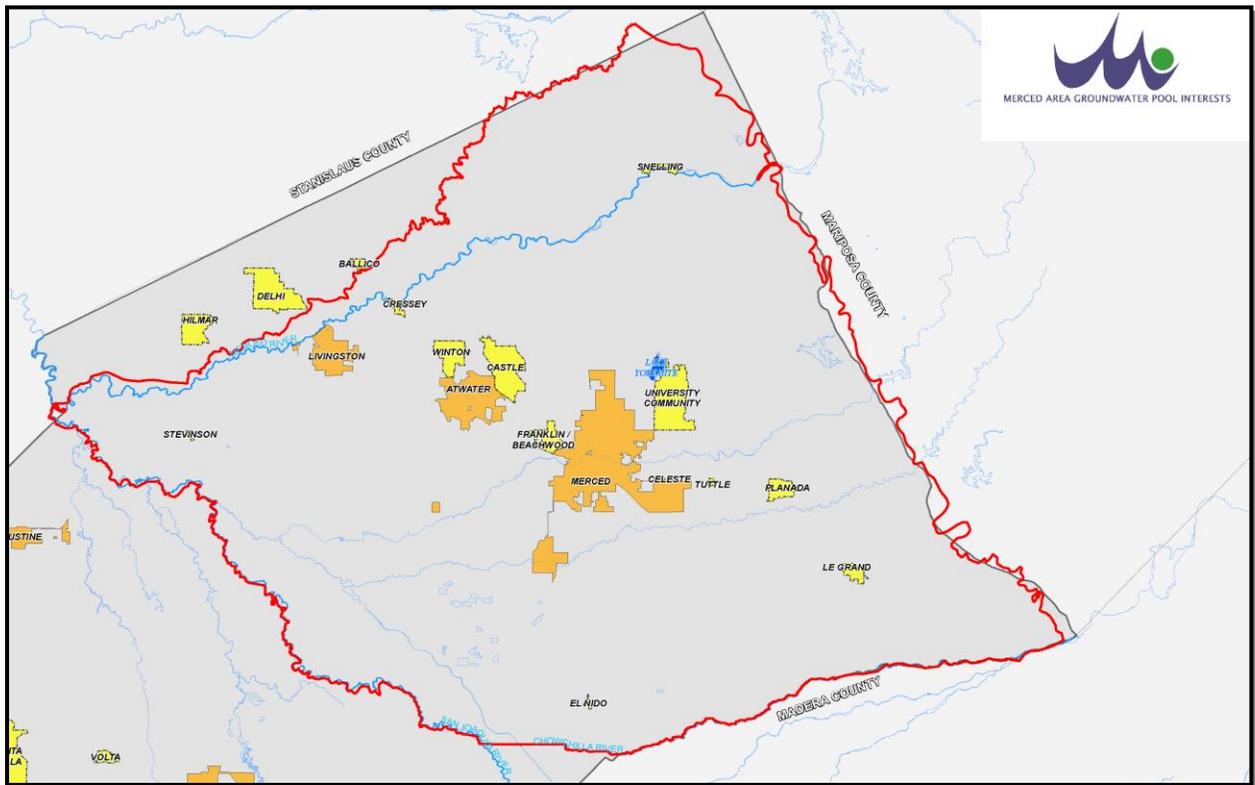


# MERCED INTEGRATED REGIONAL WATER MANAGEMENT PLAN

## Proposal for Planning Funds



Submitted to the California Department of Water Resources

September 2010

<b>Application</b>	<b>Printout from Electronic Submission</b>
<b>Attachment 1</b>	<b>Authorizing Documentation - Resolution</b>
<b>Attachment 2</b>	<b>Eligible Applicant Documentation</b>
<b>Attachment 3</b>	<b>Work Plan</b>
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<b>Attachment 6</b>	<b>AB 1420 and Water Meter Implementation Compliance</b>
<b>Appendix</b>	<b>Maps</b>

### Proposal Full View

#### Applicant Information

Organization Name  \*

Tax ID **999999953**

Proposal Name  \*

Proposal Objective  \*

#### Budget

Other Contribution	<input type="text" value="\$0.00"/>
Local Contribution	<input type="text" value="\$0.00"/>
Federal Contribution	<input type="text" value="\$150,000.00"/>
Inkind Contribution	<input type="text" value="\$216,503.00"/>
Amount Requested	<input type="text" value="\$719,010.00"/> *
Total Project Cost	<input type="text" value="\$1,085,513.00"/> *

#### Geographic Information

Latitude \* DD(+/-)  MM  SS

Longitude \* DD(+/-)  MM  SS

Longitude/Latitude Clarification  Location

County  \*

Ground Water Basin

Hydrologic Region

Watershed

#### Legislative Information

Assembly District  \*

Senate District  \*

US Congressional District District 18 (CA) \*

**Project Information**

**Project Benefits Information**

Project Name Merced Integrated Regiona

**Budget**

Other Contribution	<input type="text" value="0"/>
Local Contribution	<input type="text" value="0"/>
Federal Contribution	<input type="text" value="150000"/>
Inkind Contribution	<input type="text" value="216503"/>
Amount Requested	<input type="text" value="719010"/>
Total Project Cost	<input type="text" value="1085513"/>

**Geographic Information**

Latitude DD(+/-)	<input type="text" value="37"/>	MM	<input type="text" value="18"/>	SS	<input type="text" value="8"/>
Longitude DD(+/-)	<input type="text" value="120"/>	MM	<input type="text" value="28"/>	SS	<input type="text" value="54"/>
Longitude/Latitude Clarification	<input type="text"/>	Location	<input type="text"/>		

County	Merced
Ground Water Basin	San Joaquin Valley-Merced
Hydrologic Region	San Joaquin
WaterShed	San Joaquin Valley Floor

**Legislative Information**

Assembly District	17th Assembly District
Senate District	12th Senate District
US Congressional District	District 18 (CA)

**Section : Applicant Information and Question's Tab**

APPLICANT INFORMATION AND QUESTION'S

**APPLICATION TYPE**

**Is this an application for a Regional Planning Grant or an Interregional Planning Grant?**

- a)  Regional Planning Grant  
 b)  Interregional Planning Grant

**Q1. PROPOSAL DESCRIPTION**

**Provide a brief abstract of the Proposal. Please note if the Proposal will facilitate or support the participation of DAC's in the IR**  
 Merced IRWM will develop and adopt an IRWM Plan by Dec 2012 which meets DWR Standards and Flood Mgmt, Water Conservation, Groundwater Recharge, and Salinity and Nutrient Mgmt. New strat needs of Disadvantaged Communities; 100% of the region meets the definition of

**Q2. PROJECT DIRECTOR**

**Provide the name and details (including email) of the person responsible for executing the grant agreement for the applicant. Per be listed as the Project Director.**

Hicham Eltal Chairman, MAGPI 744 West 20th Street Merced, CA 95340 Phone Number: (209) heltal@mercedid.org

**Q3. PROJECT MANAGEMENT**

**Provide the name and contact information (including email) of the Project Manager from the applicant agency or organization th**

Hicham Eltal Chairman, MAGPI 744 West 20th Street Merced, CA 95340 Phone Number: (209) heltal@mercedid.org

**Q4. APPLICANT INFORMATION**

**Provide the agency name, address, city, state, and zip code of the applicant submitting the application.**

Merced Area Groundwater Pool Interest (MAGPI) 744 West 20th Street Merced, CA 95340 Phone Nu  
 Email: heltal@mercedid.org

**Q5. ADDITIONAL INFORMATION**

**Based on the region's location, what are the applicable DWR regions (Northern, North Central, South Central, and/or Southern): office boundaries:**

[http://www.water.ca.gov/groundwater/groundwater\\_basics/gw\\_contacts\\_info.cfm](http://www.water.ca.gov/groundwater/groundwater_basics/gw_contacts_info.cfm)

- a)  Northern Region  
 b)  North Central Region  
 c)  South Central Region  
 d)  Southern Region

**Q6. ADDITIONAL INFORMATION**

**List the name of the Regional Water Quality Control Board (RWQCB) in which your project is located. For a region that extend each Board.**

[http://www.waterboards.ca.gov/waterboards\\_map.shtml](http://www.waterboards.ca.gov/waterboards_map.shtml)

Central Valley Regional Water Quality Control Board

**Q7. ELIGIBILITY**

Does the application represent a single application from an IRWM Planning region approved in the RAP (see section II, Table I c

Yes

If yes, include the name of the IRWM Planning region. If no, explain.

Merced

**Q8. ELIGIBILITY**

Is the applicant a local agency or non-profit organization as described in Appendix B of the Guidelines?

Yes

If no, please explain.

**Q9. ELIGIBILITY**

List the urban water suppliers that will receive funding from the proposed grant. Those listed must submit self certification of compliance with Assembly Bill (AB) 1420 (see Attachment 6 of the Planning Grant PSP). If there are no urban water suppliers, so indicate.

None.

**Q10. ELIGIBILITY**

Have all of the urban water suppliers, listed in Q9 above, submitted complete 2005 Urban Water Management Plans (UWMP) to DWR? If not, explain. Will all of the urban water suppliers listed in Q9, along with any additional urban water suppliers that meet the criteria, submit updated 2010 UWMPs, consistent with the 2010 UWMP Guidebook and verified as complete by DWR, before the expiration of the grant?

Not Applicable.

**Q11. ADOPTION DATE**

Identify the adoption date or anticipated adoption date of the IRWM Plan.

12/28/2012

**Q12. COMPLETENESS CHECK**

Have all of the fields in the application been completed?

Yes

If no, please explain.

## Section : Application Attachments Tab

### APPLICATION ATTACHMENTS TAB

#### ATTACHMENT 1: AUTHORIZING DOCUMENTATION

Upload authorizing documentation here. Ensure file name is consistent with section V of the Planning Grant PSP (disregard the 5 digit pin).

Upload :  
docume

Last Uploaded Attachments: AUTH DOC Merced IRWMP.pdf

Upload additional authorizing documentation here.

Upload :  
docume

Upload additional authorizing documentation here.

#### ATTACHMENT 2: ELIGIBLE APPLICANT DOCUMENTATION

Upload eligible applicant documentation here. Ensure file name is consistent with section V of the Planning Grant PSP (disregard the 5 digit pin).

Last Uploaded Attachments: ELIG APP DOC Merced IRWMP.pdf

Upload additional eligible applicant documentation here.

Upload :  
applican

Upload additional eligible applicant documentation here.

Upload :  
applican

#### ATTACHMENT 3: WORK PLAN

Upload the work plan here. Ensure file name is consistent with section V of the Planning Grant PSP (disregard the 5 digit pin).

Upload :  
compon

Last Uploaded Attachments: WORK PLAN Merced IRWMP.doc

Upload additional work plan components here.

Upload :  
compon

Last Uploaded Attachments: APPENDIX Merced IRWMP.doc

Upload additional work plan components here.

Last Uploaded Attachments: MAPMercedStreamsGroup.pdf

**ATTACHMENT 4:**  
**BUDGET**

**Upload Budget here. Ensure file name is consistent with section V of the Planning Grant PSP (disregard the 5 digit pin).**

Last Uploaded Attachments: BUDGET Merced IRWMP.doc

**Upload additional budget components here.**

**Upload :  
compon**

**Upload additional budget components here.**

**Upload :  
compon**

**ATTACHMENT 5:**  
**SCHEDULE**

**Upload schedule here. Ensure file name is consistent with section V of the Planning Grant PSP (disregard the 5 digit pin).**

Last Uploaded Attachments: SCHED Merced IRWMP.doc

**Upload additional schedule components here.**

**Upload :  
compon**

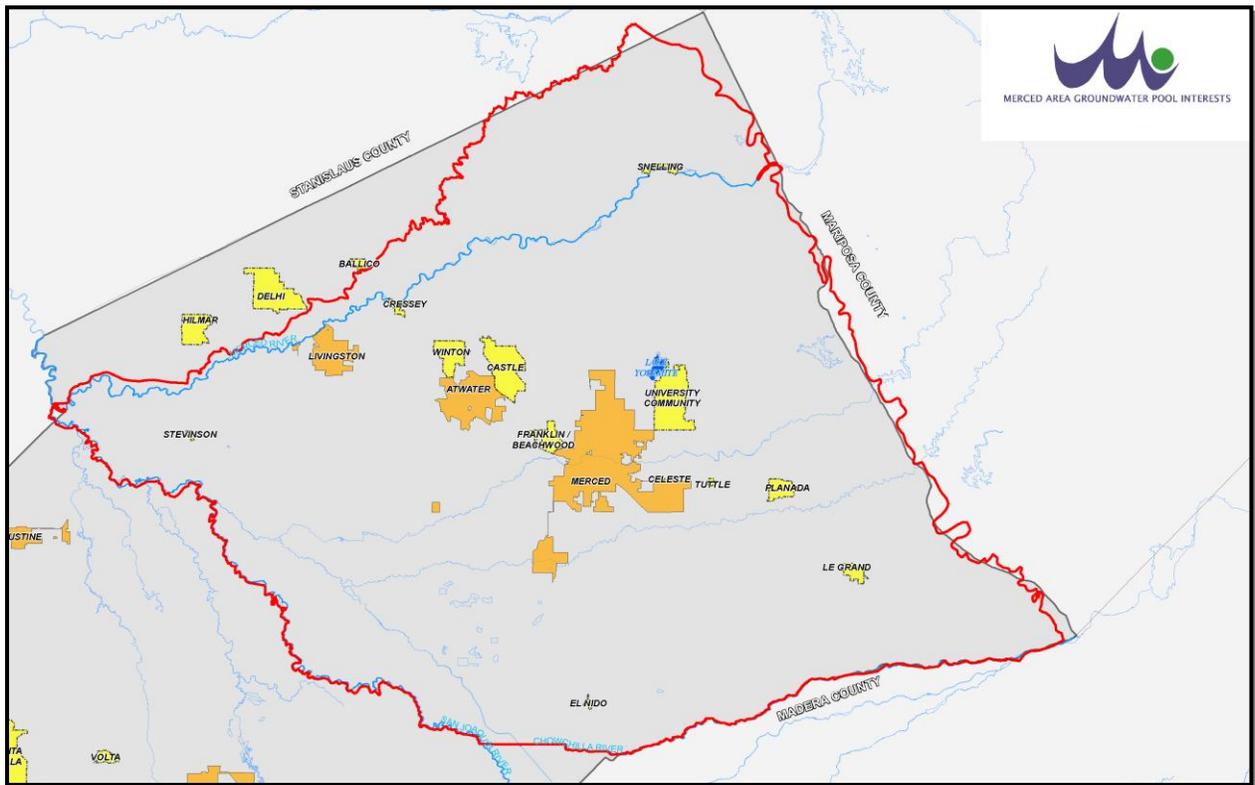
**Upload :  
compon**

**Upload additional schedule components here.**

# ATTACHMENT 1

## Authorizing Documentation

### Resolution



## Merced Integrated Regional Water Management Plan Proposal for Planning Funds

September 2010

# MERCED IRRIGATION DISTRICT

## RESOLUTION NO. 2010-24

### MERCED INTEGRATED REGIONAL WATER MANAGEMENT PLAN PLANNING GRANT PROPOSAL

**WHEREAS**, Merced Irrigation District is one of three agencies along with the City and County of Merced (collectively referred to as “Merced”) required by law (SB 1672) to initiate an Integrated Regional Water Management Plan; and

**WHEREAS**, Merced submitted a Region Acceptance Process Plan, for the area to be involved in the Merced Regional Water Management Plan, to the Department of Water Resources (“DWR”) pursuant to DWR’s criteria; and

**WHEREAS**, Merced region is the hydrologic area that includes the entire Merced Groundwater Basin area in addition to the Merced River watershed north and contiguous to the Merced Groundwater Basin; and

**WHEREAS**, Merced received a conditional approval from DWR for its region, which makes it eligible for a planning grant funded by the Safe Drinking Water, Water Quality and Supply, Flood Control, River and Coastal Protection Bond Act of 2006 (Proposition 84); and

**WHEREAS**, the plan is needed to define governance, stakeholders participation, involvement of the disadvantaged community, and the sought projects in Merced; and

**WHEREAS**, the Merced Irrigation District Board of Directors is always in support of efforts to maintain the reliability of water related activities that make the economic engine for Merced; and

**WHEREAS**, the Merced Irrigation District Board of Directors recognizes the multi-benefits of the Integrated Regional Water Management Plan; and

**WHEREAS**, the Merced Irrigation District Board of Directors supports such projects for local and statewide resource benefits; and

**WHEREAS**, the Merced Irrigation District Board of Directors requests the California Department of Water Resources to support this planning grant proposal its overall perpetual benefit to water and the economy of the Merced Integrated Regional Water Management region.

**THEREFORE, BE IT RESOLVED** by the Board of Directors of Merced Irrigation District that pursuant and subject to all of the terms and provisions of the Integrated Regional Water Management Planning Grant solicitation, pursuant to the Safe Drinking Water, Water Quality and Supply, Flood Control, River and Costal Protection Bond Act of 2006 and amendments hereto, application by this Merced Irrigation District be made to the California Department of Water Resources to obtain a planning grant to fund the formation of a governance board and group structure among other tasks.

**BE IT FURTHER RESOLVED THAT**, the Merced Irrigation District, will contribute, upon execution of a planning grant agreement, 25% of the total value of the planning grant in a combination of in-kind services and monetary contribution. Said combination shall not exceed \$250,000.

**BE IT FURTHER RESOLVED THAT**, the General Manager, of the Merced Irrigation District, or his designee, is hereby authorized and directed to prepare the necessary data, make investigations, sign, and file such application with the California Department of Water Resources.

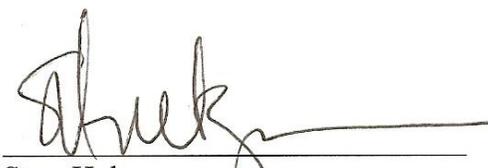
Authorized  
Signature  
Printed Name  
Title

  
\_\_\_\_\_  
John Sweigard  
General Manager

**PASSED AND ADOPTED** this 21st day of September 2010, by the Board of Directors of the Merced Irrigation District, by the following vote:

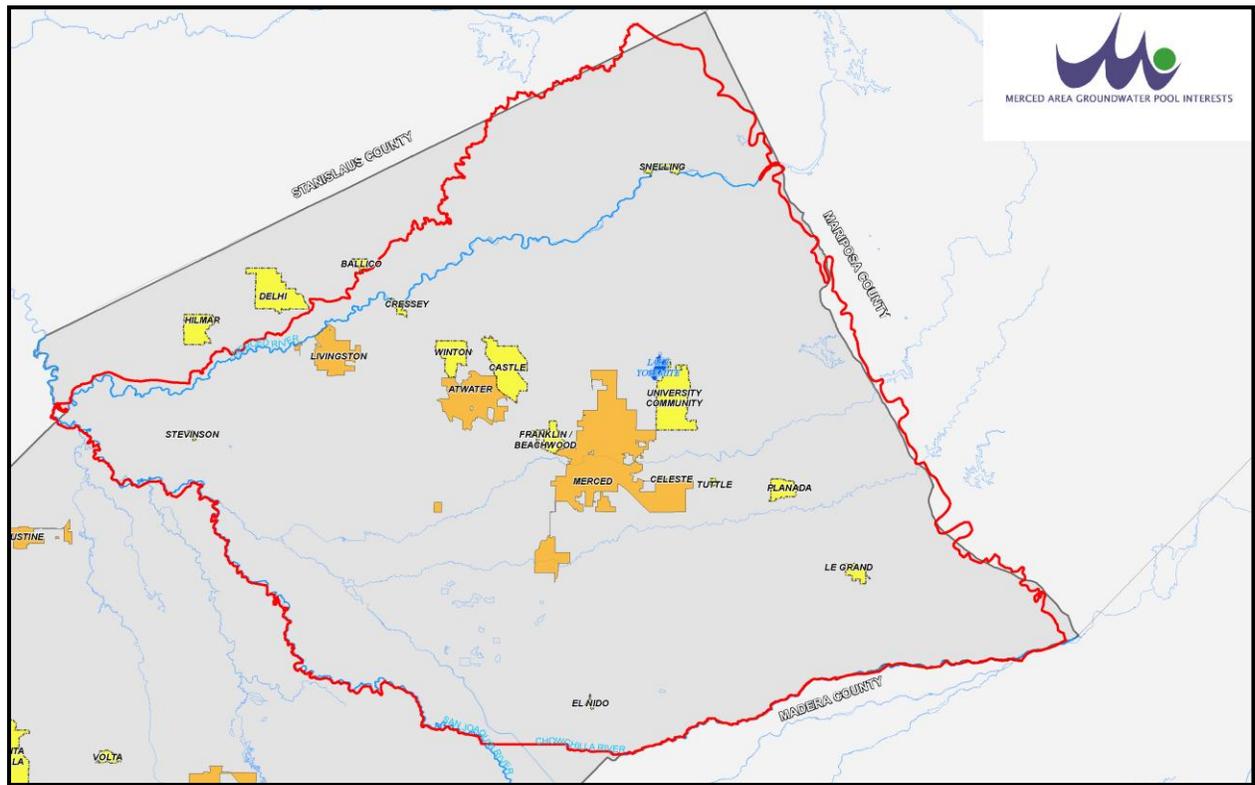
Ayes:	Directors:	Hunter, Hultgren, Pedretti, Pellissier
Noes:	Directors:	None
Abstain:	Directors:	None
Absent:	Directors:	Long

  
\_\_\_\_\_  
William E. Hunter  
President  
Merced Irrigation District

  
\_\_\_\_\_  
Suzy Hultgren  
Vice President/Secretary  
Merced Irrigation District

# ATTACHMENT 2

## Eligible Applicant Documentation



### Merced Integrated Regional Water Management Plan Proposal for Planning Funds

September 2010



September 28, 2010

California Department of Water Resources  
Division of Integrated Regional Water Management  
Financial Assistance Branch  
1416 9<sup>th</sup> Street, Room 338  
Sacramento, CA 95814  
Attn: Bill Hoffmann

To Whom It May Concern:

Merced Irrigation District is pleased to submit the enclosed application on behalf of the Merced Area Groundwater Pool Interest (MAGPI) and the Merced Integrated Regional Water Management area.

This letter will certify that Merced Irrigation District (MID) is a special district, therefore qualified as a "Local Agency", as defined in Appendix B of the Department of Water Resources' Integrated Regional Water Management Guidelines, and eligible to apply for Proposition 84 Integrated Regional Water Management planning funds.

Merced Irrigation District/ MAGPI has successfully implemented many projects funded by Department of Water Resources grant programs.

Merced Irrigation District, in its dual role as Chair of the MAGPI, will develop an Integrated Regional Water Management Plan which conforms to the Plan Standards set forth by the Department of Water Resources.

It is also our expectation that upon the conclusion of the grant funding period, tentatively December 2012, the local governing body of each agency that is part of the Merced Regional Water Management Group responsible for implementation of the Merced Integrated Regional Water Management Plan will have adopted the Plan by resolution.

Thank you in advance for your consideration of Merced Irrigation District as a candidate for support from the Department of Water Resources. If you should have further questions, please do not hesitate to call me at (209) 722-5761.

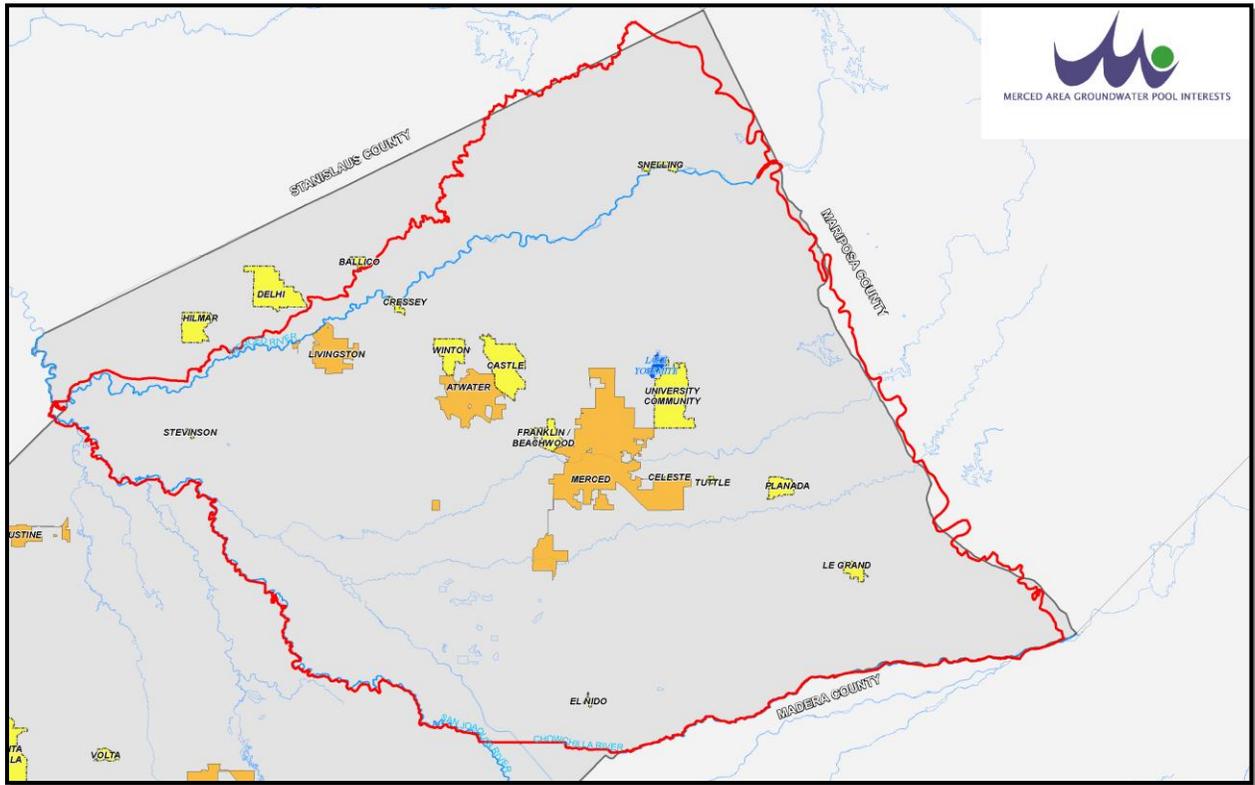
Sincerely,

A handwritten signature in black ink that reads "Hicham Eltal". The signature is written in a cursive style and is positioned above a horizontal line.

Hicham Eltal  
MID Deputy General Manager, Water Resources / MAGPI Chairman

# ATTACHMENT 3

## WORK PLAN



### Merced Integrated Regional Water Management Plan Proposal for Planning Funds

September 2010

## FOREWORD

Enclosed herein is a proposal for consideration of funding from the State of California Department of Water Resources (DWR) Proposition 84 Integrated Regional Water Management program. The proposal is submitted on behalf of the Regional Water Management Group representing the Merced Integrated Regional Water Management (IRWM) area.

The region has been conditionally approved to apply for IRWM Planning funds, and is known to DWR as Integrated Regional Water Management funding area 17.

The Work Plan section of this proposal contains a compelling summary of the various water related challenges faced by the region, as well as the means by which those needs would be addressed through development of an Integrated Regional Water Management Plan.

As described in this section, by developing the Merced IRWM Plan as envisioned, the region will also address Statewide Priorities including:

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

The Merced IRWM Plan will receive intensive study through a series of technical work elements, including. Flood Management Plan; Water Conservation Plan; Groundwater Recharge Feasibility Study; Salinity and Nutrients in Groundwater and Surface Waters Management Plan; and Climate Change Analysis. These technical elements will occur in tandem with:

- A comprehensive public outreach component
- Agreement on a local IRWM governance structure by which decisions can be made relating to regional water management planning
- A continued focus to determine and address the water related needs of Disadvantaged Communities

The region looks forward to enhancing its previous efforts to better integrate local water, land use, and transportation planning. The Merced IRWM Plan will conform to DWR standards, will be adopted by December 2012, and will provide a comprehensive framework for improved water planning performed in a regional, integrated, and coordinated manner.

## WORK PLAN

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## **BACKGROUND**

### **The Regional Water Management Group**

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As defined by CWC §10539, the Merced Area Groundwater Pool Interest (MAGPI) qualifies as a Regional Water Management Group on behalf of the Merced Integrated Regional Water Management (IRWM) region. MAGPI is a group of three or more local agencies, at least two of which have statutory authority over water supply or management, as well as those other persons necessary for the development and implementation of a plan.

The Merced IRWM region is a large contiguous geographic area encompassing the service areas of multiple local agencies. Its features maximize opportunities to integrate water management activities related to natural and man made water systems, including water supply reliability, water quality, environmental stewardship, and flood management.

Water use in the Merced IRWM region is managed by local purveyors, special districts, and private land owners. With the intent to better integrate water management programs and projects, 15 governmental, municipal and agricultural water purveyors in the Merced Groundwater Basin formed an association in 1997 known as the Merced Area Groundwater Pool Interest (MAGPI). These 15 organizations represent the majority of agencies within the Merced IRWM region with statutory authority over water supply, water quality, water management or flood control. A non-purveyor Member at Large, East Merced Resource Conservation District, participates in MAGPI with interest in watershed coordination and environmental stewardship. A map depicting the Merced IRWM region's geographical area and the service areas of its water, conservation, and irrigation districts will be found in the Appendix of this proposal.

MAGPI agencies now have a proven history of working together to resolve water management related issues within the region. An early MAGPI achievement was its Merced Groundwater Basin Management Plan, published in December 1997 and updated July 2008. The Merced Groundwater Basin Management Plan recognizes the potential benefits of considering surface water and groundwater management in a regional and integrated manner. The document has been referenced and sourced in a wide variety of local water plans, land use plans, and other local plans and studies.

The level of regional cooperation and coordination facilitated by MAGPI has helped avoid potential conflicts and resulted in several successful planning and implementation projects in Merced County over the past decade.

As a result of the forum provided by MAGPI, water purveyors now have a venue at which to consider new and innovate strategies to coordinate and integrate; Franklin County Water District approached the City of Merced regarding potentially consolidating treatment plant operations; the City of Atwater negotiated the same topic with the Winton Water and Sanitary District; and continuing similar discussions are ongoing between Winton Water and Sanitary District and Merced County regarding the Castle Airport area.

MAGPI continues to utilize ad hoc and technical advisory committees as needed for specific purposes, including the preparation of this proposal as well as the Merced IRWM Region Acceptance Process application.

MAGPI members fully recognize the value of managing water by coordinating resources, and continually strategize ways to intensify these efforts. MAGPI began the Merced IRWM planning effort in March 2008. A Region Acceptance Process (RAP) application was submitted in April 2009. The Merced IRWM region has been conditionally approved to apply for planning funds.

MAGPI is making application for these funds with the intent to develop an adopted Integrated Regional Water Management Plan which conforms to DWR standards.

<b>Merced Integrated Regional Water Management Plan                      Statutory Authorities                      of Regional Water Management Group /                      members of Merced Area Groundwater Pool Interest (MAGPI)</b>										
	Ground Water Potable	Ground Water Ag	Surface Water Potable	Surface Water Ag	Sanitary Sewer	Storm Drainage	Flood Fighting	Env Water	Recreational Water	Recycled Water
City of Merced										
City of Atwater										
City of Livingston										
County of Merced		Pending Agrmnt		Pending Agrmnt						
Merquin County Water Dist										
Le Grand/ Athlone Water Dist										
Winton Water & Sanitary Dist										
Merced Irrigation Dist										Pending Agrmnt
Stevinson Water Dist										
Meadowbrook Water Co										
Black Rascal Water Dist										
Planada Comm Svc Dist										
Turner Island Water Dist										
Lone Tree Mutual Water Co										
Le Grand Comm Svc Dist										
East Mcd Resource Cons Dist										

### Lead Agency for the Regional Water Management Group

The lead agency and applicant is Merced Irrigation District.

The County of Merced and the City of Merced are the primary MAGPI members who will assist Merced Irrigation District in developing and implementing a Merced IRWM Plan. All three agencies have statutory authority over water supply and management, and are highly motivated to develop the Merced IRWM Plan.

Merced Irrigation District (MID) has a success record in leading, developing, planning and implementing water programs and projects. MID initiated MAGPI, is the Chair, and the lead agency supporting MAGPI.

MID has statutory authority in the areas of potable ground water, agricultural ground water, potable surface water, agricultural surface water, sanitary sewer, storm drainage, flood fighting, environmental water, and recreational water.

MID was organized in 1919 to provide irrigation and drinking water to the city of Merced, and to farms in the central portion of the San Joaquin Valley located around the City of Merced. In fact Lake Yosemite an 8,000 acre-foot reservoir was constructed for urban consumption (the City of Merced shifted to groundwater consumption in 1927). The district currently provides surface irrigation water to approximately 119,000 acres within its 420,000 acre sphere of influence, which encompasses all lands within the Merced Groundwater Basin located in the eastern part of Merced County, in addition to lands adjacent to its boundary north of the Merced River.

MID distributes water through 825 miles of earthen and concrete lined canals and pipelines. MID also uses portions of its existing irrigation distribution system for urban storm drainage by routing natural stream flows and runoff from urban developments, away from populated areas.

MID owns, operates and maintains the New Exchequer and McSwain dams, reservoirs, and hydroelectric facilities. These are the District's primary water storage facilities on the Merced River. The New Exchequer Dam Project on Lake McClure was completed in 1967 as a multi-purpose facility providing facilities and water for all beneficial uses, including domestic and irrigation water, flood control, hydroelectric power generation, recreation, and the environment.

MID owns, operates and maintains five recreation areas adjacent to the lakes behind New Exchequer and McSwain Dams. Floating marinas are located on Lake McSwain and in two locations on Lake McClure for the boating public.

Activities enjoyed in the water dependent recreation areas include fishing, boating, swimming, camping, hiking and bicycling; over 600 campsites are available to the public on a year round basis.

MID is authorized to act as an electric utility under the California Water Code. MID has owned and operated hydroelectric generating facilities on the Merced River since 1927. In 1995, MID exercised its authority to sell power to retail electric customers.

## The Region

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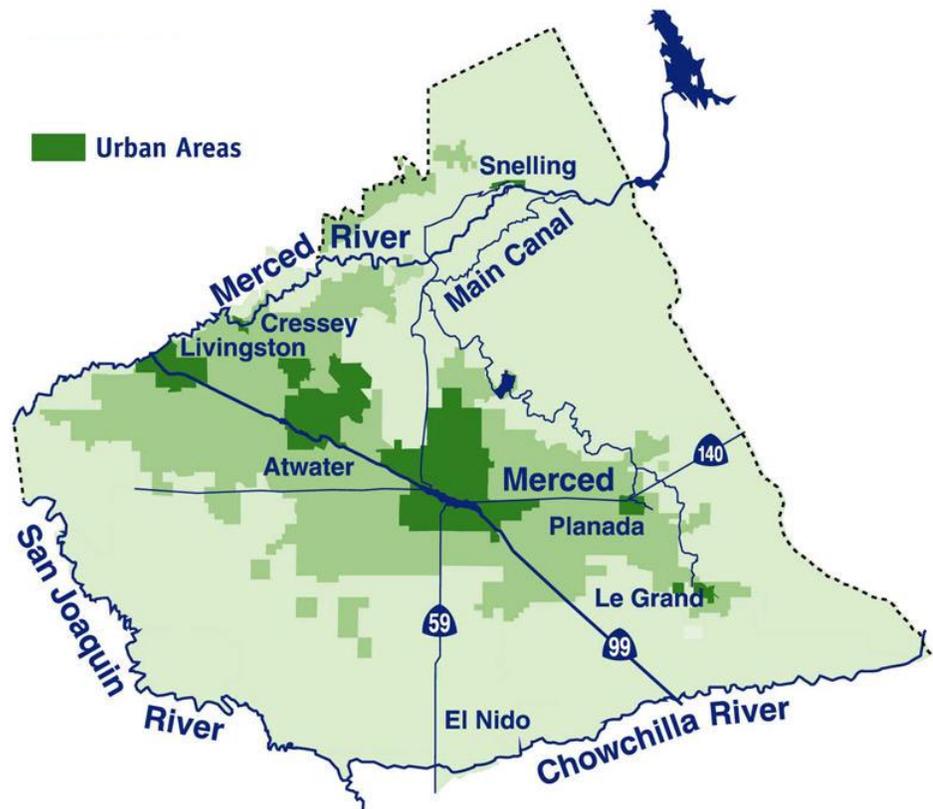
The Merced Integrated Regional Water Management (IRWM) region is located in eastern Merced County. The Merced IRWM area includes the Merced Groundwater Basin, which is bounded by the San Joaquin River, the Merced River, the Stanislaus County line, the Chowchilla River, and the Mariposa County line. Additionally, the region includes the Merced River watershed area, located north and contiguous to the Merced Groundwater Basin.

The Merced River watershed encompasses the Dry Creek watershed area, in addition to the watershed for the portion of the river downstream to its confluence with the San Joaquin River.

The area is approximately 590,000 acres, consisting of irrigation districts and other agricultural lands, urban areas, and undeveloped lands. The largest urban communities are the cities of Merced, Atwater, and Livingston. Unincorporated communities include Cressey, Le Grand, Planada, Snelling, and Winton.

The Merced IRWM is further bordered by Madera IRWM to the south, Central California IRWM to the east, Tuolumne-Stanislaus to the northeast, and Westside-San Joaquin IRWM to the west.

It should be noted that the Department of Water Resources has “conditionally approved” the Merced IRWM region because it is completely overlapped by the boundary proposed by the CenCal IRWM. As a condition of approval, Merced IRWM will confer with CenCal IRWM and Madera IRWM to resolve and eliminate overlapping boundaries.



The Merced IRWM region contains the Department of Water Resources Merced Sub-basin 5-22.04 (Bulletin 118-80). The area is a unique hydrologic basin with a broad variety of water systems, managed by water purveyors who formed the association known as the Merced Area Groundwater Pool Interest (MAGPI) more than 10 years ago.

MAGPI members designed the Merced IRWM region boundaries with careful consideration of water management issues and water related conflicts common to its stakeholders, including water supply and water quality; drought preparedness and flood management; wastewater treatment; groundwater management; conjunctive use of surface water and ground water; watershed management; and land use issues unique to the Merced Groundwater Basin.

### Basin Delineations and Hydrogeology Features

The San Joaquin Valley is a structural trough up to 200 miles long and 70 miles wide. It is filled with up to 32,000 feet of marine and continental sediments deposited during periodic inundation by the Pacific Ocean and by erosion of the surrounding mountains, respectively.

The San Joaquin Valley has three basins designated and acknowledged by DWR and the Regional Water Quality Control Boards, consisting of the Sacramento River, San Joaquin River and Tulare Lake regions. A map illustrating the location of the Merced IRWM within these basins will be found in the Appendix of this proposal.

Merced County is located in the center of the San Joaquin River drainage basin, a 15,880 square mile watershed with numerous tributaries from the Sierra Nevada and the Coast Range. The valley geomorphology of the County and the respective flat hydrology dominates the County. Surface water resources are governed by the climate of the region and by watersheds producing streamflow that enters the area.

Streamflow is produced by local and basin wide rainfall in addition to snowmelt from the Sierra Nevada. Dams and reservoirs regulate all the major streams and rivers contributing flow into Merced County. Water diversions for agricultural, municipal, habitat restoration, and industrial uses occur upstream of and within the County.

Four surface water catchment and groundwater basins comprise the Merced County groundwater system. The Delta-Mendota Groundwater Basin is located west of the San Joaquin River. The Turlock, Merced, and Chowchilla Groundwater Basins are located east of the San Joaquin River.

The Merced Groundwater Basin is the largest in the county. The Merced IRWM region is slightly larger than the Merced Groundwater Basin, and is bounded by the Merced River to the north; and the Chowchilla River to the south; the San Joaquin River on the west; and the crystalline basement rock of the Sierra Nevada foothills on the east. A map of the Merced Groundwater Sub-basin and its relationship to the San Joaquin River Hydrologic Region will be found in the Appendix section of this proposal.

There are several small- to medium-sized creeks that traverse the Merced IRWM region, including Dry Creek, Black Rascal Creek, Bear Creek, Fahrens Creek, Owens Creek, Miles Creek, Duck Slough, and Dutchman Creek, as well as several smaller named and unnamed tributaries. All of these creeks and rivers ultimately flow into the San Joaquin River.

Surface Area, Land Use, and Water Use Characteristics of Merced IRWM

The groundwater resources in the Merced Groundwater Sub-basin are extensively developed and managed conjunctively with the Region’s surface water resources to satisfy regional agricultural, urban, and environmental water demands.

The largest urban communities within the basin include the cities of Merced, Atwater and Livingston; unincorporated communities include Cressey, Le Grand, Planada, Snelling and Winton. The current total population of Merced County is approximately 258,495 and is expected to double by 2040. Including its unincorporated areas, the IRWM region is residence of approximately 70 percent of the entire county population.

	2010 Population
Atwater	27,755
Livingston	14,051
Merced	80,985
Balance of County (including unincorp areas)	135,704
<b>Merced County Total</b>	<b>258,495</b>

*Source: CA Dept of Finance, May 2010*

A map depicting the Merced IRWM region’s geographical area and locations of its unincorporated communities and urbanized areas has been included in the Appendix of this proposal.

The Merced IRWM region is characterized by a diverse and highly specialized agricultural economy. The region’s land use patterns are inseparably linked to agricultural production.

Land use patterns are dominated by agricultural uses including animal confinement (dairy), grazing, forage, row crop, nut and fruit trees. Nearly 80 percent of Merced County’s land area is in agricultural use.

Merced County is the fifth most productive agricultural region in California. In the year 2000, the total value of agricultural production in Merced County was over \$1.5 billion (National Agricultural Statistics Service, 2001).

Dairy products generate the greatest amount of revenue, followed by poultry and almonds. Other important commodities include alfalfa, corn, and more than 100 different agricultural crops. Agriculture production and its related industries are made possible by the long growing season, suitable soils, irrigation distribution facilities, and the availability of water.

Agricultural lands and industries rely heavily on purveyors and districts, private groundwater wells and surface water sources in some areas. Urban land use relies on groundwater in most instances.

Land use patterns in the mountainous areas to the east of the Merced IRWM region are markedly different, dominated by national forest and timber, recreation, tourism, rangeland grazing of forested areas and in the lower foothills.

## **The Partially Completed Integrated Regional Water Management Plan**

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The Merced IRWM planning effort began in March 2008 and a Region Acceptance Process (RAP) application was submitted in April 2009. The Merced IRWM region has been conditionally approved to apply for planning funds; full approval has not yet been received due to a boundary overlap with the adjoining CenCal region.

Merced IRWM representatives will attend meetings held by adjoining IRWM regions to understand issues, collaborate, investigate efficiencies, advance plans or projects. There are historically observed common threads with surrounding regions that Merced IRWM will observe and utilize in shaping regional boundaries, creating planning objectives, and supporting projects as they positively impact Merced IRWM.

### **Public Process to Involve Stakeholders in the IRWM Plan**

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Stakeholder outreach is a prominent feature of the proposed work plan with which Merced IRWM will develop its final Merced Integrated Regional Water Management Plan, and that proposed process is detailed in later sections of this proposal.

Broad public participation received to date through a variety of formats has been considered and informs the Merced IRWM Plan objectives.

Merced IRWM meetings occur as a part of MAGPI meetings at this time. Agendas for these meetings and the meeting place is posted publicly at the MID in accordance with the Brown Act. The agenda and approved minutes are also posted at the MAGPI web site ([www.magpi-gw.org](http://www.magpi-gw.org)).

MAGPI provides a public forum for water purveyors to meet with their peers and discuss matters of mutual interest. This forum is not available elsewhere within Merced County. From the time period March 2008 through September 2010, several MAGPI/ Merced IRWM meetings have included public opportunity to provide comment on the Merced IRWM Plan. MAGPI/ Merced IRWM also sponsored community workshops to foster deeper public participation.

A variety of stakeholders have attended these workshops and meetings and provided comment which is reflected in the decisions made for the Merced IRWM Plan to date, some of whom include:

- Merced County Farm Bureau's Executive Director; the Farm Bureau has a long term interest in issues concerning irrigated lands, management of water supply, and discharges from irrigated lands
- East San Joaquin Water Quality Coalition's Director; the Coalition represents numerous landowners, coordinating irrigated lands program compliance monitoring and reporting, best management practice evaluations, and best management practice implementation in the Merced IRWM region
- University of California Cooperative Extension
- Merced College
- UC Merced (professors and students)
- Merced Fly Fishing Club
- Merced County Division of Environmental Health; participates in matters regarding onsite waste water systems; extensive groundwater sampling, analysis and reporting; irrigated

lands discharges; salinity and nutrient management; animal waste management; statewide and regional compliance reporting tools for public health protection; and improving irrigation efficiency, crop production, and fertilization research and development opportunities in the Merced IRWM area.

In addition to the public meetings and workshops held specifically to discuss Merced IRWM planning, an extensive review of previous public outreach efforts in the Merced IRWM area has been performed to capture water management related issues and concerns, regardless of the venue at which the concerns were expressed. For example, considerable comment was received at public workshops for the update of the Merced County General Plan which relate to water related conflicts. Many of these workshops were conducted in the Merced IRWM region's most low income Disadvantaged Communities.

Throughout the discussion of how the Merced IRWM region's water related objectives and conflicts were identified, specific references are made to previous water plans which incorporated public outreach.

The process used to identify the Merced IRWM Plan's Groundwater Recharge element partially incorporates public comment received during the July 2008 Merced Groundwater Basin Management Plan Update; the 2008 Update also incorporated extensive stakeholder outreach.

Similarly, significant levels of stakeholder outreach were conducted for the 1995 Merced Water Supply Plan and the 2001 Merced Water Supply Plan Update, and used to develop the Water Conservation and Groundwater Recharge elements of the proposed Merced IRWM Plan.

It should be noted that the public outreach conducted for the 2001 Merced Water Supply Plan Update was so extensive that it required one-third of the Update's \$1.7 million budget.

**Process Used to Identify the Region’s Disadvantaged Communities and Their Involvement in the Integrated Regional Water Management Planning Process**

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Every urbanized area in the Merced IRWM region is a Disadvantaged Community, including incorporated cities and unincorporated communities.

The process for identifying and including Disadvantaged Communities is based on the criteria defined in California Water Code § 79505.5(a). The CWC identifies “a community with an annual median household income (MHI) that is less than 80 percent of the statewide annual MHI” as disadvantaged. The result of this analysis is shown in the table below.

The analysis confirms that one hundred percent of the Merced IRWM region meets the criteria of populations who are Disadvantaged Communities (DAC).

<b>Disadvantaged Communities Merced Integrated Regional Water Management Area</b>		
<b>Median Household Income</b>		<b>% of Statewide Annual Median Household Income</b>
California	\$47,493	
<b>Disadvantaged Communities Benchmark</b>	<b>\$37,994</b>	<b>80%</b>
City of Atwater	\$37,344	78.6%
City of Livingston	\$32,500	68.4%
City of Merced	\$30,429	64.1%
County of Merced (includes unincorporated communities of Cressey, Le Grand, Planada, Snelling & Winton)	\$35,532	74.8%
<i>Source: 2000 Census</i>		

MAGPI undertook proactive steps to ensure inclusion of the disadvantaged communities’ needs and interests in the planning process of Merced IRWM’s Region Acceptance Process and in the regional project definitions. The regional public outreach review described on the previous page also took note of workshops performed in Disadvantaged Communities and the specific comments received in those efforts.

Outreach to the Merced IRWM’s Disadvantaged Communities is featured in the proposed work plan with which Merced IRWM will develop its final Merced Integrated Regional Water Management Plan, and that proposed process is detailed in later sections of this proposal. Also embedded in the work plan for the final Merced IRWM Plan is the development of policy standards which consider the water related needs of Disadvantaged Communities.

## **Process Used to Identify the Region's Water Related Objectives and Conflicts**

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### *Integrated Regional Water Management Plan*

Virtually every stakeholder, MAGPI member, and MAGPI/ Merced IRWM meeting participant has expressed support for the fundamental concepts of the Integrated Regional Water Management program; to address water needs in a thoughtful and integrated manner in order to make the wisest use of public resources.

The Merced IRWM's highest objective, therefore, is to undertake the process necessary to develop an Integrated Regional Water Management Plan which will be a useful future guide to the Merced IRWM region and which meets IRWM Plan Standards as set forth by DWR.

### Stakeholder Outreach

There is widespread consensus throughout the Merced IRWM region, MAGPI, and its various stakeholders, that a comprehensive, adopted Merced IRWM Plan can only be achieved utilizing a rich and varied outreach strategy.

There is also common understanding and agreement that the persons conducting this outreach are absolutely critical to advancing the progress of the Merced IRWM Plan. The Plan will require the services of a highly skilled facilitator who is experienced and effective in meeting facilitation, conflict resolution, and consensus building.

MAGPI has previously experimented with alternative public meeting formats. In June 2001, the California Department of Water Resources (DWR) and MAGPI entered into a Memorandum of Understanding in relation to promoting conjunctive use projects within the Merced basin.

Utilizing DWR Integrated Investigation Program funds, a facilitator was contracted with the overall goal to expand public involvement through a Basin Advisory Panel concept, consisting of an advisory body including stakeholders and citizens at large.

The Basin Advisory Panel model did not work well. The facilitator allowed participants to take up meeting time on topics substantially outside the range of MAGPI's mission. Meetings became increasingly conflict-ridden with little positive result. As a result, many MAGPI representatives stopped attending, and some have never returned. The Basin Advisory Panel meetings were discontinued in 2003.

The residual effects of MAGPI's Basin Advisory Panel experience are still being felt. The IRWM Plan facilitator must be capable of assisting MAGPI in shifting this paradigm so that consensus can be developed on the Merced IRWM's governance structure, project review process, and many other tasks and objectives. MAGPI's foundation of collaboration and integration will grow with new perspectives from added stakeholder involvement, contributed and received in a spirit of mutual respect.

Therefore, the work plan proposed for the Merced Integrated Regional Water Management Plan provides a deliberate framework for the scope of the stakeholder outreach to be conducted, as well as for the other work elements. The Merced IRWM work plan contains clearly defined goals, tasks, and timelines and seeks to build on the lessons which MAGPI learned in its Basin Advisory Panel experience.

## Boundary Overlaps and Adjoining Areas

As described elsewhere in this proposal, there are several matters regarding the Merced IRWM boundaries that remain to be resolved, and are appropriate as part of developing an IRWM Plan. Indeed, the Plan will not meet DWR standards unless this work is completed.

- **CenCal- on east boundary of Merced IRWM**

The CenCal boundary The Merced IRWM region currently has an overlap with the CenCal IRWM region, which includes Mariposa County. Indeed, the entire Merced IRWM region is overlapped by the boundary proposed by CenCal.

The Merced IRWM region eastern boundary follows the hydrologic divide created by the crystalline basement rock of the Sierra Nevada foothills.

Land use issues and practices in the Merced IRWM and throughout Merced County are significantly different from those in Mariposa County.

Land use patterns in the mountainous areas to the east of Merced IRWM greatly differ due its domination of national forest and timber, recreation and tourism, rangeland grazing of forested areas; and Merced IRWM's relatively flat terrain versus the lower foothills in Mariposa County.

Further, significant portions of the land areas to the east of Merced IRWM are controlled by federal agencies including National Parks, National Forests, and the Bureau of Land Management.

The shared geographic, environmental and water resource conditions within the Merced IRWM, combined with an established successful history of coordinating planning and implementation of water resources projects distinguishes the Merced IRWM area as a logical unit for continued regional planning efforts. With the best intentions for successful water management, it is Merced IRWM's recommendation that this is best achieved with CenCal excluding the Merced IRWM region from its proposed boundary.

To confirm that there is no duplicative planning for regional water resource management issues in these watersheds, the Merced IRWM region will collaborate with the CenCal region to identify and prioritize any project that would be located near the foothills of Mariposa County.

Merced IRWM will strive to develop an MOU or other agreement with CenCal IRWM that outlines areas of cooperation and mutual benefit. Merced IRWM will consider supporting any planning or management efforts that contribute directly or indirectly to the betterment of the water resources in the Merced IRWM area.

- **West boundary of Merced IRWM**

Merced IRWM has one gap area between anticipated regions which occurs on its westerly boundary. Merced IRWM's region is based on the Merced groundwater basin, which is a significant hydrological unit within California's Central Valley. Based upon the information provided through the established IRWM process, Westside- San Joaquin IRWM (previously known as San Luis Delta Mendota IRWM) did not include a strip of land located west of the San Joaquin River and north of Turner Island Water District, and which is not encompassed by either IRWM.

It is also noted that the Westside-San Joaquin IRWM has chosen to include Turner Island Water District within its boundary even though this area is located within the Merced Groundwater Basin. Merced IRWM can accept an overlap of the plans in that area if the parties are agreeable.

The Merced IRWM group intends to work collaboratively with the Westside-San Joaquin IRWM regional water management group in order to provide the most benefit to both regions and their stakeholders. This same philosophy stands true to all other surrounding IRWM regions. The Merced IRWM group understands that it is imperative that regions work together to ensure that stakeholders and the public at large benefit from the integrated management of water.

- **Dry Creek**

Subsequent to the Merced IRWM submitting its Region Acceptance Process application, the Dry Creek watershed was identified as an area that had not been included in the Region Acceptance Process application by any other IRWM.

By unanimous vote, MAGPI voted to request that the Dry Creek watershed be added to the Merced IRWM area. Dry Creek would not otherwise have been included in the efforts of any other Integrated Regional Water Management plans.

MAGPI's request was based upon sound hydrologic planning principles, as well as its firm commitment to integrated regional planning. The Dry Creek watershed is the last downstream tributary to the Merced River prior to its terminus at the San Joaquin River.

DWR now recognizes Dry Creek on its Region Acceptance Map as being included in the Merced IRWM.

Portions of the Dry Creek watershed are within the Mariposa County political boundary. Merced IRWM looks forward to coordinating with the adjoining CenCal IRWM region regarding Dry Creek.

## Climate Change Analysis

By any measure, climate change deserves significant assessment for the Merced IRWM in relation to water planning.

Merced County's air quality is among the nation's worst. According to the American Lung Association's annual "State of the Air" report for 2004, Merced County is the 8<sup>th</sup> most ozone-polluted County in the nation. Merced County exceeds the state and federal standards for the air pollutants ozone and particulate matter sized 10 microns or greater (PM-10). The Federal Clean Air Act and the California Clean Air Act require areas that are designated non-attainment to reduce emissions until standards are met.

Local transportation planning and land use planning efforts have developed a number of climate change response actions, including low impact development and other innovations in order to achieve reductions in greenhouse gas emissions and related benefits. In particular, the City of Merced has made considerable strides in resource efficiency and reductions in greenhouse gas emissions through use of its 1997 General Plan, specific plans, and development codes.

Regional water planning in the Merced IRWM will benefit from inclusion of a Climate Change Analysis element in its Merced IRWM Plan. The work plan which has been designed for this element was developed in consideration of the IRWM Plan Standards and the eventual inclusion of these work products in the final Merced IRWM Plan.

It should be noted that in addition to addressing a water management issue that is a priority for the Merced IRWM region, *this work also responds to the Statewide Priority categories relating to "Climate Change Analysis" and "Expand Environmental Stewardship".*

The Merced IRWM work plan's overall emphasis is to provide guidance as the region develops policy standards relating to climate change response actions by establishing:

- Effective project review process models which consider greenhouse gas emissions when choosing project alternatives
- Relevant climate change quantitative tools for vulnerability analysis of future specific proposed projects
- Strategies to better integrate Merced IRWM water planning with local land use and transportation planning in relation to climate change
- Strategies to expand environmental stewardship to protect and enhance the environment by improving watersheds and instream functions, and to sustain water and flood management ecosystems

A MAGPI Member at Large, the East Merced Resource Conservation District (EMRCD) is known throughout the Merced IRWM region for its interest in watershed coordination and its continued stewardship of the Merced River watershed.

EMRCD was the lead agency for the four-year Merced River Alliance Project, which was funded by the State Water Resources Control Board and concluded in 2008. The Merced River Biological Monitoring and Assessment which occurred as a result of the Merced River Alliance Project is described in the Data and Technical Analysis section.

Several important scientific studies have taken place in the Merced River watershed, and various habitat restoration projects and student educational activities have occurred with the Merced River as their area of interest. The Merced River Alliance Project, however, was unique in combining biological studies in the Merced River corridor with a very creative and thoughtful public outreach component designed to build environmental stewardship.

The Merced IRWM will further these efforts as it considers environmental stewardship projects for inclusion in the final Merced IRWM Plan, and seeks to take advantage of efficiencies by coordinating among these stakeholders. The participation of the EMRCD is certain to add value to these discussions.

The Merced IRWM will coordinate this focus in environmental stewardship and climate change with the resources of the University of California Merced, a leader in climate change research. A number of UC Merced faculty have expressed interest in participating in these discussion as the Merced IRWM develops its objectives in this area.

Finally, the Climate Change Analysis element of the Merced IRWM Plan will complement the City of Merced's intention to utilize a \$150,000 Federal grant from the Department of Energy to develop its "Climate Action Plan", a policy document that will establishing a goal to reduce greenhouse gas emissions, achieved through a variety of response actions.

The grant was awarded to the City in November 2009, and work began in summer 2010. In winter 2011, a citizen's advisory committee will be convened to assist in developing implementation actions, including those which are water-related. The City's work will produce a greenhouse gas emission inventory and forecast, which will be studied through the course of developing implementation actions.

Merced IRWM has requested to participate in the City's discussions so that Merced IRWM's work will align with the City of Merced's. By integrating and coordinating in this manner with the City of Merced's response actions to reduce greenhouse gas emissions, the Merced IRWM will avoid conflicts and take advantage of efficiencies.

By developing a Climate Change Analysis element of the Merced IRWM Plan, the region will improve its capacity to achieve reductions in tons of pollutants, energy consumption and water demand through its policy standards.

## Flood Management Plan

Flood management has always been a source of concern for the Merced IRWM region.

The Merced IRWM region experienced two major flood events in 2006 and 1998. The structural damage to private homes rendered Disadvantaged Communities and other residents temporarily homeless and prompted hundreds of lawsuits for damages. Structural damage also occurred to area bridges, roads and creeks.

During stakeholder meetings regarding any matter related to water or land use planning, flood management is consistently ranked a very high priority.

Regional water planning will be enhanced by including a Flood Management element in its Merced IRWM Plan. The work plan was designed for this element following a careful review of the IRWM Plan Standards.

It should be noted that in addition to addressing a water management issue that is a priority for the Merced IRWM region, *this work also responds to the Statewide Priority category relating to “Practice Integrated Flood Management”*.



**A Merced neighborhood impacted by the Black Rascal Creek flood of 2006.**

This work element will promote understanding of integrated flood management factors, existing conditions, potential future challenges and opportunities, and develop potential solutions by completing work tasks which:

- Expand the local knowledge base regarding integrated flood management; identify gaps where additional monitoring or studies are needed
- Define methods to achieve multiple benefits, including improved flood protection, more sustainable flood and water management systems, low impact development techniques that store and infiltrate runoff while protecting groundwater, and better emergency preparedness and response.
- Integrate and coordinate these efforts with surrounding IRWMS, state, and federal agencies; in particular, the Central Valley Flood Management Planning process established by the CA Department of Water Resources

Scores of public forums conducted in relationship to local land use plans and water plans have summarized stakeholder input in their resulting planning documents in a manner which well documents why flood management has been identified as a water related objective worthy of study and inclusion in the Merced IRWM Plan.

MAGPI members City of Atwater, City of Merced, Merced County, and MID formed a coalition decades ago to integrate flood management efforts. This long-standing coalition is known as the Merced Storm Water Group. In total, these agencies maintain approximately 107 miles of natural channels within Merced County inclusive of nine creeks: Black Rascal, Canal, Bear, Burns, Edendale, Fahrens, Miles, Owens and Mariposa.

The following summary of the Merced Streams Group Project, not to be confused with the Merced Storm Water Group coalition, is perhaps best reflective of the Merced IRWM region's process in identifying this work element as a priority for the Merced IRWM Plan. A map relating to the Merced Streams Group Project will be found in the Appendix of this proposal.

#### *Merced Streams Group Project (1944 through present)*

The original Merced County Stream Group Project was authorized by the Flood Control Act of 1944 as part of the comprehensive plan for flood control for the Sacramento and San Joaquin River Basins.

That project was completed in 1957, consisting of four flood control reservoirs on Burns, Bear, Owens, and Mariposa Creeks in addition to downstream improvements.

In 1970, Congress authorized Merced County Streams Project improvements in the Flood Control Act. This authorization provides for:

- enlargement of the four existing reservoirs on Burns, Bear, Owens, and Mariposa Creeks;
- channel improvements along the Bear Creek and Mariposa Creek systems;
- construction of three new reservoirs, known as Castle, Marguerite, and Haystack.

Technical studies were later conducted to reexamine and reevaluate the 1970 authorized project according to Federal laws, regulations and policies.

In 1980, Phase I of the General Design Memorandum for the 1970 Merced County Streams Project Improvements determined:

- enlargement of the existing reservoirs on Owens and Mariposa Creeks were no longer economically feasible;
- channel improvements on the Mariposa Creek system were no longer economically feasible;
- construction of one of the three new reservoirs (known as Castle, Marguerite, and Haystack) was no longer economically feasible.

The 1980 General Design Memorandum reformulated the 1970 Merced County Streams Project Improvements as follows:

- enlargement of two existing reservoirs on Burns and Bear Creeks;
- channel improvements along 33 miles of the Bear Creek system;

- construction of two new reservoirs, known as Castle and Haystack.

During the next phase of technical studies required by Federal law, the sponsor requested that the Burns Reservoir enlargement be deferred.

In 1982, the Phase II General Design Memorandum for the reformulated 1970 Merced County Streams Project Improvements determined further modifications:

- enlargement of existing reservoir on Bear Creek;
- channel improvements along 33 miles of the Bear Creek system;
- construction of two new reservoirs, known as Castle and Haystack.

In January 1992, the new Castle Dam reservoir completed construction.

In 1996 a supplemental General Design Memorandum for Haystack Dam was completed.

In 1998, the US Army Corps of Engineers determined that a new reservoir on Black Rascal Creek at Haystack was not environmentally feasible.

In 1998, Black Rascal Creek flooded throughout Merced County.

In 2006, Black Rascal Creek flooded throughout Merced County.

In 2006, a feasibility study was completed offering an alternative project to Haystack Dam on Black Rascal Creek, and was updated in 2009. This study is further discussed in the Data and Technical Analysis section of this proposal.

In summary, of the flood management system improvements to the Merced Streams Group Project authorized by Congress 40 years ago, the critical segment of Black Rascal Creek remains uncompleted.

Black Rascal Creek is the only stream channel without flood controls. Black Rascal Creek traverses Merced, which is the Merced IRWM's most urbanized area. The Black Rascal Creek floods of 1998 and 2006 caused millions of dollars in damage to homes, roads, bridges, and other public infrastructure, and to the agricultural crops which are fundamental to the region's economy.

These events disproportionately impacted Disadvantaged Communities in terms of housing and lost income in the agricultural industry.

The proposed Flood Management Plan will add value to previous efforts by incorporating a stakeholder outreach component. In this fashion, an improved community understanding of the factors impacting flood management will be realized. ...

## Water Conservation Plan

Since its formation, MAGPI has collectively developed management strategies and technical data to ensure the health of the groundwater basin. An early focus of MAGPI was the implementation of the Merced Groundwater Basin Management Plan, which promotes conjunctive surface water and groundwater management.

Water is vital to Merced County. Agriculture requires the largest use of water, followed by municipal demands and habitat maintenance. Groundwater basins in Merced County have experienced varying degrees of groundwater level decline. Groundwater overdraft conditions are a recurring problem in certain areas of Eastern Merced County; planning projections show that regional water demands will continue to exceed available supplies.

The impact of drought and competing demands for water supplies trigger the need for alternative sources, including conservation and use of reclaimed water. By addressing these factors in its Merced IRWM Plan, the region expects to achieve reductions in water demand and wastewater loads through water use efficiency, recycling, and runoff reuse.

In addition to addressing a water management issue that is a priority for the Merced IRWM region, *this work also responds to the Statewide Priority categories relating to “Use and Reuse Water More Efficiently”, “Climate Change Response Actions”, and “Drought Preparedness”.*

The Water Conservation Plan element will:

- Develop strategies to better integrate water planning with efforts of local land use planning in relation to water conservation, including drought preparedness, use and reuse water more efficiently, and climate change response actions;
- Expand local knowledge base relating to water conservation; identify data gaps where additional monitoring or studies are needed;
- Position Merced IRWM urban water suppliers to meet the requirements of AB 1420, enabling them to implement drought preparedness and water conservation strategies developed in the Merced IRWM Plan.

AB 1420 defines an “urban water supplier” as a supplier providing water for municipal purposes either directly or indirectly to more than 3,000 customers.

The Merced IRWM’s largest urban area, the City of Merced, has instituted water metering for multi- family dwelling units, all new single family dwelling units, and its public parks. However, because the City of Merced does not impose water metering on all its customers, the City is not eligible for water grants or loans from DWR or the State Water Resources Control Board at this time.

## Merced Water Supply Plan (1995 & 2001)

Well prior to the 1997 MAGPI Memorandum of Understanding, collaborations were in place to develop drought preparedness and water use efficiency measures.

In 1992, the City of Merced and MID executed an MOU calling for the two entities to jointly address water related issues of mutual concern, particularly declining groundwater levels and

meeting increasing urban water demands. After three years of technical investigation complemented by extensive public involvement, the entities published the 1995 Merced Water Supply Plan.

The stakeholder outreach for the 1995 Merced Water Supply Plan included consultation with some of the region's largest agricultural producers, including Foster Farms (poultry) and Ragu Foods; the Merced County Farm Bureau; Merced County Association of Governments (regional transportation planning agency); Department of Fish and Game; California Regional Water Quality Control Board; and the US Fish and Wildlife Service.

The 1995 Merced Water Supply Plan identified urban, agricultural, and environmental water needs through the year 2030; developed strategies necessary to meet each water supply goal; and recommended specific activities and/or facilities associated with each strategy. These strategies included water conservation projects, and other projects related to water conservation.

The 1995 Merced Water Supply Plan recommended that the City of Merced implement an aggressive urban water conservation program to better manage and control the increase in water demands as urban growth occurs. These water conservation efforts are narrated later in this discussion.

The 1995 Merced Water Supply Plan also recommended a series of implementation projects, which MID completed at a cost exceeding \$13 million. Among others, these projects consisted of expanding conjunctive use by implementing operational enhancements, automation and distribution system improvements, and water conservation projects aimed at making water available for groundwater recharge. In all, the 1995 Merced Water Supply Plan confirmed the indispensability of the basin's conjunctive use practices.

The Merced Water Supply Plan was updated by the City of Merced and MID in 2001, with the cooperation and financial support of the University of California, which was developing its Merced campus. The 2001 Merced Water Supply Plan update examined the availability of water within the Merced IRWM region – area bounded by the San Joaquin River, the Merced River, the Stanislaus County line, the Mariposa County Line, and the Chowchilla River.

The 2001 Merced Water Supply Plan update employed an extensive public participation program to encourage community leaders, project stakeholders, technical experts, farmers, and agencies to provide input throughout the study.

That public outreach incorporated more than 20 presentations to various local community organizations such as Rotary; meetings with specific stakeholder groups, including the East Merced Resource Conservation District, Merced County Farm Bureau, UC Merced, and Building Industry Association; presentations before the Merced City Council, Merced Irrigation District Board of Directors, and Turlock Irrigation District Board of Directors; several public workshops advertised extensively in the community; and press releases, newspaper articles, project newsletters and fact sheets. Public outreach efforts represented approximately one-third of the entire \$1.7 million Merced Water Supply Plan update budget.

### City of Merced Urban Water Management Plan (2005; 2010 Update in Progress)

The California Urban Water Planning Act requires most water utilities to update and submit an Urban Water Management Plan (UWMP) every five years. A common element of each water supply planning scenario is urban water conservation measures for urban areas to reduce groundwater pumping.

The City of Merced's most recent adopted Urban Water Management Plan (2005) describes the availability of water and discusses potential water use, reclamation, and recycling activities. The City of Merced has instituted several water conservation measures since the early 1990s:

- alternate day outdoor water schedule ordinance
- public education
- water waster ordinance with enforcement officer
- metering of all new residential construction
- low-flow plumbing ordinance on new construction

The 2005 City of Merced UWMP identifies a number of conservation practices which, when implemented, will further relieve the pressure on groundwater supplies. Conservation measures which have been implemented since the 2005 City of Merced UWMP include:

- metering all public parks
- metering multi-family dwelling units
- metering all new single-family dwelling units

The City of Merced has been retrofitting water services with meter boxes and idler arms to prepare for the eventual installation of meters. Currently, the City of Merced has 19,972 residential customers. Of that number, 8,142 residential structures, or 43 percent, are currently metered. The remaining 11,830 structures are not metered.

Assuming \$300 per retrofitted meter, obtaining full metering of single-family dwelling units would approach \$3 million, a cost that would be borne mostly by seniors and other low income ratepayers. The City has thus far postponed full metering due to concerns over disproportionately impacting these Disadvantaged Communities.

The City of Merced is currently updating its 2005 Urban Water Management Plan.

### Groundwater Recharge Feasibility Study

The issues affecting water supply in the Central Valley are complex and dynamic. As a result, planning efforts must be continuous to address evolving conditions.

The combination of drought, urban and agricultural demands on the groundwater supply, and less surface water applied to lands and therefore less water percolating into the ground, has led to declining aquifer levels. These factors trigger the need for improved efficiencies, including conservation, expanded use of recycled water, and groundwater recharge.

MAGPI members have collaborated and integrated efforts for many years to address water related issues such as declining groundwater levels. Groundwater recharge has been consistently promoted through the Merced Water Supply Plan program due to its multiple benefits of using and reusing water more efficiently and protecting groundwater quality.

Merced IRWM agencies have implemented many of the recommendations contained in the 1995 Merced Water Supply Plan and the 2001 Merced Water Supply Plan Update. Protecting and restoring surface water and groundwater quality to secure water for beneficial uses continues to be an objective for the region.

A Groundwater Recharge Feasibility Study is therefore a desired component within the Merced IRWM Plan. Additionally, *this element addresses the Statewide Priority relating to “Protect Surface Water and Groundwater Quality”*.

The proposed Groundwater Recharge Feasibility Study is expected to develop a broadly supported vision for a potential additional source of water supply through use of groundwater recharge and promote more widespread understanding of its benefits. This element and its work plan were designed following diligent review of the IRWM Plan Standards, and will:

- Refine protocols and analytical tools which provide impact and benefit data for consideration when choosing between project alternatives;
- Integrate groundwater recharge planning with local land use planning, in particular relating to low impact development techniques that store and infiltrate runoff while protecting groundwater;
- Enhance local efforts to implement groundwater recharge.

As described in this section, there are numerous previous studies employing public outreach, data analysis, and other technical work which strongly support a Groundwater Recharge Feasibility Study as an element of the proposed Merced IRWM Plan.

### Merced Water Supply Plan (1995 & 2001)

The 1995 Merced Water Supply Plan and the 2001 Merced Water Supply Plan update have been described previously in this narrative.

Both plans addressed the problems of water supply, which were compounded by the increasing demand for water from population growth, persistent drought, and a change by agricultural users from surface water to groundwater. These increased demands have resulted in a decrease in groundwater levels and have led to overdraft of the aquifer.

Merced IRWM agencies have implemented many of the Merced Water Supply Plan recommendations.

The 1995 Merced Water Supply Plan called for MID to implement artificial and/or in-lieu groundwater recharge to maintain targeted groundwater levels in the basin. MID is the sole agency with surface water rights in the region, in addition to Stevinson Water District and Merquin Water District, who have adjudicated rights tied to MID rights. As such, MID and Stevinson Water District implemented a series of programs in the 1990s to recharge the aquifer system through in-lieu and direct recharge.

Aggressive efforts are in play by MID to reverse groundwater decline through conjunctive use programs and the conversion of agricultural supply from groundwater to surface water sources. Agricultural irrigation, surface water seepage, and infiltration from precipitation are primary sources of groundwater recharge. In fact, MID has recharged approximately a net of 500,000 acre feet since the late 1980s drought, through programs designed to expand surface water usage where groundwater is utilized.

MID implemented a series of programs in the 1990s to recharge the aquifer system through in-lieu and direct recharge. Opportunities for direct recharge such as in the Cressy area are being explored to offset projected increases in municipal demand.

#### Merced Groundwater Basin Management Plan (1997 & 2008)

The Groundwater Management Act (AB3030) of 1993 identifies groundwater as a valuable resource that should be managed to ensure both its safe production and its quality.

In December 1997, MAGPI published the *Merced Groundwater Basin Groundwater Management Plan*. The plan's goals were to identify and implement sound groundwater management practices, in order to maintain the available groundwater resources to meet the beneficial uses and needs of the Merced Groundwater Basin. The plan examined:

- Protection and planned maintenance of groundwater quality;
- Protection and beneficial use of recharge areas; and
- Monitoring of Basin parameters for the primary purpose of maintaining groundwater quantities and eliminating conditions of long-term overdraft.

MAGPI updated the Merced Groundwater Basin Management Plan in July 2008 to meet requirements of SB 1938.

#### Conjunctive Use Site Assessment (2003)

This project compared and evaluated potential artificial groundwater recharge sites; funded by DWR.

### Pilot Groundwater Recharge Basin in Cressey (ongoing)

MID currently has a pilot groundwater recharge basin project near the unincorporated community of Cressey, which is providing very promising results with respect to infiltration rates for spreading basins; funded by MID, and financing from DWR whereby the department geologist worked on installing monitoring wells.

The Cressey groundwater recharge basin unfortunately has not yet been developed due to lack of funding and the drought. It is estimated that 16 acres of the site can be developed into a series of basins that can recharge in excess of 20,000 acre feet annually based on the existing capacity in MID facilities leading to the site. If funding is obtained for this project, construction could be complete prior to Spring 2011.

### Water Resource Model (2005 to present)

DWR and MAGPI have engaged in an aggressive effort to complete a Water Resources Model of higher resolution, in order to implement objectives outlined by MAGPI and the Merced Water Supply Plan. To date, recharge has proven achievable in the northwesterly area of the basin, and not throughout the Merced IRWM area.

MID, the City of Merced, and DWR are collaborating to employ a new model containing the components for estimating an overall water balance. The effort is estimated to cost \$2 million and will require an extensive stakeholder outreach process to calibrate all possible data in the software.

### Salinity and Nutrients in Groundwater & Surface Waters Management

Groundwater quality contaminants of concern in the Merced IRWM region include high salinity (TDS), nitrate, uranium, arsenic, methane gas, iron, manganese, and dibromochloropropane (DBCP) with maximum contaminant levels (MCL) exceeded in some areas.

Merced County contains more than 300 dairy facilities, numerous agricultural operations, Publicly Owned Treatment Works (POTW), and other sources of salinity and nutrients that affect groundwater and surface water quality, supply, and reliability.

Nutrients are chemical elements and compounds found in or applied to the environment that plants and animals need to grow and survive. With respect to groundwater, various forms of nitrogen and phosphorus are often nutrients of interest. These forms include nitrate, nitrite, ammonia, organic nitrogen (in the form of plant material or other organic compounds), and phosphates (orthophosphate and others). Nitrate is the most common form of nitrogen, and phosphates are the most common forms of phosphorus found in regional groundwater sampling events.

The highest water demands in the Merced IRWM region are related to agriculture, and it is a sector where problem salinity is often observed. High salt concentrations can impact crop production. Thousands of acres of in the southern San Joaquin Valley are no longer farmable due to salinity buildup.

Effective salinity and nutrient management is necessary when integrating comprehensive water management strategies, including water conservation. High salinity and other compounds can decrease the effectiveness and durability of water delivery, conveyance and treatment systems.

For some time, the Merced County Division of Environmental Health has participated in salt and nutrient management at the local, regional and statewide levels, and increased involvement in the Central Valley Salinity Alternatives for Long Term Sustainability (CV-SALTS) coalition.

The Merced IRWM would like to expand its efforts to date, increase its knowledge base in this area, determine local data management needs relating to salinity and nutrient management, and establish local objectives in the Merced IRWM Plan which address salinity and nutrient management concerns.

In addition to addressing a water management issue that is a priority for the Merced IRWM region, *this work also responds to the Statewide Priority category relating to “Protect Surface Water and Groundwater Quality”.*

Merced IRWM will integrate and coordinate its salinity and nutrient management with adjoining IRWM areas and is particularly interested in activities related to:

- groundwater stabilization in the southern Merced IRWM and Madera IRWM areas
- developments that impact watershed management, water quality and flood control in Mariposa/ CenCal IRWM
- salinity management in the Westside-San Joaquin IRWM (formerly known as the San Luis-Delta Mendota IRWM)
- water quality impacts from the north.

The Salinity and Nutrient Management element of the Merced IRWM Plan will be fortified by Merced County's previous work in this area, as listed below.

- Comprehensive Nutrient Management Planning guidance document developed following NRCS, State, and Federal regulations
- Merced County Animal Confinement Ordinance adopted and Countywide Dairy Programmatic EIR certified.

Merced County's Animal Confinement Ordinance is even more protective of groundwater than existing State regulations

- Loans to Merced County Dairy industry for modifications to existing dairies to protect surface and groundwater resources. Funded by \$20 million in grants from State Revolving Funds
- Coordination of a confined animal facility program with the RWQCB and air district to maximize resources.
- Dairy air emission research and best management practices development project with UC Davis, a \$600,000 project
- Study of pharmaceutically active residuals in groundwater with the U.S. Geological Survey; a \$560,000 State grant
- Designed and launched California's first on-line Dairy Waste & Nutrient Management compliance software, a \$650,000 ongoing project funded by the Region 5 Regional Water Quality Control Board

Includes existing conditions report, preliminary dairy facility assessment, waste management plan; Nutrient Management Plan modules; planning tools; technical/educational guidance; and Annual Reporting to the CVRWQCB.

Developed in partnership with the CVRWQCB, EPA, USDA/NRCS, the University of California, environmental groups and the dairy industry.

- Provided waste and nutrient planning for existing dairies in Merced County meeting CVRWQCB reporting requirements through 2009; \$1.2 million State grant

Another potential resource for the Salinity and Nutrient Management element of the proposed Merced IRWM Plan is UC Merced. Since 2003, UC Merced has conducted a number of studies on the Merced River utilizing its Center for Embedded Network Sensing (CENS) research project.

CENS is funded by the National Science Foundation. CENS investigators conduct research primarily in the computer science subfield of embedded sensor networks. The applications studies span a large range of fields, including farming, seismology, and ecology.

The proposed Salinity and Nutrients in Groundwater and Surface Waters Management element of the Merced IRWM Plan will improve water quality by addressing salinity and nutrient problems in Merced IRWM region.

This work has been designed to fully integrate Merced IRWM objectives in this regard with the objectives and solutions determined by the Central Valley Salinity Alternatives for Long Term Sustainability (CV-SALTS) collaborative, established in 2008 by the Central Valley Water Board and State Water Board.

Further, UC Merced is currently conducting CENS research on the Merced River, conducting assessments of salinity and nutrients into the river (primarily nitrate), and monitoring the causes and effects of non-point source pollution in the Merced River.

The consultant performing the Salinity and Nutrient Management element will be requested to confer with UC Merced to determine possible integration of efforts and data.

By applying this level of coordination, Merced IRWM will be aligned with other regions in the San Joaquin Valley and take greater advantage of efficiencies.

## **Data and Technical Analysis Collected/ Performed and How Data is Managed**

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MAGPI formed in 1997 to collectively develop technical data and management strategies to ensure the health of the groundwater basin. In so doing, MAGPI has experienced considerable success in combining resources to increase the depth and breadth of analysis on water issues impacting the region.

An important principle for implementing regional water programs such as the Merced Water Supply Plan is that the program costs should be borne by those who benefit from implemented activities.

Analytical work conducted for the 2001 Merced Water Supply Plan Update indicates that management of the regional groundwater system as called for by the Plan would yield regional benefits to water users throughout the basin, particularly to independent agricultural pumpers whose water levels are predicted to decline significantly if the Plan is not implemented. Because some of the areas in the region that benefit from implementation are currently outside of the boundaries of MID and the City of Merced, institutional mechanisms that would better align cost allocation methods to beneficiaries were recommended for further study.

Using data and technical analysis in this manner demonstrates MAGPI's ability to foster integration and coordination among stakeholders, avoiding conflicts by making sound data-based conclusions, and taking advantage of efficiencies.

It should be noted that all technical work elements proposed for the Merced IRWM Plan share the common task of "identify data gaps where additional monitoring or studies are needed". The end products are quantifiable performance objectives and outcomes.

Data and technical analysis which that MAGPI has accomplished with a combination of local and State resources are described below.

### *Merced Groundwater Basin Plan (1997 & 2008)*

Upon its formation in 1997, MAGPI first undertook development of the Merced Groundwater Basin Management Plan, which was adopted in 2007 by each MAGPI member.

Referred to throughout this document, the Merced Groundwater Basin Plan provides a foundation for ongoing cooperation among the MAGPI members for purposes of monitoring and reporting groundwater conditions, protection of Basin water quality and development and management of Basin resources.

### *Merced Water Supply Plan (1995 & 2001)*

The 1995 Merced Water Supply Plan is unique among other similar initiatives in the San Joaquin Valley in that it features the continuation of groundwater as the sole municipal supply source to meet urban water demands, in exchange for delivery of surface water supplies to overlying agricultural water users in-lieu of groundwater pumping.

Its technical and economic analyses indicate that the existing municipal groundwater-based system is less costly and incremental expansion of the existing system is more easily financed than a system involving surface water treatment and distribution.

### *Southeast Quadrant Water Supply Study (2000)*

MID investigated the reliability of groundwater in a 25,000 acre agricultural area referred to as MID's Southeast Quadrant, which is located near the unincorporated community of Planada. The study concluded that the aquifer could not sustain pumping for agricultural land, which confirmed MID's conjunctive use practice of providing surface water to the Southeast Quadrant while pumping in the westerly portions of the basin where groundwater supply and aquifer recoveries are possible. The study was crucial to avoiding the unnecessary construction of a well field; it should be noted that Planada is an extremely low income Disadvantaged Community.

### *Data Assessment (2002)*

Developed a data management plan for MAGPI members; described the regional hydro-geologic setting of Eastern Merced County; and identified and compiled available water resources data. Funded by DWR Water Resources & Information Management Engineering (WRIME)

### *Conjunctive Use Site Assessment (2003)*

The project compared and evaluated alternative artificial recharge sites; DWR Water Resources & Information Management Engineering (WRIME) funding

### *Pilot Groundwater Recharge Basin in Cressey (ongoing)*

MID currently has a pilot groundwater recharge basin project near the unincorporated community of Cressey, which is providing very promising results with respect to infiltration rates for spreading basins; funded by MID, and financing from DWR whereby the department geologist worked on installing monitoring wells.

### *Groundwater Monitoring (2006)*

Linked all available existing public production wells (221 wells) to one datum by use of GPS, and the construction of nested and separated monitoring wells along Bear Creek East of Merced to define natural stream-aquifer interaction along Bear Creek. AB303 funding

### *Water Resource Model (2005 to present)*

The 2001 Merced Water Supply Plan update included a summary of major changes in the Merced IRWM area, new data affecting the water balance, updated the technical analyses and mathematical models to reflect the new data and improved analytical tools, and revision of the alternative planning scenarios with associated facilities. For the Plan to succeed, it is essential to clearly identify the full complement of beneficiaries, so that cost allocation and repayment obligations can be assigned.

The 2005 Water Resource Model provides the data and analytical tools related to the 2001 Merced Water Supply Plan Update, containing components for estimating overall water balance and potential beneficiaries of proposed water projects.

### Merced River Monitoring Study of Anadromous Fish (Salmon) (2003 - Ongoing)

MID has been conducting monitoring and research on the lower Merced River to develop data models relating to water management of the Merced River and interrelationships with anadromous fish populations, in particular the Chinook salmon. The Merced River is the southern-most range for Chinook salmon.

This research is being conducted over a ten year period. Monitoring of water temperatures, migration timing, spawning habitats, etc are taking place throughout the watershed from the upper to lower Merced River, including its reservoirs.

The data models being developed are expected to guide water management actions on the Merced River and determine factors affecting the timing and outmigration of salmon from the river system; funded by MID, Department of Fish and Game, and the U.S. Fish and Wildlife Service.

### Merced River Biological Monitoring and Assessment (2004 - 2008)

A MAGPI Member at Large, the East Merced Resource Conservation District (EMRCD) was the lead agency for the Merced River Alliance Project. The project combined two different efforts: building connections between stakeholders in the upper and lower segments of the Merced River watershed, and biological monitoring of fish, bird, and benthic macro invertebrate (BMI) species in the Merced River corridor.

The biological monitoring component provided a baseline data set improving understanding of the general patterns of distribution of fish, BMI, and birds throughout the river-riparian corridor. The results were designed to increase the understanding of interactions between the aquatic-riparian biota and watershed processes on the Merced River, and to identify factors potentially limiting ecosystem health.

Future restoration and management actions, and supply information necessary for prioritizing those actions, was presented. In particular, the study provides a discussion of anadromous fish populations of the Merced River which will better inform future water planning efforts. This \$2.2 million project was funded by the State Water Resources Control Board.

### Black Rascal Creek Flood Control Project Feasibility Study (2008 & 2009)

The June 2008 Black Rascal Creek Flood Control Project Feasibility Study presented three alternatives for consideration, designed to increase capacity to address flood protection against a 100- year event. Related environmental considerations and economic analysis was provided for each of the three alternatives.

At the request of Merced County, MID, and the City of Merced, the Black Rascal Creek Flood Control Project Feasibility Study was updated in February 2009, to examine the environmental considerations and economic analysis for the same three alternatives, upgraded to address flood protection against a 200-year event.

The proposed Merced IRWM Plan and its Flood Management Planning component will benefit from a review of the Black Rascal Creek study in order to understand the status of the Merced IRWM region's current flood management conditions and begin to establish local objectives related to integrated flood management.

## **How Integrated Resource Management Strategies will be Employed**

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MAGPI members and area stakeholders collectively possess a variety of resources, experience, and statutory authority required to develop an extensive and complex collaborative water management portfolio, prioritized on regional goals and objectives from various interests within the Merced Groundwater Basin and surrounding areas.

Its members are experienced in matters of potable and agricultural groundwater; potable and agricultural surface water; sanitary sewers; storm drainage; flood fighting; environmental water, recreational water, and recycled water issues. A non-purveyor Member at Large, East Merced Resource Conservation District, participates in MAGPI with interest in watershed coordination and environmental stewardship.

These objectives will be articulated in a Merced IRWM Plan which maximizes integration of water management activities related to natural and man made water systems, including water supply reliability, water quality, environmental stewardship, and flood management.

## **Benefits and Impacts**

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As a region-wide Disadvantaged Community, Merced County, the Cities, and unincorporated lands of the Merced IRWM area are experiencing increased and changing water needs resulting from urbanization, environmental water dedications, and other factors.

The proposed Merced IRWM Plan will provide communities with increased flexibility to meet those needs while protecting water rights and the economies they represent. Regional level water planning will improve the capacity to implement meaningful water management strategies.

Land use planning is expected to play an increasingly important role in water management issues. MAGPI has made - and the Merced IRWM group will make - strides in integrating its water planning efforts with local land use planning, most recently by providing input to the County General Plan regarding concepts that make use of flood control and land use to benefit recharge for water supply and environmental benefits.

Similarly, public input received during stakeholder outreach for land use planning was considered in developing the objectives presented in the Merced IRWM work plan.

MAGPI anticipates that as a result of the Merced IRWM Plan, agencies will include more comprehensive land use considerations in developing future conceptual models for water management issues.

## **Merced Integrated Regional Water Management Area Status in Meeting Integrated Regional Water Management Plan Standards**

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Merced currently is a conditionally approved RAP.

DWR's conclusions received in July 2010 state: "There is significant overlap between the proposed Merced IRWM Region boundary and the area covered by the CenCal IRWM Region. Because both the CenCal and Merced IRWM proposal are in the initial formulation stages, DWR encourages both Regions, along with the Madera IRWM Region, to explore options on how best to structure the regional boundaries in the tri-county area. DWR will allow the Merced Region to apply for planning grant funds only. This region is not yet qualified to apply for implementation grant funds. DWR's intent is to facilitate future communication and cooperation between the CenCal, Madera, and Merced IRWM Regions, to develop an optimal region(s) that fosters integration and cooperation, and does not result in overlapping and competing planning efforts."

The work plan in the following section is designed to result in an Integrated Regional Water Management Plan and defined boundary area which meets Integrated Regional Water Management Plan standards.

## WORK PLAN CONTENT

The Merced IRWM's Regional Water Management Group fully comprehends the value of diversifying and strengthening the regional water management portfolio by formulating and adopting a Merced Integrated Regional Water Management Plan that conforms to DWR standards.

By developing such a plan, Merced IRWM intends to foster better coordination, collaboration, and communication between stakeholders, adjacent IRWM regions and other interested parties; and to realize regional water management objectives at the least possible cost through mutual cooperation, elimination of redundancy and enhancing regional competitiveness for State and Federal grant funding.

The work plan which follows provides a carefully constructed strategy by which the Merced IRWM will achieve its objectives. Each element contributes in some way to a component of the final IRWM Plan; all technical elements respond to a water-related objective which emerged during the work plan formulation.

Each work plan element follows a generalized structure for more effective management and cohesiveness among the elements.

- *Develop a broadly supported vision*

This task is intentionally stated first in every technical element. A broadly supported vision is achieved by incorporating ample opportunity for all interested parties to express their water related concerns, interface with staff and managers to broaden their understanding of current conditions, and participate in developing the Merced IRWM area's framework for the future.

- *At least monthly, document progress for the project director*

Each element requires regular written progress reports to the IRWM Plan Project Manager.

This requirement is intended to provide continuous feedback and to quickly identify any potential barriers so that solutions can be applied and the IRWM Plan remains on schedule to be complete and adopted by December 2012.

These progress reports will also be utilized when preparing quarterly progress reports and a final report to DWR.

- *Collect information*

Every technical element requires a review of all relevant codes, regulations, laws, etc., which water managers face. This task is important in assessing the current conditions of any water related issue.

This review may then be communicated as each element develops a broadly supported vision. Community members, including Disadvantaged Communities, will gain a greater understanding of the factors involved in addressing their water related needs; technical staff will likely also benefit through an updated review.

Where appropriate, the work plan tasks prompt for review of a source which was noted in the DWR guidelines and reviewed during the course of developing the Merced IRWM work plan, and which should also be considered when developing the Merced IRWM Plan.

- *Inventory existing local plans*

In order to accurately assess current conditions, it is necessary to thoroughly investigate, review, and describe existing local plans and studies.

This task has been included throughout all elements as a means of integrating efforts and achieving efficiencies.

This inventory should offer both breadth and depth in its review. It should take place across the entire Merced IRWM area; and it should consider any local plans relevant to the topic, including land use, transportation, or others. Where appropriate, the work plan tasks prompt for review of a specific local study which was consulted during the course of developing the Merced IRWM work plan.

- *Identify data gaps*

This task is common through all elements. An assessment of existing local data and identification of data gaps is important to effectively develop frameworks within which impact and benefit analyses are provided.

Geographic Information Systems (GIS) assistance has been incorporated in the budgets for the climate change, flood management, ground water recharge, and salinity and nutrient management technical elements.

GIS was included for various reasons, including producing maps as visual aids for stakeholder outreach events.

GIS is mentioned here as the identification of data gaps should include coordination with local GIS management staff to determine local needs in this area. At minimum, GIS managers with the County of Merced, City of Merced, and Merced County Association of Governments should all be consulted in this regard.

- *Disadvantaged Communities*

Every element prompts for attention to the water related needs of Disadvantaged Communities. The final Merced IRWM Plan will be expected to address the water related needs of Disadvantaged Communities in its objectives, its project review process, its impact and benefit analysis, and other sections as contained in the DWR standards. These efforts will require coordination with the overall stakeholder outreach strategies being conducted with respect to the Merced IRWM Plan.

- *Prepare report summarizing opportunities to coordinate and integrate*

Included in all elements, this report will capture tasks previously conducted in a concise and user-friendly manner.

It is anticipated that this report will be of widespread interest and will likely be a source of reference in many ways, not the least of which will be presentations to decision makers as they contemplate the benefits and efficiencies of potential partnerships in future implementation programs and projects.

This analysis will further the Merced IRWM's commitment to remain focused on opportunities to coordinate and integrate through continuous feedback and attention. It is also a report which will be incorporated into the final Merced IRWM Plan.

- *Establish local objectives; Define means by which local objectives can be attained; Conduct economic feasibility analysis*

These three separate tasks are all defined in every work element, and are required elements of the final Merced IRWM Plan. It is anticipated that the assistance of a facilitator may be required during meetings at which objectives are established.

This phase of the technical elements will be used to identify and prioritize specific projects on behalf of the Merced IRWM region, and which will be featured in the final Merced IRWM Plan.

The technical elements of Merced IRWM's water related planning needs – climate change, flood management, water conservation, groundwater recharge, and salinity and nutrient management – are such priorities in the Merced IRWM area that it will require this additional attention in order to incorporate objectives relating to these matters in the final Merced IRWM Plan.

- *Define who or what group within the Merced IRWM region will be responsible for monitoring progress*

This task is required through all elements in part because it is a DWR standard for a final adopted IRWM Plan. However, it is one of the most important tasks to assure the final Merced IRWM Plan's long term success.

This task prompts a discussion that provides assurance of momentum and commitment to the work that is accomplished through this process. As described throughout this proposal, the Merced IRWM has a proven success record for implementing programs and projects identified during a plan; in some cases, funding was obtained and the project completed several years after the plan initially identified the impacts and benefits of doing so.

Determining who will be responsible for monitoring its progress embodies the Merced IRWM's commitment that its final IRWM Plan will not be "a document that just sits on the shelf" after adoption. It will guide water management actions for many years to follow.

## **IRWM Plan/ Project Management/ Stakeholder Outreach**

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MID will be responsible for overall project management, project reporting, and contract administration.

MID was chosen as the lead applicant due to its past success in administering grant funds from the Department of Water Resources, and a familiarity with the progress reporting and financial reporting systems that will be required.

MID will hire consultants as needed by utilizing a standardized Request for Proposals format. MID will convene an ad-hoc MAGPI committee to select the most qualified consulting firms after a thorough review and selection process.

The most immediate need will be selecting a consultant to provide the assistance needed for an extensive public outreach program.

The Merced IRWM means to ensure that DAC, project stakeholders, technical experts, and any other interested community members are encouraged to provide input throughout the Merced IRWM planning process. Appropriate stakeholder outreach will bring together the different interests in the region to better communicate, collaborate, and cooperate in solving regional issues that are beyond the capacity of any one entity to address.

Public meetings will be held throughout the region to develop a broadly supported vision for the Merced IRWM Plan. The Merced IRWM's governance structure and decision making process will need to be developed before attending to the other matters required for the Merced IRWM Plan, such as a project review process and establishing objectives. These tasks and work products were developed following a review of the DWR standards for IRWM Plans.

Meetings will be publicly announced in local newspapers and by using appropriate outreach tools and media. A web site will be developed and maintained providing information about the Merced IRWM planning process, any upcoming meetings, plan milestones, and other public announcements as needed. It will be important to craft messages in terms that laypersons would understand while conveying the nature and extent of the water management topics being addressed.

Other methods of outreach and communication may be considered such as the use of social media, email and mail; or any other methods which can be accommodated within the project budget.

Additionally, public meetings will be held throughout the region to receive input and update stakeholders on the technical elements of the Merced IRWM Plan, including its Climate Change Analysis, Flood Management Plan, Water Conservation Plan, Groundwater Recharge Feasibility Study, and Salinity and Nutrients Management Plan.

It will be necessary for the stakeholder outreach efforts to be well coordinated among these various elements in order to achieve a broadly supported, final adopted Merced IRWM Plan by the deadline of December 2012.

*The remainder of the Work Plan Content section is presented in tabular format, for ease of review when aligning the work plan tasks with the work plan schedules/ timelines and budget.*

**INTEGRATED REGIONAL WATER MANAGEMENT PLAN &  
PROJECT MANAGEMENT  
WORK TASKS (PG 1 OF 4)**

**Statewide Priorities Addressed:**  
*Ensure Equitable Distribution of Benefits*  
*Expand Environmental Stewardship*

**Project Management**

- Execute contract agreement, anticipated January 2011
- Issue requests for proposals; select consultants as needed
- Quarterly Reports to DWR
- Publish notice of intent to prepare the Merced IRWM Plan, in accordance with IRWM Plan Standards pg 1 and Government Code § 6066
- Utilizing sections already drafted, formulate Merced IRWM Plan in accordance with standards
- CEQA/ NEPA
- Publish notice of intention to adopt the Merced IRWM Plan, complying w/ IRWM Plan Standards pg 1 and Government Code § 6066
- Resolution adoption by governing body of each agency that is part of the RWMG responsible for implementation of the Merced IRWM Plan, complying w/ IRWM Plan standards pgs 1 & 2
- Final Report to DWR

**Stakeholder Outreach**

- Facilitate at least one meeting monthly throughout the region
- At least monthly, document these meetings for the project director; at minimum, where the meetings were held, names and affiliations of participants, and progress made during meetings
- Create and maintain website for Merced IRWM planning and stakeholder outreach effort
- Document results to meet IRWM Plan Standards/ Stakeholder Involvement section***

**Define decision making process and governance structure**

- Inventory governance structure models from other IRWM planning areas
- Present governance structure options to stakeholders, including a mechanism for conflict resolution
- Select governance structure model
- Implement; adopt bylaws or any other appropriate mechanisms
- Review IRWM plan progress monthly via a user-friendly milestones chart
- Determine how Merced IRWM plan will be adaptive to changing conditions, including how often the Plan will be updated; and the process by which the Plan will be amended.
- Determine the current extent of integration processes among stakeholders and institutions, and methods by which integration may be improved, including data collection, data sharing, protocols to ensure data compatibility, and sharing technical capacity to aid the IRWM area
- Document results to meet IRWM Plan Standards/ Integration and Governance section***

**INTEGRATED REGIONAL WATER MANAGEMENT PLAN &  
PROJECT MANAGEMENT  
WORK TASKS (PG 2 OF 4)**

**Address all DWR Standards for IRWM Plans**

Identify process to coordinate local water mgmt projects to avoid conflicts & take advantage of efficiencies

Identify process to coordinate efforts of Merced IRWM with neighboring IRWM planning areas to avoid conflicts & take advantage of efficiencies

***Document results to meet IRWM Plan Standards/ Coordination section***

**Define Merced Integrated Regional Water Management planning area  
& Coordinate with Adjoining Integrated Regional Water Management planning areas**

Present boundary modification concepts to stakeholders

Inventory MOU, joint powers agreement, and other written agreement models between adjacent IRWM planning areas

Coordinate with Mariposa County/ CenCal IRWM regarding Dry Creek

Coordinate with Westside-San Joaquin IRWM, an adjoining region

Meet with CenCal IRWM reps; adopt MOU with CenCal region agreeing on boundaries and eliminating overlap

Meet with Madera IRWM reps; adopt MOU with Madera region agreeing on boundaries and eliminating overlap

***Document results to meet IRWM Plan Standards/ Governance & Region Desc sections***

**Address all DWR Standards for IRWM Plans**

Collect relevant information regarding ensuring equitable distribution of benefits and expanding environmental stewardship, including, but not limited to, the California Water Plan Update 2009

Inventory project review process models from other IRWM planning areas (defining how projects will be prioritized for implementation)

Analyze project review process models for processes which foster integration and coordination among stakeholders, to avoid conflicts and take advantage of efficiencies

Analyze project review process models which consider greenhouse gas emissions when choosing between project alternatives

Analyze project review process models which consider safe drinking water and wastewater treatment needs of disadvantaged communities when choosing between project alternatives

Analyze project review process models which include environmental justice considerations when choosing between project alternatives

Present project review process model options to stakeholders

Select project review process; adopt

*Note: There are no current tribal or ceremonial lands in the Merced IRWM region. However, protection of historic cultural resources is provided through the environmental compliance process for any implementation projects undertaken by Merced County agencies. This section should contain appropriate discussion on this topic.*

***Document results to meet IRWM Plan Standards/ Project Review Process & Climate Change sections***

**INTEGRATED REGIONAL WATER MANAGEMENT PLAN &  
PROJECT MANAGEMENT  
WORK TASKS (PG 3 OF 4)**

**Address all DWR Standards for IRWM Plans**

Consider range of Resource Management Strategies to address Merced IRWM objectives

Describe opportunities to improve integration and coordination among stakeholders, to avoid conflicts and take advantage of efficiencies

***Document results to meet IRWM Plan Standards/ Resource Mgmt Strategies section***

Inventory existing local water plans. Determine relationship to Merced IRWM objectives

Describe opportunities to improve integration and coordination among stakeholders, to avoid conflicts and take advantage of efficiencies

***Document results to meet IRWM Plan Standards/ Relation to Local Water Planning***

Inventory existing local land use plans. Determine relationship to Merced IRWM objectives

Define current Merced IRWM coordination with local land use planning

Describe future efforts to improve Merced IRWM coordination with local land use planning, to avoid conflicts and take advantage of efficiencies

***Document results to meet IRWM Plan Standards/ Relation to Local Land Use Planning***

Define major water related issues and conflicts of Merced region, utilizing stakeholder input

Identify water related needs of Disadvantaged Communities

Prioritize water issues, incorporating information from the technical elements; Climate Change, Flood Management, Water Conservation, Groundwater Recharge, and Salinity and Nutrient Management

In measurable terms, define objectives to address water issues

***Document results to meet IRWM Plan Standards/ Objectives section***

Define potential impacts and benefits if objectives are addressed, including those to disadvantaged communities

***Document results to meet IRWM Plan Standards/ Impact and Benefit section***

Determine performance measures & monitoring methods to ensure objectives of IRWM Plan are met.

***Document results to meet IRWM Plan Standards/ Plan Perf & Monitoring section***

**INTEGRATED REGIONAL WATER MANAGEMENT PLAN &  
PROJECT MANAGEMENT  
WORK TASKS (PG 4 OF 4)**

**Address all DWR Standards for IRWM Plans**

Define specific projects addressing objectives

Define means by which local objectives can be attained, potentially including projects that:

- Enhance the environment by improving watersheds, floodplains, and in-stream functions & to sustain water & flood mgmt ecosystems
- Increase participation of small & disadvantaged communities in the IRWM process
- Develop multi-benefit projects w/ consideration of affected disadvantaged communities & vulnerable populations
- address safe drinking water & wastewater treatment needs of disadvantaged communities

Determine economic feasibility of each potential project, including cost estimate, operating costs, and potential funding sources

***Document results to meet IRWM Plan Standards/ Project Review Process & Finance sections***

Review current technical analyses and data models prepared in the region to date

Identify data gaps

Determine technical feasibility of each potential project

***Document results to meet IRWM Plan Standards/ Technical Analysis section***

**CLIMATE CHANGE ANALYSIS  
WORK TASKS (PG 1 OF 2)**

**Statewide Priority Addressed:  
*Climate Change Response Actions  
Expand Environmental Stewardship***

Develop a broadly supported vision which will improve climate change response actions in the Merced IRWM region

At least monthly, document progress for the project director; at minimum, where any stakeholder meetings were held, names and affiliations of participants, and progress made during meetings; milestones achieved; any challenges encountered

Inventory existing local plans throughout the Merced IRWM region which include climate change response actions, including, but not limited to: water, land use, and transp plans

Review East Merced RCD analysis of Merced River Alliance Project, consisting of biological surveys and Environmental Stewardship strategies (concluded 2008)

Review current status of MID Merced River Monitoring Study of Anadromous Fish

Review current status of City of Merced Climate Action Plan (CAP); attend City's CAP meetings

Collect relevant information, laws, codes, and regulations, including, but not limited to: SB 375, SB 97, AB 32, the 2009 California Climate Adaptation Strategy, Managing an Uncertain Future, DWR 2008, Executive Order S-3-05, Executive Order S-13-08, and the California Water Plan Update 2009

Assess Merced IRWM region's water supplies and demands for a minimum 20-yr planning horizon; describe potential effects of climate change

Identify data gaps where additional monitoring or studies are needed

Evaluate vulnerabilities of Merced IRWM region's Disadvantaged Communities to the effects of climate change and potential actions that will address:

- Adaptation to climate change
- Reduction of Greenhouse Gas (GHG) emissions
- Reduce energy consumption

Evaluate Merced IRWM region's vulnerabilities to the effects of climate change and potential actions that will address:

- Adaptation to climate change
- Reduction of Greenhouse Gas (GHG) emissions
- Reduce energy consumption

Present quantitative tools for vulnerability analysis of specific proposed projects

Analyze project review process models which consider greenhouse gas emissions when choosing between project alternatives. Align with City of Merced greenhouse gas emission inventory & forecast, developed through CAP

Establish local objectives consistent w/ all relevant State & Regional requirements

**CLIMATE CHANGE ANALYSIS  
WORK TASKS (PG 2 OF 2)**

Define means by which local objectives can be attained, potentially including projects that:

- Advance & expand conjunctive mgmt of multiple water supply sources
- Use and reuse water more efficiently
- Water mgmt system modifications that address anticipated climate change impacts, such as rising sea-level, & which may include modifications or relocations of intakes or outfalls
- Establish migration corridors, re-establish river-floodplain hydrologic continuity, re-introduce anadromous fish populations to upper watersheds, and enhance & protect upper watershed forests and meadow systems
- Projects that expand environmental stewardship by improving watersheds, floodplains, and in-stream functions, and sustain water and flood management ecosystems
- Reduce greenhouse gas emissions
- Reduce energy consumption of water systems & uses
- Use cleaner energy sources to move & treat water
- Reduce water demand and wastewater loads through water use efficiency
- Reduce water demand and wastewater loads through water recycling
- Reduce water demand and wastewater loads through water system energy efficiency
- Reduce water demand and wastewater loads through reuse runoff
- Address water related needs of Disadvantaged Communities

Conduct economic feasibility analysis relating to local objectives

Describe opportunities to improve integration and coordination among stakeholders, to avoid conflicts and take advantage of efficiencies

Define who or what group within the Merced IRWM region will be responsible for monitoring progress of Merced IRWM Climate Change Response plan implementation

***Document results to meet IRWM Plan Standards/ Climate Change, Region Description, Technical Analysis, Resource Management Strategies, Relation to Local Water Planning, Relation to Local Land Use Planning, Project Review Process, Finance, & Plan Performance and Monitoring sections***

<b>FLOOD MANAGEMENT PLAN WORK TASKS</b>
<b>Statewide Priority Addressed:</b> <b><i>Practice Integrated Flood Management</i></b>
Develop a broadly supported vision which will improve integrated flood management in the Merced IRWM region
At least monthly, document progress for the project director; at minimum, where any stakeholder meetings were held, names and affiliations of participants, and progress made during meetings; milestones achieved; any challenges encountered
Inventory existing local flood management plans throughout the region
Consider other local water plans and land use plans, and applicability to Merced IRWM flood mgmt plan
Assess Merced IRWM region's current flood protection system; identify vulnerabilities
Identify data gaps where additional monitoring or studies are needed
Review current status of Merced Streams Group Project
Review current status of Central Valley Flood Mgmt Plan, scheduled for completion Jul 2012
Prepare report summarizing opportunities to coordinate and integrate Merced IRWM flood management planning with progress made by Central Valley Flood Management Planning process; objectives, data mgmt, leverage funding resources, etc.
Determine local data management needs relating to flood management
Establish local objectives consistent w/ all relevant State & Regional requirements
Define means by which local objectives can be attained, potentially including projects that: <ul style="list-style-type: none"> <li>• Provide better emergency preparedness &amp; response</li> <li>• Provide improved flood protection</li> <li>• Provide more sustainable flood &amp; water mgmt systems</li> <li>• Provide enhanced floodplain ecosystems</li> <li>• Address needs of Disadvantaged Communities</li> <li>• Provide Low Impact Development techniques that store &amp; infiltrate runoff while protecting groundwater</li> </ul>
Conduct economic feasibility analysis relating to local objectives
Describe opportunities to improve integration and coordination among stakeholders, to avoid conflicts and take advantage of efficiencies
Define who or what group within the Merced IRWM region will be responsible for monitoring progress of Merced IRWM flood management plan implementation
<b><i>Document results to meet IRWM Plan Standards/ Technical Analysis, Resource Management Strategies, Relation to Local Water Planning, Relation to Local Land Use Planning, Finance, &amp; Plan Performance and Monitoring sections</i></b>

**WATER CONSERVATION PLAN  
WORK TASKS (PG 1 OF 2)**

**Statewide Priorities Addressed:**

***Drought Preparedness***

***Use & Reuse Water More Efficiently***

***Climate Change Response Actions***

Develop a broadly supported vision which will improve and integrate water conservation and drought preparedness strategies in the Merced IRWM region

At least monthly, document progress for the project director; at minimum, where any stakeholder meetings were held, names and affiliations of participants, and progress made during meetings; milestones achieved; any challenges encountered

Inventory existing local water conservation and drought preparedness plans

Consider other local water plans and land use plans, and applicability to Merced IRWM water conservation plan

Review water conservation laws relating to water purveyors- both urban and agricultural - including, but not limited to: AB 1420, CWC 529.5, and CWC 10610; and the California Water Plan Update 2009

Determine economic feasibility of water conservation Best Management Practices adopted by California Urban Water Conservation Council, and alternative conservation approaches, relating to AB 1420

Identify data gaps where additional monitoring or studies are needed

Assess water conservation and drought preparedness strategies in the region; prepare report identifying opportunities for improvement

Establish local objectives consistent w/ all relevant State & Regional requirements

Define means by which local objectives can be attained, potentially including projects that:

- Promote water conservation, conjunctive use, reuse & recycling
- Improve landscape & agricultural irrigation efficiencies
- Achieve long term reduction of water use
- Provide efficient groundwater basin management
- Establish system inerties
- Increase urban & agricultural water use efficiency measures such as conservation & recycling
- Capture, store, treat, & use urban storm water runoff (such as percolation to usable aquifers, underground storage beneath parks, small surface basins, domestic storm water capture systems, or the creation of catch basins or sumps downhill of development) or projects outlined in SB 790
- Incorporate & implement Low Impact Development design features, techniques, & practices to reduce or eliminate storm water runoff
- Reduce water demand & wastewater loads through water use efficiency
- Reduce water demand & wastewater loads through water recycling
- Reduce water demand & wastewater loads through water system energy efficiency
- Reduce water demand & wastewater loads through reuse runoff
- Address water related needs of Disadvantaged Communities

**WATER CONSERVATION PLAN  
WORK TASKS (PG 2 OF 2)**

Conduct economic feasibility analysis relating to local objectives

Describe opportunities to improve integration and coordination among stakeholders, to avoid conflicts and take advantage of efficiencies

Define who or what group within the Merced IRWM region will be responsible for monitoring progress of Merced IRWM water conservation plan implementation

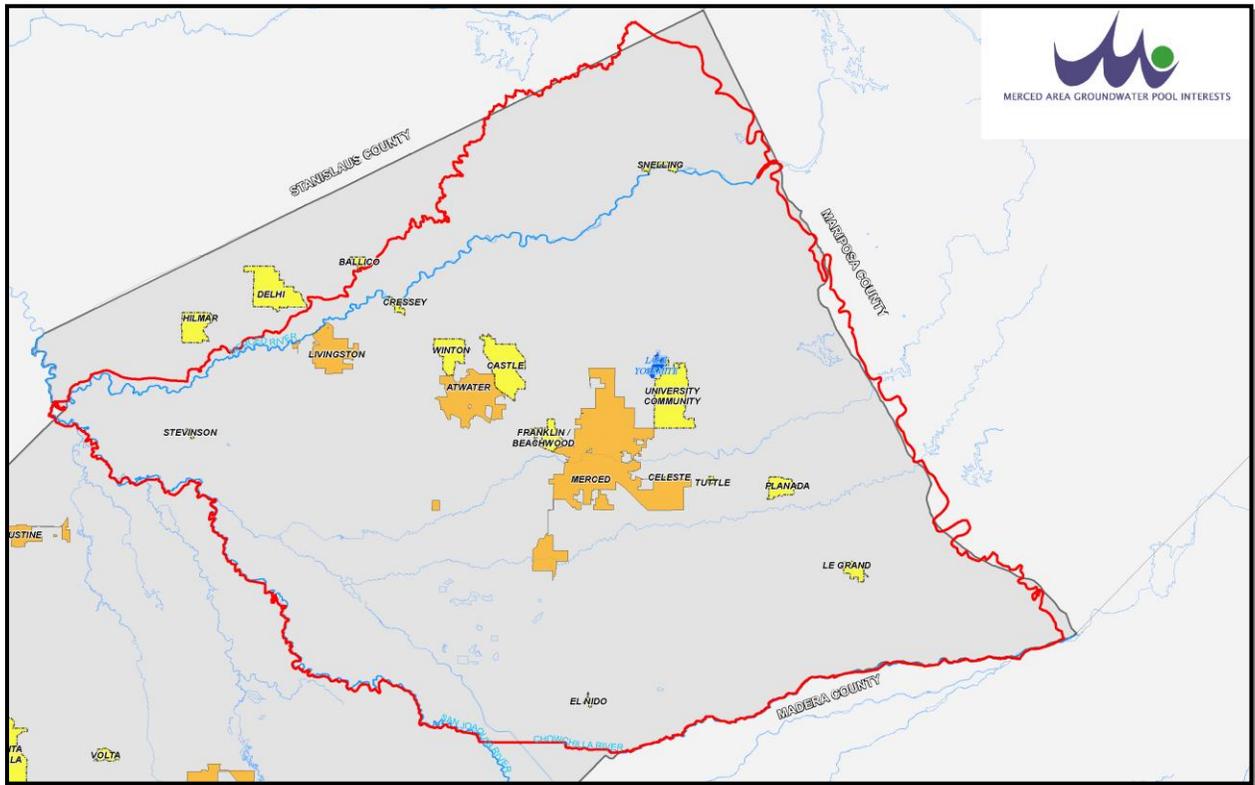
***Document results to meet IRWM Plan Standards/ Technical Analysis, Resource Management Strategies, Climate Change, Relation to Local Water Planning, Relation to Local Land Use Planning, Finance, & Plan Performance and Monitoring sections***

<b>GROUNDWATER RECHARGE FEASIBILITY STUDY WORK TASKS</b>
<b>Statewide Priority Addressed: <i>Protect Surface Water &amp; Groundwater Quality</i></b>
Develop a broadly supported vision for a potential additional source of water supply in the Merced IRWM region through the use of groundwater recharge
At least monthly, document progress for the project director; at minimum, where any stakeholder meetings were held, names and affiliations of participants, and progress made during meetings; milestones achieved; any challenges encountered
Collect information on relevant codes and regulations
Inventory existing relevant local plans
Prepare report on available historic ground water quality data for Merced IRWM region
Identify data gaps where additional monitoring or studies are needed
Develop potential alternatives for implementation strategy
Document current conditions, present alternatives for groundwater recharge methods in the Merced IRWM region, and describe feasibility of each alternative
Establish local objectives consistent w/ all relevant State & Regional requirements
Define means by which local objectives can be attained, potentially including projects that: <ul style="list-style-type: none"> <li>• Protect &amp; restore surface water and groundwater quality to safeguard public and environmental health and secure water supplies for beneficial uses</li> <li>• Address water related needs of Disadvantaged Communities</li> </ul>
Conduct economic feasibility analysis relating to local objectives
Describe opportunities to improve integration and coordination among stakeholders, to avoid conflicts and take advantage of efficiencies
Define who or what group within the Merced IRWM region will be responsible for monitoring progress of Merced IRWM groundwater recharge implementation
<b><i>Document results to meet IRWM Plan Standards/ Technical Analysis, Resource Management Strategies, Relation to Local Water Planning, Relation to Local Land Use Planning, Finance, &amp; Plan Performance and Monitoring sections</i></b>

<b>SALINITY &amp; NUTRIENTS IN GROUNDWATER &amp; SURFACE WATERS MGMT PLAN WORK TASKS</b>
<b>Statewide Priority Addressed:</b> <i>Protect Surface Water &amp; Groundwater Quality</i>
Develop a broadly supported vision which will integrate and improve salinity/ nutrient management in the Merced IRWM region
At least monthly, document progress for the project director; at minimum, where any stakeholder meetings were held, names and affiliations of participants, and progress made during meetings; milestones achieved; any challenges encountered
Inventory existing local salinity/ nutrient management plans
Consider other local water plans and land use plans, and applicability to Merced IRWM salinity/ nutrient mgmt plan
Review current status of UC Merced Center for Embedded Network Sensing assessment monitoring causes & effects of non-point source pollution in the Merced River
Prepare report summarizing opportunities to leverage Merced IRWM salinity/ nutrient management plan with progress made by UCM CENS study; objectives, data mgmt, leverage funding resources, etc.
Evaluate Merced IRWM region's salinity/ nutrient management vulnerabilities
Identify data gaps where additional monitoring or studies are needed
Review current status of Central Valley Salinity Alternatives for Long Term Sustainability (CV-SALTS) salinity/ nutrient management plan
Participate in CV-SALTS planning efforts, & regularly update local stakeholders
Prepare report summarizing opportunities to leverage Merced IRWM salinity/ nutrient management plan with progress made by CV-SALTS; objectives, data mgmt, leverage funding resources, etc.
Determine local data management needs relating to salinity/ nutrient management
Establish local objectives consistent w/ all relevant State & Regional requirements (Basin Plan, Water Code, etc)
Define means by which local objectives can be attained, potentially including projects that: <ul style="list-style-type: none"> <li>• Protect &amp; restore surface water and groundwater quality to safeguard public and environmental health and secure water supplies for beneficial uses</li> <li>• Address water related needs of Disadvantaged Communities</li> </ul>
Conduct economic feasibility analysis relating to local objectives
Describe opportunities to improve integration and coordination among stakeholders, to avoid conflicts and take advantage of efficiencies
Define who or what group within the Merced IRWM region will be responsible for monitoring progress of Merced IRWM salinity/ nutrient management plan implementation
<b><i>Document results to meet IRWM Plan Standards/ Technical Analysis, Resource Mgmt Strategies, Relation to Local Water Planning, Relation to Local Land Use Planning, Finance, &amp; Plan Performance &amp; Monitoring sections</i></b>

# ATTACHMENT 4

# BUDGET



## Merced Integrated Regional Water Management Plan Proposal for Planning Funds

September 2010

Table 4 – Project Budget

Proposal Title: Merced Integrated Regional Water Management Plan

Project Title: Project Management/ Stakeholder Outreach/ IRWM Plan

Budget Category	Non-State share (Funding Match)	Requested Grant Funding (DWR Grant Amount)	Total	% Funding Match
Project Management	\$3,240	\$49,320	\$52,560	6%
Administrative oversight of grant; fiscal reporting, quarterly progress reporting, request for proposals distributions, public notice requirements, clerical support. MID Administrative Assistant/ Accountant: \$45 hr x 24 hrs mo x 24 mos = 25,920				
Project oversight, select consultants, etc. MID Deputy Gen Mgr \$94 hr x 5 hrs mo x 24 mos= \$11,280				
Supplies & materials (postage, photocopying, etc): \$505 mo x 24 mos= \$12,120				

Sources of funding:

In-kind match:

Project Management

MID Administrative Assistant \$45 hr x 72 hrs (avg 3 hrs mo x 24 mos)= \$3,240

Table 4 – Project Budget

Proposal Title: Merced Integrated Regional Water Management Plan

Project Title: Project Management/ Stakeholder Outreach/ IRWM Plan

Budget Category	Non-State share (Funding Match)	Requested Grant Funding (DWR Grant Amount)	Total	% Funding Match
IRWM Plan/ Stakeholder Outreach	0	\$133,940	\$133,940	0
Subcontractor quote: \$133,940				
Review of tech & econ analysis components of IRWM Plan	\$16,131	0	\$16,131	100%
Review of Final IRWM Plan	\$6,523	0	\$6,523	100%
Attend stakeholder mtgs	\$49,224	0	\$49,224	100%
IRWM grant proposal	\$5,800	0	\$5,800	100%
2009 RAP Proposal	\$9,299	0	\$9,299	100%
	\$84,525	\$133,940	\$218,465	38%

In-kind match:

Stakeholder Outreach

MID Deputy General Mgr Water Resources \$94 hr x 240 hrs (10 hrs mo x 24 mo) = \$22,560

MID Facilities Specialist \$44 hr x 136 hrs (5 hrs mo x 24 mos)= \$5,996

Merced County Registered Env Health Specialist \$122 hr x 48hrs (avg 2 hrs mo x 24 mos) = \$5,856

City of Merced Pub Works Director \$78.75 hr x 96 hrs (avg 4 hr mo x 24 mos)= \$7,560

City of Merced Sr Planner \$50 hr x 96 hrs (avg 4 hr mo x 24 mos)= \$4,800

SUBTOTAL IN KIND MATCH: 46,772

Final IRWM Plan

MID Deputy General Mgr Water Resources \$94 hr x 12 hrs (6 hrs mo x 2 mo)= \$1,128

Merced County Registered Env Health Specialist \$122 hr x 40hrs (avg 20 hrs mo x 2 mos) = \$4,880

City of Merced Pub Works Director \$78.75 hr x 4 hrs (avg 2 hr mo x 2 mos)= \$315

City of Merced Sr Planner \$50 hr x 4 hrs (avg 2 hr mo x 2 mos)= \$200

SUBTOTAL IN KIND MATCH: \$6,523

2009 RAP Proposal

MID Deputy General Mgr Water Resources \$94 hr x 56 hrs = \$5,264

MID Facilities Specialist \$44 hr x 80 hrs= \$3,520

City of Merced Pub Works Director \$78.75 hr x 4 hrs= \$315

City of Merced Sr Planner \$50 hr x 4 hrs = \$200

SUBTOTAL IN KIND MATCH: \$9,299

Technical & Econ Analysis Components of Final IRWM Plan

MID Deputy General Mgr Water Resources \$94 hr x 60 hrs (5 hrs mo x 12 mo)= \$5,640

Merced County Registered Env Health Specialist \$122 hr x 48hrs (avg 2 hrs mo x 24 mos) = \$5,856

City of Merced Pub Works Director \$78.75 hr x 36 hrs (avg 3 hr mo x 12 mos)= \$2,835

City of Merced Sr Planner \$50 hr x 36 hrs = \$1,800

SUBTOTAL IN-KIND FUNDING MATCH: \$16,131

Table 4 – Project Budget

Proposal Title: Merced Integrated Regional Water Management Plan

Project Title: Project Management/ Stakeholder Outreach/ IRWM Plan

Budget Category	Non-State share (Funding Match)	Requested Grant Funding (DWR Grant Amount)	Total	% Funding Match
Prepare Environmental Documents (CEQA/ NEPA)	0	\$50,000	\$56,214	11%
Subcontractor quote: \$50,000				
Coordination w/ Consultant, attending meetings (see below)	\$6,214	0	\$6,214	100%
	\$6,214	\$50,000	\$56,214	11%

Sources of funding:

In-kind match:

MID Deputy General Mgr Water Resources \$94 hr x 24 hrs (avg 4 hr mo x 6 mos) = \$2,256  
 Merced County Registered Env Health Specialist \$122 hr x 2,928 hrs (avg 4 hr mo x 6 mos) = \$2,928  
 Merced County total in-kind match = \$

City of Merced Pub Works Director \$78.75 hr x 8 hrs (avg 2 hr mo x 4 mos)= \$630  
 City of Merced Sr Planner \$50 hr x 8 hrs (avg 2 hr mo x 4 mos)= \$400

TOTAL IN-KIND FUNDING MATCH: \$6,214

Table 4 – Project Budget

Proposal Title: Merced Integrated Regional Water Management Plan

Project Title: Climate Change Analysis

Budget Category	Non-State share (Funding Match)	Requested Grant Funding (DWR Grant Amount)	Total	% Funding Match
Climate Change Consultant				
Subcontractor quote: \$75,000	0	\$75,000	\$75,000	0
Geographic Information Systems support	0	\$4,200	\$4,200	0
County of Merced GIS: \$70 hr x 60 hrs= \$4,200				
Local coordination with Consultant, attending stakeholder meetings (see below)	\$23,493	0	\$23,493	100%
Greenhouse gas emissions analysis study (see below)	\$150,000	0	\$150,000	100%
	\$173,493	\$79,200	\$252,693	68%

Sources of funding:

In-kind match:

MID Deputy General Mgr Water Resources \$94 hr x 85 hrs (avg 4.5 hr mo x 18 mos) = \$7,990

MID overhead directly related to project, i.e., mileage, phone, supplies = \$10

MID total in-kind match= \$8,000

Merced County Registered Env Health Specialist \$122 hr x 108 hrs (avg 6 hr mo x 18 mos) = \$13,176

Merced County total in-kind match = \$13,176

City of Merced Pub Works Director \$78.75 hr x 18 hrs (avg 1 hr mo x 18 mos)= \$1,417

City of Merced Sr Planner \$50 hr x 18 hrs (avg 1 hr mo x 18 mos)= \$900

City of Merced total in-kind match = \$2,317

TOTAL IN-KIND FUNDING MATCH: \$23,493

FEDERAL GRANT MATCH:

US Dept of Energy \$150,000 Energy Efficiency & Conservation Block Grant Funds, granted to City of Merced November 2009; to develop Climate Action Plan by Dec 2011, relating to greenhouse gas emission reductions.

TOTAL FEDERAL MATCH: \$150,000

TOTAL NON-STATE FUNDING MATCH: \$173,493

Table 4 – Project Budget

Proposal Title: Merced Integrated Regional Water Management Plan

Project Title: Flood Management Plan

Budget Category	Non-State share (Funding Match)	Requested Grant Funding (DWR Grant Amount)	Total	% Funding Match
Flood Management Consultant	0	\$90,000	\$90,000	0
Subcontractor quote: \$90,000				
Geographic Information System Support	0	\$4,270	\$4,270	0
County of Merced GIS: \$70 hr x 61 hrs= \$4,270				
Coordination w/ Consultant, attending meetings (see below)	\$21,848	0	\$21,848	100%
	\$21,848	\$94,270	\$116,118	18%

Sources of funding:

In-kind match:

MID Deputy General Mgr Water Resources \$94 hr x 106 hrs (avg 5.5 hr mo x 18 mos) = \$9,964

MID overhead directly related to project, i.e., mileage, phone, supplies = \$36

MID total in-kind match= \$10,000

Merced County Registered Env Health Specialist \$122 hr x 18 hrs (avg 1 hr mo x 18 mos) = \$2,196

Merced County total in-kind match = \$2,196

City of Merced Pub Works Director \$78.75 hr x 54 hrs (avg 3 hrs mo x 18 mos)= \$4,252

City of Merced Sr Planner \$50 hr x 108 hrs (avg 6 hrs mo x 18 mos)= \$5,400

City of Merced total in-kind match = \$9,652

TOTAL IN-KIND FUNDING MATCH: \$21,848

Table 4 – Project Budget

Proposal Title: Merced Integrated Regional Water Management Plan

Project Title: Water Conservation Plan

Budget Category	Non-State share (Funding Match)	Requested Grant Funding (DWR Grant Amount)	Total	% Funding Match
Water Conservation Consultant	0	\$80,000	\$80,000	0
Subcontractor quote: \$80,000				
Coordination with Consultant, attending meetings (see below)	\$35,368	0	\$35,368	0
	\$35,368	\$80,000	\$115,368	30%

Sources of funding:

In-kind match:

MID Deputy General Mgr Water Resources \$94 hr x 252 hrs (avg 28 hrs mo x 9 mos) = \$23,688

MID overhead directly related to project, i.e., mileage, phone, supplies = \$1,312

MID total in-kind match= \$25,000

Merced County Registered Env Health Specialist \$122 hr x 9 hrs (avg 1 hr mo x 9 mos) = \$1,098

Merced County total in-kind match = \$1,098

City of Merced Pub Works Director \$78.75 hr x 72 hrs (avg 8 hrs mo x 9 mos)= \$5,670

City of Merced Sr Planner \$50 hr x 72 hrs (avg 8 hrs mo x 9 mos)= \$3,600

City of Merced total in-kind match = \$9,270

TOTAL IN-KIND FUNDING MATCH: \$35,368

Table 4 – Project Budget

Proposal Title: Merced Integrated Regional Water Management Plan

Project Title: Groundwater Recharge Feasibility Study

Budget Category	Non-State share (Funding Match)	Requested Grant Funding (DWR Grant Amount)	Total	% Funding Match
Groundwater Recharge consultant	0	\$100,000	\$100,000	0
Subcontractor quote: \$100,000				
Geographic Information System support	0	\$2,940	\$2,940	0
County of Merced GIS: \$70 hr x 42 hrs= \$2,940				
Coordination w/ consultant, attending meetings (see below)	\$19,554	0	\$19,554	100%
	\$19,554	\$102,940	\$122,494	15%

Sources of funding:

MID Deputy General Mgr Water Resources \$94 hr x 159 hrs (avg 13 hrs mo x 12 mos) = \$14,946

MID overhead directly related to project, i.e., mileage, phone, supplies = \$54

MID total in-kind match= \$15,000

Merced County Registered Env Health Specialist \$122 hr x 12 hrs (avg 1 hr mo x 12 mos) = \$1,464

Merced County total in-kind match = \$1,464

City of Merced Pub Works Director \$78.75 hr x 24 hrs (avg 2 hr mo x 12 mos)= \$1,890

City of Merced Sr Planner \$50 hr x 24 hrs (avg 2 hr mo x 12 mos)= \$1,200

City of Merced total in-kind match = \$3,090

TOTAL IN-KIND FUNDING MATCH: \$19,554

Table 4 – Project Budget

Proposal Title: Merced Integrated Regional Water Management Plan

Project Title: Salinity and Nutrients in Groundwater & Surface Waters Management Plan

Budget Category	Non-State share (Funding Match)	Requested Grant Funding (DWR Grant Amount)	Total	% Funding Match
Salinity & Nutrient Consultant	0	\$125,000	\$125,000	0
Subcontractor quote: \$125,000				
Geographic Information System support				
County of Merced GIS: \$70 hr x 62 hrs= \$4,340	0	\$4,340	\$4,340	0
Coordination w/ Consultant, attending meetings (see below)	\$22,261	0	\$22,261	100%
	\$22,261	\$129,340	\$151,601	14%

Sources of funding:

MID Deputy General Mgr Water Resources \$94 hr x 72 hrs (avg 4 hrs mo x 18 mos) = \$6,768

MID total in-kind match= \$6,768

Merced County Registered Env Health Specialist \$122 hr x 108 hrs (avg 6 hr mo x 18 mos) = \$13,176

Merced County total in-kind match = \$13,176

City of Merced Pub Works Director \$78.75 hr x 18 hrs (avg 1 hr mo x 18 mos)= \$1,417

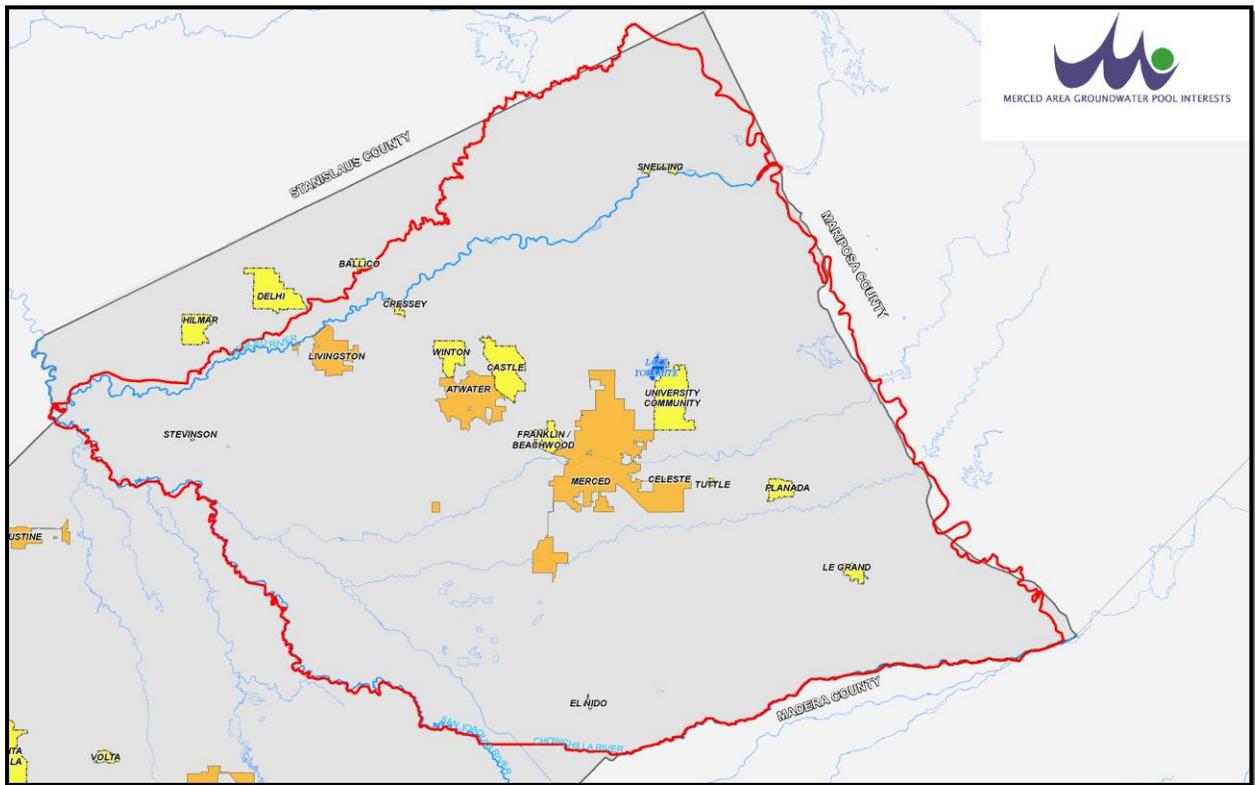
City of Merced Sr Planner \$50 hr x 18 hrs (avg 1 hr mo x 18 mos)= \$900

City of Merced total in-kind match = \$2,317

TOTAL IN-KIND FUNDING MATCH: \$22,261

# ATTACHMENT 5

# SCHEDULE



**Merced Integrated Regional Water Management Plan  
Proposal for Planning Funds**

**September 2010**

Statewide Priority Addressed	Objective	Timeline								
		Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 5	Qtr 6	Qtr 7	Qtr 8	
<b>Ensure Equitable Distribution of Benefits</b> <b>&amp;</b> <b>Expand Environmental Stewardship</b>	<b>Project Management / Integrated Regional Water Management Plan</b>									
	Execute contract agreement, anticipated January 2011	■								
	Issue request for proposals; select consultants as needed	■								
	Quarterly Reports to DWR	■	■	■	■	■	■	■	■	■
	Publish notice of intent to prepare the Merced IRWM Plan, in accordance with IRWM Plan Standards pg 1 and Government Code § 6066						■	■		
	Utilizing sections already drafted, formulate Merced IRWM Plan in accordance with standards						■			
	CEQA/ NEPA						■	■		
	Publish notice of intention to adopt the Merced IRWM Plan, complying w/ IRWM Plan Standards pg 1 and Government Code § 6066								■	■
	Resolution adoption by governing body of each agency that is part of the RWMG responsible for implementation of the Merced IRWM Plan, complying w/ IRWM Plan standards pgs 1 & 2									■
	Final Report to DWR									■
	<b>Stakeholder Outreach</b>									
	Facilitate at least one meeting monthly throughout the region	■	■	■	■	■	■	■	■	■
	At least monthly, document these meetings for the project director; at minimum, where the meetings were held, names and affiliations of participants, and progress made during meetings	■	■	■	■	■	■	■	■	■
	Create and maintain website for Merced IRWM planning & stakeholder outreach efforts	■	■	■	■	■	■	■	■	■
	<b>Document results to meet IRWM Plan Standards/ Stakeholder Involvement section</b>								■	■

Statewide Priority Addressed	Objective	Timeline							
		Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 5	Qtr 6	Qtr 7	Qtr 8
<b>Ensure Equitable Distribution of Benefits</b> <b>&amp;</b> <b>Expand Environmental Stewardship</b>	<b>Address all DWR Standards for IRWM Plans</b>								
	Inventory governance structure models from other IRWM planning areas	■							
	Present governance structure options to stakeholders, including a mechanism for conflict resolution	■	■						
	Select governance structure model			■					
	Implement; adopt bylaws or any other appropriate mechanisms			■					
	Review IRWM plan progress monthly via a user-friendly milestones chart			■					
	Determine how Merced IRWM plan will be adaptive to changing conditions, including how often the Plan will be updated; and the process by which the Plan will be amended.			■					
	Determine the current extent of integration processes among stakeholders and institutions, and methods by which integration may be improved, including data collection, data sharing, protocols to ensure data compatibility, and sharing technical capacity to aid the IRWM area			■					
	<b>Document results to meet IRWM Plan Standards/ Integration and Governance section</b>				■				
	Identify process to coordinate local water mgmt projects to avoid conflicts & take advantage of efficiencies			■	■				
	Identify process to coordinate efforts of Merced IRWM with neighboring IRWM planning areas to avoid conflicts & take advantage of efficiencies			■	■				
	<b>Document results to meet IRWM Plan Standards/ Coordination section</b>				■				
	Present boundary modification concepts to stakeholders		■	■					
	Inventory MOU, joint powers agreement, and other written agreement models between adjacent IRWM planning areas		■	■					
	Coordinate with Mariposa County/ CenCal re Dry Creek	■	■	■	■	■	■	■	■
	Coordinate with Westside-San Joaquin IRWM, an adjoining region	■	■	■	■	■	■	■	■
	Meet with CenCal IRWM reps; adopt MOU with CenCal region agreeing on boundaries and eliminating overlap			■	■				
	Meet with Madera IRWM reps; adopt MOU with Madera region agreeing on boundaries and eliminating overlap			■	■				
	<b>Document results to meet IRWM Plan Standards/ Governance &amp; Region Desc sections</b>					■			

Statewide Priority Addressed	Objective	Timeline							
		Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 5	Qtr 6	Qtr 7	Qtr 8
<b>Ensure Equitable Distribution of Benefits</b> <b>&amp;</b> <b>Expand Environmental Stewardship</b>	<b>Address all DWR Standards for IRWM Plans</b>								
	Collect relevant information regarding ensuring equitable distribution of benefits and expanding environmental stewardship, including, but not limited to, the California Water Plan Update 2009			■					
	Inventory project review process models from other IRWM planning areas (defining how projects will be prioritized for implementation)			■	■				
	Analyze project review process models for processes which foster integration and coordination among stakeholders, to avoid conflicts and take advantage of efficiencies			■	■				
	Analyze project review process models which consider greenhouse gas emissions when choosing between project alternatives			■	■				
	Analyze project review process models which consider safe drinking water and wastewater treatment needs of disadvantaged communities when choosing between project alternatives			■	■				
	Analyze project review process models which include environmental justice considerations when choosing between project alternatives			■	■				
	Present project review process model options to stakeholders Select project review process; adopt				■	■			
	<b>Document results to meet IRWM Plan Standards/ Project Review Process &amp; Climate Change sections</b>					■			
	Consider range of Resource Management Strategies to address Merced IRWM objectives			■	■	■	■	■	■
	Describe opportunities to improve integration and coordination among stakeholders, to avoid conflicts and take advantage of efficiencies					■			
	<b>Document results to meet IRWM Plan Standards/ Resource Mgmt Strategies section</b>					■			
	Inventory existing local water plans. Determine relationship to Merced IRWM objectives		■	■					
	Describe opportunities to improve integration and coordination among stakeholders, to avoid conflicts and take advantage of efficiencies			■					
	<b>Document results to meet IRWM Plan Standards/ Relation to Local Water Planning</b>			■					
	Inventory existing local land use plans. Determine relationship to Merced IRWM objectives		■	■					
	Define current Merced IRWM coordination with local land use planning			■					
	Describe future efforts to improve Merced IRWM coordination with local land use planning, to avoid conflicts and take advantage of efficiencies			■					
	<b>Document results to meet IRWM Plan Standards/ Relation to Local Land Use Planning</b>			■					

Statewide Priority Addressed	Objective	Timeline							
		Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 5	Qtr 6	Qtr 7	Qtr 8
<b>Ensure Equitable Distribution of Benefits</b> <b>&amp;</b> <b>Expand Environmental Stewardship</b>	<b>Address all DWR Standards for IRWM Plans</b>								
	Define major water related issues and conflicts of Merced region, utilizing stakeholder input								
	Identify water related needs of Disadvantaged Communities								
	Prioritize water issues, incorporating information from the technical elements; climate change, flood management, water conservation, groundwater recharge, & salinity and nutrient management								
	In measurable terms, define objectives to address water issues								
	<b>Document results to meet IRWM Plan Standards/ Objectives section</b>								
	Define potential impacts and benefits if objectives are addressed, including those to disadvantaged communities								
	<b>Document results to meet IRWM Plan Standards/ Impact and Benefit section</b>								
	Determine performance measures & monitoring methods to ensure objectives of IRWM Plan are met.								
	<b>Document results to meet IRWM Plan Standards/ Plan Perf &amp; Monitoring section</b>								
	Define means by which local objectives can be attained, potentially including projects that: <ul style="list-style-type: none"> <li>Enhance the environment by improving watersheds, floodplains, and in-stream functions &amp; to sustain water &amp; flood mgmt ecosystems</li> <li>Increase participation of small &amp; disadvantaged communities in the IRWM process</li> <li>Develop multi-benefit projects w/ consideration of affected disadvantaged communities &amp; vulnerable populations</li> <li>address safe drinking water &amp; wastewater treatment needs of disadvantaged communities</li> </ul>								
	Select and prioritize projects for implementation								
	Determine economic feasibility of each potential project, including cost estimate, operating costs, and potential funding sources								
	<b>Document results to meet IRWM Plan Standards/ Project Review Process &amp; Finance sections</b>								
	Determine technical feasibility of each potential project								
	<b>Document results to meet IRWM Plan Standards/ Technical Analysis section</b>								

Statewide Priority Addressed	Objective	Timeline							
		Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 5	Qtr 6	Qtr 7	Qtr 8
Climate Change Response Actions & Expand Environmental Stewardship	<b>Climate Change Analysis</b>								
	Develop a broadly supported vision which will improve climate change response actions in the Merced IRWM region		■	■	■	■	■	■	■
	At least monthly, document progress for the project director; at minimum, where any stakeholder meetings were held, names and affiliations of participants, and progress made during meetings; milestones achieved; any challenges encountered		■	■	■	■	■	■	■
	Inventory existing local plans throughout the Merced IRWM region which include climate change response actions, including, but not limited to: water, land use, and transp plans		■						
	Review East Merced RCD analysis of Merced River Analysis Project, consisting of Biological surveys & Env Stewardship strategies (concluded 2008)		■						
	Review current status of MIS Merced River Monitoring Study of Anadromous Fish		■	■					
	Review current status of City of Merced Climate Action Plan; attend City's CAP mtgs		■	■	■				
	Collect relevant information, laws, codes, and regulations, including, but not limited to: SB 375, SB 97, AB 32, the 2009 California Climate Adaptation Strategy, <u>Managing an Uncertain Future</u> , DWR 2008, Executive Order S-3-05, Executive Order S-13-08, and the California Water Plan Update 2009		■	■					
	Assess Merced IRWM region's water supplies and demands for a minimum 20-yr planning horizon; describe potential effects of climate change		■						
	Identify data gaps where additional monitoring or studies are needed		■	■					
	Evaluate vulnerabilities of Merced IRWM region's Disadvantaged Communities to the effects of climate change and potential actions that will address: <ul style="list-style-type: none"> <li>Adaptation to climate change</li> <li>Reduction of Greenhouse Gas (GHG) emissions</li> <li>Reduce energy consumption</li> </ul>		■	■					
	Evaluate Merced IRWM region's vulnerabilities to the effects of climate change and potential actions that will address: <ul style="list-style-type: none"> <li>Adaptation to climate change</li> <li>Reduction of Greenhouse Gas (GHG) emissions</li> <li>Reduce energy consumption</li> </ul>		■	■					
	Present quantitative tools for vulnerability analysis of specific proposed projects			■	■				
	Analyze project review process models which consider greenhouse gas emissions when choosing between project alternatives			■	■				

Statewide Priority Addressed	Objective	Timeline							
		Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 5	Qtr 6	Qtr 7	Qtr 8
Climate Change Response Actions & Expand Environmental Stewardship	<b>Climate Change Analysis</b>								
	Establish local objectives consistent w/ all relevant State & Regional requirements				■				
	Define means by which local objectives can be attained, potentially including projects that:				■	■			
	<ul style="list-style-type: none"> <li>• Advance &amp; expand conjunctive mgmt of multiple water supply sources</li> <li>• Use and reuse water more efficiently</li> <li>• Water mgmt system modifications that address anticipated climate change impacts, such as rising sea-level, &amp; which may include modifications or relocations of intakes or outfalls</li> <li>• Establish migration corridors, re-establish river-floodplain hydrologic continuity, re-introduce anadromous fish populations to upper watersheds, and enhance &amp; protect upper watershed forests and meadow systems</li> <li>• Projects that expand environmental stewardship by improving watersheds, floodplains, and in-stream functions, and sustain water and flood management ecosystems</li> <li>• Reduce greenhouse gas emissions</li> <li>• Reduce energy consumption of water systems &amp; uses</li> <li>• Use cleaner energy sources to move &amp; treat water</li> <li>• Reduce water demand and wastewater loads through water use efficiency</li> <li>• Reduce water demand and wastewater loads through water recycling</li> <li>• Reduce water demand and wastewater loads through water system energy efficiency</li> <li>• Reduce water demand and wastewater loads through reuse runoff</li> <li>• Address water related needs of Disadvantaged Communities</li> </ul>								
	Conduct economic feasibility analysis relating to local objectives						■		
	Describe opportunities to improve integration and coordination among stakeholders, to avoid conflicts and take advantage of efficiencies						■		
	Define who or what group within the Merced IRWM region will be responsible for monitoring progress of Merced IRWM Climate Change Response plan implementation						■		
	<b>Document results to meet IRWM Plan Standards/ Climate Change, Region Description, Technical Analysis, Resource Management Strategies, Relation to Local Water Planning, Relation to Local Land Use Planning, Project Review Process, Finance, &amp; Plan Performance and Monitoring sections</b>							■	

Statewide Priority Addressed	Objective	Timeline							
		Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 5	Qtr 6	Qtr 7	Qtr 8
Practice Integrated Flood Management	<b>Flood management plan</b>								
	Develop a broadly supported vision which will improve integrated flood management in the Merced IRWM region		■	■	■	■	■	■	■
	At least monthly, document progress for the project director; at minimum, where any stakeholder meetings were held, names and affiliations of participants, and progress made during meetings; milestones achieved; any challenges encountered		■	■	■	■	■	■	■
	Inventory existing local flood management plans throughout the region		■						
	Consider other local water plans and land use plans, and applicability to Merced IRWM flood mgmt plan		■						
	Assess Merced IRWM region's current flood protection system; identify vulnerabilities			■					
	Identify data gaps where additional monitoring or studies are needed			■					
	Review current status of Central Valley Flood Mgmt Plan, scheduled for completion Jul 2012		■	■	■	■	■	■	■
	Prepare report summarizing opportunities to coordinate and integrate Merced IRWM flood management planning with progress made by Central Valley Flood Management Planning process; objectives, data mgmt, leverage funding resources, etc.			■					
	Determine local data management needs relating to flood management			■					
	Establish local objectives consistent w/ all relevant State & Regional requirements			■	■				
	Define means by which local objectives can be attained, potentially including projects that: <ul style="list-style-type: none"> <li>• Provide better emergency preparedness &amp; response</li> <li>• Provide improved flood protection</li> <li>• Provide more sustainable flood &amp; water mgmt systems</li> <li>• Provide enhanced floodplain ecosystems</li> <li>• Address needs of Disadvantaged Communities</li> <li>• Provide Low Impact Development techniques that store &amp; infiltrate runoff while protecting groundwater</li> </ul>			■	■	■			
	Conduct economic feasibility analysis relating to local objectives					■	■		
	Describe opportunities to improve integration and coordination among stakeholders, to avoid conflicts and take advantage of efficiencies					■	■		
	Define who or what group within the Merced IRWM region will be responsible for monitoring progress of Merced IRWM flood management plan implementation							■	
	<b>Document results to meet IRWM Plan Standards/ Technical Analysis, Resource Management Strategies, Relation to Local Water Planning, Relation to Local Land Use Planning, Finance, &amp; Plan Performance and Monitoring sections</b>							■	

Statewide Priority Addressed	Objective	Timeline								
		Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 5	Qtr 6	Qtr 7	Qtr 8	
<b>Drought Preparedness</b> <b>&amp;</b> <b>Use &amp; Reuse Water More Efficiently</b> <b>&amp;</b> <b>Climate Change Response Actions</b>	<b>Water Conservation Plan</b>									
	Develop a broadly supported vision which will improve and integrate water conservation and drought preparedness strategies in the Merced IRWM region		■	■	■					
	At least monthly, document progress for the project director; at minimum, where any stakeholder meetings were held, names and affiliations of participants, and progress made during meetings; milestones achieved; any challenges encountered		■	■	■					
	Inventory existing local water conservation and drought preparedness plans		■							
	Consider other local water plans and land use plans, and applicability to Merced IRWM water conservation plan		■							
	Review water conservation laws relating to water purveyors- both urban and agricultural - including, but not limited to: AB 1420, CWC 529.5, and CWC 10610; and the California Water Plan Update 2009		■							
	Determine economic feasibility of water conservation Best Management Practices adopted by California Urban Water Conservation Council, and alternative conservation approaches, relating to AB 1420		■	■						
	Identify data gaps where additional monitoring or studies are needed				■					
	Assess water conservation and drought preparedness strategies in the region; prepare report identifying opportunities for improvement				■					
	Establish local objectives consistent w/ all relevant State & Regional requirements				■					
	Define means by which local objectives can be attained, potentially including projects that: <ul style="list-style-type: none"> <li>• Promote water conservation, conjunctive use, reuse &amp; recycling</li> <li>• Improve landscape &amp; agricultural irrigation efficiencies</li> <li>• Achieve long term reduction of water use</li> <li>• Provide efficient groundwater basin management</li> <li>• Establish system inerties</li> <li>• Increase urban &amp; agricultural water use efficiency measures such as conservation &amp; recycling</li> <li>• Capture, store, treat, &amp; use urban storm water runoff (such as percolation to usable aquifers, underground storage beneath parks, small surface basins, domestic storm water capture systems, or the creation of catch basins or sumps downhill of development) or projects outlined in SB 790</li> </ul>				■	■				

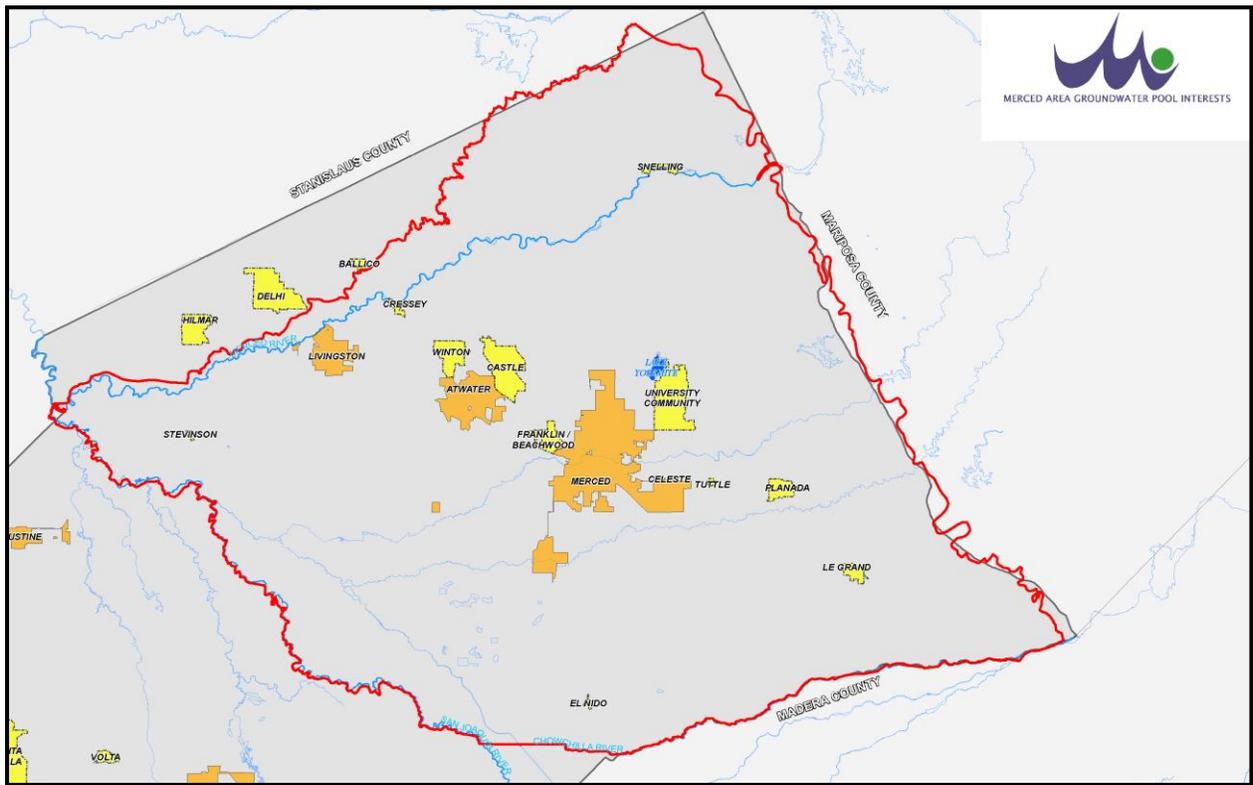
Statewide Priority Addressed	Objective	Timeline							
		Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 5	Qtr 6	Qtr 7	Qtr 8
<b>Drought Preparedness &amp; Use &amp; Reuse Water More Efficiently &amp; Climate Change Response Actions</b>	<b>Water Conservation Plan</b>								
	<ul style="list-style-type: none"> <li>Incorporate &amp; implement Low Impact Development design features, techniques, &amp; practices to reduce or eliminate storm water runoff</li> <li>Reduce water demand &amp; wastewater loads through water use efficiency</li> <li>Reduce water demand &amp; wastewater loads through water recycling</li> <li>Reduce water demand &amp; wastewater loads through water system energy efficiency</li> <li>Reduce water demand &amp; wastewater loads through reuse runoff</li> <li>Address water related needs of Disadvantaged Communities</li> </ul>								
	Conduct economic feasibility analysis relating to local objectives								
	Describe opportunities to improve integration and coordination among stakeholders, to avoid conflicts and take advantage of efficiencies								
	Define who or what group within the Merced IRWM region will be responsible for monitoring progress of Merced IRWM water conservation plan implementation								
	<b><i>Document results to meet IRWM Plan Standards/ Technical Analysis, Resource Management Strategies, Climate Change, Relation to Local Water Planning, Relation to Local Land Use Planning, Finance, &amp; Plan Performance and Monitoring sections</i></b>								

Statewide Priority Addressed	Objective	Timeline							
		Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 5	Qtr 6	Qtr 7	Qtr 8
Protect Surface Water & Groundwater Quality	<b>Groundwater Recharge Feasibility Study</b>								
	Develop a broadly supported vision for a potential additional source of water supply in the Merced IRWM region through the use of groundwater recharge		■	■	■	■			
	At least monthly, document progress for the project director; at minimum, where any stakeholder meetings were held, names and affiliations of participants, and progress made during meetings; milestones achieved; any challenges encountered		■	■	■	■			
	Collect information on relevant codes and regulations		■						
	Inventory existing relevant local plans		■						
	Prepare report on available historic ground water quality data for Merced IRWM region		■						
	Identify data gaps where additional monitoring or studies are needed			■					
	Develop potential alternatives for implementation strategy			■					
	Document current conditions, present alternatives for groundwater recharge methods in the Merced IRWM region, and describe feasibility of each alternative			■					
	Establish local objectives consistent w/ all relevant State & Regional requirements			■	■				
	Define means by which local objectives can be attained, potentially including projects that: <ul style="list-style-type: none"> <li>Protect &amp; restore surface water and groundwater quality to safeguard public and environmental health and secure water supplies for beneficial uses</li> <li>Address water related needs of Disadvantaged Communities</li> </ul>			■	■				
	Conduct economic feasibility analysis relating to local objectives				■	■			
	Describe opportunities to improve integration and coordination among stakeholders, to avoid conflicts and take advantage of efficiencies				■	■			
	Define who or what group within the Merced IRWM region will be responsible for monitoring progress of Merced IRWM groundwater recharge implementation				■				
	<b>Document results to meet IRWM Plan Standards/ Technical Analysis, Resource Management Strategies, Relation to Local Water Planning, Relation to Local Land Use Planning, Finance, &amp; Plan Performance and Monitoring sections</b>				■				

Statewide Priority Addressed	Objective	Timeline							
		Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 5	Qtr 6	Qtr 7	Qtr 8
Protect Surface Water & Groundwater Quality	<b>Salinity and Nutrients in Groundwater and Surface Waters Management Plan</b>								
	Develop a broadly supported vision which will integrate and improve salinity/ nutrient management in the Merced IRWM region		■	■	■	■	■	■	■
	At least monthly, document progress for the project director; at minimum, where any stakeholder meetings were held, names and affiliations of participants, and progress made during meetings; milestones achieved; any challenges encountered		■	■	■	■	■	■	■
	Inventory existing local salinity/ nutrient management plans		■						
	Consider other local water plans and land use plans, and applicability to Merced IRWM salinity/ nutrient mgmt plan		■						
	Review current status of UC Merced Center for Embedded Network Sensing assessment monitoring causes & effects of non-point source pollution in the Merced River		■						
	Prepare report summarizing opportunities to leverage Merced IRWM salinity/ nutrient management plan with progress made by UCM CENS study; objectives, data mgmt, leverage funding resources, etc.								
	Evaluate Merced IRWM region's salinity/ nutrient management vulnerabilities								
	Identify data gaps where additional monitoring or studies are needed								
	Review current status of Central Valley Salinity Alternatives for Long Term Sustainability (CV-SALTS) salinity/ nutrient management plan		■						
	Participate in CV-SALTS planning efforts, & regularly update local stakeholders		■	■	■	■	■	■	■
	Prepare report summarizing opportunities to leverage Merced IRWM salinity/ nutrient management plan with progress made by CV-SALTS; objectives, data mgmt, leverage funding resources, etc.			■					
	Determine local data management needs relating to salinity/ nutrient management			■	■				
	Establish local objectives consistent w/ all relevant State & Regional requirements (Basin Plan, Water Code, etc)			■	■				
	Define means by which local objectives can be attained, potentially including projects that: <ul style="list-style-type: none"> <li>Protect &amp; restore surface water and groundwater quality to safeguard public and environmental health and secure water supplies for beneficial uses</li> <li>Address water related needs of Disadvantaged Communities</li> </ul>				■	■			
	Conduct economic feasibility analysis relating to local objectives					■	■		
	Describe opportunities to improve integration and coordination among stakeholders, to avoid conflicts and take advantage of efficiencies					■	■		
	Define who or what group within the Merced IRWM region will be responsible for monitoring progress of Merced IRWM salinity/ nutrient management plan implementation						■		
	<b>Document results to meet IRWM Plan Standards/ Technical Analysis, Resource Mgmt Strategies, Relation to Local Water Planning, Relation to Local Land Use Planning, Finance, &amp; Plan Performance &amp; Monitoring sections</b>							■	

# ATTACHMENT 6

## AB 1420 and Water Meter Implementation Compliance



### Merced Integrated Regional Water Management Plan Proposal for Planning Funds

September 2010

California State Water Resources Control Board  
California Department of Water Resources  
California Department of Public Health



**CERTIFICATION FOR  
COMPLIANCE WITH WATER METERING REQUIREMENTS  
FOR FUNDING APPLICATIONS**

Funding Agency name: CA Department of Water Resources  
Funding Program name: Integrated Regional Water Management Program  
Applicant (Agency name): Merced Irrigation District  
Project Title (as shown on application form): \_\_\_\_\_  
Merced Integrated Regional Water Management Plan

Please check one of the boxes below and sign and date this form.

As the authorized representative for the applicant agency, I certify under penalty of perjury under the laws of the State of California, that the agency is not an urban water supplier, as that term is understood pursuant to the provisions of section 529.5 of the Water Code.

As the authorized representative for the applicant agency, I certify under penalty of perjury under the laws of the State of California, that the applicant agency has fully complied with the provisions of Division 1, Chapter 8, Article 3.5 of the California Water Code (sections 525 through 529.7 inclusive) and that ordinances, rules, or regulations have been duly adopted and are in effect as of this date.

I understand that the Funding Agency will rely on this signed certification in order to approve funding and that false and/or inaccurate representations in this Certification Statement may result in loss of all funds awarded to the applicant for its project. Additionally, for the aforementioned reasons, the Funding Agency may withhold disbursement of project funds, and/or pursue any other applicable legal remedy.

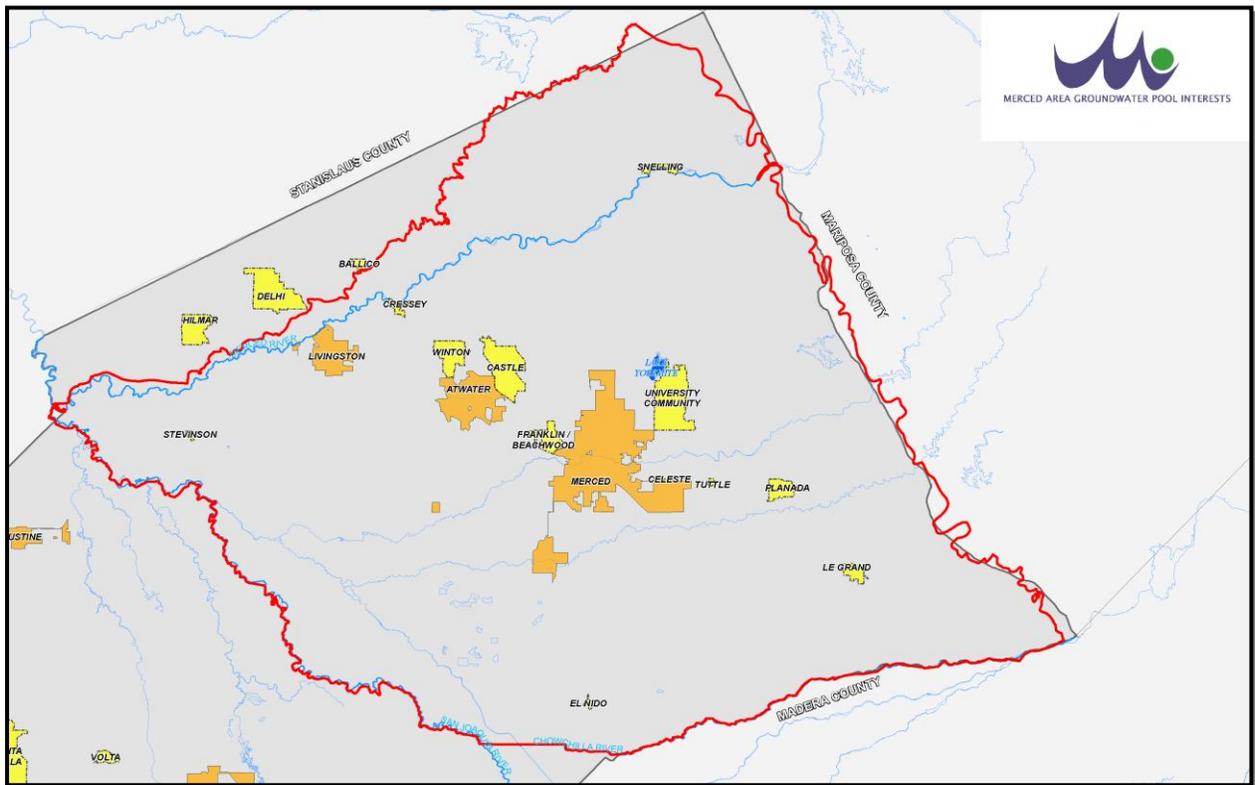
Hicham Eltal  
Name of Authorized Representative

Hicham Eltal  
Signature

Merced Area Groundwater Pool Interest Chairman and  
MID Deputy General Manager, Water Resources  
Title

September 21, 2010  
Date

# APPENDIX



## Merced Integrated Regional Water Management Plan Proposal for Planning Funds

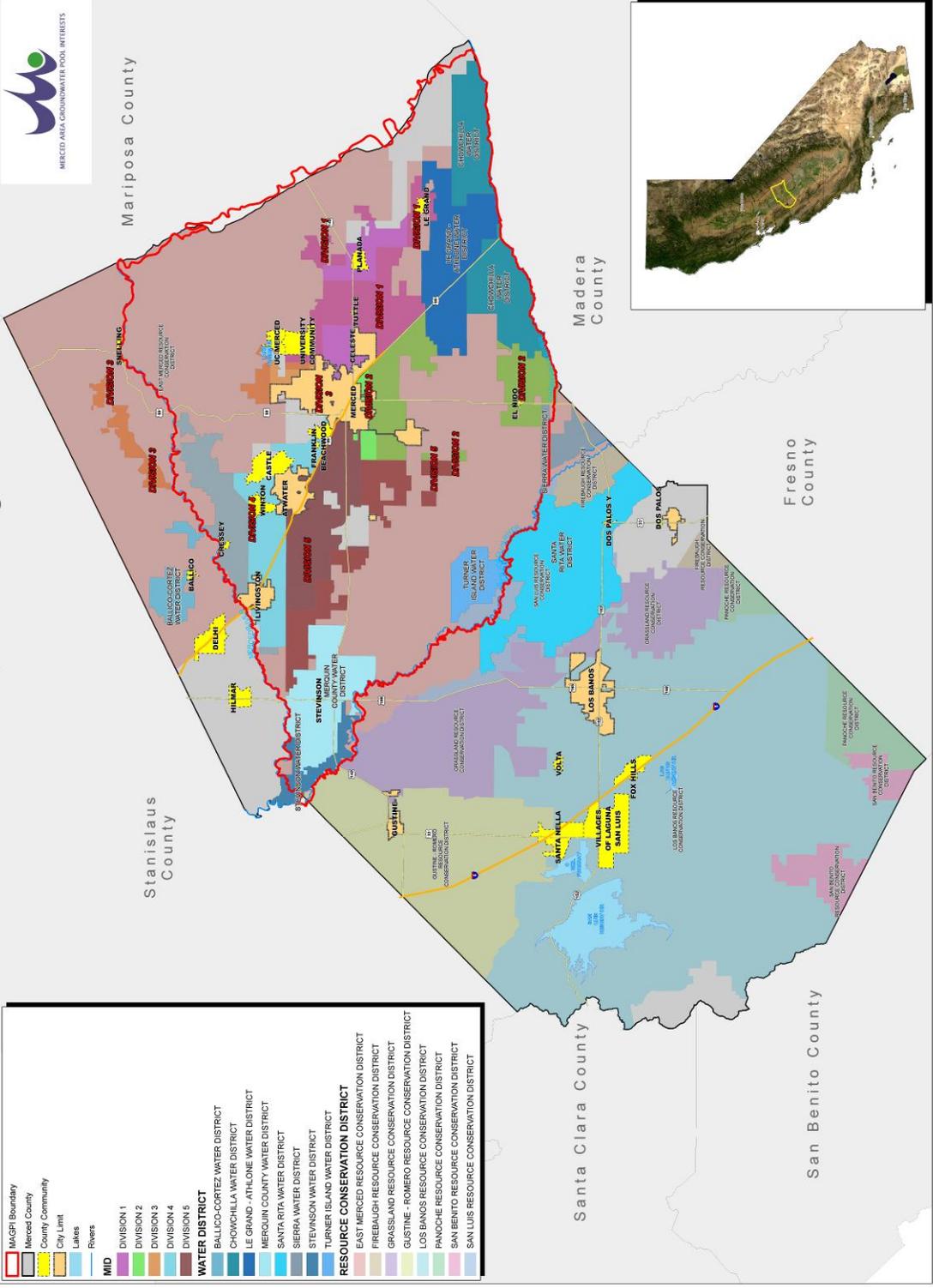
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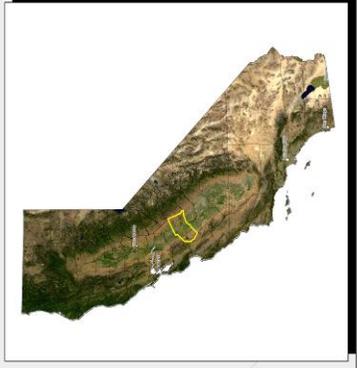
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# Draft Merced IRWMP Water, Conservation, and Irrigation Districts

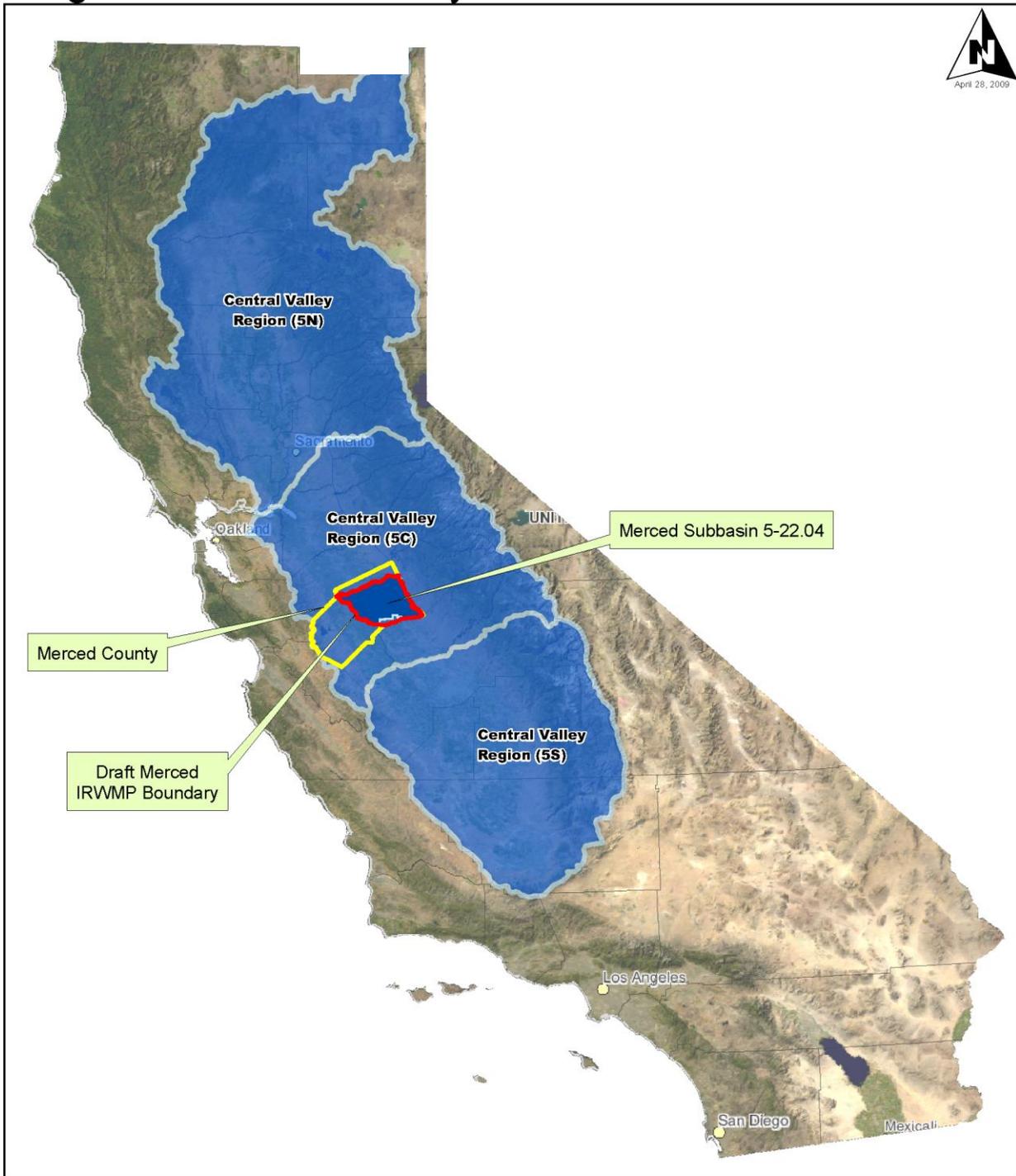


- MAGPI Boundary**
- Merced County**
- County Community**
- City Limit**
- Lakes**
- Rivers**
- MID**
- DIVISION 1**
- DIVISION 2**
- DIVISION 3**
- DIVISION 4**
- DIVISION 5**
- WATER DISTRICT**
- BALISCO-CORTEZ WATER DISTRICT**
- CHOMCHILLA WATER DISTRICT**
- LE GRAND -ATHLONE WATER DISTRICT**
- MERCURIN COUNTY WATER DISTRICT**
- SANTA RITA WATER DISTRICT**
- SIERRA WATER DISTRICT**
- STEVINSON WATER DISTRICT**
- TURNER ISLAND WATER DISTRICT**
- RESOURCE CONSERVATION DISTRICT**
- EAST MERCED RESOURCE CONSERVATION DISTRICT**
- FIREBAUGH RESOURCE CONSERVATION DISTRICT**
- GRASSLAND RESOURCE CONSERVATION DISTRICT**
- GUSTINE - ROMERO RESOURCE CONSERVATION DISTRICT**
- LOS BANOS RESOURCE CONSERVATION DISTRICT**
- PANOCHÉ RESOURCE CONSERVATION DISTRICT**
- SAN BENITO RESOURCE CONSERVATION DISTRICT**
- SAN LUIS RESOURCE CONSERVATION DISTRICT**





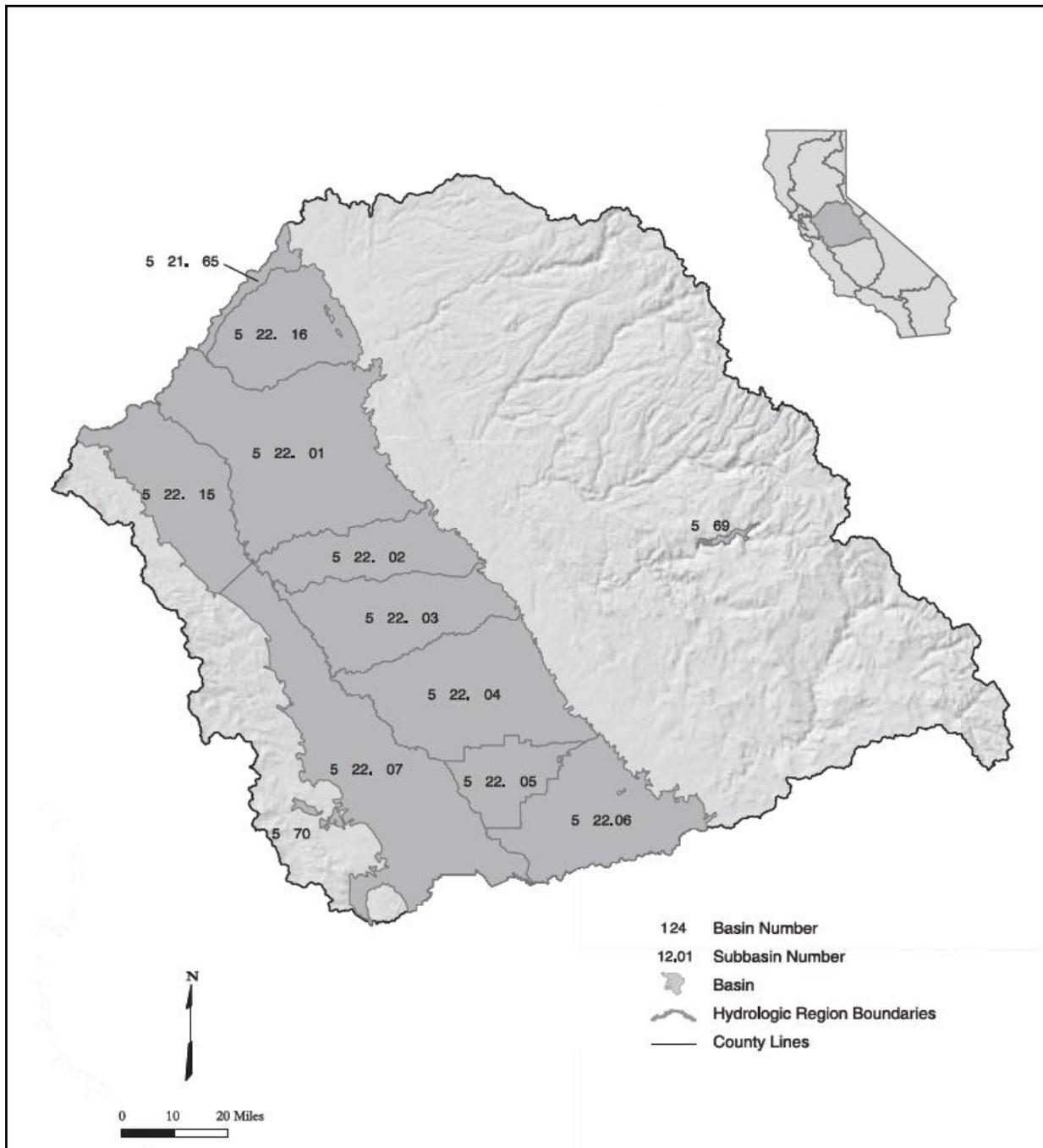
# Merced IRWMP Regional Water Quality Control Board Boundaries



# SAN JOAQUIN RIVER HYDROLOGIC REGION AND SUB-BASINS

DWR BULLETIN 118

## Merced Groundwater Sub-basin 5-22.04



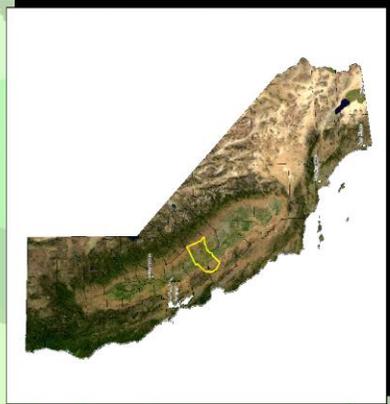
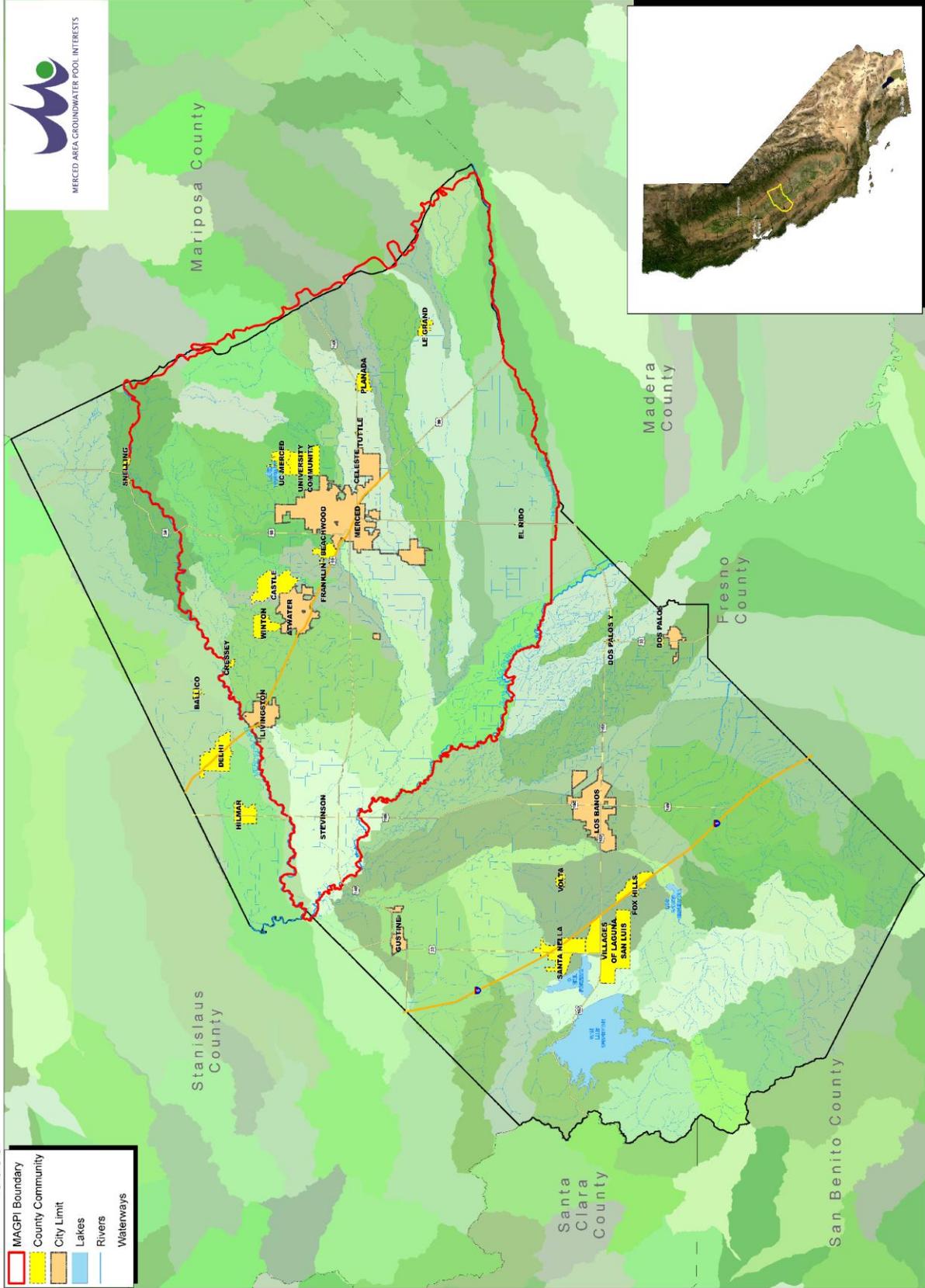


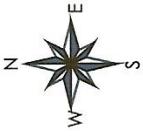
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# Draft Merced Watershed Boundaries

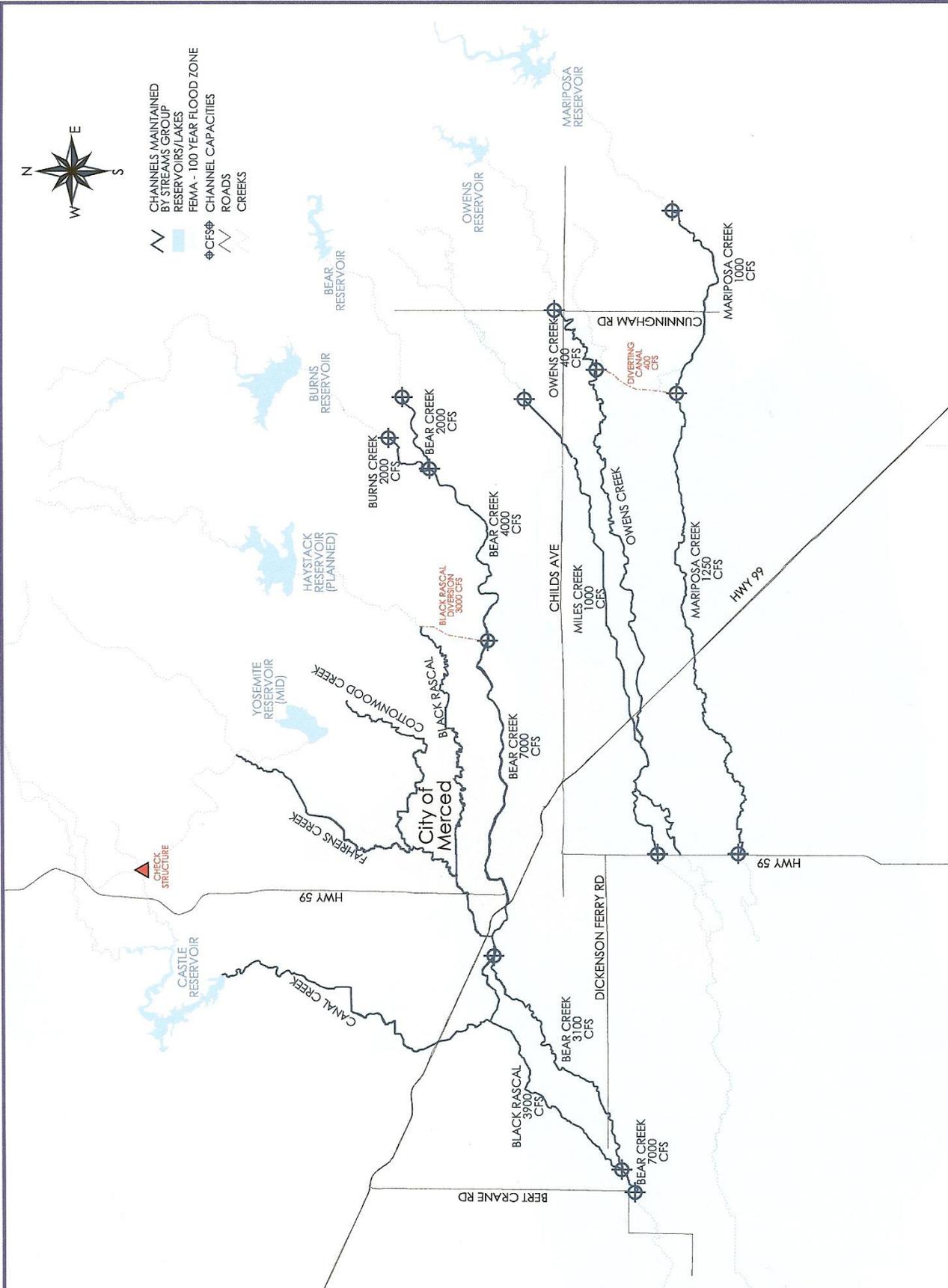


- MAGPI Boundary
- County Community
- City Limit
- Lakes
- Rivers
- Waterways





- CHANNELS MAINTAINED BY STREAMS GROUP
- RESERVOIRS/LAKES
- FEMA - 100 YEAR FLOOD ZONE
- CHANNEL CAPACITIES
- ROADS
- CREEKS



# MERCED STREAMS GROUP

