Merced Integrated Regional Water Management Plan

HIGHLIGHTS

What is Integrated Regional Water Management (IRWM) Planning?

Almost ten years ago, the State of California embarked on a new venture to implement integrated planning at the regional level, known as Integrated Regional Water Management (IRWM) planning. Over time, this program has evolved into a major water resources planning framework implemented statewide. The California Water Plan cites IRWM as a new paradigm for water planning and a critical part of meeting the state's future water needs. IRWM planning provides a forum for coordination among stakeholders, creates a pathway to future funding opportunities and establishes a governance structure to consider and, when appropriate, create and implement policy related to challenging water quality and supply issues..

Through the IRWM program, the State of California has encouraged collaboration among water supply and wastewater agencies, flood control and stormwater protection districts, resource and regulatory agencies, non-governmental organizations, local governments, and volunteer groups to enhance integration in water management planning – all at the regional level. In addition to coordinating the activities of established stakeholder groups, the IRWM engages and educates all interested parties in water management. All



residents have a stake in the future of their region's water resources, and as such all members of the general public are considered stakeholders in the IRWM planning process.

The Merced IRWM Region (Region) was approved as an IRWM planning region in 2011 by the California Department of Water Resources (DWR). The Region encompasses roughly 607,000 acres in the northeast portion of Merced County. Its boundaries are defined by the Merced Groundwater Subbasin to the east, the San Joaquin River to the west, the Dry Creek watershed (a tributary to the Merced River) to the north, and the Chowchilla River to the south.

An integrated approach to water management

The Merced Region recently completed its first Integrated Regional Water Management Plan (Plan), which will provide a framework for integrated water resources management in the Region. The Plan was developed through a stakeholder-driven process, building upon the Region's successful history of collaboration on water resource management issues. Crossing watershed, jurisdictional, and political boundaries, the Merced IRWM Plan represents the culmination of years of cooperative and collaborative planning among regional stakeholders with varied interests ranging from agriculture to representation of underserved communities. With the ultimate goal of preserving the quality and reliability of the water in the Merced Region, the Plan identifies regional water management strategies and projects that will contribute to the overall health of the Merced Region.

Merced Region is faced with unique water needs and challenges

The Merced IRWM Region is a vital economic engine for California and the nation. The Region is an agricultural hub of the Central Valley, which not only supports California but accounts for the majority of agricultural production in the United States. Protecting Merced's water resources supports continued agricultural productivity in the Region, which in turn supports the economy of the State.



The Merced River is one of three eastside tributaries that contribute flow to the Lower San Joaquin River upstream of Vernalis. Protecting the Merced River protects water supply and quality for all downstream users including the Delta, a critical water supply source for twothirds of Californians.

Despite its importance to the future of California, the Merced Region is one of the most economically depressed areas of California. DWR defines a disadvantaged community as a community with an annual Median Household Income (MHI) that is less than 80 percent of the statewide MHI (or less than \$48,706, based on 2010 census data). Applying this definition, the vast majority of communities throughout the Merced Region are classified as disadvantaged.



A culturally and ethnically diverse area, the Merced Region has a substantial Hispanic and Latino population with an increasing Asian population. Between 2000 and 2010, the overall population within the Merced Region grew by over 20%—nearly double the rate of California as a whole. Difficult economic conditions, population growth, and a water-dependent agricultural economy are significant challenges that require cohesive and collaborative water management strategies to ensure future reliability.

Reliability and quality of supply are key concerns

The primary water supply in the Region, is groundwater. Groundwater is pumped primarily from the Merced Subbasin, with additional pumping from the Turlock and Chowchilla Subbasins. Because the Region's water supply portfolio relies heavily on groundwater, effective management of this resource is vital. Historical monitoring of groundwater elevations in the Merced Subbasin indicate a general decline in groundwater levels, averaging about 3.7 feet per year. As the primary source of potable water for the Region, groundwater quality is also a concern. Some constituents either currently impact groundwater use within the Region, or have the potential to impact future use. In an effort to cooperatively manage groundwater, the Merced Area Groundwater Pool Interests (MAGPI), which is comprised of 16 stakeholders, was formed in 1997 to provide effective long-term management of the groundwater basin. Continued management of this resource is an important step in maintaining the health of the Merced Region.

The Region's surface water supplies also suffer from reliability and quality concerns. These challenges are expected to be exacerbated by climate change, which could affect the Regions' surface water supply by decreasing the snowpack, shifting the timing of seasonal runoff, and decreasing the amount of precipitation. Less surface water may result in increased groundwater pumping, thereby also negatively



affecting the groundwater basins. The Central Valley Regional Water Quality Control Board (Regional Board) has identified several surface water bodies in the Region, including the Merced and San Joaquin Rivers, as "impaired" because they do not achieve established water quality standards. To bring these waterbodies into compliance, Total Maximum Daily Loads (TMDLs) have either been completed or are currently being drafted by the Regional Board.

Increased demand also stresses water supplies. Current population projections suggest that urban demand may drastically increase in the coming years, potentially surpassing projected supplies. Improving the reliability and quality of the Region's supply is a priority for the Region's water suppliers to ensure that adequate high quality drinking water is available in the future.



Collaborative governance yields informed objectives

In 2012, MAGPI formed an interim Regional Water Management Group (RWMG) responsible for organizing and facilitating development of the Merced IRWM Plan. The interim RWMG is comprised of the Merced Irrigation District (MID), Merced County, and the City of Merced.

- **Merced Irrigation District.** MID manages various water facilities in eastern Merced County, including New Exchequer and McSwain dams, reservoirs, and hydroelectric facilities. New Exchequer and McSwain have a combined storage capacity of 1,034,330 acre-feet (AF) of water.¹ With over 825 miles of water distribution facilities, MID serves roughly 140,000 acres of total irrigable lands. The district was formed in 1919 pursuant to the Irrigation District Law of the California Water Code and is governed by a Board of Directors.
- **Merced County.** Established in 1855, Merced County has a population of just over 255,000. The County is governed by a Board of Supervisors that oversees County programs and functions which include the agricultural commissioner, public and environmental health services, planning and community development and public works, among other services.
- **City of Merced.** The City of Merced is the largest of the three incorporated cities in the Region, serving a population of approximately 79,000 people. The City's water system consists of 22 active groundwater wells and 340 miles of distribution pipeline, supplying approximately seven billion gallons of water annually. Incorporated in 1889, Merced is a charter city that operates under the Council-Manager form of government in which the elected City Council is responsible for legislation.

In coordination with a 39-member Regional Advisory Committee (RAC), a Work Plan Management Committee (WPMC), and the public, the interim RWMG developed the Merced IRWM Plan.



1 Acre-foot is a term commonly used in the water industry to measure large quantities of water, defined as the amount of water required to cover one acre to a depth of one foot. An acre-foot is 325,851 gallons and is considered enough water to meet the needs of two families of four with a house and a yard for one year.

The **Work Plan Management Committee (WPMC)**, which included one staff member from each of the interim RWMG member agencies, was responsible for establishing and implementing the work plan to complete the IRWM Plan and managing day-to-day IRWM program business. Throughout Plan development, the WPMC coordinated via biweekly conference calls and occasional in-person meetings.

The **Regional Advisory Committee (RAC)** was a volunteer committee comprised of 23 full members and 16 alternates representing the broad interests and perspectives in the region related to water management, land use, natural resources, and community stewardship. RAC members were recruited through an open invitation process that was publicly advertised by MID, Merced County, and the City of Merced. All parties that applied for inclusion on the RAC were formally appointed by the MID Board of Directors as either full or alternate members of the RAC. The RAC met on a monthly basis between May 2012 and June 2013 to guide preparation of the Merced IRWM Plan. All RAC meetings were publically noticed, and members of the pubic frequently attended to hear and comment on Plan development.

Stakeholder outreach began early in the Merced IRWM planning process and continued throughout Plan development. The RWMG reached out to interested parties by issuing public notices and press releases, directly contacting potential interested parties, and hosting a series of six public workshops, which were advertised through multiple outlets.

In an effort to guide the IRWM planning process, several regional water management issues were identified based on input from the RAC and stakeholders.

Water Management Challenges in the Merced Region

- Inadequate flood control
- Lack of holistic water management
- Failure to protect supply
- Need for better groundwater information and management
- Need for groundwater recharge
- Disconnect between land use planning and water management planning

- Inefficient water use practices
- Water quality impacts
- Inadequate wastewater management
- Impacts to sensitive ecosystems
- Funding challenges
- Lack of public understanding of water management

After identifying water management issues, the interim RAC developed 12 specific IRWM Plan objectives to address the identified water management issues. The following objectives were developed through a series of facilitated public workshops and meetings.

Manage flood flows for public safety, water supply, recharge, and natural resource management. Addresses inadequate flood control and promotes an integrated approach to flood management.

Meet demands for all uses, including agriculture, urban, and environmental resource needs. Requires a sustainable and coordinated approach among water management agencies to meet the Region's various demands.

Correct groundwater overdraft conditions. Recognizes the need to improve current water use patterns to enhance the health of the groundwater basin and the need to increase recharge opportunities.

Improve coordination of land use and water resources planning. Addresses the Region's disconnect between land use management and water management.

Maximize water use efficiency. Identifies opportunities to improve the efficiency of the Region's water use practices through reducing demand and increasing conservation.

Protect and improve water quality for all beneficial uses, consistent with the Basin Plan. Addresses potential water quality impacts to both the Region's groundwater and surface waters, including potential water quality impacts from areas with inadequate wastewater collection and treatment systems.

Protect, restore, and improve natural resources. Addresses the importance of water management in preventing impacts to sensitive ecosystems and encompasses the need to protect sensitive environmental resources from water-related impacts.

Address water-related needs of disadvantaged communities (DACs). Addresses specific water-related needs of DACs, which encompass most of the Merced Region.

Protect and enhance water-associated recreation opportunities. Recognizes the importance of providing water-related recreation opportunities despite potential trade-offs that can exist with other areas of water management.

Establish and maintain effective communication among water resource stakeholders in the Region. Realizes the importance of engaging key stakeholders and interested parties in water management decision making to enhance coordination and collaboration in the Region.

Effectively address climate change adaptation and/or mitigation in water resource management. Supports climate change mitigation and/or adaptation actions that would reduce the Region's vulnerability to potential climate change impacts.

Enhance public understanding of water management issues and needs. Addresses the importance of public understanding of water management and assists in addressing the Region's funding challenges by increasing public understanding of the need to fund water projects.

Priorities and performance measures for assessing progress

Of the IRWM objectives, the interim RAC identified Objectives A, B, and C as the highest priority objectives for the Region, with the remaining objectives identified as high priorities. Performance measures were developed for each objective to provide a means to measure the Region's progress toward achieving its objectives. While it is expected that these measures will evolve over time, the measures will provide a practical means for the Region to monitor the incremental improvement from year to year.

Resource management strategies to achieve objectives

Resource management strategies (RMS) are specific mechanisms for managing water resources to achieve regional objectives. The California Water Plan identifies 33 RMS that can be implemented to achieve water management objectives. Of these 33 RMS identified in the California Water Plan, 27 were determined to apply to the Merced Region and potentially provide a means to assist the Region in achieving its water management objectives. In some cases, RMS may be implemented together or integrated to fulfill one or more regional objectives. The RMS included in the Merced IRWM Plan are:

- Agricultural water use efficiency
- Urban water use efficiency
- Regional/local conveyance
- System reoperation
- Water transfers
- Conjunctive management and groundwater storage
- Recycled municipal water
- CALFED surface storage
- Regional/local surface storage
- Drinking water treatment and distribution
- Groundwater remediation/aquifer remediation
- Matching quality to use
- Pollution prevention

- Salt and salinity management
- Urban runoff management
- Flood risk management
- Agricultural lands stewardship
- Economic incentives
- Ecosystem restoration
- Forest management
- Land use planning and management
- Recharge area protection
- Water-dependent recreation
- Watershed management
- Crop idling for water transfers
- Irrigated land retirement
- Rainfed agriculture

Identifying priority projects for implementation

The Merced IRWM Plan includes projects that align with the Plan objectives. As of November 2012, 77 projects addressing a wide variety of water supply, water quality, flood management, and habitat protection needs had been submitted to the IRWM Plan. Each project was reviewed, ranked, and prioritized using a two-step screening and scoring process.

During the initial screening process, projects that either did not address at least one Plan objective or did not benefit the Merced Region were excluded from the Plan. Those projects that passed the initial screening were then scored and ranked based on a number of criteria including demonstration of technical feasibility and implementation of multiple resource management strategies. Those projects that ranked within the top 50th percentile were designated as Tier 1 projects and those that ranked within the bottom 50th percentile were designated as Tier 2 projects.



Because the Merced IRWM Plan is a living document and regional conditions are always evolving, projects will continually be accepted for inclusion in the IRWM Plan. A current list of Plan projects can be found on the Merced IRWM Plan website.



IRWM projects provide numerous wide-ranging benefits

Implementation of the Merced IRWM Plan, and the projects included in the Plan, will generate multiple Regional and Inter-Regional benefits related to water quality, water supply, ecosystem improvement, flood protection, and other aspects of water management.

Regional Benefits

- Improved flood management
- A more reliable and high quality water supply
- Reduced groundwater overdraft/subsidence
- Improved habitat
- Increased public safety
- Cost-effective and multi-benefit projects
- No-regrets adaptation to climate change
- Shared experience and resources
- Increased regional understanding
- Improved local understanding of water resources issues

Inter-Regional Benefits

- Reduced flooding
- Improved water quality
- Improved water supply reliability
- Protection or improvement of fish and wildlife passage
- Climate change response actions

Coordinated Data Management

Through the IRWM planning process, a centralized data management system known as the Merced Hydrologic Data Management System, or Merced HydroDMS, was developed for the Region. Merced HydroDMS is designed to be a common location for agencies and stakeholders throughout the Merced Region to store and share water-related data. The system can be used to document the status of current water resource issues, detect problems and track progress in IRWM implementation efforts.



Adaptive management to optimize Plan performance

As a living document, the Merced IRWM Plan will be periodically reviewed, with a focus on evaluating progress made toward achieving Plan objectives and verifying that the Region is implementing projects listed in the Plan. Plan implementation will be adjusted as needed based on the results of each review to maximize the Region's ability to achieve its objectives The first Plan review will take place three years after initial Plan adoption. Following the first review, reviews will be implemented in five-year intervals. In addition to this Plan-level review, Projects implemented through the IRWM program will be required to submit and implement Project-Specific Monitoring Plans designed to verify that the projects are compliant with all applicable regulations and requirements. These review measures will ensure that the Merced IRWM Plan remains sensitive to changing regional conditions and continues to identify relevant water management strategies for the Region.



The future of water resources management

The Merced IRWM Plan provides a framework for longterm program governance, including a Regional Water Management Group comprised of the Merced Irrigation District, County of Merced, City of Merced, City of Livingston and City of Atwater. This RWMG will be advised by a 30-member RAC representing the broad water management interests throughout the Region. The main focus of the RWMG and longterm RAC will be implementing the IRWM Plan, which includes maintaining collaborative planning and management of water resources and identifying and pursuing funding to implement high priority water resources projects throughout the Region.

Completion of the Merced Region's first IRWM Plan represents

the culmination of years of cooperative and collaborative planning among regional stakeholders, and the Plan establishes a framework for water resources management in the Region. However, more work must be done to effectively manage water resources in the future. It is only through continued coordination and collaboration among water resources stakeholders - the hallmark of the IRWM program - that the Merced Region will achieve its long-term water resources management objectives.

For More Information

Visit the Merced IRWM website: *www.mercedirwmp.org*. The website contains news and events related to the Merced IRWM program and documents produced through the IRWM planning process, including the Merced IRWM Plan.

Or, contact a member of the Merced RWMG Work Plan Management Committee:

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