.1 Mobilization and Site Preparation: Construction staking will be performed. Equipment and materials will be brought to the site.

Task 7.4.c.2 Project Construction: Sediment will be moved onto the marsh according to plans and specifications to restore the acres permitted.

Task 7.4.c.3 Performance Testing and Demobilization: Construction environmental training and BMP inspection will be performed by an ESF qualified biologist. Inspections will be conducted weekly by a licensed engineer to ensure the sediment meets construction specifications. During and after construction, ESNERR stewardship staff will monitor the site for invasive weed establishment, controlling high priority weeds as found.

Current Status: Pending grant award.

Deliverables: Advertisement for bids; awarded weed removal construction contract(s); awarded sediment placement construction contract; maps of construction areas; photos of project staking, grading, and North Marsh buffer.

Task 7.5 Environmental Compliance/Mitigation/Enhancement

Task 7.5.a Environmental Compliance/Mitigation/Enhancement: CEQA and permit compliance and mitigation requirements will be implemented. Requirements will be identified during the CEQA and permit processes and are not yet known. Contractors and staff will develop compliance reports, consisting of items required by environmental compliance and/or permits.

Current Status: Pending grant award.

Deliverables: Documentation of Best Management Practices and compliance reports as required as part of environmental compliance and/or permits.

Task 7.6 Construction Administration

Task 7.6.a Construction Administration: Contractor(s) and ESF staff will perform construction management services during construction. Construction management by ESF staff or paid consultant includes: review and approval of contractor's schedule and change orders; management and coordination of all contractor correspondence; maintenance of detailed project records; and review and distribution of submittals.

Current Status: Pending grant award.

Deliverables: Submittals, change orders.

Task 7.7 Other Costs

7.7.a Construction Monitoring: Provided as match. A Project Performance Monitoring Plan will be prepared and modified per regulatory agency requests, as permits described above are obtained.

Current Status: Pending grant award.

Deliverables: Notice of correspondence and post monitoring reports.

Task 7.8 Construction/Implementation Contingency

7.8.a Construction Contingency: Construction contingency costs are based on 10% of the total requested construction funds.

12. Supporting Materials

The following documents are being submitted electronically as supporting materials for this section, and can be found in Attachment 7, Technical Justification:

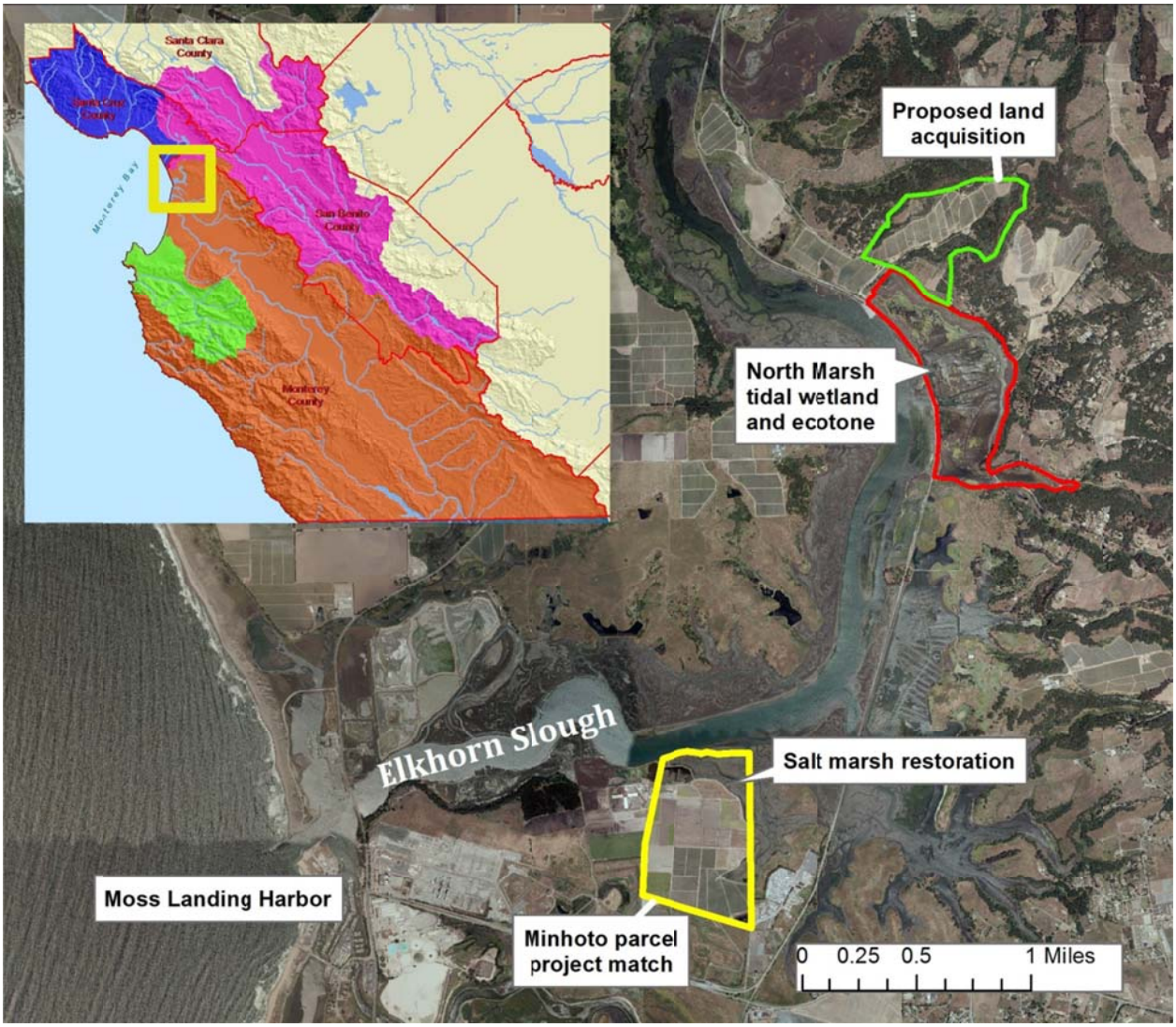
- Elkhorn Slough Tidal Wetland Project Team. 2007. *Elkhorn Slough Tidal Wetland Strategic Plan.* A report describing Elkhorn Slough's estuarine habitats, main impacts, and broad conservation and restoration recommendations. 100 pp.
- ESNERR. 2012. Request for Proposal: Elkhorn Slough Tidal Marsh Restoration Phase II: Site Assessment, Engineering Design and Regulatory Compliance. http://www.elkhornslough.org/tidalwetland/downloads/ESF_Marsh_Restoration_RFP.pdf
- ESNERR and Moffatt & Nichol. 2010. *Parsons Slough Complex Wetland Restoration Plan.* Prepared for the California State Coastal Commission.
- Gee, A.K., K. Wasson, S.L. Shaw, and J. Haskins. 2010. Signatures of restoration and management changes in the water quality of a central California estuary. *Coasts and Estuaries* 33:1004-124.

- Hughes, B.B., J.C. Haskins, K. Wasson, and E. Watson. 2011. Identifying factors that influence expression of eutrophication in a central California estuary. *Marine Ecology Progress Series* 439:31-43.
- Scharffenberger, T. 1999. *Elkhorn Slough Watershed Conservation Plan.* Elkhorn Slough Foundation and The Nature Conservancy.
- Wasson, K. and A. Woolfolk. 2011. Salt marsh-upland ecotones in central California: vulnerability to invasions and anthropogenic stressors. *Wetlands* 31:1-14.
- Woolfolk, A., K. Wasson and N. D'Amore. 2009. Making room for native grasses: physical control of coastal weeds. Proceedings: California Invasive Plant Council Symposium 13: 94-96. www.cal-ipc.org/symposia/archive/pdf/Proceedings_2009_small.pdf

13. Project Site Map

A site map for this project is shown on the following page.

Project 7: Ridgeline to Tideline - Water Resource Conservation in Elkhorn Slough: SITE MAP



Project 8. Central Coast Wetlands Group: Deployment of the Greater Monterey County Regional Water Quality Monitoring Network

1. Project Description

The Salinas Valley is located within the Greater Monterey County region. It comprises a significant portion of the region's drainages and suffers severe water quality problems as identified through the 303d listing process. These problems are so severe that many of the waterbodies are listed for 10 or more pollutants. Over a century of both urban development and intensive agricultural land uses have led to these water quality impairments. In response, significant resources are being directed towards improving agricultural irrigation and land management practices, and urban stormwater practices that will help to restore surface water quality.

Many organizations and IRWM Plan partners, including those involved in this project, are implementing projects to improve water quality in partnership with State and local agencies and the agricultural community. While we anticipate that the collective results of regional water quality management efforts being undertaken by these partners will lead to improvements in water quality of receiving waters, we currently do not have the robust monitoring systems in place to successfully document these improvements (SAM 2008). To quantify the success of the millions of dollars in projects being invested in these local watersheds and to help meet environmental and regulatory obligations, we need robust monitoring data collected at specific locations capable of documenting these changes. The Monterey Bay Sanctuary 2008 *Central Coast Water Quality Data Synthesis, Analysis and Management (SAM)* Report identified the limitations of current monitoring efforts and calculated that load reductions would need to exceed 20% of current concentrations before current monitoring programs would document a change in water quality (see supporting document).

It is clear that until a monitoring network is constructed and existing data are compiled and analyzed systematically, the region and State will continue to be unable to document the cumulative improvement to water quality achieved from the projects implemented with State funds. With the implementation of IRWM Plan projects, the adoption of the updated Phase II storm water requirements, the implementation of the Central Coast Regional agricultural water quality order, and implementation of policies governed under the Joint Effort for Hydromodification Control and Low Impact Development guidance, the need for comprehensive water quality monitoring data of these priority drainages is more critical than ever.

The Central Coast Wetlands Group (CCWG) is requesting IRWM funds to expand and maintain a water quality monitoring network with two primary components:

1) Real-time water quality monitoring at key coastal confluence sites at the bottom of three watersheds.
2) Analysis of existing water quality data collected throughout the region necessary to define trends and quantify load reductions.

We intend to expand and maintain an existing real time monitoring matrix. Dr. Ken Johnson at the Monterey Bay Aquarium Research Institute (MBARI) has developed and deployed the LOBO (Land/Ocean Biogeochemical Observatory) monitoring system, remotely sampling water quality of the Old Salinas River Channel and Elkhorn Slough. The LOBO system array continuously monitors water quality at hourly intervals which enables the region to document the interactions between watershed processes and coastal impacts to receiving waters. A complete description of the LOBO probes and monitoring program is available at the LOBO website, http://www.mbari.org/lobo/. The current array system has successfully documented the impacts that land uses in the lower Salinas Valley have had on the Moss Landing Harbor, Elkhorn Slough and the Monterey Bay. MBARI has achieved their original

research needs for this system and are reevaluating their deployment strategy, looking for partners to identify new research and monitoring questions that the system can address, and searching for funding resources to support future management and expansion of the system. This system can assist the diagnostic monitoring needs for the region with one new deployment location, and it is worth the investment to maintain the system and track cumulative results of many water quality improvement projects that will lead to water quality objective attainment within this region.

Therefore, with IRWM grant funding, this project proposes to continue maintaining two current LOBO buoy monitoring array locations at the end of the Old Salinas River Channel and mouth of the Elkhorn Slough, and expand the coverage to an additional priority coastal confluence location in the Moro Cojo Slough. The new LOBO monitoring station proposed for the Moro Cojo Slough was selected as a priority action by the Moro Cojo Slough Management Technical Advisory Committee. Since the 1989 earthquake, the tidegates that control the water elevations of the slough and manage flows to the Moss Landing Harbor have been severely compromised. Several of the tide gates are inoperable and leakage around the pipes is evident. These gates and the road above will need to be replaced as some point in the future and will require tidal and salinity data to properly design and install a new system. These data will be provided by the LOBO system and are critical to ensuring that the proper tidal exchange is maintained between the harbor and slough to support State-protected populations of tidewater gobies and the brackish water snail. Without these data, permitting for the replacement gates will be difficult and significantly more expensive and could threaten these populations of endangered species.

In addition to the LOBOs, one hand deployed nutrient monitor (ISUV nutrient probe) will be regularly installed at key sites within the watersheds, in order to track upstream sources and further document the cumulative effects of nutrient management strategies on downstream resources. The locations for nutrient probe deployment will be selected in partnership with Monterey Bay National Marine Sanctuary's Water Quality Protection Program and the Regional Water Quality Control Board agricultural monitoring efforts.

As discussed above, the second primary component of the project is analysis of existing data. There are multiple monitoring programs underway to evaluate ambient water quality, some are regional in scope and some are program/project based. Analysis of all currently available water quality data, compiled within California's CEDEN database, is necessary to document the effectiveness of IRWM Plan and other management practices throughout the Greater Monterey County region. This project will incorporate that information in the Central Coast Action Tracker. [5] The Conservation Action Tracker is an online database web portal that will allow all project proponents to enter information about management practices designed to improve water quality and enable them and funding agencies to identify if water quality is improving downstream as a result of the practices. The Monterey Bay National Marine Sanctuary's Synthesis, Analysis and Management (SAM) program initiated this effort in 2006 by conducting an initial compilation and assessment of water quality data collected on the Central Coast, which led to the development of the *Strategic Plan for Central Coast Water Quality Monitoring Coordination and Data Synthesis* (SAM report, attached). The proposed project will help implement priority tasks described in that plan by synthesizing the water quality information, communicating more effectively between key groups, compiling the data necessary to better understanding environmental changes, and ultimately responding to changes and new knowledge with adaptive management.

Key outcomes of this project will be:

- Establishing baseline water quality information that quantifies the significant temporal variability in data, a limitation in the utility of monthly grab sample load estimates.

[5] In development: http://ccactiontracker.org/

- Quantification of the efforts of IRWM Plan partners regarding surface water quality protection, load reductions and water quality goal attainment.
- Provide data from which partners can integrate load reductions achieved by their projects.
- Document results of land management practices in sub-drainages using upstream flow and real-time nutrient monitoring.
- Use to design a new tide gate system for the Moro Cojo Slough that ensures protection of State and Federally protected brackish water species.

CCWG and the Monterey Bay National Marine Sanctuary have worked to support the development of watershed monitoring programs that are able to detect improvements in water quality both locally and within a watershed context. This information is necessary for the region to implement adaptive management that supports and recognizes effective management strategies. These strategies will lead to progressive reductions in water quality impairments. A more extensive continuous monitoring program will provide the necessary data to track results of the cumulative efforts of agencies, organizations and individuals to address the enhancement of surface water quality. Similarly, the data generated by this monitoring system will provide the baseline data needed to better document current pollutant loads and systematically report the reductions achieved due to multiple program implementation.

2. Completed Work

The LOBO array is already established and proven successful. CEQA was not required. The additional buoy will be easily added to the system and to current permits held by the Harbor District and Monterey Bay Sanctuary. The SAM project has established the groundwork for data needs and collection strategy.

3. Existing Data and Studies

By supporting the expansion of the coastal water quality monitoring system, the Greater Monterey County IRWM Plan will construct the necessary monitoring array to generate baseline data needed to track long-term success of projects. This project is supported by the success of the existing LOBO array and the 2008 SAM study. The following documents are attached as appendices (in Attachment 7, Technical Justification):

- LOBO Data slideshow
- Monterey Bay National Marine Sanctuary. 2008. *Strategic Plan for Central Coast Water Quality Monitoring Coordination and Data Synthesis.*
- Monterey Bay National Marine Sanctuary. 2012. *Greater Monterey County IRWM Assessment of Water Quality Monitoring Programs and Data Gaps.*

4. Project Timing and Phasing

This project can act as a standalone project, building on and expanding upon work that has been done previously by MBARI. The LOBO probe will be deployed immediately after permitting is secured. Monitoring array management, deployment of the watershed monitoring nutrient probe, and CEDEN/SAM/Tracker data extraction and analysis will be ongoing throughout the duration of the grant period.

5. Plans and Specifications: N/A

6. Standards

The LOBO buoys and nutrient probes collect data that State agencies consider appropriate to evaluate attainment of water quality standards. The information is accurate and is measured every hour, necessary for tracking temporal pollutant loading and for reporting whether watershed projects have helped to meet water quality standards. Additionally, through the data analysis part of the project, water quality monitoring from throughout the region will be compiled and standardized so that all the work can be compared to water quality standards.

7. Performance Measures and Monitoring Plans

The capacity for this system to sample nutrient concentrations every 15 minutes will provide the data resolution necessary to quantify load reductions of agricultural, urban and watershed management practices described within the Greater Monterey County IRWM Plan, Monterey Bay Sanctuary SAM report, and other watershed plans. Expanding the array will support current monitoring efforts of IRWM Plan partners throughout the watershed that are sampling ambient loading, project success and monthly trends. Parameters measured by the LOBO include:

- Physical: temperature, depth, salinity, current profiler and turbidity
- Chemical: chromophoric dissolved organic matter (CDOM), nitrate, and dissolved oxygen
- Biological: chlorophyll fluorescence with options for additional ancillary pigments

8. Acquisition of Land or Rights-of-Way and Landowner Agreements

Landowner agreements may be required once the nutrient probe deployment sites are selected. A simple verbal or written agreement will be made if necessary at that time.

9. Permits

Permitting has been completed for the existing LOBO buoys, but the time duration may need to be extended, as well as inclusion of the third buoy. These permits are from the Moss Landing Harbor District and the Monterey Bay National Marine Sanctuary. It is possible that either the nutrient probe or the third buoy will need access permits from the County or the Monterey County Water Resources Agency.

10. Environmental Compliance

None needed for monitoring equipment deployment.

11. **Scope of Work:** Project 8. Deployment of the Greater Monterey County Regional Water Quality Monitoring Network

Task 8.1 Direct Project Administration

Task 8.1.a Administration: The project proponent will conduct all general grant administration tasks throughout the duration of the project period. All IRWM grant funds provided for project administration will be allocated to Coastal Conservation and Research Inc. (CCR), who is the fiscal agent submitting this project on behalf of CCWG as well as the lead applicant submitting the Greater Monterey County IRWM Implementation Grant application as a whole.

Task 8.1.b Labor Compliance Program: The project proponent will conduct activities necessary to meet labor compliance requirements.

Task 8.1.c Reporting: The project proponent will submit invoices and progress reports as required.

Current Status: Pending grant award.

Deliverables: Preparation of invoices as required. Submission of Labor Compliance Program requirements. Submission of quarterly and annual reports.

Task 8.2 Planning/Design/Engineering/Environmental Documentation

Task 8.2.a Permitting: Administrative amendments will be obtained for the current Moss Landing Harbor District and Monterey Bay National Marine Sanctuary permits. Access permits from the Monterey County Water Resources Agency and/or Monterey County may be necessary. Landowner agreement procurement costs are also part of this sub-task, if they are deemed necessary (this is not a separate category because landowner agreements would be required instead of access permits).

Current Status: CEQA was already determined to be unnecessary.

Deliverables: Completed applicable permits.

Task 8.3 Construction/Implementation

Task 8.3.a Deployment of LOBO Probes: Project partners will purchase the new equipment, calibrate the new and the refurbished buoys, expand the existing data telemetry system and then transport the buoys to the deployment sites and install them. The buoys will be purchased in the first quarter and deployed in the second.

Task 8.3.b LOBO Monitoring Array Management and Maintenance. The management of the array includes regular visits to each of the buoys. When necessary, LOBO maintenance will be performed. Additionally, all the data coming from the LOBOs will be collected, synthesized and analyzed. This work will be performed by a half-time staff person and a half-time student, with the oversight of a Moss Landing Marine Labs faculty member.

Task 8.3.c Watershed Monitoring Nutrient Probe Deployments: A nutrient probe will be purchased and deployed in different key spots throughout the region to help tie together on-site work with adjacent water quality improvements. Sites will be selected and the probe will be rotated between them. Data will be collected, synthesized and analyzed by the same staff person in charge of the LOBO maintenance. The data will also be uploaded to CEDEN.

Task 8.3.d CEDEN/SAM/Tracker Data Extraction and Analysis: This task involves the following:

- Contact all monitoring programs identified in the water quality monitoring program assessment (Monterey Bay National Marine Sanctuary, December 2012, attached) and ensure they have uploaded the most recent data to CEDEN.
- Download water quality data from CEDEN and follow the same methodologies as the water quality analysis conducted in 2007 by the SAM project.
- Compare results from the initial analysis to determine if there are any significant trends.

- Compare the water quality analysis and CRAM with data in the Central Coast Action Tracker to determine if there is correlation between water quality results and level of effort to implement management practices in watersheds draining to the Monterey Bay National Marine Sanctuary.

This work will be performed by a half-time staff person, working under the Monterey Bay National Marine Sanctuary Water Quality Protection Program Director.

Current Status: The LOBO manufacturer has provided initial quotes for construction of a new monitoring system and final construction details will be approved once the grant is awarded. Site selection for LOBOs is complete. Appropriate sites for the nutrient probe will be determined based on IRWM Plan project partner needs. Staff will work with technical staff at MBARI and with the LOBO manufacturer to ensure proper design of the system to meet identified data quality objectives.

Deliverables: Final design specifications for new LOBO system. Watershed data compiled and available on line. Data reports and final analysis report summarizing findings.

12. Supporting Materials

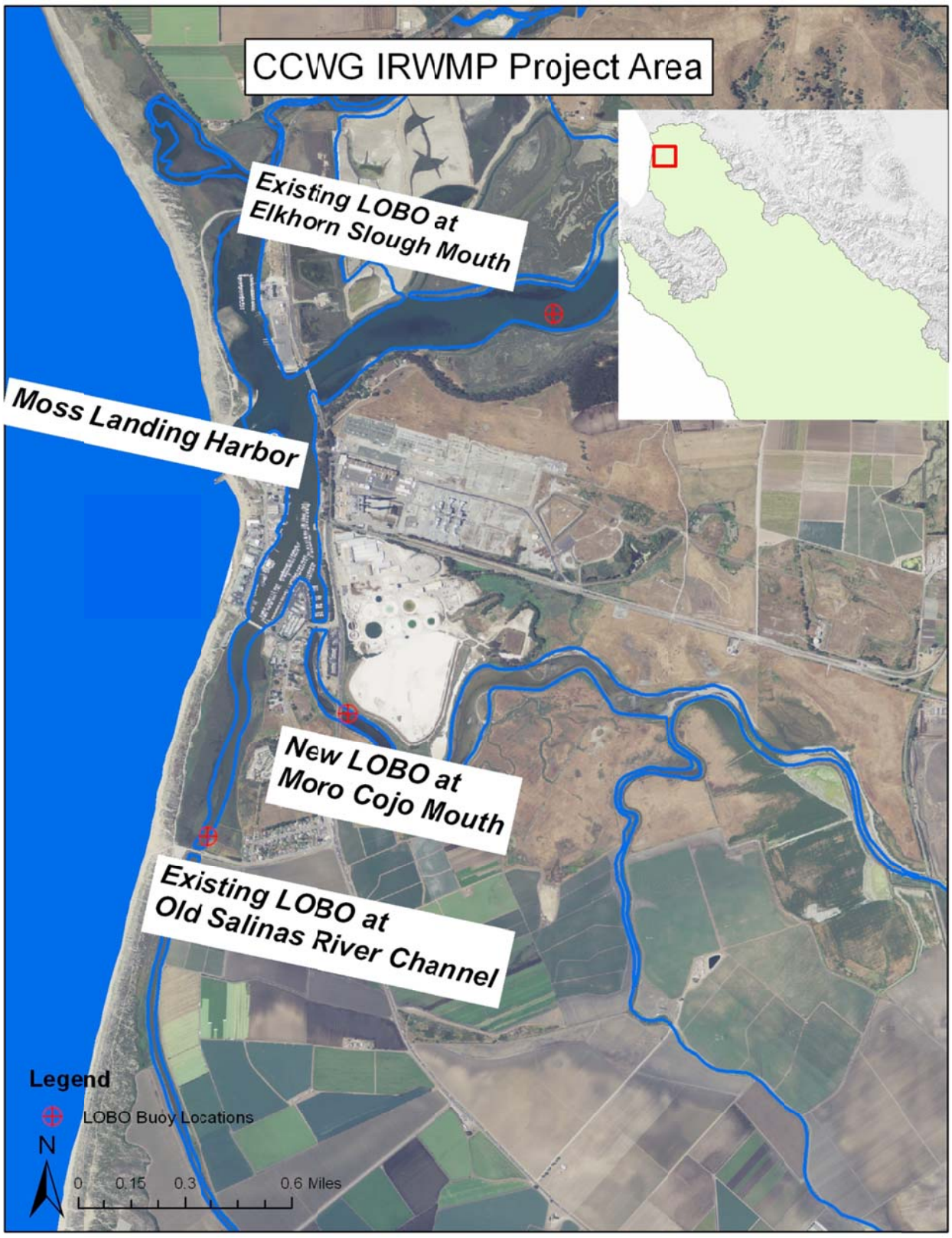
The following documents are being submitted electronically as supporting materials for this section, and can be found in Attachment 7, Technical Justification:

- LOBO Results (slide show)
- Monterey Bay National Marine Sanctuary. 2008. *Strategic Plan for Central Coast Water Quality Monitoring Coordination and Data Synthesis.*
- Monterey Bay National Marine Sanctuary. 2012. *Greater Monterey County IRWM Assessment of Water Quality Monitoring Programs and Data Gaps.*

13. Project Site Map

A site map for this project is shown on the following page.

Project 8. Deployment of the Greater Monterey County Regional Water Quality Monitoring Network: SITE MAP



Project 9. Save Our Shores: Watershed Protection Program - Annual Coastal Cleanup Day in Monterey County

1. Project Description

Save Our Shores (SOS) has been coordinating Annual Coastal Cleanup Day (ACC) in Santa Cruz since 2007. In the first two years of the program SOS grew the event from 1,929 volunteers and 42 beach sites to 3,800 volunteers and 52 beach and river sites. While SOS has been running ACC in Santa Cruz, California State Parks had been running ACC in Monterey since 2001, but no longer had the staff or resources to continue running this event after 2009. Because of the success that SOS had in expanding the event in Santa Cruz, State Parks and the Coastal Commission asked SOS to take over this responsibility in Monterey in 2010. SOS ran the program in Monterey based on best practices from Santa Cruz and increased the number of volunteers from the previous 1,400 average to over 2,000 the first year and increased the number of sites by including river cleanups through our partnership with Return of the Natives (at California State University Monterey Bay), and involving businesses through sponsorship and employee participation. We currently have 27 cleanup sites, including beaches and coastal rivers, within Monterey County.

SOS is requesting IRWM Implementation Grant funds to support three years of ACC in Monterey County. This is being proposed as an interregional IRWM project; the proposed cleanup sites include areas within both the Greater Monterey County as well as the neighboring Monterey Peninsula, Carmel Bay, and Monterey Bay IRWM region and Pajaro River Watershed IRWM region. The proposed project will help protect and enhance State and Federally listed species and their habitats in both coastal rivers and the Monterey Bay National Marine Sanctuary. The project will contribute to the region's efforts to protect and enhance habitat for steelhead through the removal of debris in coastal rivers. The project will also help improve the quality of coastal waters by removing contaminants associated with litter and other debris from coastal waterways and beaches. The proposed project will not only result in a safer, healthier coastal environment for marine life but in a cleaner, safer, and more enjoyable recreational experience for residents and tourists in the region.

Statement of Need:

Marine debris is a problem of immense proportions. In the waters off of California between our coast and Hawaii is an area of trash known as the "Great Pacific Garbage Patch." The Patch is characterized by exceptionally high concentrations of pelagic plastics, chemical sludge, and other debris that have been trapped by the currents of the North Pacific Gyre. Most of the debris consists of small plastic particles suspended at or just below the surface. The exact size of the patch is unknown, but estimates of size range from 270,000 sq mi to more than 5,800,000 sq mi (up to 8% of the size of the Pacific Ocean). Eighty percent of this trash is generated from land sources, from garbage thrown in rivers and streams and from beachgoers leaving behind trash on the beach.

The Monterey Bay National Marine Sanctuary is home to numerous unique, endangered, and threatened species and marine debris threatens the health of these animals. Marine debris injures and kills tremendous numbers of marine animals each year. Over 267 species of marine animals are known to have been killed by some form of marine debris. It has been documented that 80-90% of all trash in the ocean is plastic. Endangered turtles in the Monterey Bay can mistake plastic bags for jellyfish and die from suffocation. Many seabirds die by being hooked by fishing hooks or getting their legs cut by fishing lines. Birds and fish often ingest small plastic pieces, mistaken for food; they choke on the plastic, or their stomachs fill up with the plastic pieces and they starve because they think they are full. In addition, plastics are made of toxic chemicals that can fatally poison marine animals.

The Annual Coastal Cleanup Day event is the largest volunteer event in the state. The overall goal of ACC is to reduce marine debris in ocean waters. ACC is hosted internationally by the Ocean Conservancy, state-wide by the California Coastal Commission, and locally by SOS. For the past five years, SOS has been collecting data on the type and number of items, and the total amount of trash and recyclables, that staff and volunteers pick up at each cleanup event throughout the year. In 2012, SOS coordinated a total of 203 beach and 25 river cleanups collecting 21,707 pounds of trash and 5,256 pounds of recyclables. For ACC 2012 in Monterey County, SOS had 23 sites and collected 5,963 pounds of trash and 787 pounds of recyclables on ACC Day with the help of 1,092 volunteers. The most impacted site was Elkhorn Slough where 2,060 pounds of trash and 119 pounds of recyclables were collected. This one-day cleanup not only helps prevent ocean pollution by removing trash from local beaches and coastal rivers, but it is a highly publicized event that heightens coastal awareness and educates the public about the problem of marine debris.

SOS's proposed project is considered an important addition to the mix of projects in this IRWM Implementation Grant application as it covers geographic areas of the region that the other projects do not, namely, the coastal region (including land and marine waters), and addresses important environmental, recreational, and public education goals of the Greater Monterey County IRWM Plan. The relatively small amount of funding requested for this project will bear tremendous environmental and educational benefits, and will help maintain a healthy coastal water system for the region.

2. Completed Work

SOS has been conducting the Annual Coastal Cleanup Day event each year in Santa Cruz County since 2007 and in Monterey County since 2010.

3. Existing Data and Studies

Numerous reports and studies exist that document the hazards of marine debris for marine life. SOS collects data each year on the amount of trash removed from each project site, as noted in the Project Description above. This data is available upon request.

4. Project Timing and Phasing

This proposal can operate on a standalone basis; it is fully functional regardless of implementation of prior or subsequent projects.

5. Plans and Specifications: N/A

6. Standards: N/A

7. Performance Measures and Monitoring Plans

Performance measures and monitoring plans are discussed fully in Attachment 6, Monitoring, Assessment, and Performance Measures. Specific objectives and measurable outcomes anticipated include, briefly:

1. 20% increase in the number of sites from the previous year, including adding some river sites.
2. 2,000 volunteers recruited including site captains for each site.
3. 10,000 pounds of trash collected.

8. Acquisition of Land or Rights-of-Way and Landowner Agreements:

N/A: All of the lands we conduct cleanup events on are County property or State park beaches (including inland sites).

9. Permits

Permits will be obtained for each specific site for conducting cleanups through the County of Monterey, State Parks, and other jurisdictions as necessary.

10 Environmental Compliance: N/A

11. **Scope of Work:** Project 9. Watershed Protection Program - Annual Coastal Cleanup Day in Monterey County

Task 9.1 Direct Project Administration

Task 9.1.a General Administration and Reporting: The project proponent will conduct all general grant administration tasks throughout the duration of the project period, including activities necessary to meet labor compliance requirements and the submission of progress reports to the lead applicant as required. The lead applicant, Coastal Conservation and Research, will be responsible for administering the grant contract on behalf of the project proponents included in this grant application.

Status: Pending grant award.

Deliverables: Preparation of invoices and reports, as required.

Task 9.2 Construction/Implementation

Task 9.2.a ACC Preparation:

Logistics: The following logistical steps will take place prior to each ACC event in September.

- All new ACC Day sites will be scouted prior to the site captain training and an interactive online map will be produced to help site captains know where to set up their check-in tables and leave their garbage as well as to help volunteers find their sites. In addition, sites will be scouted that have new captains who are unfamiliar with the area.
- Trash collection will be coordinated with the local jurisdictions.
- Coordination with all jurisdictions included gaining permission and permits for all ACC Day activities.
- The SOS website will be updated to include current ACC information relevant to financial sponsorships, site captain and volunteer recruitment, online registration, the Children's Coloring Contest and school involvement.

Volunteer Recruitment:

- ACC presentations will be made to local schools to gain their participation.
- SOS will attend local events such as farmers markets or county fairs and provide ACC tabling information and display boards to help garner awareness.

- SOS will join forces with local non-profits to have their members participate.
- 750 ACC posters will be distributed around Monterey County.
- Families with children will be recruited and local sponsors recognized through the distribution of an annual children's coloring contest.
- Participants and site captains will be recruited through emails, radio PSAs, fliers, and local print media.
- Advertisements will be placed in all local newspapers.
- The Save Our Shores website will be updated to include Coastal Cleanup Day information, online registration and a map of official cleanup sites as well as cleanup results after the event.

Volunteer Training: Once all site captains have been recruited, they will attend a training which includes a video clip from Sea Studio Foundations' *Strange Days on Planet Earth*, all logistics and information for running an ACC Day site, and all cleanup materials and a special habitat sensitivity session for captains at inland river sites.

Task 9.2.b Conduct ACC: On the third Saturday in September of each year of the project period, all site captains will be at their cleanup sites to greet the volunteers who arrive at 9:00 AM. The captain provides a safety talk and explains the problem of marine debris and the reasons why the volunteers are gathered to clean up the beach or river. The captain provides bags, gloves, and data cards to the volunteers who then collect and separate trash and recycling for three hours before returning with their bags and completed data cards. Immediately after the cleanup activities, SOS compiles all of the data, and reports out to the public through the newspaper, our website, social media, blogs, and television crews also broadcast reports on the day of the event. SOS also reports to the Coastal Commission the total number of volunteers and pounds of trash collected on all sites by 2:00 PM that same day.

Current Status: Pending grant award.

Deliverables: Photos of event; data reports.

12. Supporting Materials

The following documents are being submitted electronically as supporting materials for this section, and can be found in Attachment 7, Technical Justification:

- 2012 ACC Results press release
- Monterey Weekly ad (September 13, 2012)
- Monterey Weekly Thank You ad (September 20, 2012)

13. Project Site Map

A site map for this project is shown on the following page.

Project 9. Annual Coastal Cleanup Day in Monterey County: SITE MAP

The ACC events over the three-year project period will cover approximately 23 sites in Monterey County, including sites in the neighboring Pajaro River Watershed IRWM region and Monterey Peninsula, Carmel Bay, and South Monterey Bay IRWM region.