

# Merced Integrated Regional Water Management Implementation Grant Proposal

## *Attachment 3: Work Plan*



Attachment 3 consists of the following items:

✓ **Introduction**

This section provides an overview of the proposal and background on the Merced Region. It also includes a discussion of the goals and objectives of the proposal; a discussion of the purpose and need of the proposal; a project list including an abstract of each project, the implementing agency and the current status of the project in terms of percent completion of design; a description of linkages between projects; a regional map; a description of work that has been completed; and a listing of data that support the project site location, feasibility and technical methods to ensure implementation of the proposal is based on sound scientific and technical principles.

✓ **Proposed Work**

This section provides a detailed description of the proposed implementation project(s) for which funding will be requested, a description of work that is expected to be completed prior to the grant award date, project site maps, project timing and phasing, elements of the project the IRWM Grant is proposed to fund, and linkages to any other projects that must be completed first or that are essential to obtain the full benefits of the proposal and task descriptions. The Work Plan tasks are consistent with the major tasks and sub-tasks identified in the Budget (Attachment 4) and Schedule (Attachment 5) of this Implementation Grant Proposal.

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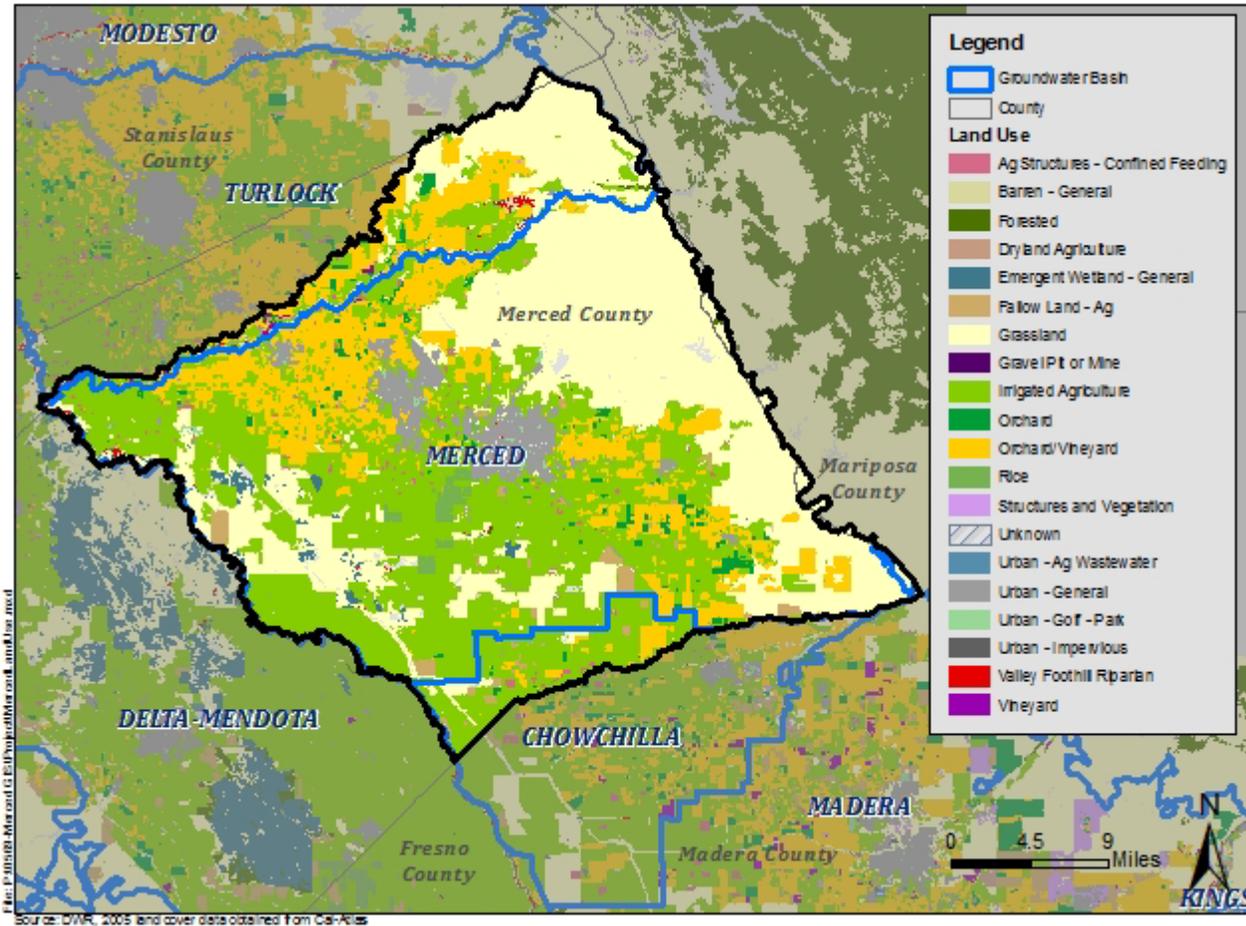
## Introduction

The Merced Integrated Regional Water Management (IRWM) Region encompasses the northeast portion of Merced County, as shown in Figure 3-1. Its boundaries are defined by the eastern boundary of the Merced Groundwater Subbasin to the east, the San Joaquin River to the west, the northern boundary of the Dry Creek watershed to the north, and the Chowchilla River to the south. The eastern and western boundaries of the Merced Region are critical hydrogeologic features that distinguish the region from neighboring regions, and these distinctive boundaries were recognized by the Department of Water Resources (DWR) through the Region Acceptance Process (RAP). The crystalline basement rock that defines the region's eastern boundary divides the groundwater/alluvial basin of the Merced Region from the fluvial and fractured rock systems of the mountainous watersheds of Tuolumne, Mariposa and Madera. On the west, the San Joaquin River marks the boundary between Merced Subbasin and the Delta-Mendota Subbasin and is also the dividing line between the Merced Region and Westside San Joaquin Region.

Beyond having distinctly different groundwater basins, the Merced Region has different water management and land use patterns than the Westside San Joaquin Region, including the Merced Region's lack of reliance on imported sources of water. Additionally, while areas both east and west of the San Joaquin River are dominated by the agricultural industry of the Central Valley, the agricultural economy of the Merced Region is typified by small-scale multi-generational family farming operations, in contrast to the large-scale commercial agricultural operations common in areas west of the San Joaquin River.



Figure 3-1: Merced Region



The Merced Region plays a vital part in the future of California and the nation. As illustrated in Figure 3-2, the Merced River is one of three eastside tributaries that contribute the majority of flow to the Lower San Joaquin River upstream of Vernalis, and as such, the Merced River plays a vital role in protecting water supply and quality in the Delta, a critical water supply source for two-thirds of Californians. Due to its role as a major upstream tributary to the Delta, the Merced River is a critical component of the Delta system, and water management activities implemented in the Merced Region have the potential to provide significant benefits to the Delta.



**Figure 3-2: Merced Region: A Critical Component of the Delta System**



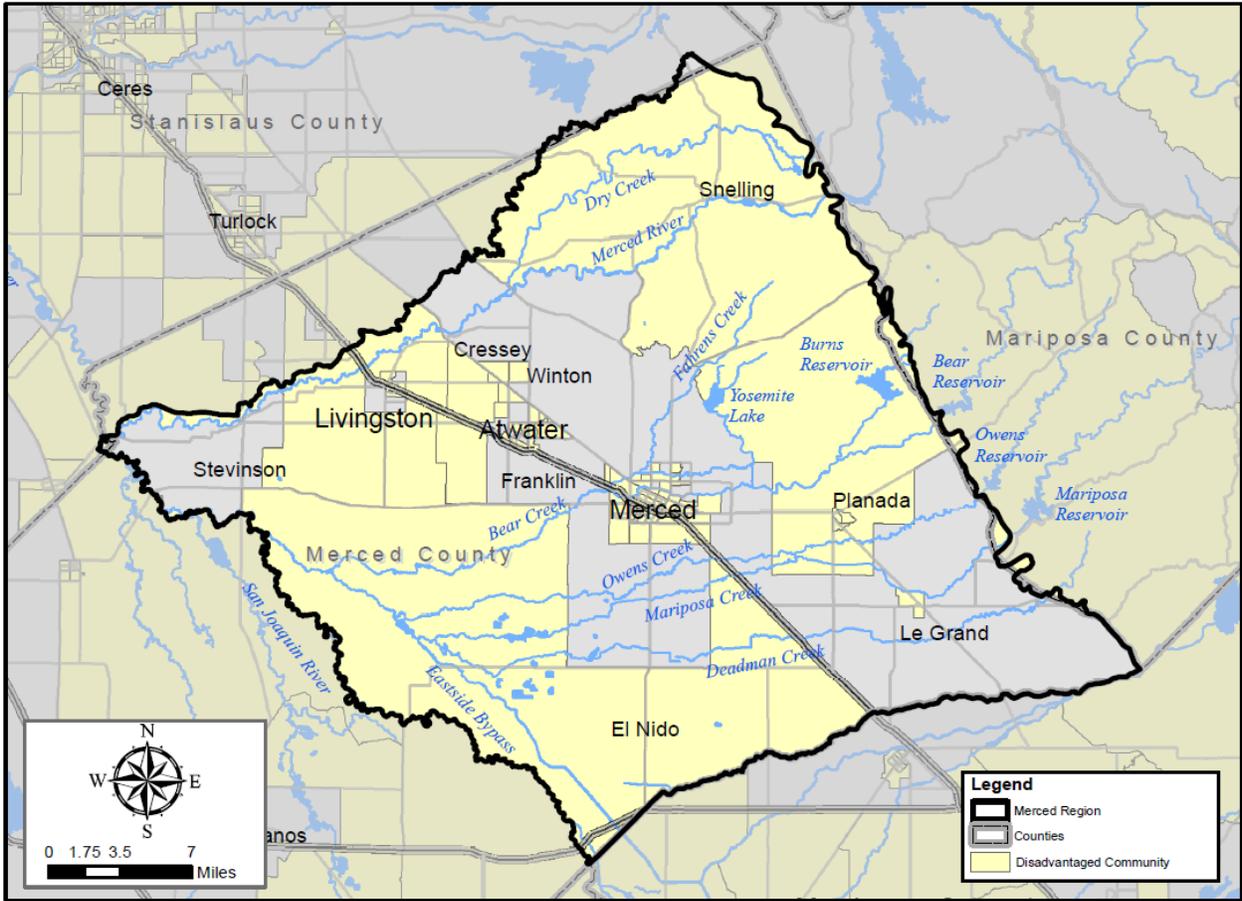
Unlike its neighboring regions, the Merced Region is marked by an extensive network of creeks. Managing the numerous creeks and channels that traverse the basin poses a significant challenge for the region, and flooding – and associated water quality impacts – are a major issue facing the region. Because each of these creeks ultimately drains to the Lower San Joaquin River upstream of the Delta, this flooding has implications for Delta water quality. Furthermore, Merced is part of the agricultural economic engine of the Central Valley, which not only supports California but accounts for the majority of agricultural production in the United States. The value of agricultural production in Merced County is approximately \$1.5 billion annually<sup>1</sup>; much of which is sustained by irrigation. As noted in the California Water Plan Update 2009, California agriculture is resource-dependent; it depends on land, water, and labor. Protecting the land, water resources, and communities of Merced supports the continued agricultural productivity of the region, which in turn supports the economy of the State.

<sup>1</sup> Statistic taken from the Merced Integrated Regional Water Management Plan Region Acceptance Process Application (April 2009)



While a vital part of State economy, the Merced Region ironically falls within one of the most economically depressed areas of the California. With a 2011 median household income of \$40,055 and unemployment rate of 17.6%, Merced County has the fourth lowest MHI and fourth highest unemployment rate among California counties. Moreover, with 27.4% of the Merced County population below the poverty level, the county has the highest poverty rate of any county in California<sup>2</sup>. The Merced Region includes the incorporated cities of Atwater, Livingston, and Merced, and the unincorporated communities of Cressey, El Nido, Franklin/Beachwood, Le Grand, Planada, Snelling, Stevinson and Winton. All of these communities (with the exception of Cressey, Stevinson and Franklin) have a median household income (MHI) of less than 80% of the statewide MHI, thus meeting the State’s definition of a disadvantaged community (DAC). As such, the majority of the Merced Region is considered a DAC. Additional information regarding the Merced Region’s status as a DAC is discussed in Attachment 10.

**Figure 3-3: Disadvantaged Communities**



<sup>2</sup> Statistics based on the latest American Community Survey 1-Year Estimates (2011).



With the challenging economic conditions in the region, and the strongly water-dependent agricultural economy, water issues are well-understood and a high priority for the Region. Water resources stakeholders in the Merced Region are committed to identifying for opportunities to collaborate to improve water management in the Region. This commitment to collaborative water resources planning is evidenced by the Region's history of successful cooperative water management planning. Since 1997, the Merced Area Groundwater Pool Interests (MAGPI), which lies wholly within the Merced Region, has been meeting to develop technical data and management strategies to improve the health of the groundwater basin, which is currently in overdraft. MAGPI members and non-member interest groups include most of the agencies with water supply, water quality and water management authority in the region, but the focus of MAGPI is on management of the groundwater basin. In 2008, MAGPI established a subcommittee to encourage cooperative planning among additional aspects of water resources management beyond groundwater management and to lay the groundwork for development of the region's first IRWM Plan. MAGPI completed the Merced RAP application in April 2009 and subsequently secured a DWR IRWM Planning Grant in February 2012 to develop the first Merced IRWM Plan (MIRWMP).

In 2012, MAGPI transferred responsibility for development of the MIRWMP to the Merced Work Plan Management Committee (WPMC), which is comprised of the City of Merced, County of Merced, and Merced Irrigation District (MID). The WPMC serves as the interim Regional Water Management Group (RWMG) during this first Merced IRWM planning process, and each of its members has committed to continue support the MIRWMP as a member of the RWMG following adoption of the plan.

The Merced IRWM process has been a strongly stakeholder-driven process. The RWMG is advised by a Regional Advisory Committee (RAC) that represents the broad interests of the Merced Region and shapes the direction of the IRWM program. The RAC was formed in May 2012 following an application process. All parties that applied for inclusion on the RAC were accepted as either a full member or alternate and officially appointed by the MID Board of Directors, in consultation with the City of Merced and County of Merced. The RAC currently consists of 23 members and 16 alternates representing broad interests and perspectives in the region, including:

- Water Supply Interests
- Wastewater Interests
- Stormwater Interests
- Flood Control Interests
- Local Government
- Agricultural Interests
- Other Business Interests (non-agriculture)
- Environmental Interests
- Other Institutional Interests (e.g. UC Merced)
- Disadvantaged Community and Environmental Justice Interests
- Recreational Interests
- Community / Neighborhood Interests



The RAC has met monthly since May 2012 to discuss regional water management issues and identify regional water management needs, goals and objectives, plans and projects, and future funding and governance. RAC meetings are all publicly noticed and are frequently attended by members of the general public as well as the DWR regional service representative. This broad-based involvement by regional stakeholder has led to balanced input that reflects the wide array of water resources management perspectives throughout the region.

Beyond inviting the public to attend RAC meetings, the RWMG and RAC have conducted targeted outreach and involvement activities to inform community members and solicit input. To date, the RWMG has held five technical workshops focused on specific water resources management issues as well as three public workshops, which have been hosted by different agencies throughout the region. The RWMG has also retained a consultant to assist with outreach to some of the most disadvantaged DACs in the region.

The Merced RWMG and RAC have made significant progress towards completion and adoption of the first MIRWMP. Adoption of the MIRWMP by the RWMG and all the project proponents included in this proposal will occur before the anticipated contract execution date of October 1, 2013. As indicated in Attachment 2, the majority of the Plan Standards have been addressed in Draft Technical Memoranda, which are designed to serve as chapters of the MIRWMP. Adoption of the MIRWMP is expected to occur in September 2013.

This Work Plan contains descriptions of all the projects constituting the *Merced Integrated Regional Water Management (IRWM) Implementation Grant Proposal* and tasks necessary to complete each project in the proposal. The Work Plan demonstrates that the proposal, which consists of four projects with a total grant request of \$3,190,335, is ready for implementation. Four projects have been included in this proposal:

- Black Rascal Flood Control Project
- Planada Community Services District Water Conservation Project
- El Nido Area Recharge Project
- Merced River Education and Enhancement Program

These projects were selected due to their ability to:

- Address the highest priority objectives of the Merced Region
- Distribute benefits throughout the region
- Address critical disadvantaged community (DAC) needs

**Figure 3-4: Public Workshops:** The RWMG and RAC have coordinated with different agencies throughout the Merced Region to host public workshops. The workshop pictured here was held in the DAC of Planada.

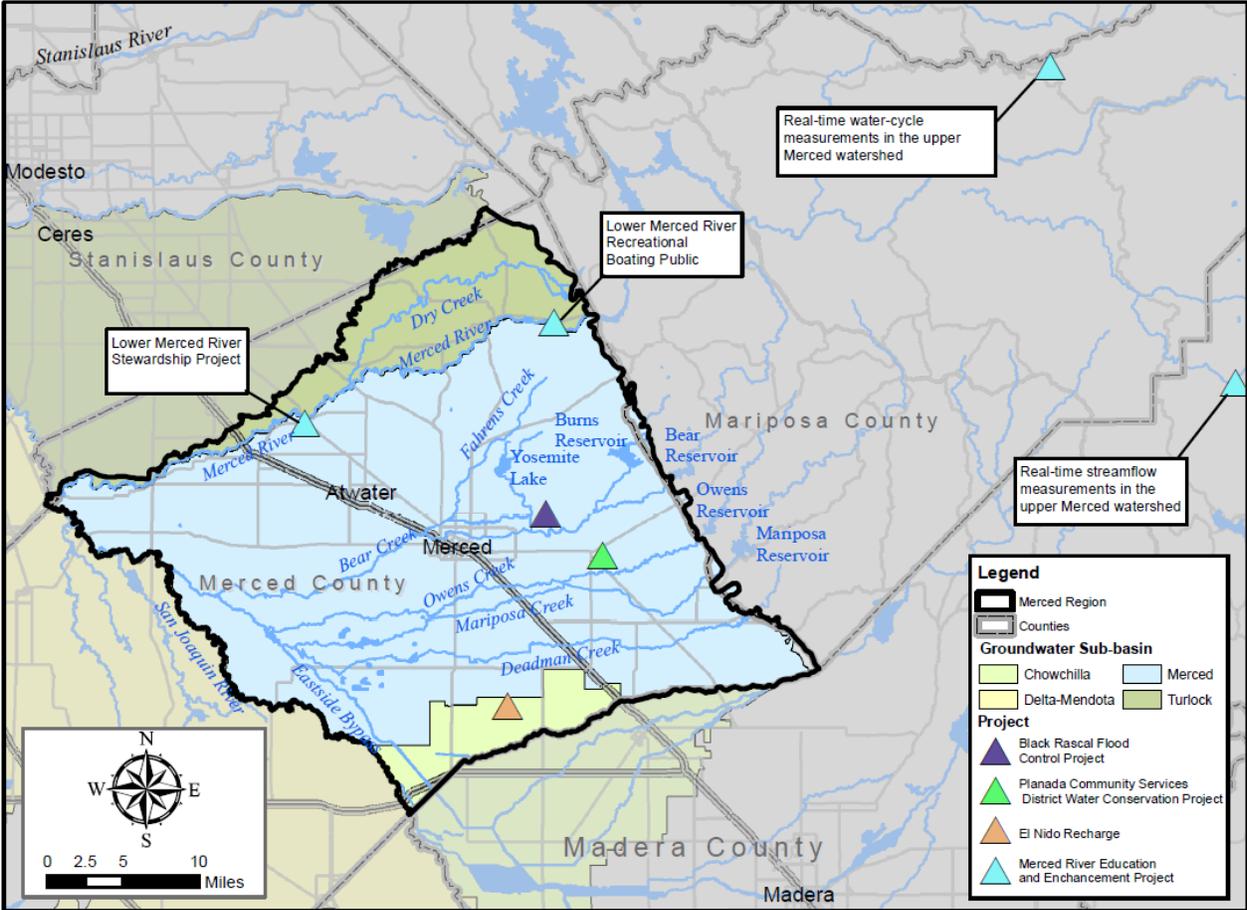




Together, these projects will address the highest priority water-related issues and needs of the Merced Region, will build upon work completed previously, and will provide capacity building benefits for future project development. These projects are broadly supported by regional stakeholders due to their importance in addressing significant water management challenges facing the region.

The proposed projects are shown on the regional map (Figure 3-5).

**Figure 3-5: Project Locations in Relation to Regional Water Resources**





## Goals and Objectives

The theme, or goal, of this proposal is to:

***Address the highest priority objectives of the MIRWMP while distributing benefits to DACs throughout the region and maximizing statewide benefits.***

As indicated by the proposal theme statement, this proposal includes four main objectives:

- *Address the objectives of the MIRWMP with an emphasis on the highest priority objectives.* The RAC identified three objectives as highest priority for the Merced IRWM Region. The proposed projects were selected for their ability to contribute to addressing the region's three highest priority objectives. The objectives of the MIRWMP and a discussion of how the proposed projects address the objectives are presented in the following Purpose and Need section.
- *Ensure an equitable distribution of benefits throughout the Merced Region.* The proposed projects will provide distributed benefits throughout the Merced Region, as illustrated on the Regional Map (following the Project List). As shown on the map of project locations in relation to regional water resources, each of the major watersheds in the region – Merced River, Bear Creek and Owens/Mariposa – are addressed by projects within this proposal. The Merced River Outreach and Education Project covers the Merced River watershed, the Black Rascal Flood Control Project is targeted to the Bear Creek watershed, and the El Nido Area Recharge Project addresses the Owens/Mariposa watershed. The map of project locations with respect to DACs illustrates the regional distribution of projects from the perspective of their benefit to the different communities throughout the Merced Region.
- *Address DAC needs.* DAC needs are addressed at both a regional and local level. As indicated in the Introduction, the majority of the Merced Region is a DAC, and for that reason almost any project implemented within the region and every project with a regional benefit would provide a benefit to a DAC. However, each of the projects in this proposal is designed to address a specific, targeted water supply or water quality need of a DAC. To more completely meet the objective of addressing DAC needs, the project proponents worked to ensure that each of the projects in the proposal includes benefits targeted to specific DACs. The Black Rascal Flood Control Project provides targeted water quality benefits by addressing flooding that impacts the City of Merced and the unincorporated community of Franklin/Beachwood<sup>3</sup>. The Planada Community Services District Water Conservation Project is targeted to addressing a critical water supply need of the community of Planada, which the Merced Region classifies as among its most disadvantaged DACs. The El Nido Area Recharge Project provides much-needed water supply benefits by enhancing groundwater recharge in the disadvantaged, unincorporated community of El Nido. The Merced River Outreach and Education Project incorporates elements designed to improve water resource education and management for the City of Livingston and the unincorporated community of Snelling.
- *Provide statewide benefits.* As previously discussed, management of resources within the Merced Region have statewide implications due to the region's vital connection to the Delta and its contribution to the state's agricultural economy. Improvements made to the Merced River watershed from implementation of the Merced River Education and Enhancement Program will

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<sup>3</sup> The Merced Region considers both Merced and Franklin/Beachwood to be DACs. However, based on the State's definition, only Merced is considered a DAC, so for the purposes of this proposal, only Merced is counted as a DAC.



provide direct water supply, water quality and environmental benefits to the San Joaquin River and the Delta by improving understanding of the upper Merced River watershed's vulnerability to climate change and enhancing scientists' ability to accurately predict annual flows available to the Delta from the Merced River; improving the quality of flows to the Delta through outreach to farmers and landowners in the Merced Region who currently contribute to the 303(d) listing of the Merced River; and stopping the spread of invasive species that also plague the Delta (e.g. water hyacinth). Implementing flood control on Black Rascal Creek will reduce flooding and associated degraded quality flood waters from ultimately being conveyed to the San Joaquin River upstream of the Delta. Improved groundwater recharge in El Nido and water conservation in Planada will reduce groundwater overdraft conditions which currently constitute a driving force for subsurface flows from the San Joaquin River eastward. As such, each project included this proposal provides significant, tangible statewide benefits. Attachment 9 provides information on how the proposal aligns with the IRWM Grant Program Preferences, including addressing Statewide Priorities.

## Purpose and Need

The purpose of this proposal is to address the highest priority objectives of the MIRWMP while distributing benefits to DACs throughout the region and providing maximizing statewide benefits. To this end, the Region is proposing four projects for funding to improve local, regional and statewide water management. Given the economic conditions of the Merced Region, project financing is a major obstacle for implementation of projects. Grant funding would provide a much-needed boost to move projects forward.

### Project List

The table below provides an abstract of each of the projects included in this proposal and identifies the implementing agencies and current status. Engineering reports and design drawings, where applicable, are included as appendices to this attachment.



**Table 3-1: Project List**

Project	Implementing Agency	Abstract	% Design Complete
Black Rascal Flood Control Project	County of Merced	The proposed project will identify a preferred approach to providing flood protection to the disadvantaged communities of the City of Merced and Franklin/Beachwood during a 200-year storm event on the Black Rascal Watershed. Additional benefits of the ultimate project may include habitat enhancements through creation of a deadpool in the reservoir and water supply reliability improvements by allowing the Merced Irrigation District to regulate flows through the reservoir during the irrigation season. The grant request includes environmental documentation and preliminary design of the project.	Feasibility Study has been completed.
Planada Community Services District Water Conservation Project	Planada Community Services District <sup>4</sup>	The proposed project will benefit the disadvantaged community of Planada by 1) replacing a dilapidated section of pipe, which is prone to leaks and undersized, 2) building upon work completed through a Proposition 50 water use efficiency grant to complete water meter installation, and, and 3) replacing an existing standby generator. The project will ensure consistent water delivery to residents of the DAC community of Planada. Additionally, completion of the community's water meter installation will facilitate a shift from the District's current flat rate charge to a volumetric charge. Through the use of water meters and the ability for the District to locate water leaks in real time, it is estimated there will be at least a 20% water savings compared to current usage. The grant request is to complete design and construct the project.	Conceptual design (10% design) has been completed with the October 2012 Preliminary Engineering Report.
El Nido Area Recharge Project	Merced Irrigation District	The proposed project will maximize the use of El Nido's existing surface water rights on Mariposa Creek to replenish the overdrafted Merced groundwater basin. The project will 1) construct a new automated diversion structure on Mariposa Creek and monitoring equipment within the El Nido area, and 2) use monitoring data to evaluate potential re-design or expansion of an existing groundwater recharge pond in El Nido. Additional benefits provided by the project include reduction of downstream flood flows and associated flooding of Hwy 59. The grant request is for design through construction.	Conceptual design (10% design) is underway.

<sup>4</sup> Planada Community Services District is not an urban water supplier as that term is understood pursuant to the provisions of Section 529.5 of the Water Code, as it delivers water to less than 3,000 customers and supplies less than 3,000 AFY of supply annually.



Project	Implementing Agency	Abstract	% Design Complete
Merced River Education and Enhancement Program		This program integrates a series of small, related initiatives to provide holistic, watershed-based benefits to the Merced River watershed. Individual project components will be implemented by local agencies as follows.	
	East Merced Resource Conservation District	<b>Component 1: Lower Merced River Stewardship:</b> This task includes a community awareness and education project that will implement restoration activities, education efforts, community capacity building, agricultural stewardship measures, and improved recreational opportunities. The proposed project has 6 major tasks: 1) Landowner Outreach and Education, including demonstration-level restoration, 2) School Education, 3) Community Outreach Programs, 4) Agricultural Workshops, 5) Streamlined Permitting Workgroup, and 6) Life Jacket Loan and Training Program. The grant request is for implementation of each of the major tasks.	Not applicable. This is not an infrastructure project and does not require design.  The project is ready for implementation upon funding.
	UC Merced	<b>Component 2: Merced Region Climate Change Awareness:</b> This task provides integrated climate change adaptation and awareness through three interrelated subtasks: 1) Real-time streamflow measurements in the upper Merced watershed, 2) Real-time water-cycle measurements in the upper Merced watershed accomplished by improving the Sierra Nevada snow sensor network, and 3) Climate change education focusing on the climate-water nexus. The real-time monitoring will improve the physical understanding of hydrologic pathways such that uncertainties in water yield and timing are minimized given measurable landscape components. The project will benefit all water managers with an interest in the Merced River watershed including DWR by considering the impacts of climate variability and change in the upper basin on water supply in the Merced River watershed. The grant request is for final design and construction of the monitoring sites and climate change research and education activities.	Overall this component has completed 60% Design  The real-time streamflow measurements component is at 60% Design as demonstrated by the August 2011 Big Sandy Measuring Weir Design and Construction Report, which includes weir design drawings.  The real-time water-cycle measurements are at the equivalent of 100% Design.
Merced Irrigation District	<b>Component 3: Lower Merced River Recreational Boating Public Access:</b> This task will construct a public access point for safe boat launching on the Merced River. The project will include a non-motorized launch ramp, vehicle access and parking near the river's edge, a restroom facility, trash containers and interpretive/educational panels	Conceptual design (10% design) has been completed with the 2013 Conceptual Design Report.	



Additional detail on each proposed project is provided below.

## Black Rascal Flood Control Project

The proposed Black Rascal Flood Control Project would protect DACs in the Merced Region from chronic flooding issues that have plagued the region for decades by allowing a much-needed project that has been stalled in the planning phase since the 1970s to progress from an array of potential alternatives to a specific design.

In 1944, the Merced County Streams Group project was authorized by Congress as part of the Flood Control Act of 1944. In 1970, the United States Army Corps of Engineers (USACE) updated the Merced County Streams Groups project to include a dam on Black Rascal Creek; this project was known as Haystack Dam. Later, due to environmental concerns, the USACE placed the Haystack Dam under general re-evaluation, where federal plans for flood control on the Black Rascal watershed remain today. Following decades of federal inactivity, the County of Merced, in conjunction with the City of Merced and MID, opted to evaluate the effectiveness of alternative detention basin flood control projects to reduce 100-year flood flows from Black Rascal Creek. To this end, the three partners jointly completed the *Feasibility Study, Black Rascal Creek Flood Control* in June 2008. This feasibility was amended in February 2009 to respond to flood legislation passed in 2007, which established a 200-year level of flood protection as the standard for urban development.

**Figure 3-6: Flooding from Black Rascal Creek in 2006:** The Black Rascal Flood Control Project is needed to pave the way for construction of a project to prevent future flooding of these communities and agricultural lands





The purpose of the Black Rascal Flood Control Project is to complete the environmental documentation for alternatives identified in the 2008 Feasibility Study and to begin design of the preferred alternative. This work will bring the region one step closer to providing 200-year flood protection for communities that are currently unprotected, including the DAC of Merced. This project will address a critical water quality need for the City of Merced by preventing contact with degraded flood waters resulting from chronic flooding. In addition, the project will provide benefits to the Delta by preventing degraded floodwaters from reaching the San Joaquin River upstream of the Delta.

The Black Rascal Flood Control Project is needed to identify the preferred location for a detention basin to manage flood flows which have historically impacted the habitability of dwellings and the productivity of agricultural lands. This recurring flooding is a critical water quality concern for the DAC of Merced and the community of Franklin/Beachwood. Depending upon the selected alternative, the detention basin could also be designed to serve as a regulating reservoir during MID's irrigation season to improve water supply reliability in the region and include a dead pool to provide environmental and recreational enhancements.

## Planada Community Services District Water Conservation Project

The Planada Community Services District Water Conservation Project will complete design and construction of water distribution system improvements identified in the *Planada Water Conservation Project Preliminary Engineering Report*.

The purpose of the project is to rehabilitate a substandard section of the DAC's water distribution system, complete metering of the community's water services, and replace an old, unreliable standby generator at the District's Well 5.

This project is needed to ensure that residents receive consistent access to water, reduce the potential for backflow contamination, provide required fire flows, and improve water use efficiency. As such, it addresses a critical water supply need of Planada, a disadvantaged community. Additionally, it will assist the district with regulatory compliance, including meeting Title 22 waterworks standards, AB2572 water meter requirements, and San Joaquin Valley Air Pollution Control District emission standards.



**Figure 3-7: Inadequate Water Infrastructure:** The Planada Community Services District Water Conservation Project Area will rehabilitate a substandard section of Planada's water distribution system, enhancing fire protection for the community



By reducing the demand on the overdrafted Merced Basin, this water conservation project will also reduce potential for local water quality degradation. Groundwater overdraft can create a gradient that draws contaminants from adjacent areas into the pumping sphere of influence, and for Planada this is a real concern as neighboring communities have found traces of trichloropropane in their groundwater. Planada Community Services District has tested its groundwater wells for this contaminant and obtained non-detect results for all locations that were test. Reduced groundwater pumping that will result from this water conservation project will reduce the potential for contaminants in neighboring areas to migrant to Planada. In addition, by reducing the gradient, the project will reduce subsurface flows from the San Joaquin River, providing benefits to the Delta.

## El Nido Area Recharge Project

The El Nido Area Recharge Project is a project that was identified as part of the Merced IRWM planning process. MID has a history of successful recharge efforts within El Nido. In 2012, the Merced Region completed the draft Groundwater Recharge Feasibility Study as part of the Merced IRWM Plan. This study further confirmed El Nido as one of the few preferred groundwater recharge areas within the region, based on a series of parameters including land use, hydrologic soil groups, slope, texture of subsurface materials, presence and thickness of the Corcoran Clay, depth to groundwater, and groundwater flow direction. This project includes design and construction of facilities to enhance utilization of existing water rights for recharge in the El Nido area, as well as implementation of groundwater monitoring to add to the region's understanding of local groundwater conditions.

The project includes two main tasks: 1) installing automated gates that will divert water from Mariposa Creek to El Nido, where the water can be applied on agricultural lands for in lieu groundwater recharge or recharged within an existing 21-acre recharge pond, and 2) constructing monitoring wells to enhance regional understanding of recharge efficiencies and groundwater movement.



**Figure 3-8: El Nido Dam:** The El Nido Area Recharge Project will upgrade an existing diversion structure on Mariposa Creek to maximize the use of existing surface water licenses held by MID for use in El Nido



MID holds two existing licenses from the State Water Resources Control Board (SWRCB) for diversion of flows from Mariposa Creek between the months of November and April for recharge in the El Nido area. Currently, MID is unable to make use of these rights in advance of the irrigation season because the existing diversion infrastructure, which requires manual and on-site operation, makes it difficult and dangerous to release impounded flows in emergency situations. By replacing the existing structure with an automated structure, MID can safely divert flows to the existing El Nido recharge basin, maximizing use of existing water rights and replenishing groundwater in a DAC area. Groundwater recharge is necessary to address existing groundwater overdraft conditions throughout the Merced groundwater subbasin, and especially in the southwestern part of the Merced groundwater subbasin. The project is located east of a major cone of depression east of Chowchilla, where subsidence has been recorded at a rate of 0.1 Ft per year. Groundwater in this area flows from east to west, so it is anticipated that enhanced recharge in the El Nido area, in addition to providing a local water supply benefit to a DAC, is also expected to provide regional benefits by contributing to a reduction in subsidence and halting or even reversing the increasing depth to groundwater and increasing pumping costs for farmers in the area. Beyond affecting agricultural productivity of the area, decreasing groundwater availability threatens the only source of drinking water for the DAC of El Nido area.

In addition, by diverting high flows for recharge in El Nido, the project will decrease chronic flooding of Highway 59 and enhance an existing wetland area adjacent to the El Nido recharge pond.

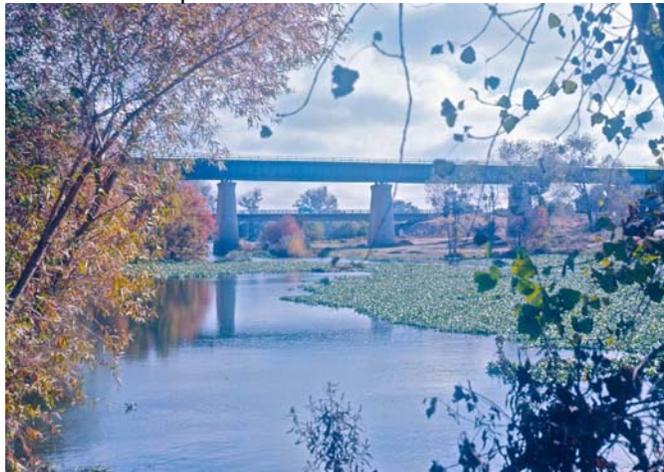


## Merced River Education and Enhancement Program

The Merced River Education and Enhancement Program is a holistic, watershed-based program that was formed through the Merced IRWM planning process. This program includes a series of smaller-scale projects that, together, can achieve a greater benefit. The resulting Merced River Education and Enhancement Program is a multi-purpose, multi-benefit program focused primarily on the Merced River watershed. The program is divided into three related components: Lower Merced River Stewardship, Merced Region Climate Change Awareness and Lower Merced River Recreational Boating Public Access. Together these components constitute a program that will significantly improve coordination among water resource stakeholders at the local, regional, and statewide levels and will implement community capacity-building activities that educate and empower the general public to become active stakeholders in local and regional water management as well as to enjoy the Merced Region’s water resources. Each component is described below.

Component 1: Lower Merced River Stewardship: This component will raise community awareness of the Merced River and empower community members to take action to improve individual stewardship. The project will build a volunteer network through education and outreach to schools, agricultural interests and the general public; help restore sections of the Merced River that are currently considered “at-risk” due to invasive species and extensive bank erosion; extend knowledge of stewardship practices to farmers, ranchers and landowner/managers along the River; enhance recreational opportunities and the safety of recreation on the river; and lay the foundation for a streamlined permitting process for implementation of best management practices. The Lower Merced River Stewardship task is the anchor that integrates the three tasks of the Merced River Education and Enhancement Program. East Merced Resource Conservation District (EMRCD), the project proponent for the stewardship component of the overall program, will work with UC Merced (project proponent for the Merced Region Climate Change Awareness task) to incorporate the results of the UC research into its community forums, agricultural workshops and school education program. EMRCD will also work with MID (project proponent for the Lower Merced River Recreational Boating Public Access task and overall lead for the Merced River Education and Enhancement Program) to enhance river recreational safety through a life jacket loan program and workshops on boating safety.

**Figure 3-9: Water Hyacinth on the Merced River:** This is an example of the type of area that will be addressed by the Lower Merced River Stewardship, which is a component of the Merced River Education





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Component 2: Merced Region Climate Change Awareness: The Merced Region Climate Change Awareness component integrates three initiatives: 1) real-time streamflow measurements in the upper Merced watershed, 2) real-time water-cycle measurements in the upper Merced watershed, and 3) climate change education. Together these projects will improve agencies' understanding of the vulnerability of the surface water supplies from the Sierra Nevada range to climate change and how the public understands and responds to climate change messaging. The purpose of the two real-time measurement research components is to improve information on streamflow timing and magnitude and snow accumulation, to enable accurate estimation of melt water storage and flux through soils, evapotranspiration, and streamflow – addressing both seasonal to interannual variability and climate warming. The data that will be provided through implementation of these real-time measurements will provide an important data set to support predictive and analytical modeling. The climate change education research will develop best practices for communicating climate information, based on an assessment of the demand and need for climate information in the Merced area. The focus will be on the climate-water nexus, with explicit consideration of the impacts of climate variability and change in the upper basin on water supply in the Merced Irrigation District service area.

Component 3: Lower Merced River Recreation and Boating Public Access: The Lower Merced River Recreation and Boating Public Access task will design and construct improvements for a non-motorized boating launch point below Crocker Huffman Diversion Dam. The Lower Merced River between Crocker Huffman Diversion Dam and Henderson Park provides many recreational opportunities, including fishing, river boating, floating, wildlife viewing, swimming and other water-play activities. However, public access along this segment of the river is very limited due to extensive private lands along both shorelines. The proposed project would provide public, no-cost access improvements, including a non-motorized launch ramp, vehicle access and parking near the river's edge, a restroom facility, trash containers and interpretive/educational panels. It will significantly enhance the access for river boaters looking to take advantage of the Class I-II whitewater and help to minimize concerns with the unmanaged user access of the river.

Enhanced knowledge and understanding of water management issues among residents in the region will provide significant benefits to water supply and water quality. In general, students and community members currently have limited knowledge of the potential impacts, either positive or negative, on the river or the vulnerabilities of the Merced Region to climate change. The Merced River is 303(d) listed for a variety of parameters including chlorpyrifos, diazinon, and Group A pesticides. Farms, ranches, dairies and rural residential properties along the river and its tributaries contribute to its impairment. Landowners have difficulty permitting environmental, non-economic projects. Populations of invasive weeds, such as giant reed (also known as Arundo), star thistle, and water hyacinth are spreading, while native plants are being displaced. Education on safe and responsible river recreation is needed to avoid repeats of the near-fatal and fatal accidents that have occurred on the river in recent years.



**Figure 3-10: Volunteers along the Merced River:** One purpose of the Merced River Education and Enhancement Project is to increase the public's awareness and sense of connection to the region's water resources



In a region where raising funds for critical DAC water supply and water quality needs is already a challenge, finding local funds for efforts which do not provide new water or a measurable improvement to water supply reliability or water quality is particularly challenging. However, the stakeholder coordination and capacity building aspects of this program are especially important in light of the region's status as a DAC. In the Merced Region, where economic resources are tight, improvements can still be made by removing other obstacles that inhibit community members from adopting more sustainable practices. Education is a critical component of understanding and removing these obstacles. Through the work accomplished thus far through the IRWM Planning Grant, the Merced Region has demonstrated the tremendous strides that concerned and active stakeholders can make with financial support. The educational components of the project include forums, workshops, and research that will bring together agencies and community organizations to cooperatively plan and share resources and identify ways to best educate communities on water management issues. The outreach efforts conducted by grassroots organizations that participate in the Merced River Education and Enhancement program will provide a more personal approach to involving local community members than is possible through the regional nature of the Merced RAC meetings and public workshops.

### Proposal Relation to MIRWMP Objectives

Each of the proposed projects addresses multiple objectives of the MIRWMP as shown in Table 3-2. The twelve objectives listed in the table were established by the RWMG and RAC through a series of facilitated public workshops and meetings. The distinction between highest priority objectives and high priority objectives was made by the RAC in order to identify core issues that all interests groups in the region could agree upon. While the highest priority objectives are considered more important to the Merced Region than the other high priority objectives, all objectives listed were identified as being high priority objectives for the Region.



**Table 3-2: MIRWMP Objectives Addresses by Proposal**

Objective	Black Rascal Flood Control Project	Planada CSD Water Conservation Project	EI Nido Area Recharge Project	Merced River Education and Enhancement Program
<b>Highest Priority Objectives</b>				
A. Manage flood flows for public safety, water supply, recharge, and natural resource management	●	-	○	○
B. Meet demands for all uses, including agriculture, urban, and environmental resource needs.	○	●	●	○
C. Correct groundwater overdraft conditions.	●	●	●	○
<b>High Priority Objectives</b>				
D. Improve coordination of land use and water resources planning.	●	○	-	○
E. Maximize water use efficiency.	○	●	○	○
F. Protect and improve water quality for all beneficial uses, consistent with the Basin Plan.	●	○	●	●
G. Protect, restore, and improve natural resources.	●	○	●	●
H. Address water-related needs of disadvantaged communities (DACs).	●	●	●	●
I. Protect and enhance water-associated recreation opportunities.	○	-	-	●
J. Establish and maintain effective communication among water resource stakeholders in the Region.	●	-	-	●
K. Effectively address climate change adaptation and/or mitigation in water resource management.	●	●	●	●
L. Enhance public understanding of water management issues and needs.	-	○	-	●

● indicates the MIRWMP objective is a primary objective of the project

○ indicates the MIRWMP objective is a secondary objective of the project

- indicates the MIRWMP objective is not an objective of the project



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## Integrated Elements of Projects

The projects included in this proposal are intrinsically linked through the objectives of the MIRWMP. Collectively, the four projects in the proposal address all twelve objectives of the MIRWMP. Each project may be implemented individually and does not require coordinated implementation or operation to achieve its stated benefits; however, implementing only a subset of the proposed projects would decrease the overall benefits of the proposal. All proposed projects must be implemented together to achieve the overarching proposal objectives.

Each of the projects in this proposal integrates multiple benefits, as evidenced by the suite of MRIWMP objectives addressed by each (see Table 3-2). However, the Merced River Education and Enhancement Program provide synergies through coordinated implementation of multiple inter-related tasks.

As previously discussed, the Merced River Education and Enhancement Program started as five individual projects that were integrated through the Merced IRWM planning process. This project exemplifies the type of collaboration that IRWM planning can produce. The coordinated implementation of EMRCD's stewardship efforts with UC Merced's climate change research and education and MID's boating access improvements will increase the benefit of each agency's individual efforts. For example, the end product of the education element of UC Merced's climate change program is a toolbox of information that educators can use in educating the public about climate change; by partnering with EMRCD, who will be organizing workshops for water resource stakeholders across the region, the best communication principles from UC Merced's toolbox will have a vehicle for moving from educators to classrooms, community fairs and other venues beyond the university.

Another example of collaboration resulting in added value is the EMRCD's efforts to implement a life jacket loan program paired with MID's boat access improvements. Individually, these efforts would improve public safety on the river, but together they will have a much greater impact by providing for both implementation and promotion of this recreation and public safety program.

A final example of added value is the ability of EMRCD to expand its riparian corridor efforts through the work of MID. EMRCD originally planned to concentrate on the Merced River from the Shaffer Bridge at Oakdale Road to the confluence of the Merced River with San Joaquin River. When MID's boating access improvement project is completed, this will provide another location for EMRCD to launch kayaks for invasive plant mapping.

In addition to increasing the value of individual project components, the Merced River Education and Enhancement Program demonstrates the cooperative planning and stakeholder integration being implemented within the Merced IRWM Region. During the project integration process, MID secured approval from its Board of Directors to provide funding not only for its Lower Merced River Recreation and Boating Public Access component but also the EMRCD's Lower Merced River Stewardship Project and UC Merced's Merced Region Climate Change Program.

## Regional Maps

The maps that follow present the location of the proposed projects within the Merced Region with respect to local water resources and disadvantaged communities. The monitoring locations for each project are generally located at each project site; more detailed descriptions of monitoring methods and locations are provided in Attachment 6.



Figure 3-11: Project Locations in Relation to Regional Water Resources

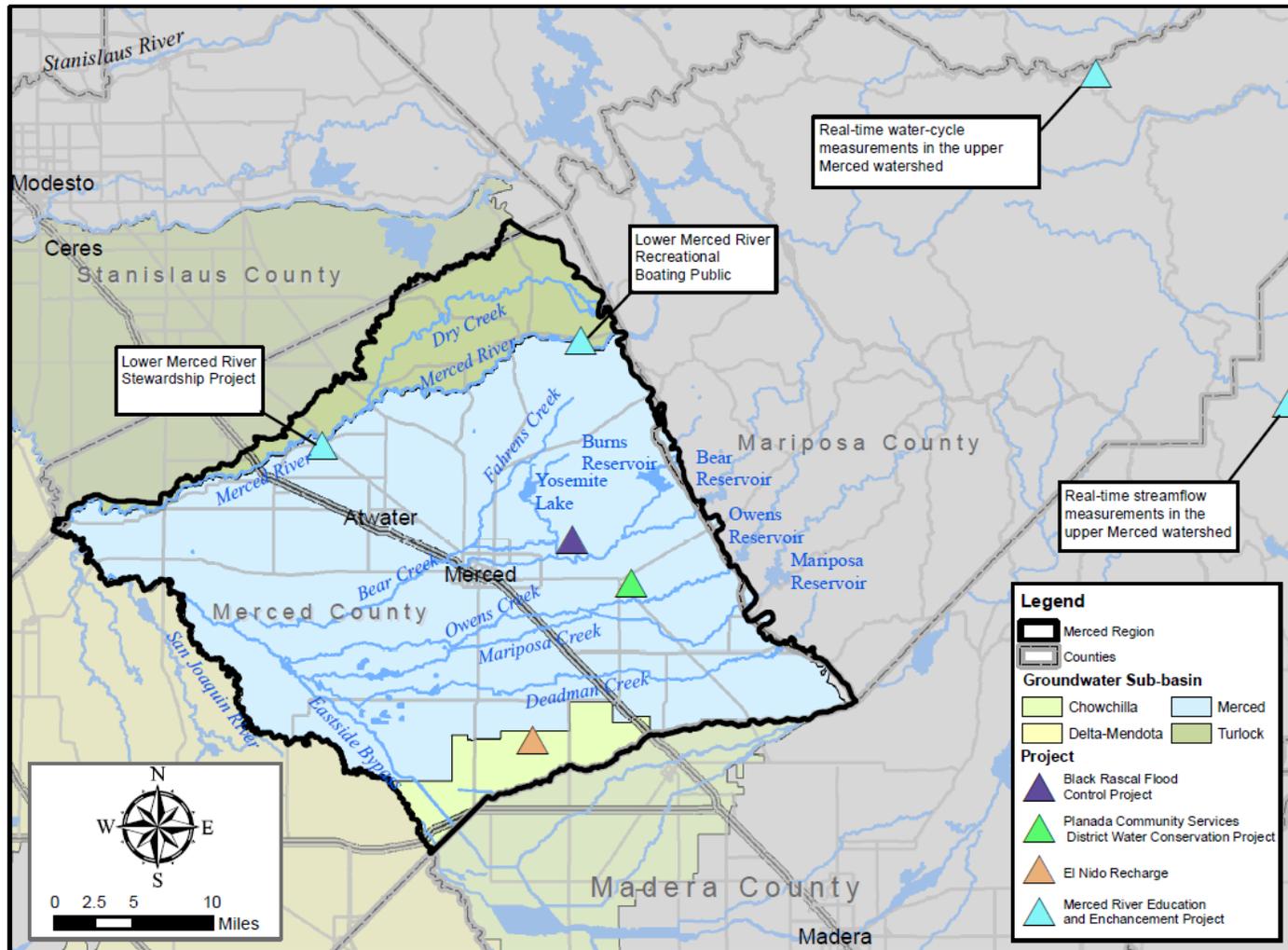
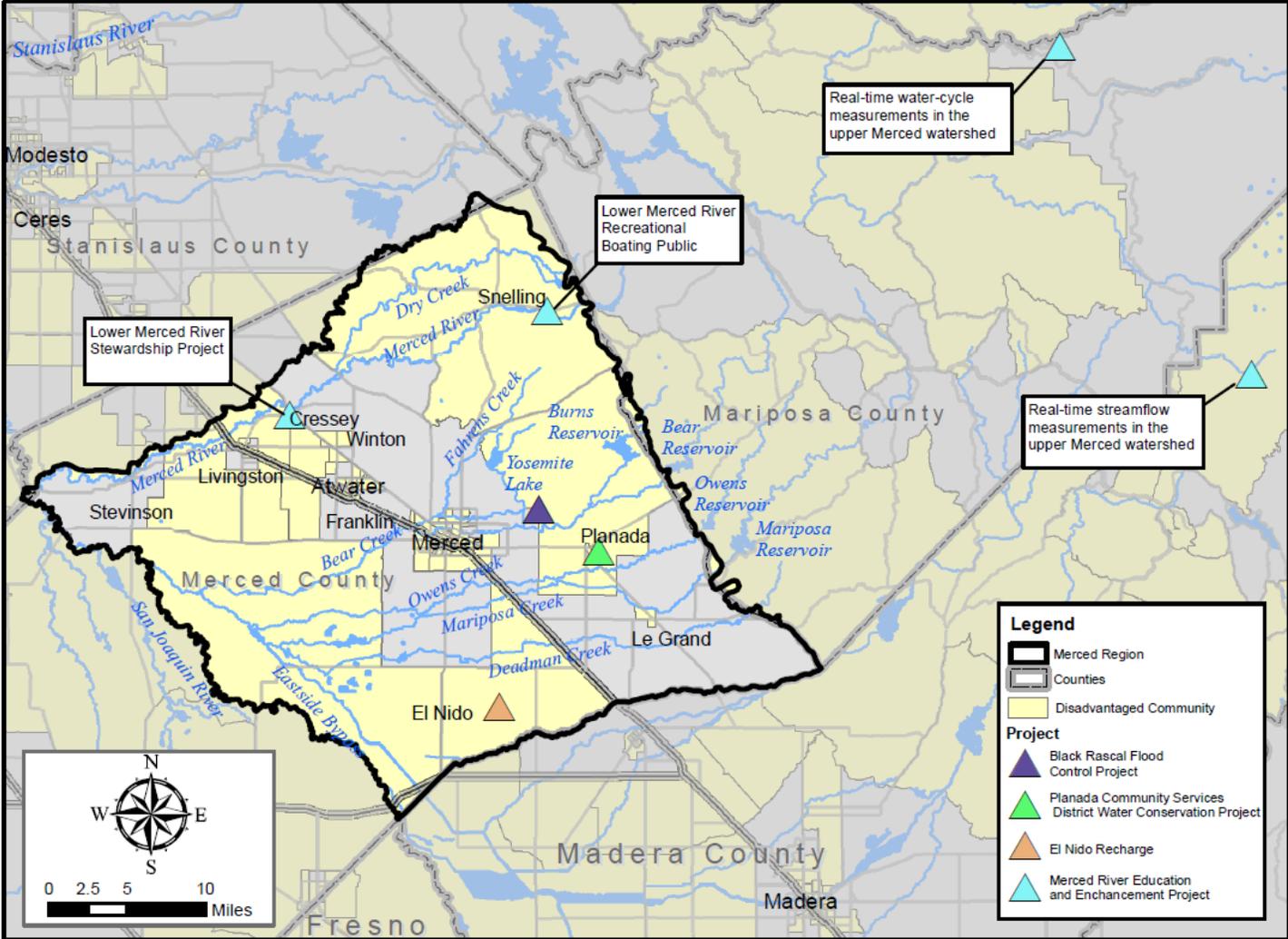




Figure 3-12: Project Locations in Relation to Disadvantaged Communities





## Completed Work and Existing Data and Studies

Table 3-3 summarizes work already completed for each of the projects and identifies existing data and studies that have been performed to support each project’s feasibility and approach. All referenced materials are included as appendices to this attachment proposal.

Work that has not been completed as of the submission of this proposal but which will be completed prior to the assumed grant award date of October 1, 2013, is identified as part of the Proposed Work.

**Table 3-3: Completed Work and Existing Data and Studies**

Project	Summary of Completed Work	Existing Data and Studies
<p>Black Rascal Flood Control Project</p>	<p>A series of feasibility studies dating back to the 1970s have been completed. Most recently, the County of Merced in conjunction with the City of Merced and MID completed Addendum 1 to the <i>Feasibility Study, Black Rascal Creek Flood Control</i>. This study identifies several flood control detention basin alternatives which would manage flows from a 200-year event.</p> <p>Additional evaluation is required through the CEQA/NEPA environmental documentation process in order to identify a preferred alternative, which can then be designed and constructed to provide flood protection for two DACs.</p>	<p>Studies documenting the need for flood control on the Black Rascal watershed and the feasibility of constructing a flood control structure in this location include:</p> <ul style="list-style-type: none"> <li>• Merced County Streams California, General Design Memorandum Phase, Phase 1, Plan Formulation (March 1980)</li> <li>• Feasibility Study (June 2008) and Addendum 1* (February 2009), Black Rascal Creek Flood Control</li> <li>• MIRWMP Flood Management Summary (January 2013)</li> </ul> <p>*Addendum 1 specifically address the feasibility of providing 200-year flood protection</p>



Project	Summary of Completed Work	Existing Data and Studies
<p>Planada Community Services District Water Conservation Project</p>	<p>Planada Community Services District completed a Preliminary Engineering Report for the project in October 2012. The report serves as both a feasibility study and conceptual (10%) design for the project.</p> <p>The project is categorically exempt from the CEQA environmental review process. Planada Community Services District filed a notice of exemption in November 2009.</p>	<p>The following study documents the need to address the selected areas of Planada’s distribution system and supports the feasibility of the proposed improvements:</p> <ul style="list-style-type: none"> <li>• Preliminary Engineering Report (October 2012)</li> </ul> <p>General studies and data that support the water conservation methods being proposed include:</p> <ul style="list-style-type: none"> <li>• California Single Family Water Use Efficiency Study (July 2011)</li> <li>• Planada 2011 and 2012 Water Use Data – the reduction in average household water use which corresponded with increased efforts by the District’s effort to increase the community’s awareness of water usage</li> </ul>
<p>El Nido Area Recharge Project</p>	<p>The Merced IRWM Water Conservation Study, which was undertaken in 2012 as part of the Merced IRWM planning process, concluded that deep percolation of applied water from MID is a significant source of groundwater recharge in the region. The study further recommended that the region consider direct recharge and in lieu recharge strategies and investigate flood management solutions that redirect flood waters to recharge areas.</p> <p>The Merced IRWM Groundwater Recharge Feasibility Study, which was conducted in parallel the Water Conservation Study, assessed recharge opportunities throughout the Merced Region, and identified the El Nido area as one of four preferred recharge areas for the Merced Region. It also recommended that additional groundwater monitoring be implemented throughout the region.</p>	<p>Studies and data supporting the El Nido area for enhanced recharge and the feasibility of increasing diversions to El Nido include:</p> <ul style="list-style-type: none"> <li>• Merced IRWM Draft Groundwater Recharge Feasibility Study (December 2012)</li> <li>• Merced IRWM Draft Water Conservation Study (December 2012)</li> <li>• El Nido Additional Recharge Calculation - historical flow data from USACE for Mariposa Creek was used to develop a conservative calculation of average annual flows that could be diverted from Mariposa and the effectively recharged</li> <li>• Well Level Compilation – well data showing the depth to groundwater for wells throughout El Nido, demonstrating available groundwater capacity for recharge</li> <li>• Merced County Division of Environmental Health Private Domestic Well Data – average nitrate and salinity data from County wells in the El Nido area receiving final inspection from January 1, 1990 to June 11, 2012 compared to Mariposa Creek water quality demonstrate that surface water is of superior quality</li> </ul>



Project	Summary of Completed Work	Existing Data and Studies
Merced River Education and Enhancement Program	Work completed and existing data and studies are discussed by task.	
	<p>The East Merced Resource Conservation District (EMRCD), the project proponent for the Lower Merced River Stewardship Project, has initiated conversations with the numerous entities to secure support for the proposed project. Organizations who have agreed to participate in the program include: Audubon CA, Ballico-Cressy School, California Climate and Agriculture Network (CalCAN), California Department of Boating and Waterways, California Department of Fish and Wildlife, California State Parks (McConnell SRA and Hatfield SRA), Ducks Unlimited, East San Joaquin Water Quality Coalition, Merced County Environmental Health and Planning, Merced County Farm Bureau, Natural Resources Conservation Service (NRCS), San Joaquin River Stewardship Program, Snelling School, MID, Sustainable Conservation, Upper Merced River Stewardship Council, Valley Land Alliance, and Yamato Colony School.</p> <p>The U.S. Bureau of Reclamation Encroachment Permit, which is necessary to complete the habitat restoration portions of the project, was secured in February 2013.</p> <p>The Lower Merced River Stewardship task incorporates proven best management practices and community capacity building activities that are ready to implement upon procurement of funding.</p>	<p>Studies and data supporting the project site location and feasibility of the stewardship practices to be implemented include:</p> <ul style="list-style-type: none"> <li>• The Merced River Alliance Project Final Report, Volume I: Education and Outreach (September 2008)</li> <li>• The Merced River Alliance Project Final Report, Volume II: Biological Monitoring and Assessment (September 2008)</li> <li>• Merced River Corridor Restoration Plan (February 2002)</li> <li>• Merced Restoration Mapping – this mapping which was completed in 2006 identifies numerous sites along the lower Merced River with occurrences of priority invasive weeds</li> <li>• Merced County Emergency Response Records – data provided by the Sherriff’s Department regarding historical river rescues that could have been averted if the victims had property safety equipment such as life vests</li> </ul> <p>Examples from other areas that support the methods being proposed</p> <ul style="list-style-type: none"> <li>• The successful implementation of a similar program on the San Joaquin River (<a href="http://sanjoaquinriver.sportisite.com/">http://sanjoaquinriver.sportisite.com/</a>) suggests this same program can be implemented on the Merced River with success</li> </ul>



Project	Summary of Completed Work	Existing Data and Studies
	<p>The <i>Merced Region Climate Change Awareness</i> task builds on prior research projects supported by federal agencies to develop measurement infrastructure in the seasonally snow-covered part of the Sierra Nevada. It also builds on the ongoing Sierra Nevada Adaptive Management Project (SNAMP), which is assessing the impact of forest vegetation management on water quantity and other ecosystem services derived for the forest.</p> <p>The California Department of Fish and Wildlife determined that installation of a weir on Merced River was exempt from CEQA due to the expected minimal environmental impact of the project. The Sierra National Forest has completed the necessary federal impact assessments and the U.S. Forest Service's Decision Memo represent the permitting necessary for the construction of the weir to proceed.</p> <p>Yosemite National Park conducted a NEPA analysis for installation of snow monitoring equipment along Tioga Pass Road in 2006 and determined it was categorically exempt. Permits necessary to install the required snow monitoring equipment infrastructure are issued on an annual basis via the National park research permitting system. Permits for the proposed work are being renewed for 2013.</p>	<p>Studies and data supporting the project site location and methods to be implemented include:</p> <ul style="list-style-type: none"> <li>• AP-GfK Poll on Climate Change (2012) – this poll clearly demonstrates that the majority of Americans believe that climate change is happening but do not believe the science behind it. The general public lacks a clear understanding of what is at risk, what the outcomes will be and what steps need to be taken.</li> <li>• Our Changing Climate 2012 Vulnerability &amp; Adaptation to the Increasing Risk from Climate Change in California (July 2012)</li> </ul>
	<p>Merced Irrigation District has completed the conceptual level (10%) design for the <i>Lower Merced River Recreational Boating Public Access</i> task.</p>	<p>Studies and data supporting the project site location and methods to be implemented include:</p> <ul style="list-style-type: none"> <li>• River Boating Access Improvements Concept Design Report</li> </ul>



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## Work Plan Tasks

This section includes a detailed discussion of the various tasks needed to implement each project and collectively this proposal.

### Black Rascal Flood Control Project

#### Detailed Description

Black Rascal Creek is tributary to Bear Creek at two locations; Black Rascal Creek is diverted directly to Bear Creek through Black Rascal Creek Overflow at Yosemite Avenue and downstream of the diversion, Black Rascal Creek flows into Bear Creek, south of Highway 99. Historically flooding has occurred along Bear Creek in the City of Merced and along Black Rascal Creek near the Yosemite Avenue diversion. The U.S. Army Corps of Engineers investigated constructing a dam on Black Rascal Creek to control flooding, but due to significant environmental impacts and other issues associated with a large dam, the project did not move forward. In 2008 and 2009 Merced County evaluated the feasibility of implementing detention basins to reduce, if not eliminate, the flooding in the City of Merced. At the same time, alternative operating scenarios of Merced Irrigation District's (MID's) Lake Yosemite and potential infrastructure improvements were evaluated to allow for improved flood control. The evaluation consisted of hydrologic modeling of the Black Rascal Creek watershed and preparation of a Feasibility Study. This evaluation resulted in the identification of the *Black Rascal Flood Control Project* which will provide flood protection during a 200-year storm event on the Black Rascal Watershed and downstream areas.

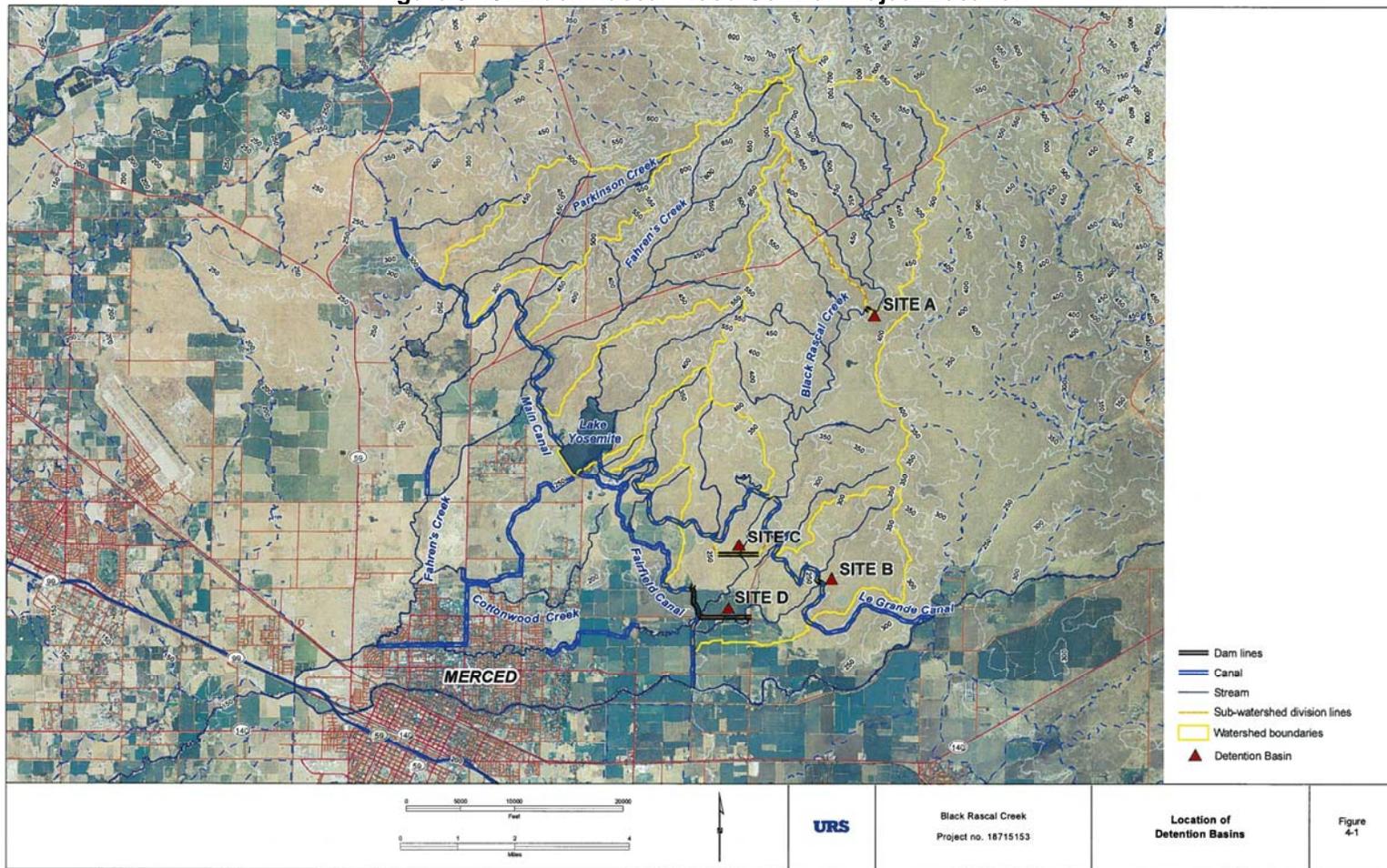
The phase of the *Black Rascal Flood Control Project* included in this proposal consists of completing the environmental documentation for the project and preliminary design of the preferred alternative. Upon implementation of the preferred alternative, which will be a later phase of the project, the project will provide flood protection for the communities of Merced and Franklin/Beachwood. Additional benefits of the project include habitat enhancements through the creation of a deadpool in the reservoir and water supply reliability improvements by allowing the Merced Irrigation District to regulate flows. As this is a project that is critical to address flood management for the DAC of Merced, a grant is being requested for the environmental documentation and design of the project to allow for future implementation.



## Project Map

The following map shows the location of the *Black Rascal Flood Control Project*.

**Figure 3-13: Black Rascal Flood Control Project Location**





## Work Plan Tasks –Summary for the Black Rascal Flood Control Project

In the table below, tasks for which grant funding for the *Black Rascal Flood Control Project* is being requested are shown in white while tasks for which grant funding is *not* being requested are shown in grey. The following sections provide descriptions of the work to be conducted under each task and the deliverables to be produced under each task.

**Table 3-4: Work Plan Outline**

Proposal Title: Merced IRWM Implementation Grant Proposal Project Title: <i>Black Rascal Flood Control Project</i>	
Category/Task	Grant Funds Requested?
<b>Category (a) Direct Project Administration</b>	✓ Yes
Task 1: Administration	✓ Yes
Task 2: Labor Compliance Program*	-- No
Task 3: Reporting	✓ Yes
<b>Category (b) Land Purchase/Easement*</b>	-- No
<b>Category (c) Planning/Design/Engineering/Environmental Documentation</b>	✓ Yes
Task 4: Assessment and Evaluation*	-- No
Task 5: Final Design	✓ Yes
Task 6: Environmental Documentation	✓ Yes
Task 7: Permitting*	-- No
<b>Category (d) Construction/Implementation*</b>	-- No
Task 8: Construction Contracting*	-- No
Task 9: Construction*	-- No
<b>Category (e) Environmental Compliance/ Mitigation/Enhancement*</b>	-- No
Task 10: Environmental Compliance/Mitigation/Enhancement*	-- No
<b>Category (f) Construction Administration*</b>	-- No
Task 11: Construction Administration*	-- No

\* Grey shading indicates that grant funds are not being requested for activities under this budget category.



## Work Plan Tasks –Task Details for the *Black Rascal Flood Control Project*

The work plan tasks for the *Black Rascal Flood Control Project* are discussed in the following sections.

### Category (a): Direct Project Administration

This task involves the direct project administration tasks related to the *Black Rascal Flood Control Project*. Grant funds are being requested for Administration (Task 1) and Reporting (Task 3). As the grant funds are not being requested for project construction, a Labor Compliance Program (Task 2) is not included as part of this project. The table below describes the work to be conducted under these tasks and the deliverables that will be produced.

**Table 3-5: Category (a): Direct Project Administration Work Plan Outline**

Proposal Title: Merced IRWM Implementation Grant Proposal Project Title: <i>Black Rascal Flood Control Project</i>		
Task	Description	Deliverable
<b>Category (a) Direct Project Administration</b>		
Task 1: Administration	Preparation of invoices and backup documentation and project coordination.	<ul style="list-style-type: none"> <li>• Invoices and backup documentation</li> <li>• Performance Monitoring Plan</li> </ul>
Task 2: Labor Compliance Program*	Not applicable.	<ul style="list-style-type: none"> <li>• Not applicable</li> </ul>
Task 3: Reporting	Preparation and submittal of progress reports to DWR.	<ul style="list-style-type: none"> <li>• Quarterly and Project Completion Reports to DWR starting after contract execution</li> </ul>

\*As indicated by the grey shading, no grant funds are being requested for Task 2 within Budget Category (a) Direct Project Administration. See discussion above.

As noted in the table above, a Performance Monitoring Plan will be prepared to provide a framework for assessing and evaluating the project performance once it is implemented. The Monitoring Plan will identify the measures that will be used to monitor progress toward achieving the specific project goals of improving water quality, increasing flood protection and protecting protected species. The Monitoring Plan will also provide tools to monitor and measure project processes and will guide final project performance reporting that will fulfill grant agreement requirements. Attachment 6 of this Proposal consists of Monitoring, Assessment, and Performance Measures for the Project. Project monitoring will be conducted to assess and evaluate project performance.

### Category (b): Land Purchase/Easement

No grant funds are being requested for land purchase or easements. For the *Black Rascal Flood Control Project*, approximately 190 to 290 acres of land will be needed to store flood waters. Funding for land acquisition and/or securing of easements will be secured as a later phase of the project once the exact location and number of acres required are determined. Both grants and loans will be explored to offset the costs to the DAC.



### Category (c): Planning/Design/Engineering/Environmental Documentation

This task involves the primary engineering and environmental documentation tasks related to the *Black Rascal Flood Control Project*. As shown in the table below, grant funds are being requested for Final Design (Task 5) and Environmental Documentation (Task 6). The proposed project will identify a preferred alternative through the completion of the environmental documentation, which will result in a certified EIS/EIR, and complete preliminary design for the preferred alternative. Design to 100% final design documents will be completed in a future phase of this project. Grant funds are not being requested for Assessment and Evaluation (Task 4) or Permitting (Task 7). The assessment and evaluation needs (Task 4) for this project have been fulfilled through completion of the February 2009 Feasibility Study. Although Prop 84 Round 2 implementation grant funds are not requested for permitting, anticipated permits are shown in the following table. Future phases of the project will address final design and will identify the permits required for project implementation. Once all necessary permits have been identified potential funding options will be explored.

**Table 3-6: Category (c): Planning/Design/Engineering/Environmental Documentation Work Plan Outline**

Proposal Title: Merced IRWM Implementation Grant Proposal		
Project Title: <i>Black Rascal Flood Control Project</i>		
Task	Description	Deliverable
<b>Category (c) Planning/Design/Engineering/Environmental Documentation</b>		
Task 4: Assessment and Evaluation*	A Feasibility Study has been completed.	<ul style="list-style-type: none"> <li>None (Feasibility Study completed February 2009)</li> </ul>
Task 5: Final Design	This task involves the development of a Conceptual Design Report and Preliminary Design documents.	<ul style="list-style-type: none"> <li>Preliminary design submittal</li> </ul>
Task 6: Environmental Documentation	An Environmental Impact Statement / Environmental Impact Report (EIS/EIR) will be completed to comply with CEQA and NEPA.	<ul style="list-style-type: none"> <li>Certified EIS/EIR</li> </ul>
Task 7: Permitting*	U.S. Army Corps of Engineers Section 404 Permit	<ul style="list-style-type: none"> <li>Final Permit</li> </ul>
	U.S. Fish & Wildlife Section 7 Consultation	<ul style="list-style-type: none"> <li>Final Permit</li> </ul>
	California Department of Fish & Wildlife Section 1600 Agreement	<ul style="list-style-type: none"> <li>Final Permit</li> </ul>
	Regional Water Quality Control Board, Clean Water Act Section 401 Water Quality Certification	<ul style="list-style-type: none"> <li>Final Permit</li> </ul>
	Construction Storm Water Permit	<ul style="list-style-type: none"> <li>Stormwater Pollution Prevention Plan (SWPPP)</li> <li>Filed Notice of Intent (NOI)</li> </ul>

\*As indicated by the grey shading, no grant funds are being requested for Task 4 or Task 7 within Budget Category (c) Planning/Design/Engineering/Environmental Documentation. See discussion above.



### Category (d): Construction/Implementation

No grant funds are being requested for construction or implementation for the *Black Rascal Flood Control Project*. Funding for construction and implementation will be secured at a later time. Although grant funds are not requested for construction and implementation, an outline of expected tasks and deliverables is provided below. The construction work items will be finalized as design progresses.

**Table 3-7: Category (d): Construction/Implementation Work Plan Outline**

Proposal Title: Merced IRWM Implementation Grant Proposal Project Title: <i>Black Rascal Flood Control Project</i>		
Task	Description	Deliverable
<b>Category (d) Construction/Implementation</b>		
Task 8: Construction Contracting*	This task includes the preparation of the bid package and award of the construction project.	<ul style="list-style-type: none"> <li>• Bid package and selection</li> </ul>
Task 9: Construction/Implementation*	Construction subtasks will include: <ul style="list-style-type: none"> <li>• Mobilization and site preparation</li> <li>• Project construction</li> <li>• Performance testing</li> </ul>	<ul style="list-style-type: none"> <li>• As-built drawings</li> <li>• Performance testing results</li> </ul>

\*As indicated by the grey shading, no grant funds are being requested for Category (d) Construction/Implementation - Tasks 8 and 9. See discussion above.

### Category (e): Environmental Compliance/Mitigation/Enhancement

No grant funds are being requested for environmental compliance/mitigation/enhancement (Task 10). Funding for environmental compliance/mitigation/enhancement will be secured at a later time, after the necessary mitigation measures and/or enhancements are identified through preparation of the EIR/EIS in Task 6.



### Category (f): Construction Administration

No grant funds are being requested for Construction Administration (Task 11). Funding for construction administration will be secured at a later time. Likely construction administration tasks associated with the *Black Rascal Flood Control Project* are described in the table below:

**Table 3-8: Category (d): Construction Administration Work Plan Outline**

Proposal Title: Merced IRWM Implementation Grant Proposal Project Title: <i>Black Rascal Flood Control Project</i>		
Task	Description	Deliverables
<b>Budget Category (f): Construction Administration</b>		
Task 11: Construction Administration*	<ul style="list-style-type: none"> <li>• Construction management</li> <li>• Processing progress payments</li> <li>• Inspection activities</li> <li>• Responses to RFIs and Change Order Requests</li> <li>• Payment of contractor invoices</li> <li>• Public notification of construction activities</li> </ul>	<ul style="list-style-type: none"> <li>• Approved invoices</li> <li>• Quarterly progress reports</li> </ul>

\*As indicated by the grey shading, no grant funds are being requested for Budget Category (f): Construction Administration -Task 11. See discussion above.

### Category (g): Other Costs

There are no other costs associated with the *Black Rascal Flood Control Project*.

### Category (h): Construction/Implementation Contingency

Because construction is not part of the *Black Rascal Flood Control Project* as described in this proposal, construction implementation contingency is not required and therefore no cost is associated with the *Project*.



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## Planada Community Services District Water Conservation Project

### Detailed Description

Planada Community Services District proposes to upgrade an older, substandard portion of its water delivery system, in the Northeast portion of its system, to ensure consistent water delivery to residents of the community and improve overall water supply reliability. The project includes the replacement of one of the worst portions of water piping for the District's distribution system; this portion of the system is undersized, brittle, prone to leaks, and on occasion has not meet Title 22 Waterworks standards. The project proposes to upgrade this portion of the system's undersized water mains from 4" dilapidated piping to 8" PVC environmentally friendly water mains, including fire hydrants & valves; this would reduce potential for backflow conditions that would allow contaminants to enter the system under low pressure conditions. Service connections to existing water mains in this area will be abandoned and new water service connections would be installed. The project also includes the replacement of an existing standby generator and installation of water meters. The installation of these water meters would facilitate the shift from the District's current flat rate charge to a volumetric charge for water for the District's customers. It is estimated that the use of such water meters, and the ability for the District to locate water leaks in real time, will reduce water use by approximately 20 percent.



## Project Maps

The following maps show the location of the *Planada Community Services District Water Conservation Project*.

**Figure 3-14: Planada Community Services Water Conservation Project**

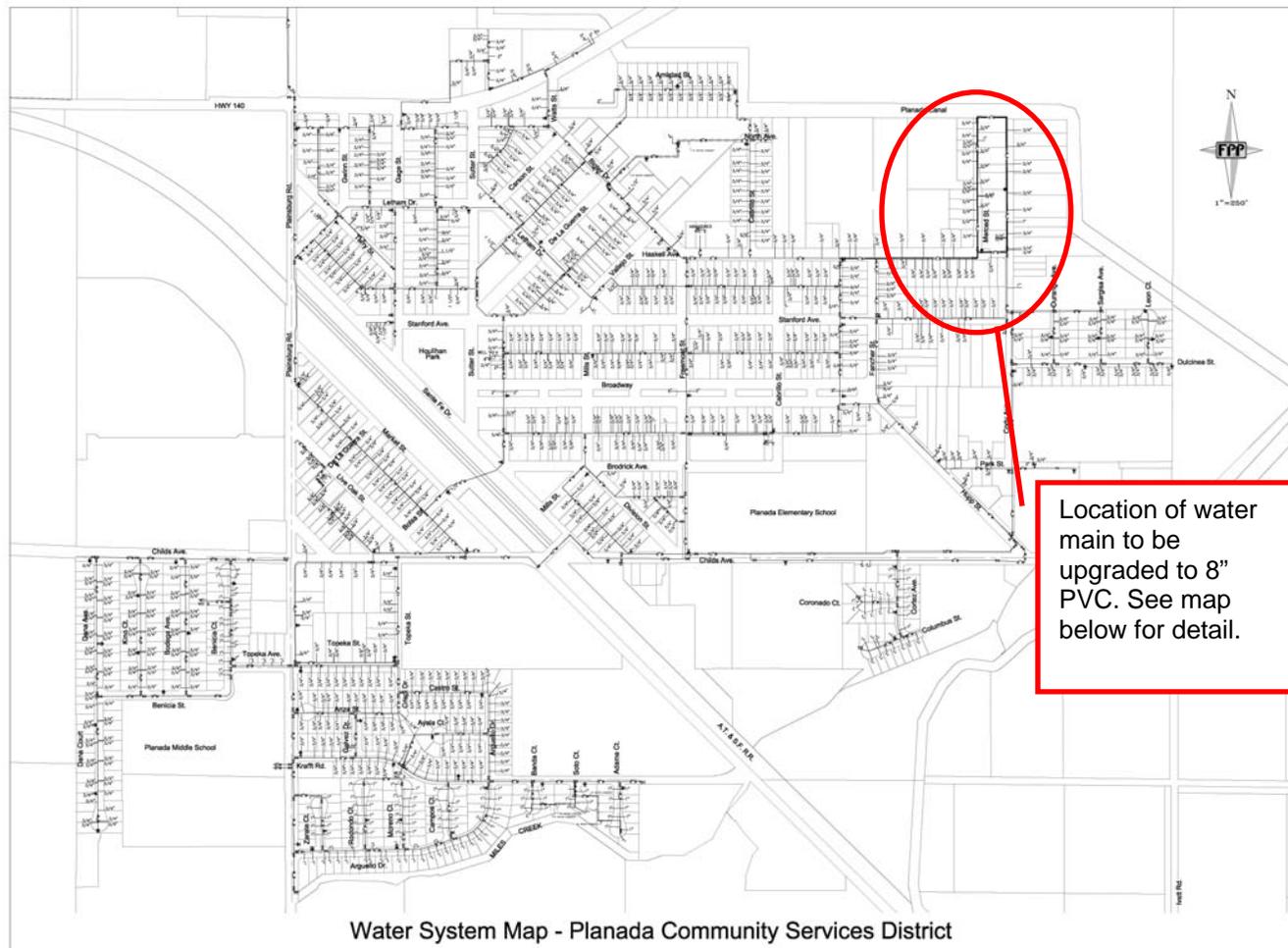
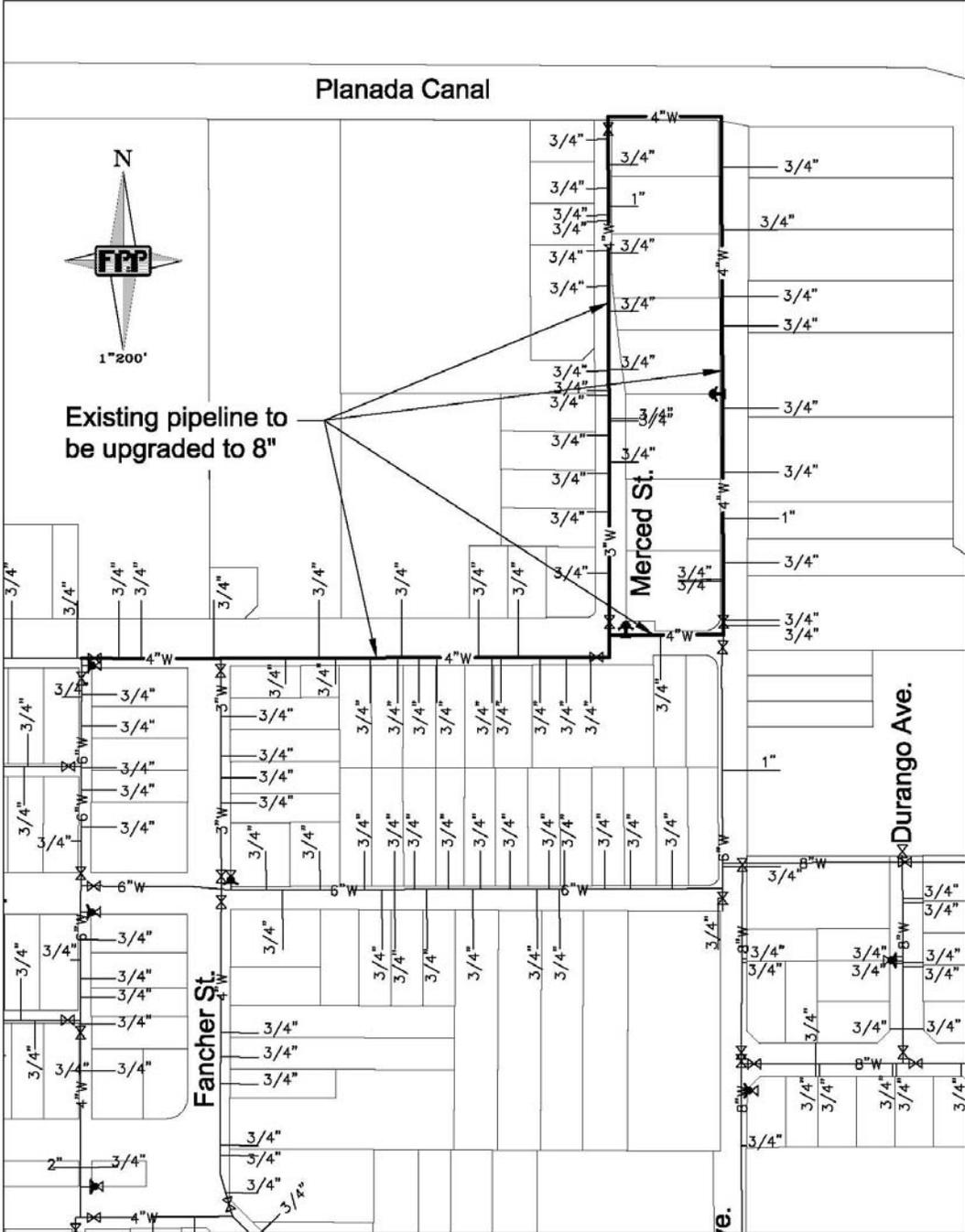




Figure 3- 15- Planada Community Services Water Conservation Project – Map Detail



Water System Upgrades - Planada Community Services District



## Work Plan Tasks – Summary

In the table below, tasks for which grant funding for the *Planada Community Services District Water Conservation Project* is being requested are shown in white while tasks for which grant funding is *not* being requested are shown in grey. The following sections provide descriptions of the work to be conducted under each task and the deliverables to be produced under each task.

**Table 3-9: Work Plan Outline**

Proposal Title: Merced IRWM Implementation Grant Proposal Project Title: <i>Planada Community Services District Water Conservation Project</i>	
Category/Task	Grant Funds Requested?
<b>Category (a) Direct Project Administration</b>	✓ Yes
Task 1: Administration	✓ Yes
Task 2: Labor Compliance Program	✓ Yes
Task 3: Reporting	✓ Yes
<b>Category (b) Land Purchase/Easement*</b>	-- No
<b>Category (c) Planning/Design/Engineering/ Environmental Documentation</b>	✓ Yes
Task 4: Assessment and Evaluation*	✓ Yes
Task 5: Final Design	✓ Yes
Task 6: Environmental Documentation*	-- No
Task 7: Permitting*	-- No
<b>Category (d) Construction/Implementation</b>	✓ Yes
Task 8: Construction Contracting	✓ Yes
Task 9: Construction	✓ Yes
<b>Category (e) Environmental Compliance/ Mitigation/Enhancement*</b>	-- No
Task 10: Environmental Compliance/Mitigation/Enhancement*	-- No
<b>Category (f) Construction Administration</b>	✓ Yes
Task 11: Construction Administration	✓ Yes

\* Grey shading indicates that grant funds are not being requested for activities under this budget category/task.



## Work Plan Tasks –Task Details

The work plan tasks for the *Planada Community Services District Water Conservation Project* are discussed in the following sections.

### Category (a): Direct Project Administration

This task involves the direct project administration tasks related to the *Planada Community Services District Water Conservation Project*. Grant funds are being requested for Administration (Task 1), Labor Compliance Program (Task 2), and Reporting (Task 3). The table below describes the work to be conducted under these tasks and the deliverables that will be produced.

**Table 3-10: Category (a): Direct Project Administration Work Plan Outline**

Proposal Title: Merced IRWM Implementation Grant Proposal Project Title: <i>Planada Community Services District Water Conservation Project</i>		
Task	Description	Deliverable
<b>Category (a) Direct Project Administration</b>		
Task 1: Administration	Preparation of invoices and backup documentation and project coordination.	<ul style="list-style-type: none"> <li>• Invoices and backup documentation.</li> <li>• Performance Monitoring Plan.</li> </ul>
Task 2: Labor Compliance Program	Develop and implement Labor Compliance Program.	<ul style="list-style-type: none"> <li>• Adopted Labor Compliance Program</li> </ul>
Task 3: Reporting	Submittal of Progress Reports to DWR.	<ul style="list-style-type: none"> <li>• Quarterly and Project Completion Reports to DWR starting after contract execution</li> </ul>

As noted in the table above, a Performance Monitoring Plan will be prepared to provide a framework for assessing and evaluating the project performance once it is implemented. The Monitoring Plan will identify the measures that will be used to monitor progress toward achieving the specific project goals of improving water quality, increasing flood protection and protecting protected species. The Monitoring Plan will also provide tools to monitor and measure project processes and will guide final project performance reporting that will fulfill grant agreement requirements. Attachment 6 of this Proposal consists of Monitoring, Assessment, and Performance Measures for the Project. Project monitoring will be conducted to assess and evaluate project performance.

### Category (b): Land Purchase/Easement

There is no land purchase or easement acquisition associated with the *Planada Community Services District Water Conservation Project*.



### Category (c): Planning/Design/Engineering/Environmental Documentation

This task involves the primary engineering and environmental documentation tasks related to the *Planada Community Services District Water Conservation Project*. As shown in the table below, grant funds are being requested for Final Design (Task 5).

The Assessment and Evaluation (Task 4) needs for this project have already been fulfilled with the completion of the Preliminary Engineering Report in October 2012. No grant funds are requested under Task 6 – Environmental Documentation as this project is Categorically Exempt from CEQA and will require only a Notice of Exemption be filed.

**Table 3-11: Category (c): Planning/Design/Engineering/Environmental Documentation Work Plan Outline**

Proposal Title: Merced IRWM Implementation Grant Proposal		
Project Title: <i>Planada Community Services District Water Conservation Project</i>		
Task	Description	Deliverable
<b>Category (c) Planning/Design/Engineering/Environmental Documentation</b>		
Task 4: Assessment and Evaluation*	A Preliminary Engineering Report has been completed.	<ul style="list-style-type: none"> <li>• <i>Preliminary Engineering Report for the Water System Rehabilitation &amp; Conservation Project</i>, Fremming, Parson &amp; Pecchenino, October 2012</li> </ul>
Task 5: Final Design	This task involves the development of the Final Design Drawings and Specifications.	<ul style="list-style-type: none"> <li>• Final design submittal</li> </ul>
Task 6: Environmental Documentation*	A Notice of Exemption will be filed. The current project schedule shows filing of the Notice of Exemption in 2014.	<ul style="list-style-type: none"> <li>• Filed Notice of Exemption</li> </ul>
Task 7: Permitting*	Construction Storm Water Permit	<ul style="list-style-type: none"> <li>• Stormwater Pollution Prevention Plan (SWPPP)</li> <li>• Filed Notice of Intent (NOI)</li> </ul>

\*As indicated by the grey shading, no grant funds are being requested for Task 6 or Task 7. See discussion above.



## Category (d): Construction/Implementation

Grant funds are requested for both Task 8 - Construction Contracting and Task 9 - Construction within Category (d) Construction/Implementation. An outline of expected tasks and deliverables is provided below.

**Table 3-12: Category (d): Construction/Implementation Work Plan Outline**

Proposal Title: Merced IRWM Implementation Grant Proposal Project Title: <i>Planada Community Services District Water Conservation Project</i>		
Task	Description	Deliverable
<b>Category (d) Construction/Implementation</b>		
Task 8: Construction Contracting	This task includes the preparation of the bid package, bid advertisement, review, selection, and award of the construction project.	<ul style="list-style-type: none"> <li>• Bid package and selection</li> </ul>
Task 9: Construction/ Implementation	Construction/Implementation subtasks include:	
	<u>Subtask 9.1 - Mobilization and Site Preparation:</u> This subtask involves mobilization and surveying and staking. Mobilization consists of bringing construction equipment to the project site and establishing project staging areas, and surveying and staking of the project site.	<ul style="list-style-type: none"> <li>• Survey maps</li> </ul>
	<u>Subtask 9.2 - Construction:</u> Project construction involves the following activities: <ul style="list-style-type: none"> <li>• <i>Demolition:</i> Demolition activities will include the removal of existing manual-read water meters and the abandonment of existing water lines to be replaced by this project.</li> <li>• <i>Shoring, Sheeting &amp; Bracing:</i> Shoring, sheeting and bracing will be needed for the trenching to be conducted for replacing the dilapidated section of existing pipe with an 8" PVC water main.</li> <li>• <i>Install replacement water main with gate valves and fire hydrants.</i> 2,990 feet of 8" PVC water main will be installed to replace the dilapidated water main. Eight new gate valves, seven new fire hydrants, and a backflow preventer will also be installed in association with the replacement water main.</li> <li>• <i>Connect to Existing Water Line:</i> Three structures will be connected to an existing water line as part of this project.</li> <li>• <i>Replace Existing Water Service Lines:</i> Fifty-two structures along the replacement water main will have their water service connections replaced as part of this project.</li> </ul>	<ul style="list-style-type: none"> <li>• As-built drawings</li> </ul>
	<u>Subtask 9.3 – Performance Testing:</u> Performance testing activities will include geotechnical/compaction testing for the soils replaced in the trench dug for the 8" water main and associated water service connections.	<ul style="list-style-type: none"> <li>• Testing results</li> </ul>



### Category (e): Environmental Compliance/Mitigation/Enhancement

No grant funds are being requested for environmental compliance/mitigation/enhancement (Task 10) for the *Planada Community Services District Water Conservation Project*. As this project is exempt from CEQA and replaces existing infrastructure in developed areas, environmental mitigation or enhancement are not applicable to this project.

### Category (f): Construction Administration

Grant funds are being requested for Construction Administration (Task 11). Construction administration tasks associated with the *Planada Community Services District Water Conservation Project* are described in the table below:

**Table 3-13: Category (f): Construction Administration Work Plan Outline**

Proposal Title: Merced IRWM Implementation Grant Proposal		
Project Title: <i>Planada Community Services District Water Conservation Project</i>		
Task	Description	Deliverables
<b>Category (f): Construction Administration</b>		
Task 11: Construction Administration*	<ul style="list-style-type: none"> <li>• Construction management</li> <li>• Inspection activities</li> <li>• Responses to requests for information (RFIs) and Change Order Requests</li> <li>• Public notification of construction activities</li> </ul>	<ul style="list-style-type: none"> <li>• Inspection field notes and reports</li> </ul>

### Category (g): Other Costs

There are not other costs associated with the *Planada Community Services District Water Conservation Project*.

### Category (h): Construction/Implementation Contingency

A 10% contingency cost of \$68,820 is included at the recommendation of the District Engineer based on experience with similar projects and on the current status of project design.



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## El Nido Area Recharge Project

### Detailed Description

The Merced Irrigation District (MID) in coordination with partner agencies including the Central California Irrigation District and the San Luis Canal Company, propose the *El Nido Area Recharge Project* in order to install automated gates that will divert water from Mariposa Creek for groundwater recharge. The groundwater table in the vicinity of the project is dropping in elevation as a result of over drafting groundwater supplies in the area. Long-term effects include increased pumping costs to farmers in the area and potential well “dry up,” significantly impacting water supply reliability.

Specifically, the *El Nido Area Recharge Project* will:

- Maximize diversions from an existing check structure in Mariposa Creek called El Nido Dam. The El Nido Dam is currently under existing State Water Resources Control Board licenses for the benefit of more than 9,000 acres, generally known as El Nido area. As part of the project, an automated gate will be constructed on the dam to divert flow for the purpose of groundwater recharge. All flows will be conveyed through an existing canal known as El Nido Canal.
- Maximize water supply and recharge from Mariposa Creek to El Nido through two means:
  - Apply diverted flows, maximizing the existing licenses to 100 cubic feet per second, to 9,000 acres of agricultural land.
  - Apply diverted flows to an existing 21 acre recharge basin within El Nido area.
- Automate delivery infrastructure at the recharge basin to receive flows from Mariposa Creek as described above, and from Merced River during years of flood control releases from New Exchequer Dam.
- Construct monitoring equipment to quantify effective recharge and its anticipated destination in the aquifer.

Work will include design of a new diversion structure, design of the water conveyance facilities, design of the monitoring network and data collection program, and development of operational guidelines. Based on the design, permits and approvals will be obtained prior to construction. Construction activities include construction of the basin, construction of the recharge facilities, drilling of monitoring wells, installation of flow meters and check structures, installation of automated gates and surveying. After construction, the basin will be monitored for two years to gage the success and modify the operational guidelines if necessary. The project is currently in the conceptual design phase.



Project Map

Figure 3-16: El Nido Project Area Map

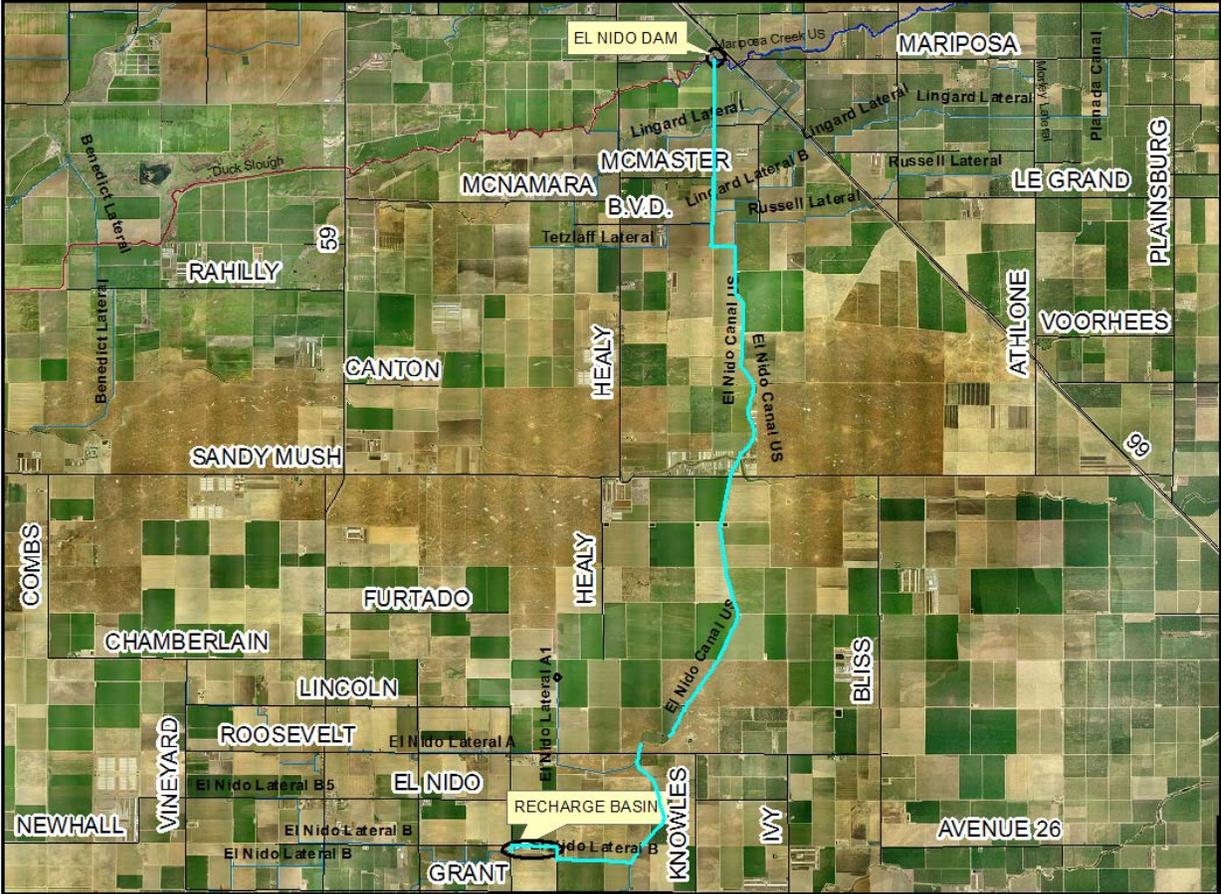
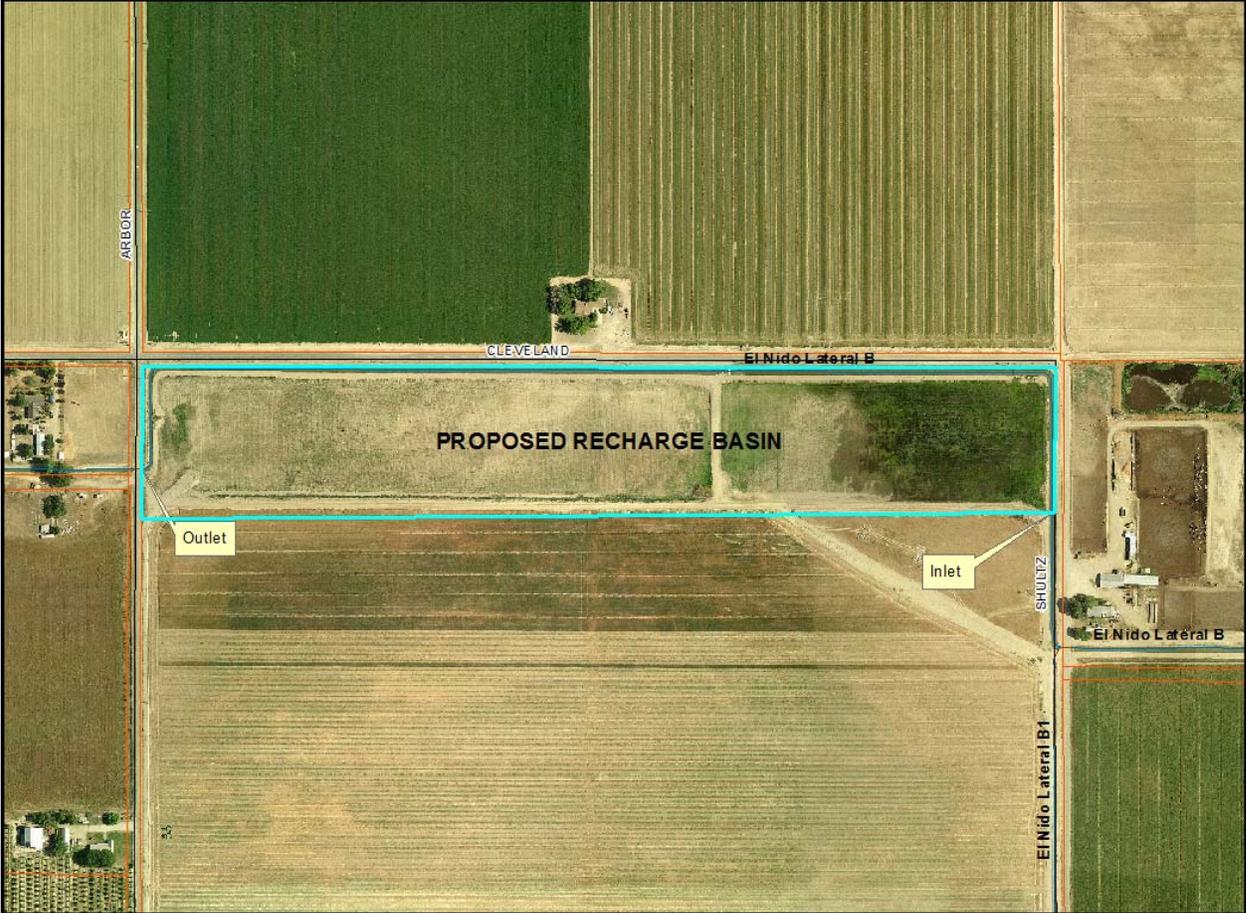




Figure 3-17: El Nido Recharge Basin





**Work Plan Tasks –Summary**

In the table below, tasks for which grant funding for the *El Nido Area Recharge Project* is being requested are shown in white while tasks for which grant funding is *not* being requested are shown in grey. The following sections provide descriptions of the work to be conducted under each task and the deliverables to be produced under each task.

**Table 3-14: Work Plan Outline**

Proposal Title: Merced IRWM Implementation Grant Proposal Project Title: <i>El Nido Area Recharge Project</i>	
Category/Task	Grant Funds Requested?
<b>Category (a) Direct Project Administration</b>	✓ Yes
Task 1: Administration	✓ Yes
Task 2: Labor Compliance Program	✓ Yes
Task 3: Reporting	✓ Yes
<b>Category (b) Land Purchase/Easement*</b>	-- No
<b>Category (c) Planning/Design/Engineering/Environmental Documentation</b>	✓ Yes
Task 4: Assessment and Evaluation	✓ Yes
Task 5: Final Design	✓ Yes
Task 6: Environmental Documentation	✓ Yes
Task 7: Permitting	✓ Yes
<b>Category (d) Construction/Implementation</b>	✓ Yes
Task 8: Construction Contracting	✓ Yes
Task 9: Construction	✓ Yes
<b>Category (e) Environmental Compliance/ Mitigation/Enhancement*</b>	-- No
Task 10: Environmental Compliance/Mitigation/Enhancement*	-- No
<b>Category (f) Construction Administration</b>	✓ Yes
Task 11: Construction Administration	✓ Yes

\* Grey shading indicates that grant funds are not being requested for activities under this budget category.



## Category (a): Direct Project Administration

This task involves the direct project administration tasks related to the *El Nido Area Recharge Project*. Grant funds are being requested for Administration (Task 1) and Labor Compliance Program (Task 2). Grant funds are not requested for Reporting (Task 3). The table below describes the work to be conducted under these tasks and the deliverables that will be produced.

**Table 3-15: Category (a): Direct Project Administration Work Plan Outline**

Proposal Title: Merced IRWM Implementation Grant Proposal		
Project Title: <i>El Nido Area Recharge Project</i>		
Task	Description	Deliverable
<b>Category (a) Direct Project Administration</b>		
Task 1: Administration	Preparation of invoices and backup documentation and project coordination.	<ul style="list-style-type: none"> <li>• Invoices and backup documentation.</li> <li>• Performance Monitoring Plan.</li> </ul>
Task 2: Labor Compliance Program*	Develop and implement Labor Compliance Program.	<ul style="list-style-type: none"> <li>• Adopted Labor Compliance Program</li> </ul>
Task 3: Reporting	Submittal of Progress Reports to DWR	<ul style="list-style-type: none"> <li>• Quarterly and Project Completion Reports to DWR starting after contract execution</li> </ul>

\*As indicated by the grey shading, no grant funds are being requested for Task 3.

As noted in the table above, a Performance Monitoring Plan will be prepared to provide a framework for assessing and evaluating the project performance once it is implemented. The Monitoring Plan will identify the measures that will be used to monitor progress toward achieving the specific project goals of improving water quality, increasing flood protection and protecting protected species. The Monitoring Plan will also provide tools to monitor and measure project processes and will guide final project performance reporting that will fulfill grant agreement requirements. Attachment 6 of this Proposal consists of Monitoring, Assessment, and Performance Measures for the Project. Project monitoring will be conducted to assess and evaluate project performance.

## Category (b): Land Purchase/Easement

There is no land purchase or easement acquisition associated with the *Planada Community Services District Water Conservation Project*. The recharge basin that water will be directed to is an existing recharge basin. Water conveyance will be provided via an existing canal.

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

Work under Category (c) Planning/Design/Engineering/Environmental Documentation for the *El Nido Area Recharge Project* will consist of:

- *Task 4 – Assessment and Evaluation:* Subsurface groundwater levels will be monitored continuously through the SCADA system to evaluate the effectiveness of the regulating basin, and a technical report will be prepared and distributed as needed.



- *Task 5 – Final Design:* Final design will consist of the production of a Conceptual Design Report, a Preliminary Design Report and a Final Design Report
- *Task 6 – Environmental Documentation:* It is anticipated that the *El Nido Area Recharge Project* will pass through the CEQA process with a Mitigated Negative Declaration.
- *Task 7 – Permitting:* It is anticipated that a Section 1600 Streambed Alteration Agreement with the California Department of Fish and Wildlife will be needed for this project.
- The table below summarizes these tasks and associated deliverables.

**Table 3-16: Category (c): Planning/Design/Engineering/Environmental Documentation Work Plan Outline**

Proposal Title: Merced IRWM Implementation Grant Proposal Project Title: <i>El Nido Area Recharge Project</i>		
Task	Description	Deliverable
<b>Category (c) Planning/Design/Engineering/Environmental Documentation</b>		
Task 4: Assessment and Evaluation	Groundwater level monitoring	<ul style="list-style-type: none"> <li>• Technical Report</li> </ul>
Task 5: Final Design	This task involves the development of the Final Design Drawings and Specifications.	<ul style="list-style-type: none"> <li>• Conceptual Design Report</li> <li>• Preliminary Design Report</li> <li>• Final Design Report</li> </ul>
Task 6: Environmental Documentation	Mitigated Negative Declaration	<ul style="list-style-type: none"> <li>• Adopted Mitigated Negative Declaration</li> </ul>
Task 7: Permitting	Section 1600 Streambed Alteration Agreement	<ul style="list-style-type: none"> <li>• Final Permit</li> </ul>

\* Grey shading indicates that grant funds are not being requested for activities under this budget category.



## Budget Category (d): Construction/Implementation

For the *El Nido Area Recharge Project*, grant funds are requested for both Task 8 - Construction Contracting and Task 9 - Construction within Category (d) Construction/Implementation. An outline of expected tasks and deliverables is provided below.

**Table 3-17: Category (d): Construction/Implementation Work Plan Outline**

Proposal Title: Merced IRWM Implementation Grant Proposal		
Project Title: <i>El Nido Area Recharge Project</i>		
Task	Description	Deliverable
<b>Category (d) Construction/Implementation</b>		
Task 8: Construction Contracting	This task includes the preparation of the bid package, bid solicitation, review of bids/submittals, and selection/award.	<ul style="list-style-type: none"> <li>• Bid package and selection</li> </ul>
Task 9: Construction/ Implementation	Construction/Implementation subtasks include:	
	<u>Subtask 9.1 - Mobilization and Site Preparation:</u> This subtask involves construction contractor mobilization of construction equipment to the project site, establishment of project staging areas.	<ul style="list-style-type: none"> <li>• None</li> </ul>
	<u>Subtask 9.2 – Civil Construction:</u> Civil construction involves the following activities: <ul style="list-style-type: none"> <li>• <i>Monitoring Well Installation:</i> Nine monitoring wells will be installed in order to better quantify recharge and its anticipated destination in the aquifer. The nine wells will be arranged in three clusters of three well each. At each of these three sites, there will a shallow well (~30 ft. deep), an intermediate depth well (~60 ft. deep) and a deep well (~120 ft. deep). The monitoring wells will be equipped with level sensors to trace impact of recharge.</li> <li>• <i>Recharge Basin Conditioning:</i> The Recharge basin will be ripped to insure maximum recharge rates.</li> <li>• <i>El Nido Dam Modifications:</i> Reinforced concrete will be used to modify the existing El Nido dam structure in order to accept the new diversion gates.</li> </ul>	<ul style="list-style-type: none"> <li>• Well logs</li> <li>• As-built drawings</li> </ul>
	<u>Subtask 9.3 – Gate Installation:</u> A construction contractor will install two new automated gates on the El Nido Dam.	<ul style="list-style-type: none"> <li>• As-built drawings</li> </ul>
	<u>Subtask 9.4 – SCADA and Commissioning:</u> A construction contractor will install the SCADA system. The SCADA system will allow groundwater levels will be monitored continuously to evaluate the effectiveness of the regulating basin.	<ul style="list-style-type: none"> <li>• As-built drawings</li> </ul>



### Category (e): Environmental Compliance/Mitigation/Enhancement

No grant funds are being requested for environmental compliance/mitigation/enhancement (Task 10) for the *El Nido Area Recharge Project*.

### Category (f): Construction Administration

Grant funds are being requested for Construction Administration (Task 11). Construction administration tasks associated with the *El Nido Area Recharge Project* are described in the table below:

**Table 3-18: Category (f): Construction Administration Work Plan Outline**

Proposal Title: Merced IRWM Implementation Grant Proposal		
Project Title: <i>El Nido Area Recharge Project</i>		
Task	Description	Deliverables
<b>Budget Category (f): Construction Administration</b>		
Task 11: Construction Administration	<ul style="list-style-type: none"> <li>• Construction management</li> <li>• Inspection activities</li> <li>• Review of contractor submittals</li> <li>• Responses to RFIs and Change Order Requests</li> <li>• Construction contract closeout</li> </ul>	<ul style="list-style-type: none"> <li>• Inspection field notes and reports</li> </ul>

### Category (g): Other Costs

There are no other costs associated with the *El Nido Area Recharge Project*.

### Category (h): Construction/Implementation Contingency

There is no construction implementation contingency associated with the *El Nido Area Recharge Project*.



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## Merced River Education and Enhancement Program

### Detailed Description

The *Merced River Education and Enhancement Program* consists of three related initiatives:

- Lower Merced River Stewardship: a community education and environmental enhancement project that will implement restoration activities along Lower Merced River (e.g., invasive plant removal and streambank stabilization), education efforts and community building (e.g., school and community outreach, agricultural workshops, etc.), and improved recreational opportunities
- Merced Region Climate Change: a research and education project, which would involve real-time streamflow and water-cycle measurements to better understand climate change effects on water supplies and development of a climate change education and outreach toolbox.
- Lower Merced River Recreational Boating Public Access: a construction project, consisting of a public boat launch for safe access to the Merced River as well as other recreational amenities and educational signage regarding the Merced River and safety.



## Project Maps

Figure 3-18: Merced River Education and Enhancement Program Area Map

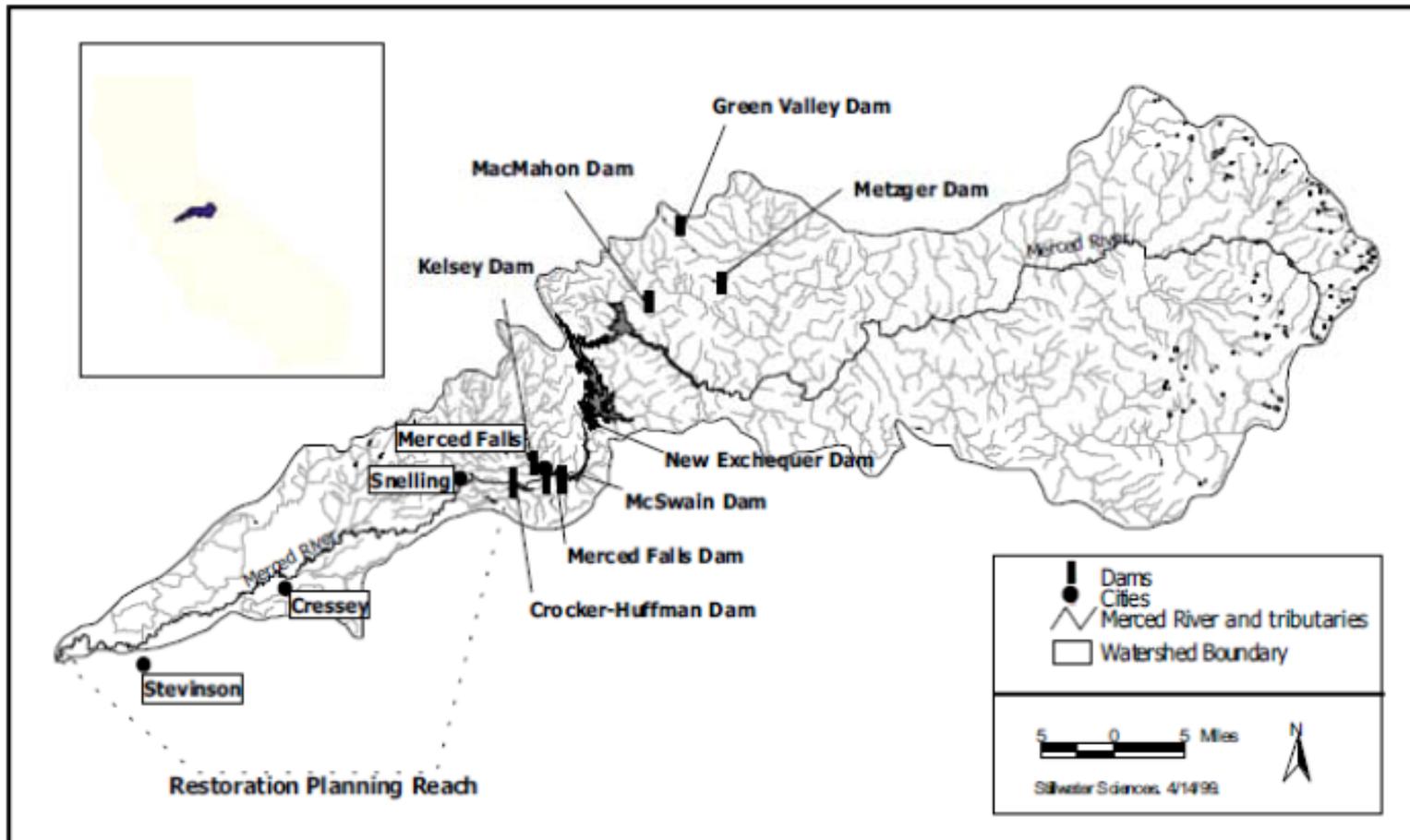




Figure 3-19: Merced River Education Enhancement





Figure 3-20: Merced River Education and Enhancement





## Work Plan Tasks –Summary for the Merced River Education and Enhancement Program

In the table below, tasks for which grant funding for the *Merced River Education and Enhancement Program* is being requested are shown in white while tasks for which grant funding is *not* being requested are shown in grey. The following sections provide descriptions of the work to be conducted under each task and the deliverables to be produced under each task.

**Table 3-19: Category (f): Construction Administration Work Plan Outline**

Proposal Title: Merced IRWM Implementation Grant Proposal – Round 2 Project Title: Merced River Education and Enhancement Program	
Category/Task	Grant Funds Requested?
<b>Category (a) Direct Project Administration</b>	✓ Yes
Task 1: Administration	✓ Yes
Task 2: Labor Compliance Program	✓ Yes
Task 3: Reporting	✓ Yes
<b>Category (b) Land Purchase/Easement*</b>	-- No
<b>Category (c) Planning/Design/Engineering/Environmental Documentation</b>	✓ Yes
Task 4: Assessment and Evaluation	✓ Yes
Task 5: Final Design	✓ Yes
Task 6: Environmental Documentation	✓ Yes
Task 7: Permitting*	✓ Yes
<b>Category (d) Construction/Implementation*</b>	✓ Yes
Task 8: Construction Contracting*	✓ Yes
Task 9: Construction*	✓ Yes
<b>Category (e) Environmental Compliance/ Mitigation/Enhancement*</b>	-- No
Task 10: Environmental Compliance/Mitigation/Enhancement*	-- No
<b>Category (f) Construction Administration*</b>	-- No
Task 11: Construction Administration*	-- No

\* Grey shading indicates that grant funds are not being requested for activities under this budget category.



## Category (a): Direct Project Administration

This task involves the direct project administration tasks related to the *Merced River Education and Enhancement Program*. This task involves the direct project administration tasks related to the *Merced River Education and Enhancement Program*. Grant funds are being requested for Administration (Task 1), Labor Compliance Program (Task 2), and Reporting (Task 3). The table below describes the work to be conducted under these tasks and the deliverables that will be produced.

**Table 3-20: Category (a): Direct Project Administration Work Plan Outline**

Proposal Title: Merced IRWM Implementation Grant Proposal		
Project Title: Merced River Education and Enhancement Program		
Task	Description	Deliverables
<b>Category (a) Direct Project Administration</b>		
<b>Task 1: Administration</b>		
<ul style="list-style-type: none"> <li>Lower Merced River Stewardship Project</li> </ul>	Preparation of invoices, backup documentation and Performance Monitoring Plan.	<ul style="list-style-type: none"> <li>Invoices and backup documentation.</li> <li>Performance Monitoring Plan</li> </ul>
<ul style="list-style-type: none"> <li>Merced Region Climate Change Awareness</li> </ul>		
<ul style="list-style-type: none"> <li>Lower Merced River Recreational Boating Public Access</li> </ul>		
<b>Task 2: Labor Compliance Program</b>		
<ul style="list-style-type: none"> <li>Lower Merced River Stewardship Project*</li> </ul>	There are no construction activities associated with this component of the program. A Labor Compliance Program is not needed.	
<ul style="list-style-type: none"> <li>Merced Region Climate Change Awareness*</li> </ul>	Installation of streamflow and snow pack monitoring equipment as part of the Merced Region Climate Change Component will fall under an existing UC Merced blanket labor compliance program.	
<ul style="list-style-type: none"> <li>Lower Merced River Recreational Boating Public Access</li> </ul>	Develop and implement Labor Compliance Program for construction of a boat ramp/river public access point.	<ul style="list-style-type: none"> <li>Adopted Labor Compliance Program</li> </ul>
<b>Task 3: Reporting</b>		
<ul style="list-style-type: none"> <li>Lower Merced River Stewardship Project</li> </ul>	Reporting to DWR will be conducted by MID. Project proponents will provide information to MID for the purpose of preparing these reports.	<ul style="list-style-type: none"> <li>Quarterly and Project Completion Reports to DWR starting after contract execution</li> </ul>
<ul style="list-style-type: none"> <li>Merced Region Climate Change Awareness</li> </ul>		
<ul style="list-style-type: none"> <li>Lower Merced River Recreational Boating Public Access</li> </ul>		

\*Grey shading indicates that no grant funding is requested for this aspect of the project.



As noted in the table above, a Performance Monitoring Plan will be prepared to provide a framework for assessing and evaluating the project performance once it is implemented. The Monitoring Plan will identify the measures that will be used to monitor progress toward achieving the specific project goals of improving water quality, increasing flood protection and protecting protected species. The Monitoring Plan will also provide tools to monitor and measure project processes and will guide final project performance reporting that will fulfill grant agreement requirements. Attachment 6 of this Proposal consists of Monitoring, Assessment, and Performance Measures for the Project. Project monitoring will be conducted to assess and evaluate project performance.

### **Category (b): Land Purchase/Easement**

Grant funds are not being requested for land purchase or easement acquisition associated with the *Merced River Education and Enhancement Program*. A discussion of the site access scenarios for each of the three components of the program follows:

- Lower Merced River Stewardship: Agreements with local landowners about access to their land by agency staff, project participants and volunteers will be needed. Work on these agreements has already begun.
- Merced Region Climate Change: No land purchase or easement will be needed for this component *Merced River Education and Enhancement Program*.
- Lower Merced River Recreational Boating Public Access: No land purchase or easement will be needed for this component of the *Merced River Education and Enhancement Program*. Construction will occur on land already owned by the implementing agency (Merced Irrigation District).

### **Category (c) Planning/Design/Engineering/Environmental Documentation**

Grant funds are requested Task 5 (Final Design), Task 6 (Environmental Documentation), and Task 7 (Permitting) within Category (c) Planning/Design/Engineering/Environmental. Task 7 includes the acquisition of permits for Lower Merced River Stewardship (Bureau of Reclamation Encroachment Permit), and Lower Merced River Recreational Boating Public Access (Section 1600 Streambed Alteration Agreement and a County of Merced Encroachment Permit). Task 7 also includes coordination on a streamlined permitting program for future environmental projects on private lands, which may include USACE 404 and Section 10 permits, Clean Water Act 401, 402 and 303(d)



**Table 3-21: Category (c): Planning/Design/Engineering/Environmental Documentation Work Plan Outline**

Proposal Title: Merced IRWM Implementation Grant Proposal Project Title: Merced River Education and Enhancement Program		
Task	Description	Deliverable
<b>Category (c) Planning/Design/Engineering/Environmental Documentation</b>		
<b>Task 4: Assessment and Evaluation<sup>1</sup></b>		
<ul style="list-style-type: none"> <li>Lower Merced River Stewardship</li> <li>Merced Region Climate Change Awareness</li> </ul>	Assessment and evaluation needs for these project components have been completed.	
<ul style="list-style-type: none"> <li>Lower Merced River Recreational Boating Public Access</li> </ul>	The Conceptual Design Report for this component is currently near completion. This work is funded by MID.	<ul style="list-style-type: none"> <li>Conceptual Design Report</li> </ul>
<b>Task 5: Final Design</b>		
<ul style="list-style-type: none"> <li>Lower Merced River Stewardship</li> </ul>	Formal design is not necessary for this project. It is not an infrastructure project.	
<ul style="list-style-type: none"> <li>Merced Region Climate Change Awareness</li> </ul>	Development of the final design drawings and specifications for the weir on Big Sandy Creek.	<ul style="list-style-type: none"> <li>Final design drawings and specifications.</li> </ul>
<ul style="list-style-type: none"> <li>Lower Merced River Recreational Boating Public Access</li> </ul>	Development of the final design drawings and specifications for the access improvements and boat launch.	<ul style="list-style-type: none"> <li>Final design drawings and specifications.</li> </ul>
<b>Task 6: Environmental Documentation</b>		
<ul style="list-style-type: none"> <li>Lower Merced River Stewardship</li> </ul>	Environmental documentation is not required for this project component.	
<ul style="list-style-type: none"> <li>Merced Region Climate Change Awareness</li> </ul>	The needed environmental documentation has been completed.	
<ul style="list-style-type: none"> <li>Lower Merced River Recreational Boating Public Access</li> </ul>	A Mitigated Negative Declaration (MND) will be prepared.	<ul style="list-style-type: none"> <li>MND</li> </ul>
<b>Task 7: Permitting</b>		
<ul style="list-style-type: none"> <li>Lower Merced River Stewardship</li> </ul>	Bureau of Reclamation Encroachment Permit	<ul style="list-style-type: none"> <li>Final Permit</li> </ul>
<ul style="list-style-type: none"> <li>Merced Region Climate Change Awareness</li> </ul>	This work will be conducted under existing permits.	
<ul style="list-style-type: none"> <li>Lower Merced River Recreational Boating Public Access</li> </ul>	Section 1600 Streambed Alteration Agreement and a County of Merced Encroachment Permit	<ul style="list-style-type: none"> <li>Final Permits</li> </ul>

\*Grey shading indicates that no grant funding is requested for this aspect of the project.



## Category (d): Construction/Implementation

For the *Merced River Education and Enhancement Program*, grant funds are requested for both Task 8 - Construction Contracting and Task 9 - Construction within Category (d) Construction/Implementation. An outline of expected tasks and deliverables is provided below.

**Table 3-22: Category (d): Construction/Implementation Work Plan Outline**

Proposal Title: Merced IRWM Implementation Grant Proposal		
Project Title: Merced River Education and Enhancement Program		
Task	Description	Deliverable
<b>Category (d) Construction/Implementation</b>		
<b>Task 8: Construction Contracting</b>		
<ul style="list-style-type: none"> <li>Lower Merced River Stewardship</li> </ul>	There is no construction contracting associated with this component of the program.	
<ul style="list-style-type: none"> <li>Merced Region Climate Change Awareness</li> </ul>	MID staff will provide construction contracting in-kind support for setting up contracts to supply monitoring equipment.	<ul style="list-style-type: none"> <li>Contracts with vendors</li> </ul>
<ul style="list-style-type: none"> <li>Lower Merced River Recreational Boating Public Access</li> </ul>	This task includes the preparation of the bid package, bid solicitation, and review of bids/submittals.	<ul style="list-style-type: none"> <li>Bid package and selection</li> </ul>
<b>Task 9: Construction/ Implementation</b>		
<ul style="list-style-type: none"> <li>Lower Merced River Stewardship</li> </ul>	<ul style="list-style-type: none"> <li>Riparian Corridor Restoration</li> <li>School Education (classroom education and field trips)</li> <li>Community Outreach (public forums, stakeholder/partner coordination workshops, Community Fairs, bus tour)</li> <li>Agricultural Workshops</li> <li>Streamlined Permitting Workgroup</li> <li>Lifejacket Loan and Training</li> </ul>	<ul style="list-style-type: none"> <li>Invasive Species Mapping</li> <li>Riparian Corridor Guidance Document for Landowners</li> <li>Materials for classroom visits and field trips</li> <li>Materials for public forums and stakeholders workshops.</li> <li>Merced River Watershed Tabletop Model</li> </ul>
<ul style="list-style-type: none"> <li>Merced Region Climate Change Awareness</li> </ul>	<ul style="list-style-type: none"> <li>Installation of a weir to measure flows on Big Sandy Creek and analysis of real-time streamflow measurements.</li> <li>Expansion of snow and soil-moisture measurements sites in the upper Merced River basin and adaptation watershed model to enhance streamflow and water-yield forecasting</li> <li>Implementation of climate change education focusing on the climate-water nexus.</li> </ul>	<ul style="list-style-type: none"> <li>As-Built Drawings for weir</li> <li>Report with findings from watershed modeling</li> <li>Website for regional climate change awareness</li> </ul>
<ul style="list-style-type: none"> <li>Lower Merced River Recreational Boating Public Access</li> </ul>	<ul style="list-style-type: none"> <li>Mobilization and Site Preparation</li> <li>Project Construction</li> <li>Performance Testing and Demobilization</li> </ul>	<ul style="list-style-type: none"> <li>As-Built Drawings</li> </ul>

\*Grey shading indicates that no grant funding is requested for this aspect of the project.



### Category (e): Environmental Compliance/Mitigation/Enhancement

No grant funds are being requested for environmental compliance/mitigation/enhancement (Task 10) for the *Merced River Education and Enhancement Program*.

### Category (f): Construction Administration

Grant funds are not being requested for Construction Administration (Task 11). Construction administration tasks associated with the *Merced River Education and Enhancement Program* will be conducted by Modesto Irrigation District staff as in-kind support. These activities are described in the table below and are associated with the *Merced Region Climate Change Awareness* and *Lower Merced River Recreational Boating Public Access* components.

**Table 3-23: Category (f): Construction Administration Work Plan Outline**

Proposal Title: Merced IRWM Implementation Grant Proposal		
Project Title: <i>Merced River Education and Enhancement Program</i>		
Task	Description	Deliverables
<b>Budget Category (f): Construction Administration</b>		
<b>Task 11: Construction Administration*</b>		
<ul style="list-style-type: none"> <li><i>Lower Merced River Stewardship*</i></li> </ul>	There are no construction administration activities associated with this project component.	
<ul style="list-style-type: none"> <li><i>Merced Region Climate Change Awareness*</i></li> </ul>	Construction administration and field inspection activities related to the installation of climate/hydrological monitoring equipment.	<ul style="list-style-type: none"> <li>Inspection field notes and reports</li> </ul>
<ul style="list-style-type: none"> <li><i>Lower Merced River Recreational Boating Public Access*</i></li> </ul>	<ul style="list-style-type: none"> <li>Construction management</li> <li>Inspection activities</li> <li>Review of contractor submittals</li> <li>Responses to RFIs and Change Order Requests</li> <li>Construction contract closeout</li> </ul>	

\*As indicated by the grey shading, no grant funds are being requested for Budget Category (f): Construction Administration -Task 11. Construction administration activities will be conducted by Modesto Irrigation District staff as in-kind support.



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### **Category (g): Other Costs**

For the *Merced River Education and Enhancement Program*, other costs include the UC Merced Facilities and Administration (F&A) costs. Facilities and Administrative costs (F&A) are the basic expenses incurred while conducting research at universities. F&A cost rates are based on a university's actual operating costs. Using guidelines provided by the federal government, an institution assesses its F&A costs on a regular basis and allocates these costs to different activities, such as instruction and research. The F&A costs are applied to all grants awarded to UC Merced and other institutions in the University of California system.

### **Category (h): Construction/Implementation Contingency**

In association with the *Lower Merced River Recreational Boating Public Access* component of the *Merced River Education and Enhancement Program* has a construction contingency of \$30,338. This constitutes 15% of the \$202,250 construction budget for this project component. See also Attachment 4.

# Merced Integrated Regional Water Management Implementation Grant Proposal



Appendices 3-1 to 3-28 provided on CD

App. #	Document Title	File Name
App. 3-1	Feasibility Study and Addendum 1, Black Rascal Creek Flood Control	Att_3IG2_WorkPlan_2of29
App. 3-2	Merced County Streams California, General Design Memorandum Phase 1 Plan Formulation	Att_3IG2_WorkPlan_3of29
App. 3-3	MIRWMP Flood Management Summary	Att_3IG2_WorkPlan_4of29
App. 3-4	Hemming & Morse Inc, Expert Report of Daniel W. Ray, Abarca, et al. v. Merced Irrigation District, et. al. United States District Court Case No. 1:07-CV-0388 OWW DLB.	Att_3IG2_WorkPlan_5of29
App. 3-5	Merced March & April 2006 California County Agricultural Commissioner Disaster Report	Att_3IG2_WorkPlan_6of29
App. 3-6	Summary of Legal Costs Incurred as a Result of 2006 Flood Event	Att_3IG2_WorkPlan_7of29
App. 3-7	Preliminary Engineering Report for the Water System Rehabilitation & Conservation Project (October 2012)	Att_3IG2_WorkPlan_8of29
App. 3-8	Planada Community Services Minutes January 4, 2011	Att_3IG2_WorkPlan_9of29
App. 3-9	Planada 2011 and 2012 Water Use Data	Att_3IG2_WorkPlan_10of29
App. 3-10	Planada 2012 Water Production/Cost Estimates	Att_3IG2_WorkPlan_11of29
App. 3-11	Merced Irrigation District Water Right Summary for El Nido Irrigation District	Att_3IG2_WorkPlan_12of29
App. 3-12	Well Level Compilation	Att_3IG2_WorkPlan_13of29
App. 3-13	El Nido Deliveries Calculations	Att_3IG2_WorkPlan_14of29
App. 3-14	El Nido Additional Recharge Calculation	Att_3IG2_WorkPlan_15of29
App. 3-15	Merced County Division of Environmental Health Private Domestic Well Data	Att_3IG2_WorkPlan_16of29
App. 3-16	El Nido Area Pump Test Data	Att_3IG2_WorkPlan_17of29
App. 3-17	Merced River Corridor Restoration Plan	Att_3IG2_WorkPlan_18of29
App. 3-18	The Merced River Alliance Project Final Report, Volume I: Education and Outreach	Att_3IG2_WorkPlan_19of29
App. 3-19	The Merced River Alliance Project Final Report, Volume II: Biological Monitoring and Assessment	Att_3IG2_WorkPlan_20of29
App. 3-20	Merced Restoration Mapping	Att_3IG2_WorkPlan_21of29
App. 3-21	News Articles Related to Merced River Fatalities and Rescues	Att_3IG2_WorkPlan_22of29
App. 3-22	Community Partnering for Student Learning Summary	Att_3IG2_WorkPlan_23of29
App. 3-23	Merced County Emergency Response Records	Att_3IG2_WorkPlan_24of29
App. 3-24	AP-GfK Poll on Climate Change	Att_3IG2_WorkPlan_25of29
App. 3-25	Our Changing Climate 2012 Vulnerability & Adaptation to the Increasing Risk from Climate Change in California	Att_3IG2_WorkPlan_26of29
App.3-26	United States Department of Agriculture Decision Memo	Att_3IG2_WorkPlan_27of29
App. 3-27	Department of Fish and Game Amendment of Lake or Streambed Alteration Agreement	Att_3IG2_WorkPlan_28of29
App. 3-28	U.S. Army Corps of Engineers Designation Letter	Att_3IG2_WorkPlan_29of29