MIRWMA

Merced Integrated Regional Water Management Authority

Merced Stormwater Resources Plan

Public Draft

Prepared by:

WOODARD &CURRAN

February 2019

Table of Contents

List of Figures

List of Tables

List of Appendices

Acronyms and Abbreviations

µg/L	micrograms per liter
1,2,3-TCP	1,2,3-trichloropropane
AF	acre-feet
AFY	acre-feet per year
alpha-BHC	Benzenehexachloride
AWMP	Agricultural Water Management Plan
Basin Plan	Water Quality Control Plan for the San Joaquin River Basin
BMP	best management practice
CASGEM	California Statewide Groundwater Elevation Monitoring
CASQA	California Stormwater Quality Association
CEDEN	California Environmental Data Exchange Network
CEQA	California Environmental Quality Act
CSD	Community Services District
CVHS	Central Valley Hydrology Study
CVP	Central Valley Project
CVRWQCB	Central Valley Regional Water Quality Control Board
CWA	Clean Water Act
CWD	Chowchilla Water District
DAC	disadvantaged community
DBCP	dibromochloropropane
DDE	Dichlorodiphenyldichloroethylene
DDT	Dichlorodiphenyl-trichloroethane
DDW	Division of Drinking Water
DMS	data management system
DWR	Department of Water Resources
EDU	equivalent dwelling units
EPA	Environmental Protection Agency
GAMA	Groundwater Ambient Monitoring and Assessment program
GSP	Groundwater Sustainability Plan
Guidelines	SWRP Guidelines
HEC-RAS	Hydrologic Engineering Center's River Analysis System
HEC-ResSim	Hydrologic Engineering Center's Reservoir System Simulation
I-Bank	Infrastructure and Economic Development Bank
IRWM	Integrated Regional Water Management
IRWMP	Integrated Regional Water Management Plan
JPA	Joint Powers Authority
LID	Low Impact Development
LTMWC	Lone Tree Mutual Water Company
MAGPI	Merced Area Groundwater Pool Interests
MCDEH	Merced County Division of Environmental Health
MCL	maximum contaminant levels

MEP	maximum extent practicable
Merced HydroDMS	Merced Hydrologic Data Management System
mgd	million gallons per day
MHI	median household income
MID	Merced Irrigation District
MIRWMA	Merced Integrated Regional Water Management Authority
MIRWMP	Merced Integrated Regional Water Management Plan
MNWR	Merced National Wildlife Refuge
MSWG	Merced Storm Water Group
MTBE	methyl-tertiary-butyl-ether
NEPA	National Environmental Policy Act
NPDES	National Pollutant Discharge Elimination System
Opti	Online Project Tracking and Integration Program
PEAIP	Program Effectiveness Assessment and Improvement Plan
QA/QC	quality assurance and quality control
RAC	Regional Advisory Committee
Region	Merced Region
RWMG	regional water management group
RWQCB	Regional Water Quality Control Board
SB	Senate Bill
SDWA	Safe Drinking Water Act
SGMA	Sustainable Groundwater Management Act
SRF	State Revolving Fund
SWAMP	Surface Water Ambient Monitoring Program
SWMM	Storm Water Management Model
SWMP	Storm Water Management Program
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resources Control Board
SWRP	Stormwater Resources Plan
TBD	to be determined
TCE	Trichloroethylene
TDS	total dissolved solids
TID	Turlock Irrigation District
TMDL	Total Maximum Daily Load
TSS	total suspended solids
U.S.	United States
UC Merced	University of California Merced
USACE	United States Army Corps of Engineers
USBR	United States Bureau of Reclamation
USDA	United States Department of Agriculture
USEPA	United States Environmental Protection Agency
USGS	United States Geological Survey

UWMP	Urban Water Management Plan
VOC	volatile organic compound
WDL	Water Data Library
WDR	Waste Discharge Requirement
WRAMP	Wetland and Riparian Area Monitoring Program
WSP	Water Supply Plan
WWSD	Winton Water and Sanitary District

Merced Stormwater Resources Plan

Chapter 1 Introduction

The Merced Integrated Regional Water Management Authority (MIRWMA), a Joint Powers Authority (JPA) composed of Merced Irrigation District (MID), Merced County, and the cities of Merced, Atwater, and Livingston, has prepared this Storm Water Resources Plan (SWRP) for and in coordination with the Merced Integrated Regional Water Management (IRWM) Region (Merced Region or Region). The purpose of MIRWMA is to implement the concept of integrated water projects in the Merced Region and in collaboration with adjacent regions under the California Department of Water Resources (DWR) IRWM program, and to coordinate obtaining project funding through grants offered under the DWR IRWM program and the State Water Resources Control Board (SWRCB) Storm Water Resources Program. The Region Advisory Committee (RAC) was formed for the purposes of these two efforts and represents a broad cross-section of stakeholders in the area that MIRWMA intends to coordinate with as part of achieving best water management in the region. MRIWMA is currently engaged in pursuing grant funding for flood control, water supply, recharge and other water monitoring projects in addition to its effort under this plan.

MIRWMA has prepared this Stormwater Resources Plan for the Merced Region in compliance with Water Code Section 10563(c)(1) and the SWRP Guidelines released by the SWRCB in December 2015 (SWRCB, 2015) (Appendix A). The following sections summarize background information relevant to the development of the Merced SWRP.

1.1 Legislative Background

In 2014, the California State Senate passed Senate Bill (SB) 985, implemented as Water Code Section 10563(c)(1). SB 985 requires that SWRPs be prepared in order for agencies to receive grant funding for stormwater or dry weather runoff projects from any bond measures approved by voters after January 1, 2014. In December 2015, SWRCB published *Storm Water Resource Plan Guidelines* to provide baseline requirements for SWRPs (SWRCB, 2015). The SWRP Guidelines require discussion of seven main components which are summarized briefly below:

1. **Watershed Identification:** Descriptions of the watersheds, water resources, watershed processes, natural areas, and water quality priorities within the planning area.
2. **Water Quality Compliance:** Identification of pollutant-generating activities; description of how the SWRP supports applicable Total Maximum Daily Load (TMDL) requirements, National Pollutant Discharge Elimination System (NPDES) permits, and other applicable permits.
3. **Organization, Coordination, Collaboration:** Description of how collaboration occurred with local agencies, nonprofits, and communities during SWRP development; discussion of relationship between SWRP and other planning documents.
4. **Quantitative Methods:** Discussion of the benefits that will be achieved from implementing the SWRP's proposed stormwater and dry weather capture projects, including quantification of those benefits in a range of categories, such as water quality and water supply.
5. **Identification and Prioritization of Projects:** Descriptions of how projects were identified and discussion of the projects that are included in the SWRP.
6. **Implementation Strategy and Schedule:** Identification of resources available for SWRP implementation, including funding sources, project timelines, and procedures for ongoing review and adaptive management of the SWRP.
7. **Education, Outreach, Public Participation:** Discussion of how the SWRP provides for community outreach and engagement, including disadvantaged communities (DACs).

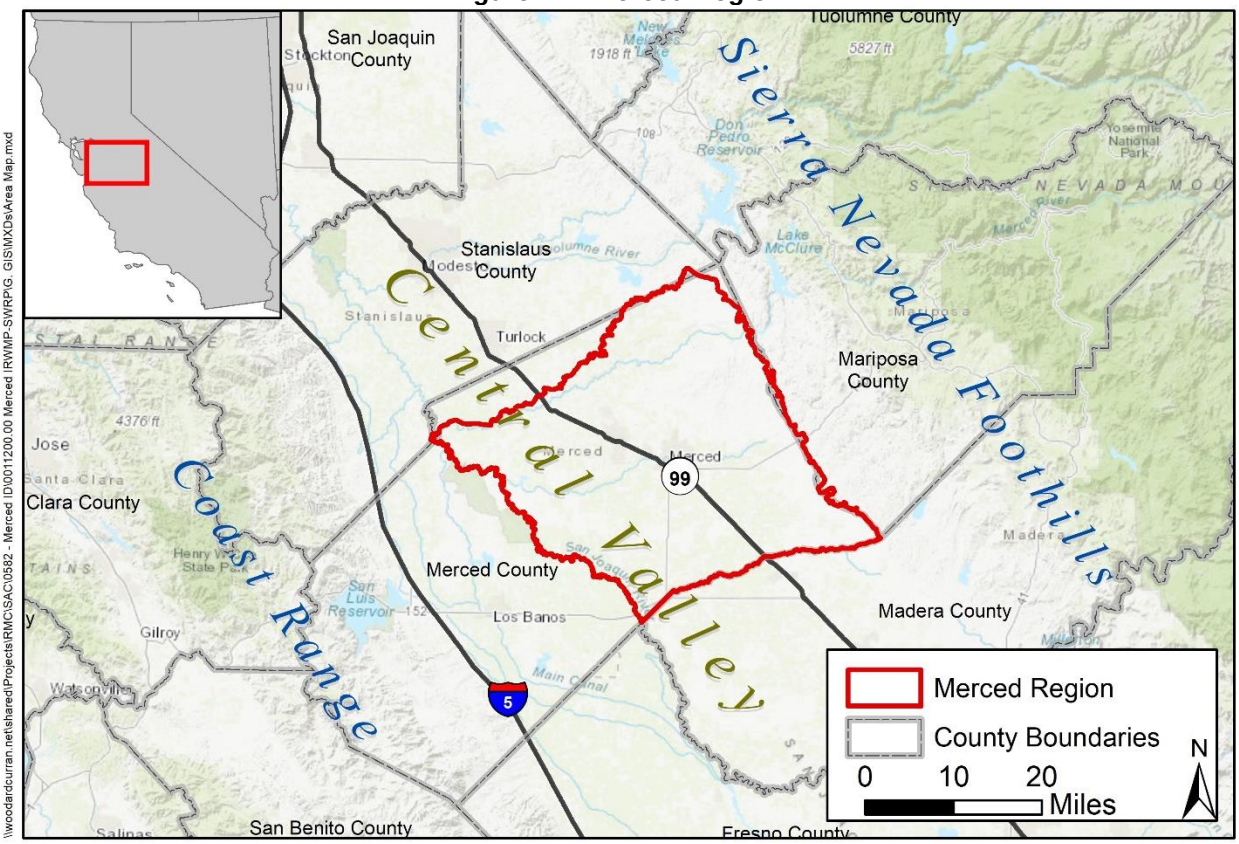
MIRWMA has prepared this SWRP in accordance with the Guidelines in order to be eligible for grant funding opportunities for stormwater projects. Further, MIRWMA aims to address stormwater issues in a collaborative manner in order to provide the greatest benefit possible on a regional scale, and the SWRP is a key planning tool for this effort.

1.2 Merced Region

The Merced SWRP encompasses the same area as the Merced Integrated Regional Water Management Plan (IRWMP), referred to in both documents as the Merced Region. The development of the SWRP has grown out of previous cooperative water management planning efforts in the Region. Since 1997, the Merced Area Groundwater Pool Interests (MAGPI), which lies wholly within the Merced Region, has been meeting to develop technical data and management strategies to improve the health of the groundwater basin, which is generally in overdraft. MAGPI members and non-member interest groups include most of the agencies with water supply, water quality and water management authority in the Region. However, the focus of MAGPI is limited to management of the groundwater basin. In 2008, MAGPI established a subcommittee to encourage cooperative planning among additional aspects of water resources management beyond groundwater management and to lay the groundwork for development of the Region's first IRWMP (the Merced IRWMP [MIRWMP], completed in 2013). In 2012, MAGPI transferred responsibility for development of the MIRWMP to an interim group comprised of the City of Merced, County of Merced, and MID. In 2016, these three entities, as well as the Cities of Livingston and Atwater, formed a JPA known as MIRWMA to further integrated planning efforts in the Region. Along with IRWM planning, MIRWMA undertook development of a SWRP for the Region in 2018. The MIRWMA governing structure is substantially based on the interim RAC recommendations in the 2013 Merced Region IRWMP. MIRWMA is responsible for overseeing the SWRP planning process, and each of its members has committed to continue supporting the SWRP through implementation and future updates, as necessary.

The Merced Region, as covered by this SWRP, encompasses the northeast portion of Merced County, as shown in Figure 1-1. Its boundaries are generally defined by the Merced and Turlock Groundwater Subbasins to the east, the San Joaquin River on the west, the northern boundary of the Dry Creek watershed to the north, and the Chowchilla River to the south. Low-lying areas north of the Merced River between the river's confluences with Dry Creek and the San Joaquin River are also included in the Region. The Merced Region was selected as the SWRP planning area because there are cohesive hydrogeological characteristics, land use patterns, and stormwater management needs throughout the Region and to facilitate coordination between SWRP implementation and IRWMP implementation.

Figure 1-1: Merced Region



With challenging economic conditions and a strongly water-dependent agricultural economy founded on the most senior water rights in the state, water issues in the Merced Region are well-understood and are treated as a high priority for the Region, including an increasing focus on stormwater. Water resource stakeholders in the Merced Region are committed to identifying opportunities to collaborate to improve stormwater management in the Region. Merced County is anticipated to be one of the fastest growing regions in the State, and new urban and industrial development rely on the sustainability of the water resources in the region.

The SWRP development process has been a strongly stakeholder-driven process. MIRWMA is advised by a Regional Advisory Committee (RAC) that represents the broad interests of the Merced Region and shapes the direction of both the IRWM program and SWRP planning effort. The RAC currently consists of 16 members representing broad interests and perspectives in the Region, including:

- Water / Wastewater
- Civic / Local Government
- Agricultural
- Other Business (non-agriculture)
- Environmental
- Other Institutional (e.g. UC Merced)
- DAC and Environmental Justice
- Recreation
- Community / Neighborhood

This broad-based involvement by regional stakeholders, via the RAC, has led to balanced input on stormwater planning that reflects the wide array of water resources management perspectives throughout the Region. During development of the SWRP, five RAC meetings were held. Additionally, two public workshops were conducted to inform community members and solicit input on the SWRP. The public draft of the SWRP was also made available for public comment. Finally, presentations on the SWRP were provided at two MIRWMA meetings, which were open to the public and at which public comments could be provided.

Completion of this SWRP represents attainment of a critical stormwater resources planning milestone for the Region. This document will serve as a blueprint for water resources management for years to come as the Region works to address stormwater issues.

1.3 Document Organization

The Merced SWRP was prepared to meet the *Storm Water Resource Plan Guidelines*, finalized and released by SWRCB in December 2015 (SWRCB, 2015). Table 1-1 summarizes the sections of the SWRP that address each section of the SWRP Guidelines.

Table 1-1: SWRP Sections Addressing SWRP Guidelines

SWRP Guidelines Section	SWRP Chapter
Watershed Identification (Guidelines Section VI.A)	Chapter 2, Watershed Identification
Water Quality Compliance (Guidelines Section V)	Chapter 3, Water Quality Compliance
Organization, Coordination, Collaboration (Guidelines Section VI.B)	Chapter 4, Organization, Coordination, Collaboration
Quantitative Methods (Guidelines Section VI.C)	Chapter 5, Quantitative Methods
Identification and Prioritization of Projects (Guidelines Section VI.D)	Chapter 6, Identification and Prioritization of Projects
Implementation Strategy and Schedule (Guidelines Section VI.E)	Chapter 7, Implementation Strategy and Schedule
Education, Outreach, Public Participation (Guidelines Section VI.F)	Chapter 8, Education, Outreach, Public Participation

As previously noted, the area included within the Merced SWRP corresponds to the Merced IRWM Region. Throughout the SWRP, "Merced Region" or "Region" will be used to denote the planning area for the SWRP. Consistent challenges, terrain, and natural features present throughout the Region establish a sound basis for logical and cohesive stormwater planning. The following sections provide an overview of the Merced Region, its watersheds, and its water management conditions, needs, and challenges.

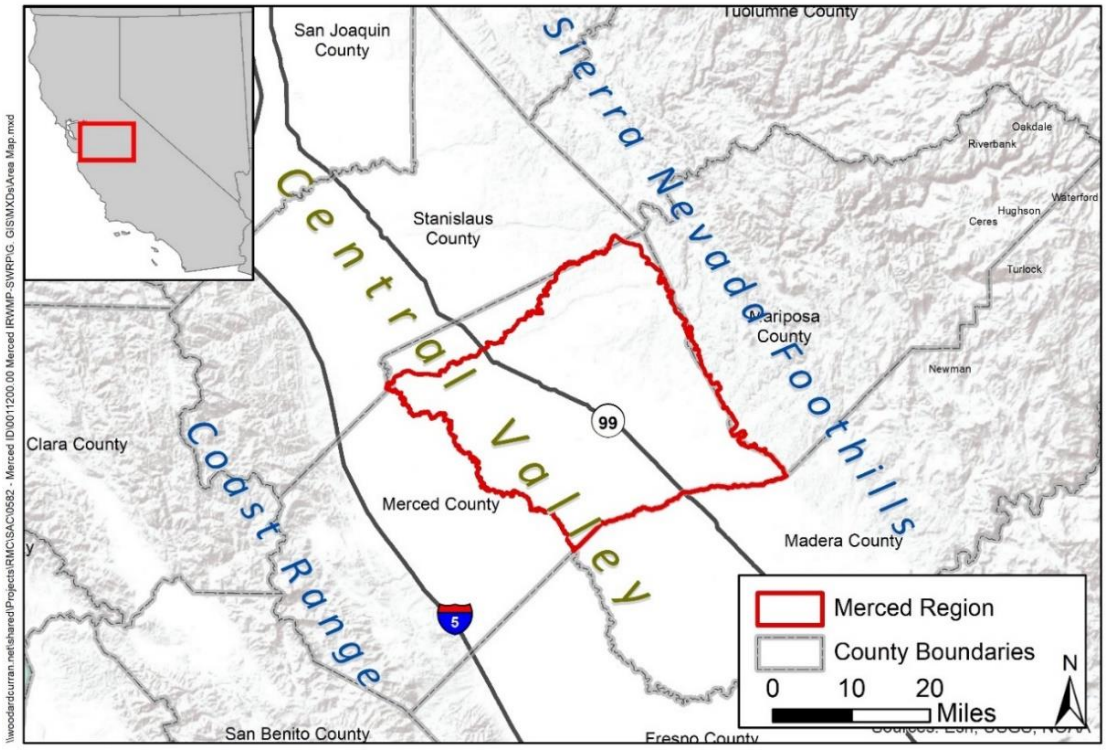
2.1 Region Overview

The Merced Region encompasses approximately 607,000 acres in the northeast portion of Merced County (Figure 2-1). Its boundaries are defined by the Merced Groundwater Subbasin boundary on the east, the San Joaquin River to the west, the Dry Creek watershed to the north (a tributary to the Merced River), and the Chowchilla River to the south.

The Merced Region falls within the San Joaquin River Hydrologic Region, which is generally the northern portion of the San Joaquin Valley. 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 River Hydrologic Region includes all of the San Joaquin River drainage area extending south from the southern boundaries of the Delta. It includes the northern drainage of the San Joaquin River main stem in Madera County and its southern drainage in Fresno County. The San Joaquin River is the principal river in the region, and all other streams of the hydrologic unit are tributary to it, including the streams of the Merced Region (Figure 2-3). The Merced River is the main water surface supply for the region and is a tributary to the San Joaquin River.

Figure 2-1: Merced Region Setting



2.2 Watershed Descriptions

SWRP Guideline Requirements Addressed in Section 2.2:

- ✓ Plan identifies watershed and subwatershed(s) for storm water resource planning
- ✓ Plan is developed on a watershed basis, using boundaries as delineated by USGS, CalWater, USGS Hydrologic Unit designations, or an applicable integrated regional water management group, and includes a description and boundary map of each watershed and sub-watershed applicable to the Plan

Watersheds defined by both the California Department of Conservation through the California Watershed Portal and the U.S. Geological Survey (USGS) Watershed Boundary Dataset were reviewed in defining the watersheds of the Merced Region. The USGS Watershed Boundary Dataset classifications (Figure 2-2) were selected as more representative of the Merced Region because watershed boundaries are determined solely upon hydrologic principles and do not favor any administrative boundaries. Based on USGS cataloging ,the Region lies mainly within the Middle San Joaquin-Lower Chowchilla and Upper Merced Watersheds with a very small portion of the Region in the Fresno River Watershed. Because only a small fraction of the Merced Region is within the Fresno River Watershed (Table 2-1), this watershed is not discussed further in the SWRP. Each of these watersheds is subdivided into smaller hydrologic areas. The Merced Region overlies the following hydrologic areas: Lower Chowchilla River, Dutchman Creek, Duck Slough, Deadman Creek, Owens Creek, Burns Creek, Black Rascal Creek, Lower Bear Creek, Ingalsbe Slough-Merced River, Mud-Slough-San Joaquin River and Dry Creek. These hydrologic areas are named after the numerous rivers and creeks within the Region, which include the Chowchilla River, Merced River, San Joaquin River, Dutchman Creek, Deadman Creek, Canal Creek, Edendale Creek, Parkinson Creek, Fahrens Creek, Miles Creek, Owens Creek, Burns Creek, Black Rascal Creek, Bear Creek, and Dry Creek.

Figure 2-2: Watersheds within the Merced Region

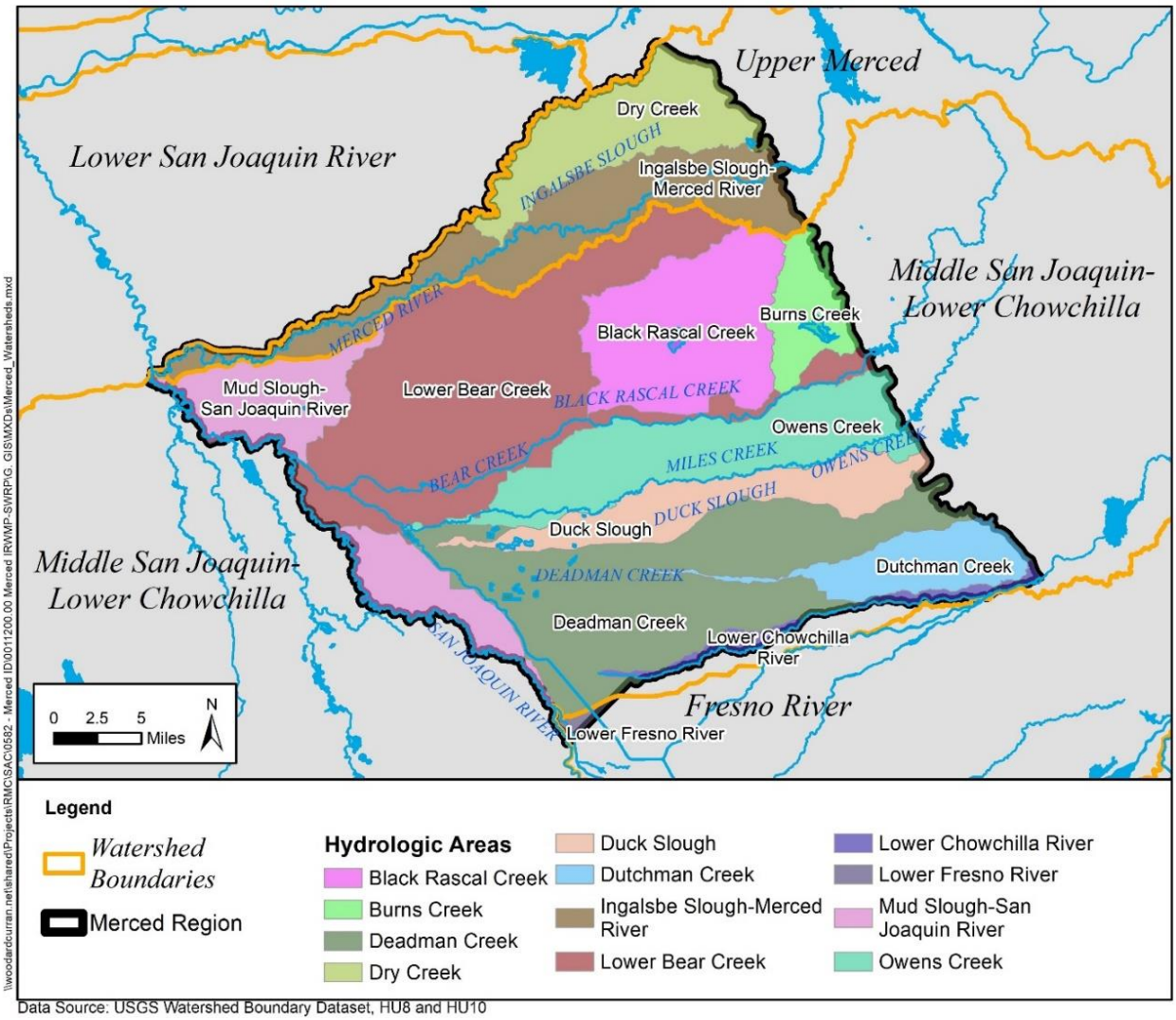


Table 2-1: Watershed Areas Present in the Merced Region

Watershed Name	Watershed Area within Merced Region (sq mi)	Total Watershed Area (sq mi)	Percent of Merced Region Covered by Watershed	Percent of Watershed within Merced Region
Middle San Joaquin-Lower Chowchilla	775	3,525	82%	22%
Fresno River	2.5	648	0.3%	0.4%
Upper Merced	170	1,269	18%	13%

Note: The total area of the Merced Region is approximately 948 square miles.

Middle San Joaquin-Lower Chowchilla Watershed

The majority of the Region falls into the Middle San Joaquin-Lower Chowchilla Watershed. It includes the Lower Chowchilla River, Dutchman Creek, Duck Slough, Deadman Creek, Owens Creek, Burns Creek, Black Rascal Creek, Lower Bear Creek, and Mud-Slough-San Joaquin River hydrologic areas. The watershed encompasses 3,525 square miles and extends into six counties. The watershed is large, with only 22% of the overall watershed area overlapping the Merced Region. The majority of the Merced Region (82%) is covered by this watershed. The watershed extends across the Central Valley from the foot of the Sierra Nevada in the east to the Coast Range, past the I-5 corridor in the west; it ranges from approximately 100 to 400 feet in elevation. The majority of surface water bodies in the Region are within this watershed, including Bear Creek and its tributaries (Canal Creek, Edendale Creek, Parkinson Creek, and Black Rascal Creek), and the lower watershed of Miles Creek. All three incorporated cities in the Region (Merced, Livingston and Atwater) are within the Middle San Joaquin-Lower Chowchilla Watershed; the communities of Cressey, El Nido, Franklin/Beachwood, Le Grand, Planada, Stevinson, Tuttle, and Winton also fall within this watershed.

Upper Merced Watershed

The Upper Merced Watershed covers the northern portion of the Region (Figure 2-2). It includes the Dry Creek and Ingalsbe Slough-Merced River hydrologic areas and the Merced River. It spans approximately eight miles from north to south at the widest point within the Region. The watershed extends to the north and south of the Merced River, with is southern border passing just north of Cressey and Livingston. The portion of the watershed within the Merced Region ranges from roughly 100 to 500 feet in elevation. In total, the Upper Merced Watershed covers roughly 1,270 square miles, with 13% of that (170 square miles), inside the Region. The community of Snelling is within this watershed.

2.3 Regional Boundary

2.3.1 Appropriateness of Boundary

The Merced Region boundary is not based solely on geographic, hydrologic, and watershed delineations considerations or characteristics. The boundary has been carefully evaluated and defined to align with water management boundaries and areas represented by regional stakeholders. The Merced Region boundary was also designed to diversify and strengthen the regional water management portfolio. Specific considerations that contributed to the regional boundary definition included:

SWRP Guideline Requirements Addressed in Section 2.3.1:

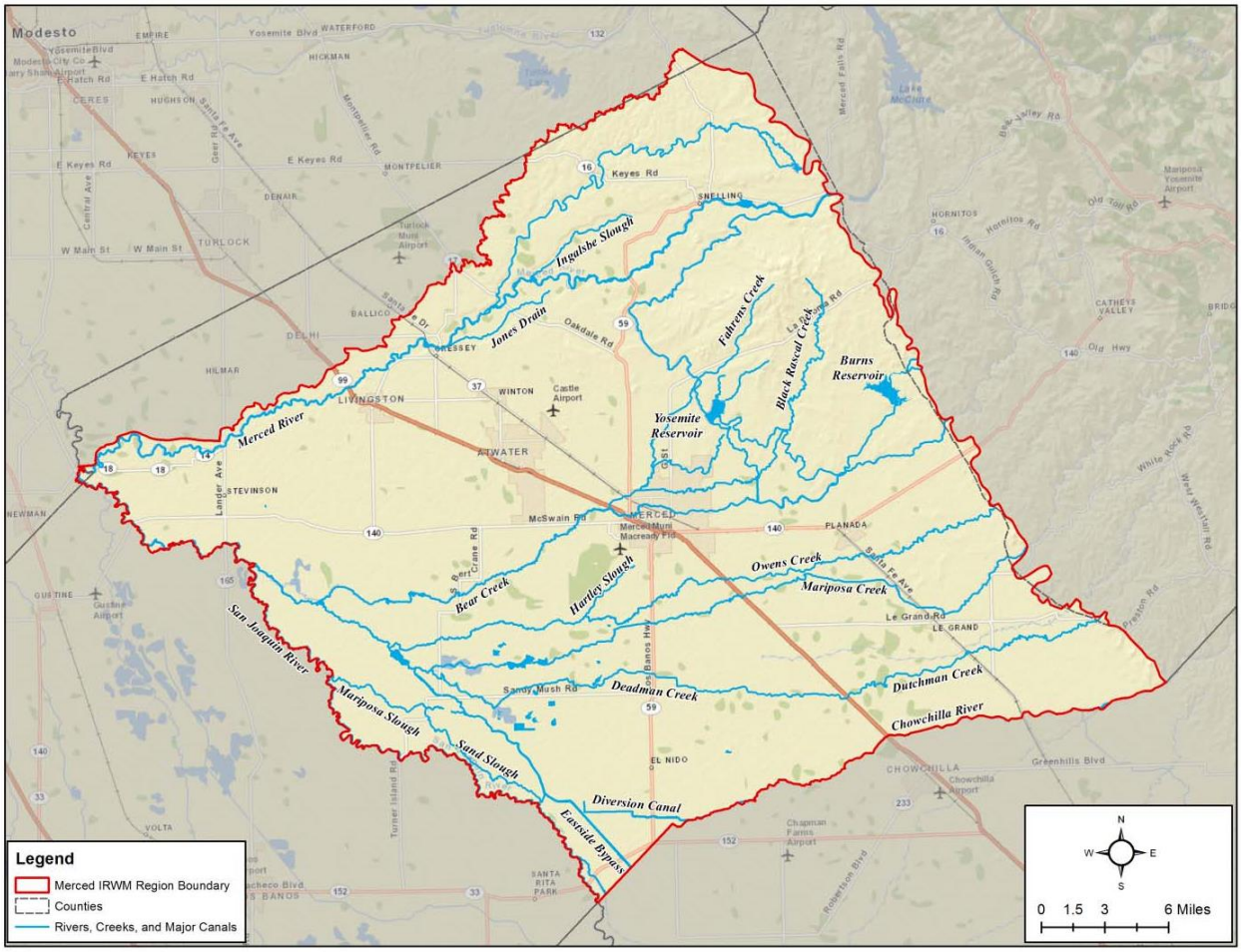
- ✓ Plan includes an explanation of why the watershed(s) and sub-watershed(s) are appropriate for storm water management with a multiple-benefit watershed approach

Differing Hydrogeology. The crystalline basement rock at the eastern edge of the Merced Subbasin is a critical hydrogeologic feature that was considered in developing the Merced Region boundary. With the exception of the Yosemite Valley Subbasin (Bulletin 118 Basin Number 5-69) in Yosemite National Park, no DWR-designated alluvial groundwater basins are located east of Merced County to the crest of the Sierra Nevada range throughout the entire mountainous zones (Sierra Nevada range) of the San Joaquin River Hydrologic Region. Therefore, the bulk of supplies in counties such as Tuolumne, Mariposa, and Madera derive from fluvial (creek and river) and fractured rock systems, and water systems in these mountainous areas must be managed in a dramatically different manner from the Merced Region. In addition, the type of modeling needed to assess a water system in a mountainous watershed is entirely different from that required for watersheds dominated by a groundwater/alluvial basin setting.

Distinct Land Use Patterns. Land use patterns in the mountainous areas to the east of the Merced Region are dominated by national forest and timber, recreation, tourism, and rangeland grazing of forested areas in the lower foothills. Significant portions of the land areas to the east of the MIRWMP boundary are controlled at the federal level as National Parks, National Forests, and Bureau of Land Management areas. The balance of land area in the mountainous areas to the east of the Merced Region is controlled by private entities and local agencies.

Unique Water Management Needs and Challenges. West of the San Joaquin River and adjacent to the Merced Subbasin lies the Delta-Mendota Subbasin (Bulletin 118 Basin Number 5-22.07). The Delta-Mendota Subbasin is unique due to the composition of the contributing parent/alluvial materials and reliance on imported water sources such as the Central Valley Project and State Water Project conveyances. The subbasins on the west side of the San Joaquin River from the Sacramento-San Joaquin Delta to the Mendota Pool have significantly different characteristics than the Merced Subbasin, including differences in hydrogeology, land use, water use patterns, and water quality issues. There are also localized water quality concerns, including areas with high levels of iron, fluoride, nitrate, boron, selenium, and salts in the Delta-Mendota Subbasin. As such, this area has different water management challenges and needs than the Merced Region, and is appropriately covered by a different IRWM region.

Figure 2-3: Water Bodies in the Merced Region



2.3.2 Jurisdictional Boundaries and Service Areas

The Merced Region contains three incorporated cities: Merced, Atwater, and Livingston. Other unincorporated communities include Cressey, El Nido, Franklin/Beachwood, Le Grand, Planada, Snelling, Stevinson, Tuttle, and Winton. The Region is also home to the University of California, Merced (UC Merced) (Figure 2-4).

SWRP Guideline Requirements Addressed in Section 2.3.2:

- ✓ Plan describes the internal boundaries within the watershed (boundaries of municipalities; service areas of individual water, wastewater, and land use agencies, including those not involved in the Plan; groundwater basin boundaries, etc.

The Merced Region has many water agencies, including both urban and agricultural suppliers. Service areas of individual water agencies are shown in Figure 2-5, and water suppliers are discussed in detail in Section 2.6, Water Suppliers.

Wastewater service in the Merced Region is provided by the cities of Atwater, Livingston, and Merced, as well as by multiple Community Services Districts (CSDs) or other special districts (Figure 2-6). These include Le Grand, Planada, and Snelling CSDs, Franklin County Water District, and Winton Water and Sanitary District (WWSD). Most of the unincorporated areas outside of major communities are designated for agricultural use and discharge wastewater through onsite wastewater treatment systems. In areas serviced by individual or community systems, property owners are generally responsible for maintenance and improvement. Some of the unincorporated communities of Merced County lack sanitary sewer infrastructure and are serviced by individual or community septic systems. Areas within the Region currently lacking sanitary sewer infrastructure are Cressey, El Nido, Stevinson, Tuttle, and Celeste (although portions of Celeste are served by the City of Merced).

The Merced Region overlies the Merced, Turlock, and Chowchilla groundwater subbasins. The Region's groundwater basins and resources are described in further detail in Section 2.5.2, Groundwater Resources.

As stated at the beginning of this Chapter, the area covered by the Merced SWRP corresponds to the Merced IRWM Region. Surrounding IRWM Regions include the East Stanislaus, Westside-San Joaquin, Yosemite-Mariposa, and Madera IRWM Regions (Figure 2-7).

There are five entities within the Region with land use jurisdiction: the County of Merced, the City of Merced, the City of Livingston, the City of Atwater, and UC Merced. The cities of Merced, Atwater, and Livingston and UC Merced are contained entirely within the Region, while only a portion of Merced County lies within the Region.

Figure 2-4: Merced Region Cities and Communities

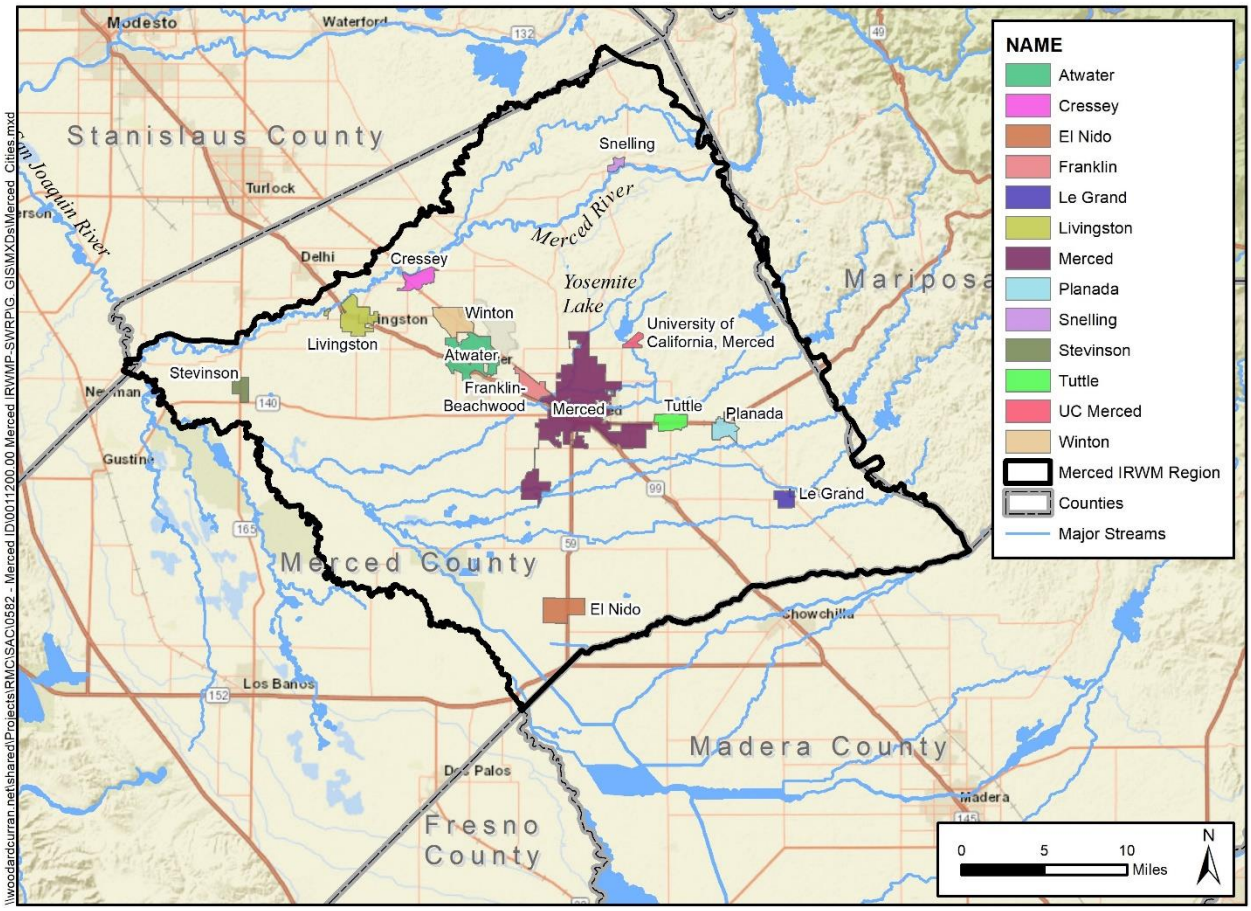


Figure 2-5: Water Supply Entities within the Region

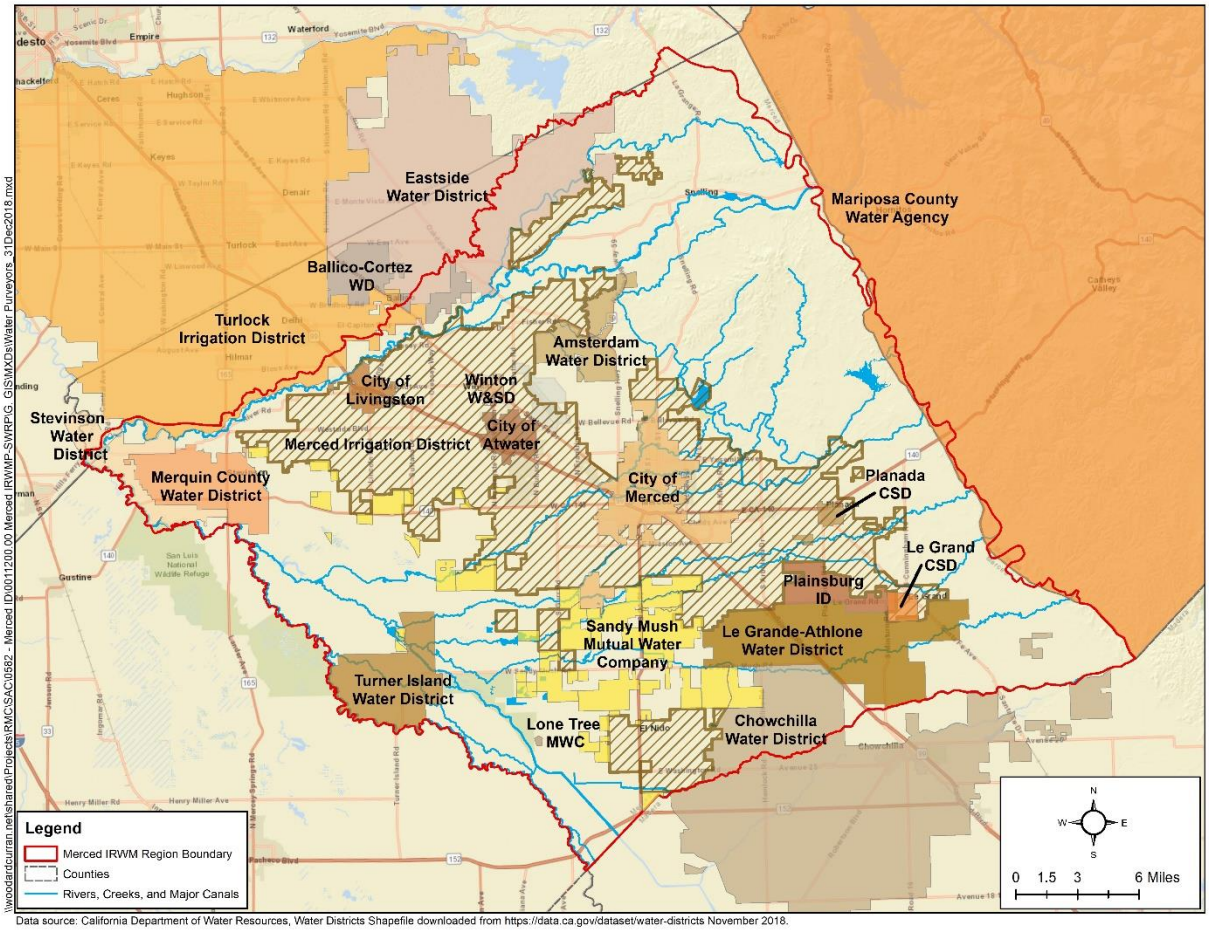
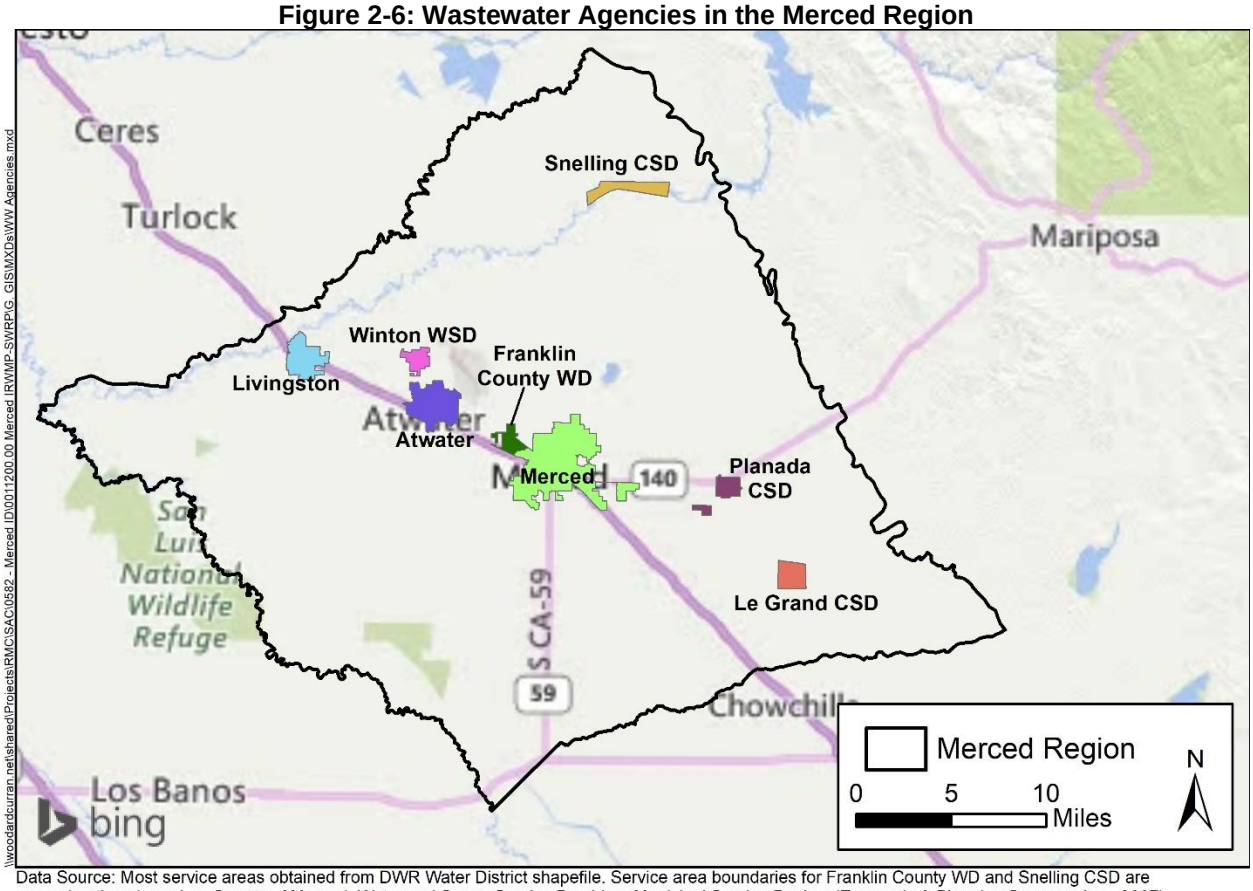
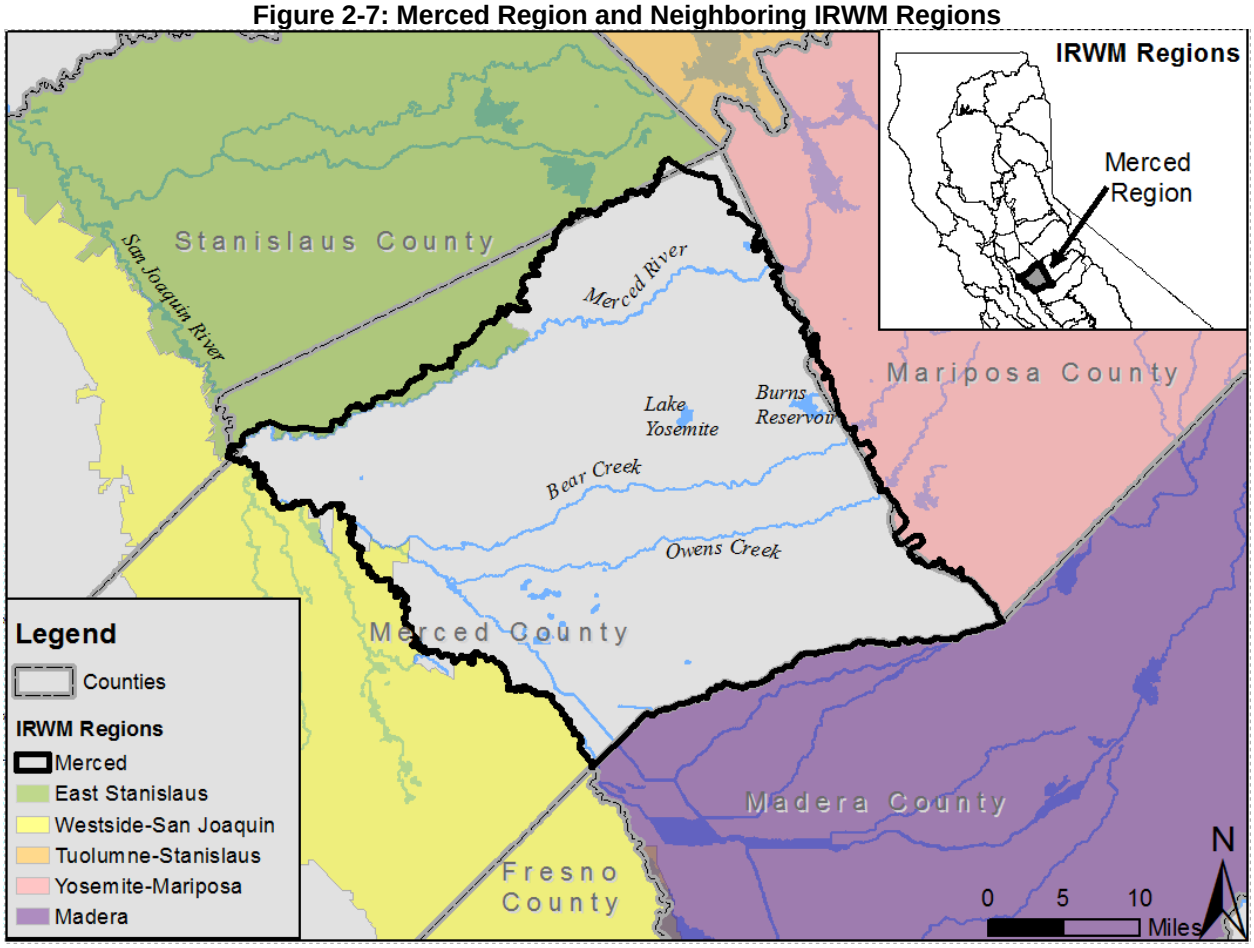


Figure 2-6: Wastewater Agencies in the Merced Region



Data Source: Most service areas obtained from DWR Water District shapefile. Service area boundaries for Franklin County WD and Snelling CSD are approximations based on County of Merced, Water and Sewer Service Providers Municipal Service Review (Economic & Planning Systems, Inc., 2007).

Figure 2-7: Merced Region and Neighboring IRWM Regions



2.4 Watershed Processes

SWRP Guideline Requirements Addressed in Section 2.4:

- ✓ Plan identifies (quantitative, if possible) the natural watershed processes that occur within the subwatershed and a description of how those natural watershed processes have been disrupted within the sub-watershed
- ✓ Plan includes map(s) showing location of native habitats, creeks, lakes, rivers, parks, and other natural or open space within the sub-watershed boundaries

The Merced Region climate is Mediterranean, with hot, dry summers, and cool, wet winters. Average annual rainfall in the Region is approximately 12 inches on the valley floor (Merced County, 2012). The mean rainfall, however, is approximately 10 inches – evidence of disparity between wet and dry years. Major hydrologic features in the Region include the Merced and San Joaquin Rivers, as well as many smaller tributaries. The San Joaquin River is the largest river in the Region and forms the southwestern boundary of the Region. The Merced and Chowchilla Rivers are snow-fed rivers with headwaters in the Sierra Nevada; they then flow across the Central Valley to the west. The San Joaquin River eventually discharges to the Sacramento-San Joaquin Delta and San Francisco Bay. The Region is also home to Lake Yosemite, a reservoir operated by MID. It also encompasses Burns Reservoir and Castle Dam flood reservoir, both flood control reservoirs. Other similar flood control reservoir that

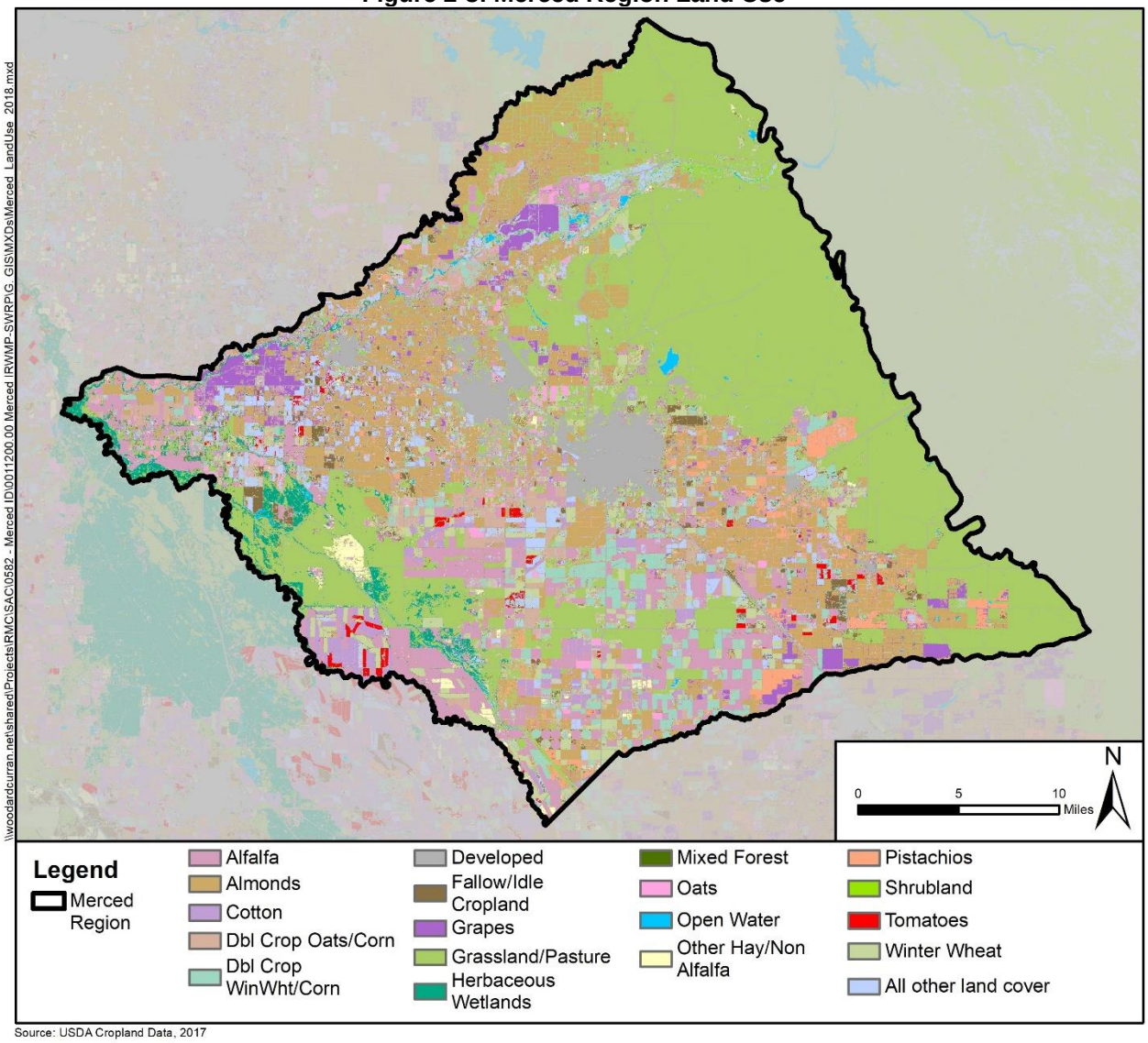
route flood control flows on Bear Creek, Owens Creek and Mariposa Creek are located to the east in the Mariposa IRWM Region.

Land use patterns in the Merced Region are dominated by agricultural uses, including animal confinement (dairy and poultry), grazing, forage, row crops, and nut and fruit trees. These uses rely heavily on water purveyors/districts, private groundwater wells and surface water sources in some areas. Urban land use relies on groundwater except for limited landscape applications. Land use is primarily controlled by local agencies (e.g., cities or County). Land use in the Merced Region is shown in Figure 2-8.

Flooding can occur in the Region as a result of snowmelt and rainfall. Precipitation in the area is typically comprised of infrequent severe winter storms. Combined with snowmelt runoff from the Sierra Nevada, these storms can cause flooding in the Region. Runoff from storm events generally flows from east to west across the Region through a number of creeks and rivers and drains to the San Joaquin River. Flooding in the City of Merced and westerly unincorporated areas generally result as a result high intensity rain events exceeding the capacity of Bear Creek. Because the topography of the Region is relatively flat, floodwaters can exceed the banks of rivers and streams and spread out over large areas. Additionally, subsidence near the Eastside Bypass, near the southern tip of the Region along the San Joaquin River, has reduced the capacity of levees, which results in increased flood risk along the San Joaquin River. Flooding in the Region typically occurs in Bear Creek and Miles Creek (upstream of Merced), as well as Black Rascal Creek, Burns Creek, Mariposa Creek, and Deadman Creek (south of Merced).

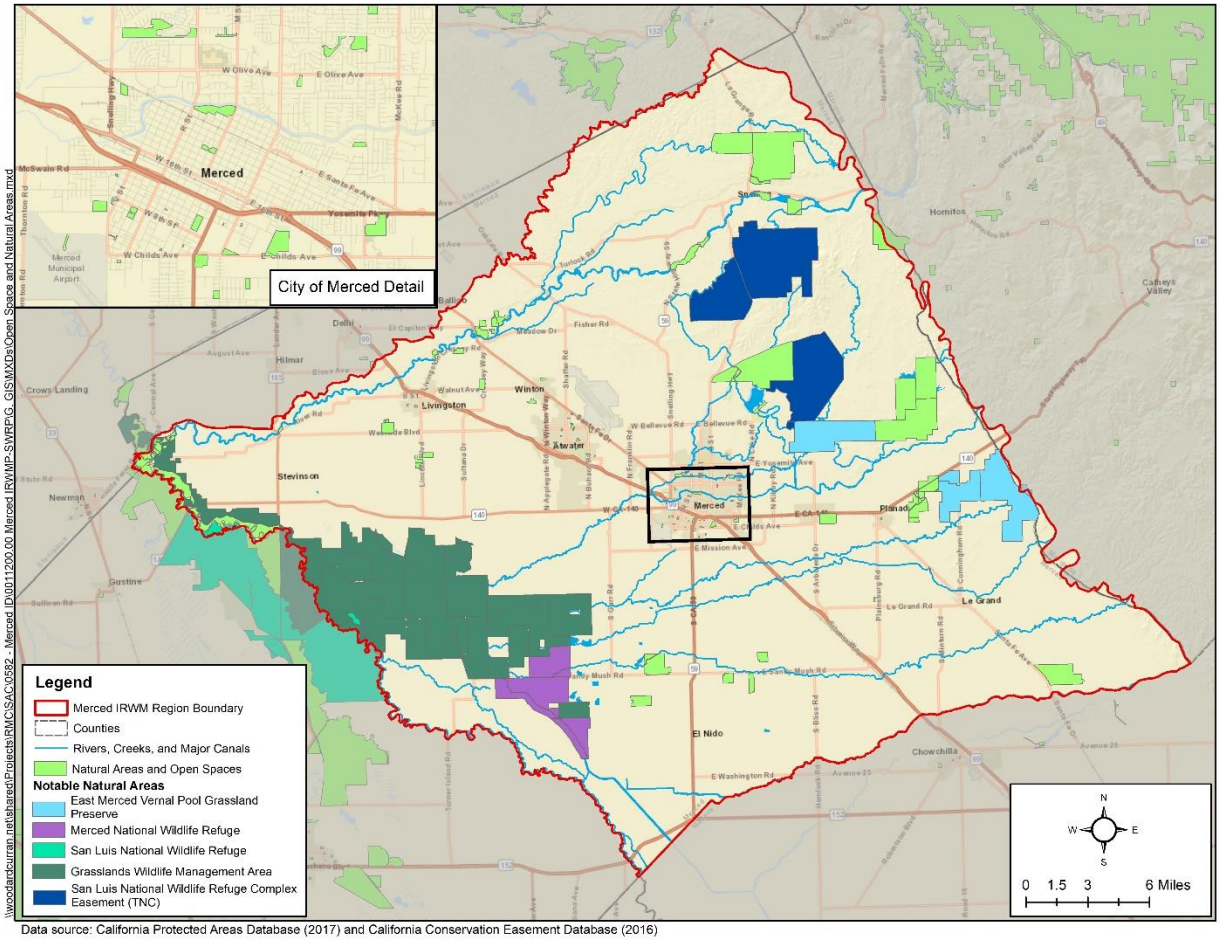
Because a significant portion of the Region is agricultural, many undeveloped lands exist in the Region, including open space, parks, and agricultural land. Figure 2-9 provides an overview of open space and natural areas (excluding agricultural open space). The areas shown include wildlife refuges, and city, regional, or state parks. Rivers and floodplains in the Region also provide habitat for other fish species and serve as important stopping points for birds migrating on the Pacific Flyway. Eastern Merced County supports the largest unfragmented blocks of high-density vernal pool grasslands remaining in California. The Region contains Critical Habitats for vernal pool plants and invertebrates (such as vernal pool fairy shrimp) and the California Tiger Salamander (Merced County, 2012). Wildlife refuges in Merced County, such as the Volta Wildlife Area, North Grasslands Wildlife Area, Los Banos Wildlife Area, San Luis National Wildlife Refuge and Merced National Wildlife Refuge, are critical in preserving riparian, marshland, wetland, and vernal pool habitats in (Merced County, 2012).

Figure 2-8: Merced Region Land Use



Source: USDA Cropland Data, 2017

Figure 2-9: Open Space in the Merced Region



Data source: California Protected Areas Database (2017) and California Conservation Easement Database (2016)

2.5 Surface Water and Groundwater Resources

SWRP Guideline Requirements Addressed in Section 2.5:

- ✓ Plan describes the general quality and identification of surface and ground water resources within the watershed

2.5.1 Surface Water Resources

Surface water is primarily supplied to the Region from the Merced River. MID is the primary surface water user in the Region, with some other water purveyors purchasing surface water from MID or other sources. Merced River supplies originate from diversions into the MID distribution system through the Northside Canal from the Merced Falls Dam, and through the Main Canal from the Crocker-Huffman Diversion Dam. From 2003-2015, MID diversions from the Merced River averaged 430,000 acre-feet per year (AFY) (MID, 2016). Portions of this Merced River diversion are delivered to Stevinson Water District and Merquin County Water District. MID owns two hydroelectric facilities in Mariposa County and four mini-hydro facilities in the Region with a potential capacity around 115 MW. MID also owns two dams (New Exchequer Dam and McSwain Dam) with a total water storage capacity of over 1 million acre-feet, both on the Merced River within Mariposa County (RMC, 2013a).

Stevinson Water District owns surface water rights on the Merced and the San Joaquin Rivers. Other entities, such as Turner Island Water District and Lone Tree Mutual Water Company, have certain surface water rights on the San Joaquin River. Turlock Irrigation District has rights to Tuolumne River water.

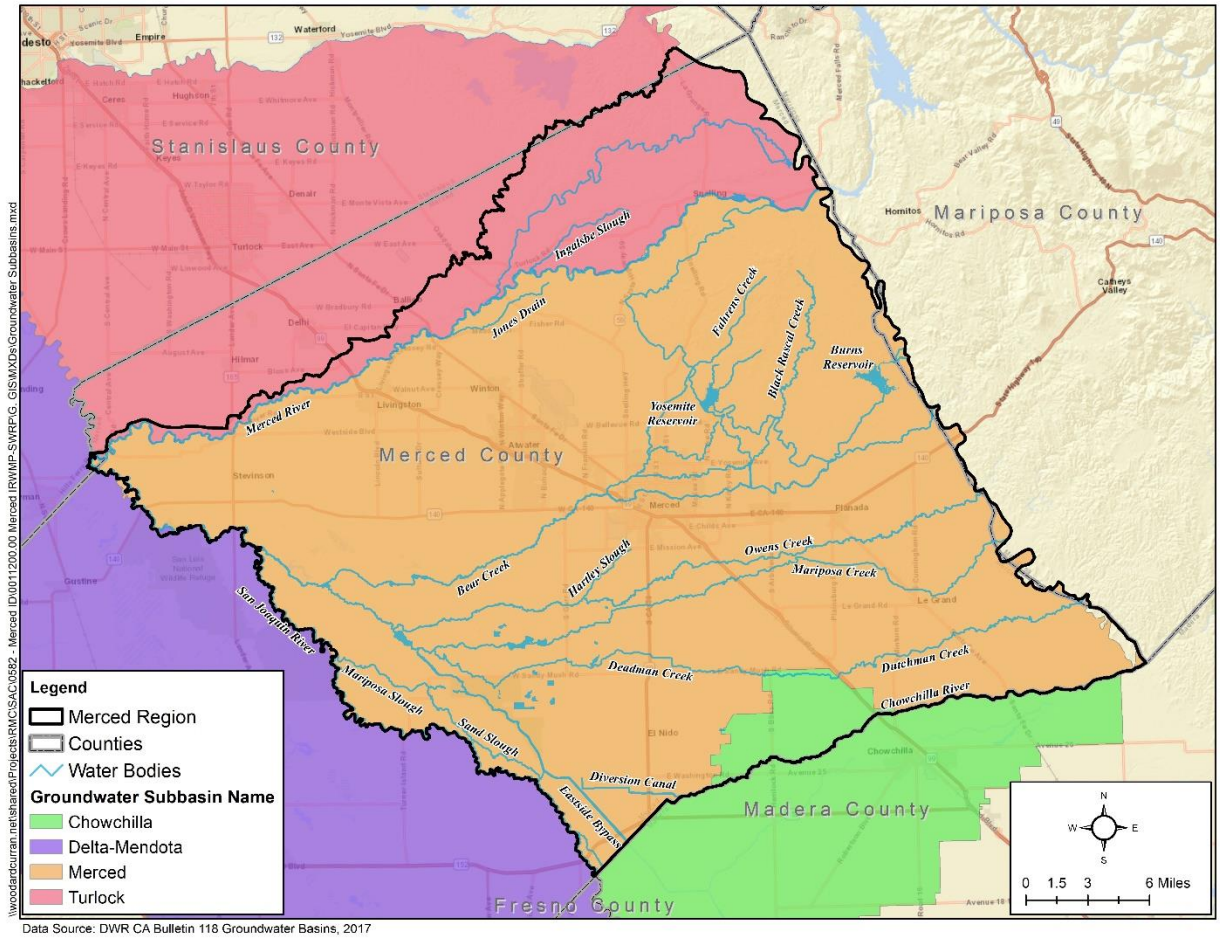
Other surface water sources include the Chowchilla and San Joaquin Rivers and permanent and ephemeral streams such as Bear Creek, Black Rascal Creek, Burns Creek, Canal Creek, Cottonwood Creek, Deadman Creek, Fahrens Creek, Little Dutchman Creek, Mariposa Creek, and Owens Creek. Gauging stations located on Burns Creek, Bear Creek, Mariposa Creek, and Owens Creek indicate that between 1993 and 2013, annual outflow from the Region's creeks ranged from 15,000 AFY to 238,700 AFY, with an average of approximately 94,000 AF (Amec Geomatrix, 2008). DWR estimates that approximately half of the inflow from surface water bodies (approximately 47,000 AFY) infiltrates and recharges the Merced Subbasin (Amec Geomatrix, 2008).

2.5.2 Groundwater Resources

Groundwater is the primary source of water supply in the Region, and is the sole source of potable water for many communities. Both urban and agricultural water suppliers in the Merced Region rely heavily on groundwater from the underlying subbasins. Natural groundwater supply consists of infiltrated precipitation, seepage from traversing natural streams, and glacier subterranean inflows. In addition, MID is a conjunctive use district that allows seepage from its water distribution system for aquifer recharge on the order of 120,000 AF annually.

Basin and subbasin designations by DWR were first published in 1952 in Bulletin 118 (*California's Groundwater*), and subsequently updated in 1975, 1980, 2003, and 2016. Bulletin 118 data provides the primary source of hydrogeologic information for the Region. The San Joaquin River Hydrologic Region contains 11 distinct subbasins, including three that underlie the Merced Region: Merced Subbasin (Bulletin 118 Basin Number 5-22.04), Turlock Subbasin (Bulletin 118 Basin Number 5-22.03) and Chowchilla Subbasin (Bulletin 118 Basin Number 5-22.05) (Figure 2-10). Along the southwestern edge of the Merced Region, the Delta-Mendota Subbasin (Bulletin 118 Basin Number 5-22.07) occasionally overlaps with the Merced Region due to minor boundary differences. Because the extent of this overlap is extremely small, the Delta-Mendota Subbasin is not discussed further in the SWRP.

Figure 2-10: Groundwater Subbasins in the Merced Region



Chowchilla Subbasin

The Chowchilla Subbasin lies to the south of the Merced Subbasin. Its western boundary is the San Joaquin River; to the east, the Subbasin roughly follows the Chowchilla Water District boundaries. The Merced Region encompasses the portion of the Chowchilla Subbasin that falls north of the Chowchilla River.

Turlock Subbasin

The Turlock Subbasin lies to the north of the Merced Subbasin. It includes land between the Tuolumne and Merced Rivers. Like the Merced Subbasin, which borders the Turlock Subbasin to the south, the Turlock Subbasin is bounded on the west by the San Joaquin River and on the east by crystalline basement rock of the Sierra Nevada foothills. Groundwater flow is primarily to the southwest. The primary hydrogeologic units in the Turlock Subbasin include both consolidated and unconsolidated sedimentary deposits. The Merced Region encompasses portions of the Turlock Subbasin, mainly the portion that underlies the Dry Creek watershed.

Merced Subbasin

The Merced Region primarily overlies the Merced Subbasin. Groundwater management, historic trends and conditions, and existing and projected groundwater supplies in the Merced Subbasin are described in the following sections. Water suppliers in the Merced Region do not extract from the Turlock or Chowchilla

Subbasins (with the exception of Eastside Water District, whose members obtain water from the Turlock Subbasin); private well owners pump from all basins in the Region. Because the Merced Subbasin is the source of groundwater for nearly all groundwater suppliers in the Region, discussion of groundwater management focuses primarily on this subbasin.

The Merced Subbasin includes lands south of the Merced River between the San Joaquin River on the west and the crystalline basement rock of the Sierra Nevada foothills on the east. The Subbasin boundary on the south stretches westerly along the Madera-Merced County line (Chowchilla River) and then between the boundary of the Le Grand-Athlone Water District and the Chowchilla Water District (CWD). The boundary continues west along the northern boundaries of CWD and the southern portion of the MID service area. The southern boundary then rejoins the County boundary along the Chowchilla River, continuing west until it meets the San Joaquin River. Geologic units in the Merced Subbasin consist of consolidated rocks and unconsolidated deposits. The whole of the Merced Subbasin is overlain by the Merced Region.

There are three groundwater aquifers in the Merced Subbasin: an unconfined aquifer, a confined aquifer, and an aquifer in consolidated rocks. The unconfined water body occurs in the unconsolidated deposits above and east of the Corcoran Clay, which underlies the western half of the subbasin at depths ranging from about 50 to 200 feet, except in the western and southern parts of the area where clay lenses occur and semi-confined conditions exist. The confined aquifer occurs in the unconsolidated deposits below the Corcoran Clay and extends downward to the base of fresh water. The aquifer system in consolidated rocks occurs under both unconfined and confined conditions.

The Merced Groundwater Subbasin is one of 21 basins in California identified by DWR as critically overdrafted, and one of 48 basins considered high priority. Consistent with the requirements of the Sustainable Groundwater Management Act (SGMA) of 2014, water management and land management agencies in Merced Subbasin have formed three Groundwater Sustainability Agencies (GSAs): the Merced Irrigation-Urban GSA, the Merced Subbasin GSA, and the Turner Island Water District GSA. The three GSAs are collaborating on developing one Groundwater Sustainability Plan (GSP) for the entire Merced Groundwater Subbasin by January 2020. In developing the GSP, the GSAs will review groundwater conditions and identify means to ensure the long-term sustainability of the Merced Groundwater Subbasin. The Turlock and Chowchilla Subbasins are also designated as high-priority, and the Chowchilla Subbasin is also designated as being in a state of critical overdraft. Critically-overdrafted basins are required to comply with SGMA on an accelerated timeline and must be managed under a GSP beginning February 1, 2020. Other high- and medium-priority subbasins (including the Turlock Subbasin) must be managed under a GSP beginning February 1, 2022. The Chowchilla Subbasin will be covered by a GSP prepared by the Chowchilla Water District GSA, the County of Madera GSA, Triangle T Water District GSA, and the County of Merced Chowchilla Subbasin GSA, while the Turlock Subbasin will be covered by a GSP prepared by the East Turlock Subbasin GSA and the West Turlock Subbasin GSA.

According to the 2008 Groundwater Management Plan Update, Merced Subbasin groundwater elevations have been monitored by DWR, MID, and other entities since the 1950's. These monitoring data demonstrate that, since 1980, average groundwater levels within the Merced Subbasin have declined approximately 14 feet, with most of this decline occurring between 1980 and 1996. As such, the Merced Subbasin is considered to be in a state of mild long-term groundwater level decline. However, a notable exception to this trend is the El Nido area, where the rate of groundwater level decline has shown a substantial decrease since 1980 due to increased delivery of surface water to the area by MID. Decline in groundwater is normalized over the entire base; however, local decreases ranged from 5 feet in the southwesterly area to more than 50 feet south of Le Grand, along the Chowchilla River. The prolonged drought between 2012 and 2015 caused significant decline in groundwater levels within the subbasin (MID, 2016).

The most urgent groundwater management issues in the Subbasin are related to overdraft and ensuring safe, reliable drinking water to DACs. Over 90% of the geographic area of the Region is considered a DAC. Within the area overlying the Merced Subbasin, roughly 80% of the population lives in communities considered disadvantaged. Of the DACs in the Subbasin, half of them meet the more stringent criteria to be considered severely disadvantaged communities (SDACs). These communities rely entirely on groundwater for their water supply.

The Merced Region is committed to stabilizing groundwater elevations in the Merced Subbasin, with prior work on this effort including preparation of the *Merced Water Supply Plan Update – Final Status Report* (CH2M Hill, 2001) and convening the Merced Water Supply Task Force, a joint effort between MID and City of Merced. Most recently, under SGMA, subbasin GSAs will prepare and implement GSPs. These GSPs will identify management actions, projects, and demand reductions, along with an implementation schedule and monitoring, to put each subbasin on a path to sustainable groundwater use by 2040.

2.5.3 Water Quality Conditions

Water quality objectives for the Region are established within *the Water Quality Control Plan for the San Joaquin River Basin* (Basin Plan) (CVRWQCB, 2016b). The Basin Plan is intended to protect surface and groundwater quality throughout the San Joaquin River Basin, which includes the Merced Region. Maximum contaminant levels (MCLs), established by the U.S. Environmental Protection Agency (USEPA) under the Safe Drinking Water Act (SDWA), are the standard by which water quality is described throughout this section. MCLs are the maximum allowable concentration of contaminants in surface or groundwater delivered as drinking water following any required treatment.

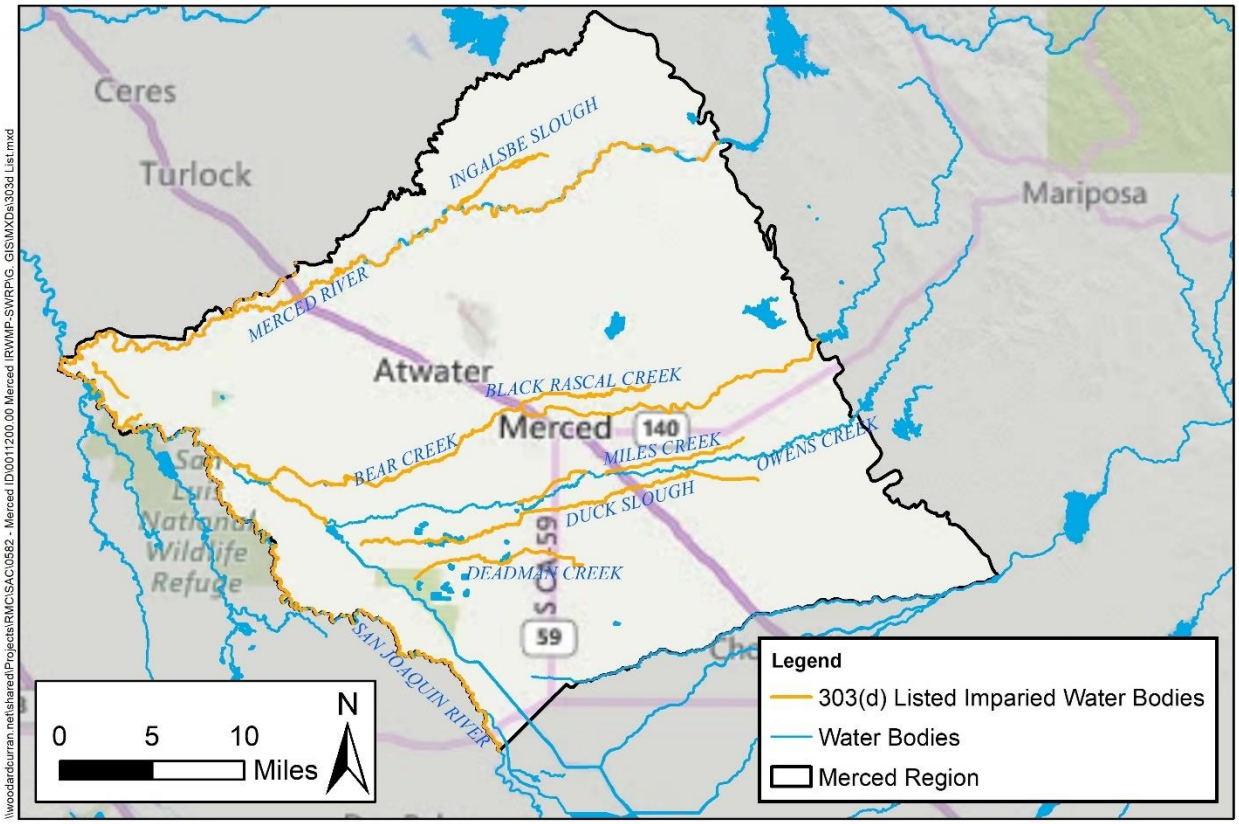
Surface Water Quality

Surface water quality varies throughout the Region, and is dependent upon climate, geology, and land use. In general, surface water quality within the Region is moderately impacted by salinity, as agriculture and the Delta-Mendota Canal may contribute to salinity intrusion in close proximity to the San Joaquin River. However, moving from east to west (toward the valley floor), water quality tends to be poorer due to diversions and regulations that decrease flows and due to agricultural return flows that may contain pollutants.

Samples of Merced River water collected near the Crocker-Huffman Diversion Dam between September 2011 and December 2012 indicate that Merced River water is slightly acidic and mostly calcium-bicarbonate type water, which is typical of most surface water derived from Sierra Nevada sources.

The Central Valley Regional Water Quality Control Board (CVRWQCB) is responsible for compiling a list of water bodies within the Sacramento River and San Joaquin River Basins that are classified as impaired according to standards set forth in the Clean Water Act (CWA). This list, also known as the 303(d) list, names specific water bodies that have water quality conditions that do not meet or are not expected to meet applicable water quality standards. Those water bodies listed on the 303(d) list must be addressed through the development of Total Maximum Daily Loads (TMDLs) that demonstrate the total mass loading of water quality constituents that may enter each water body without violating applicable water quality standards. 303(d)-listed water bodies in the Merced Region are shown in Figure 2-11. Table 3-1 in Chapter 3 provides additional detail on the water bodies on the 303(d) list, including the corresponding pollutants and any known potential sources of pollutants.

Figure 2-11: 303(d)-Listed Water Bodies in the Merced Region



In 2003, the CVRWQCB instituted the Irrigated Land Regulatory Program aimed at monitoring and setting rules for discharges from irrigated lands to waters of the State, which include natural streams and all public conveyance systems. Growers within the Region coordinate meeting program requirements through the East San Joaquin River Water Quality Coalition which monitors, prepares, and submits Water Monitoring Plans to the CVRWQCB. Raised canals within the Region tend to have better water quality than manmade drains and local creeks. Additionally, MID facilities were designated as a low threat area by the CVRWQCB after multiple years of sampling and reporting (MID, 2015).

The Basin Plan for the Sacramento and San Joaquin River Basins identifies beneficial uses of water resources within the basins. The Basin Plan summarizes the existing and potential beneficial uses within the Merced Region as defined in the Basin Plan. Beneficial use designations help determine what water quality conditions are acceptable or unacceptable for a given water body. Waters within the Basin are assumed to be suitable for municipal and domestic supply, agricultural supply, environmental, industrial service supply, and industrial process supply, at a minimum.

Table 2-2: Beneficial Uses of Surface Water in the Merced Region

Surface Water Bodies			Merced River (McSwain Reservoir to San Joaquin River)	Chowchilla River (Buchanan Dam to San Joaquin River)	San Joaquin River (Sack Dam to Mouth of Merced River)
Hydrologic Unit Number			535	535/545	535.7
	MUN	Municipal and Domestic Supply	E	P	P
Agriculture	AGR	Irrigation		E	E
		Stock Watering	E		E
Industry	PROC	Process	E	E	E
	IND	Service Supply	E		
	POW	Power	E		
Recreation	REC-1	Contact	E	E	E
		Canoeing and Rafting	E	P	E
	REC-2	Other Noncontact	E	E	E
Freshwater Habitat	WARM	Warm	E	E	E
	COLD	Cold	E		
Migration	MIGR	Warm	E		E
		Cold	E		E
Spawning	SPWN	Warm	E		E
		Cold	E		P
	WILD	Wildlife Habitat	E	E	E
	NAV	Navigation			
Legend: P = Potential beneficial use; E = Existing beneficial use					

Source: CVRWQCB, 2016b.

Groundwater Quality

The entire City of Merced overlies the Merced Subbasin. Groundwater within the Merced Subbasin contains both man-made and naturally occurring constituents. Some of these constituents either currently impact or have the potential to impact groundwater use within the Region in the future. A salinity and nutrient study was completed as part of the 2013 IRWM planning effort to establish the baseline water quality conditions within the Merced Region (RMC, 2013c). Information from the study is summarized in this section.

Salinity

Groundwater salinity results from the presence of various salts, metals, and inorganic compounds dissolved in groundwater. Salts are composed of positively charged cations and negatively charged anions that dissociate when dissolved in water. Common dissolved salts in groundwater include calcium, sodium, potassium, chloride, carbonate, sulfate and perchlorate. Common dissolved metals and nutrients in groundwater include arsenic, iron, hexavalent chromium, manganese, nitrate, potassium, and phosphate.

Historically, groundwater beneath the Merced Region has been categorized as primarily calcium-bicarbonate to sodium-bicarbonate type water due to variability in soil conditions, soil type, geologic structure, irrigation practices, and irrigation water quality, especially in the upper water-bearing zone. Sodium-rich groundwater may require the addition of soil amendments (such as gypsum) in order to percolate through soil, increasing salt loading in the Merced Region. In general, groundwater salinity concentrations are lowest in the easterly portion of the Merced Region, and increases westward toward the San Joaquin River and southward toward the Chowchilla River. A small area of predominantly sodium-chloride type water has been identified near the confluence of the Merced and San Joaquin Rivers.

Salinity, which is generally measured by total dissolved solids (TDS), has a secondary MCL of 1,000 (upper limit) to 1,500 (short-term limit) milligrams per liter (mg/L). TDS concentrations in the northwestern portion of the Region is slightly elevated beneath the Atwater and Winton areas. TDS concentrations in groundwater also increases in the western portion of the Region towards the San Joaquin River to as much as 1,000 mg/L. In these areas, high TDS water is found in wells deeper than 350 feet. Better quality groundwater (less than 1,000 mg/L TDS) in these areas is found at shallower depths (RMC, 2013c). According to the 2015 UWMP for the City of Merced, the TDS levels have a typical range of 200-400 mg/L.

In general, groundwater with high concentrations of TDS is present throughout the Merced Subbasin at depths between 400 to 800 feet. Saline waters originating from ancient marine sediments are migrating upward and mixing with freshwater in the basin. This process results from natural conditions; however, pumping of deep wells within the western and southern parts of the Merced Subbasin may cause these saline waters to upwell and mix with fresh water more rapidly than under natural conditions.

Nitrate

Nitrate originates from both natural and man-made sources and can be found in groundwater in many parts of the San Joaquin Valley. Elevated nitrate concentrations are generally of concern for potable water supplies and are not a concern for many crops because they act as a fertilizer. However, crops such as grape vineyards may be adversely impacted by high nitrate concentrations.

The MCL for nitrate is 45 mg/L as NO_3 for public drinking water supplies, and several municipal water districts have reported wells that have reached or are approaching the MCL. High nitrate concentrations in groundwater are often associated with the use of fertilizers (commercial/animal waste) and onsite wastewater treatment systems (OWTSs or septic systems). Within the Merced Region, nitrate concentrations range from non-detect (less than 2 mg/L as NO_3) to as high as 330 mg/L as NO_3. The 5-year

average (2007 through 2012) nitrate concentration in groundwater in the Merced Region is generally less than 20 mg/L as NO_3. In the northwest quadrant, there is a small area where nitrate concentrations exceed 200 mg/L as NO_3. Several larger areas also exist where nitrate concentrations do not exceed the MCL, but range from 20 to 40 mg/L as NO_3. The elevated nitrate concentration in these areas may be associated with animal confinement facilities and other agricultural non-point sources. Elevated nitrate in groundwater exists in small areas northeast of Merced and southwest of Atwater among areas where there are high densities of OWTSs.

Chloride

Chloride is a dissolved salt commonly associated with saline groundwater. Within the Merced Region, chloride concentrations range from non-detect (less than 2 mg/L) to as much as 1,850 mg/L. The recommended secondary MCL for chloride is 250 mg/L and the upper secondary MCL is 500 mg/L (CDPH, 2011). The 5-year average (2007 through 2012) chloride concentration in groundwater in the northern two quadrants of the Merced Region is generally less than 50 mg/L. Like TDS, chloride in groundwater increases in the southern quadrants towards the San Joaquin River to as much as 500 mg/L.

Iron and Manganese

Iron and manganese are both regulated through secondary MCLs, which are non-enforceable guidelines that regulate contaminants that affect drinking water aesthetics. The secondary MCLs for iron and manganese are 0.3 mg/L and 0.05 mg/L, respectively.

Groundwater in some portions of the Merced Subbasin contains elevated iron and manganese concentrations that exceed the secondary MCLs. Such areas are generally at shallow depths where oxygen levels are low or associated with shallow groundwater areas near streams.

Arsenic

Arsenic, which can have human health impacts, is naturally found within many bedrock formations. The current California MCL for arsenic is 0.010 mg/L. The 5-year average (2007 through 2012) arsenic concentration in groundwater in the northern two quadrants of the Merced Region is generally less than 0.010 mg/L, below the MCL. There are localized areas where the average arsenic concentrations in shallow groundwater range between 0.020 and 0.050 mg/L (northeast of Atwater, near Stevenson, and in the southwest Merced IRWM Region near the intersection of Sandy Mush Road and Highway 59). The City of Livingston also has wells with arsenic levels at or above the MCL. The City has constructed groundwater treatment systems at multiple wells to reduce arsenic concentrations below the MCL (AM Consulting Engineers, 2016).

Hexavalent Chromium

Hexavalent Chromium (Cr6) is a dissolved metal that rarely occurs naturally and can be associated with industrial contamination in groundwater. The SWRCB established a Cr6 MCL in 2014, but the MCL was invalidated by a court decision in 2017 and was rescinded. The SWRCB will create a new MCL, likely in 2019 (SWRCB, 2017). While there is currently no primary MCL for Cr6, Cr6 is a component of total chromium and is therefore regulated under the total chromium MCL. The primary MCL for total chromium is 50 micrograms per liter (µg/L) (CDPH, 2011). Within the Merced Region, Cr6 concentrations range from non-detect (less than 0.01 µg/L) to as high as 370 µg/L. The 5-year average (2007 through 2012) Cr6 concentration in groundwater in the Merced Region is generally less than 1 µg/L, except for a small area in the northwest quadrant where concentrations exceed 100 µg/L. This area of elevated Cr6 concentrations is likely associated with point sources.

Radionuclides

Radionuclides, including alpha particles and uranium, have MCLs of 15 picocuries per liter and 30 µg/L, respectively. Data for radionuclides in the Region are not available at this time, and testing for these constituents is generally limited to public water systems.

Bacteria

Levels of bacteria within the Merced Subbasin are generally acceptable for deep groundwater aquifers. Bacteria is of primary concern for drinking water systems, and bacteria is regulated based on the number of service connections within a given drinking water system. The California Division of Drinking Water (DDW) requires testing for pathogens (disease-causing organisms) and indicator organisms within drinking water systems. Elevated bacteria in groundwater can occur due to inadequate construction, improperly located, destroyed, and abandoned groundwater wells, and improper use of groundwater wells for waste disposal.

Perchlorate

Perchlorate occurs from both natural and man-made sources and is widespread in groundwater in many parts of the San Joaquin Valley. High perchlorate concentrations in groundwater are often associated with the use of nitrate fertilizer or munitions manufacturing. Within the Merced Region, perchlorate concentrations range from non-detect to as high as 4 µg/L. The primary MCL for perchlorate is 6 µg/L (CDPH, 2011). Slightly elevated perchlorate concentrations observed in groundwater beneath the Atwater area may be associated with point sources.

Petroleum Hydrocarbons

Petroleum hydrocarbons, including oxygenates such as methyl-tertiary-butyl-ether (MTBE), have been released from underground storage tanks (USTs). Most of these cases are localized in nature; the SWRCB and CVRWQCB conduct mitigation oversight for soil and groundwater cleanup of UST releases.

The 5-year average (2007 through 2012) MTBE concentration in groundwater in the Merced Region is generally less than 5 µg/L, with elevated concentrations found in localized urban areas along Highway 99 and beneath the Atwater area.

Pesticides

Dibromochloropropane (DBCP), a pesticide banned in 1977, continues to be found in groundwater within the Region. The MCL for DBCP is 0.0002 mg/L (0.2 µg/L), as DBCP can potentially be a carcinogen even at very low concentrations. DBCP has been found in public and domestic water supply wells.

In addition, the cleaning and degreasing solvent 1,2,3-trichloropropane (1,2,3-TCP), also used as a soil fumigant, has been detected in the Merced Region, with elevated concentrations found in localized areas in the northwest quadrant and beneath the City of Merced. Until an MCL is developed, DDW is utilizing a Notification Level of 0.005 µg/L (CDPH, 2012). The California Office of Environmental Health Hazard Assessment has set a Public Health Goal for 123-TCP of 0.0007 µg/L.

Ethylene dibromide, a related fumigant banned in the 1980's, has also been detected in at least one public water supply well and several domestic wells in the Atwater/Livingston area.

Trichloroethylene

Trichloroethylene (TCE) is a volatile organic compound (VOC) used as a solvent for dyes, rug cleaners, and as a degreaser for metal parts. The MCL for TCE is 0.005 mg/L due to carcinogenicity.

TCE has been detected at levels exceeding the MCL in two locations in the Merced Subbasin. These areas, the Castle Airport Aviation and Development Center and the City of Merced's Eastern Industrial Park, are both undergoing remediation activities.

Perchloroethylene

Perchloroethyene, which is also a VOC, has been detected in isolated public water supply wells within the Merced Subbasin. This contaminant is typically associated with industrial wastewater and dry-cleaning operations.

Water Quality Priorities

The water quality priorities for the Merced Region are to support applicable TMDLs and to comply with the permits that govern discharges in the Region. Applicable TMDLs and NPDES permits are discussed in detail in Chapter 3. TMDLs that are relevant to the Region include the following:

- Sacramento-San Joaquin Delta Mercury and Methylmercury TMDL
- San Joaquin River Dissolved Oxygen TMDL
- Lower San Joaquin River Salt and Boron TMDL
- Central Valley Pesticide TMDL

SWRP Guideline Requirements Addressed in Section 2.5:

✓ Plan describes the water quality priorities within the watershed based on, at a minimum, applicable TMDLs and consideration of water body-pollutant combinations listed on the State's Clean Water Act Section 303(d) list of water quality limited segments (a.k.a impaired waters list).

This SWRP aims to support these TMDLs by identifying projects that will help achieve TMDL goals, and prioritizing such projects accordingly (discussed in detail in Chapter 6).

Wastewater discharges in the Region are governed under the SWRCB Phase II Small MS4 General Permit (Permit Number CA000004, Water Quality Order No. 2013-0001 DWQ). The co-permittees of the cities of Atwater and Merced, Merced County and MID prepared their *Storm Water Management Program* (SWMP) in 2007 to aid in compliance with the general permit (Stantec, 2007). The SWMP identified various control measures to improve stormwater quality. This SWRP will support several of these control measures, including Public Education and Outreach, Public Involvement/Participation, Construction Site Storm Water Runoff Control, and Post-Construction Storm Water Management in New Development and Redevelopment.

Other Priorities

Other water quality priorities were identified in the SWMP. These are summarized in Table 2-3. This SWRP supports these priorities by helping to implement projects that will aid in reducing pollution from these sources. Projects that have the potential to reduce such contaminants are priorities for this SWRP (as discussed in Chapter 6).

Table 2-3: Priority Pollutants Identified in SWMP

Pollutant	Possible Sources	Potential Effects
Sediment	Construction sites, disturbed and/or non-vegetated lands, eroding banks	Increased turbidity, reduced clarity, lower dissolved oxygen, deposition of sediments, smothering of aquatic habitats, including spawning sites
Nutrients	Animal waste, fertilizers, failing septic systems, atmospheric deposition	Algal growth, reduced clarity, eutrophication
Organic Materials	Leaves, grass clippings	Oxygen deficit in receiving waters, fish kills, turbidity
Pathogens: Bacteria and Viruses	Animal waste, failing septic systems, dumpsters	Human health risks associated with drinking water supply
Hydrocarbons: Oil and Grease, PAHs	Industrial processes, automobile wear, emissions and fluid leaks, waste oil	Toxicity of water column and sediment, bioaccumulation through the food chain
Metals	Industrial processes, normal wear or auto brake linings and tires, automobile emissions and fluid leaks, metal roofs	Toxicity of water column and sediment, bioaccumulation in aquatic species and through the food chain, fish kills
Synthetic Chemicals: PCBs and Pesticides	Pesticides (herbicides, insecticides, fungicides, rodenticides), industrial processes	Toxicity of water column and sediment, bioaccumulation in aquatic species and through the food chain, fish kills
Chlorides	Leaching from naturally occurring sources, septic tanks, fertilizers, and pesticides	Toxicity of water column and sediment
Trash and Debris	Litter washed through storm drain system, commercial parking lots adjacent to surface water	Degradation of surface water aesthetics, threat to wildlife

Source: Stantec, 2007.

2.6 Water Suppliers

SWRP Guideline Requirements Addressed in Section 2.6:

- ✓ Plan describes the local entity or entities that provide potable water supplies and the estimated volume of potable water provided by the water suppliers

Numerous agencies and organizations supply water throughout the Merced Region, as shown in Figure 2-5. Domestic water systems within the unincorporated portions of Merced County are generally small, independent systems providing water to individual communities. Most of the unincorporated areas outside of major communities are designated for agricultural use and receive their water supply from individual groundwater wells; however, agricultural water supply systems also exist to serve irrigation users. Agencies providing domestic and irrigation water services to the unincorporated areas of Merced County and within the Region (eastern Merced County) are shown in Figure 2-5.

In addition to water systems within unincorporated areas of the Region, separate domestic systems are provided to the residents of the incorporated cities of Merced, Livingston, and Atwater. Services provided by the Region's incorporated cities, in addition to other major water suppliers in the Region, are described in the following sections.

2.6.1 Municipal Water Suppliers

The following municipal water suppliers provide services to the Region. Their estimated supply volumes are provided in Table 2-4.

- City of Atwater
- City of Livingston
- City of Merced
- Le Grand Community Services District
- Meadowbrook District, California American Water
- Planada Community Services District
- Winton Water and Sanitary District

Information on each supplier is provided below.

City of Atwater

The City of Atwater provides domestic water service to a growing population. According to the 2010 United States Census, the population of Atwater grew by almost 22% from 2000 to 2010, reaching 28,168 in 2010. Since then, growth has slowed; the population was estimated at 29,397 residents in 2017 (U.S. Census Bureau, 2018a). The City of Atwater operates a municipal water system that utilizes local groundwater wells in the Merced Subbasin to provide water to the city's residents. Historically, the City of Atwater has not treated groundwater prior to delivering it to customers, with the exception of chlorine injection as required by the State of California. The City's municipal water system consists of 11 wells. As of May 2018, the City of Atwater experienced elevated concentrations of 1,2,3- TCP in its water system. The City is working with the SWRCB DDW to correct the problem and is required to bring the system into compliance by 2021. In terms of supply volume, in 2016, the City of Atwater pumped approximately 8,961 AF (or an average of 8 million gallons per day [mgd]) of water from the Merced subbasin, which constituted the entire water supply for the city (EMC Planning Group, 2016).

City of Livingston

The City of Livingston provides water supplies to its residents, which numbered approximately 14,140 in 2017 (based on Census estimates). The sole source of water supply for the City of Livingston is groundwater from the Merced Subbasin, which is pumped from eight groundwater wells that have a combined capacity of 12.8 mgd (AM Consulting Engineers, 2016). DBCP and nitrates have both been detected in city wells, but both constituents are currently below the MCL and treatment is not required. To combat water quality and future restrictions on groundwater under SGMA, the City is interested in receiving supplemental surface water from MID.

City of Merced

The City of Merced provides water supplies primarily to residential users. The City's population was approximately 84,000 people in 2015 (Carollo, 2017) and is projected to continue to increase, reaching approximately 140,000 in 2035 (Carollo, 2017). In addition to residential users, the City of Merced also supplies water to commercial/institutional, industrial, and landscape irrigation users. In 2015, the City of Merced supplied 22,741 AF to its customers. As the City's population grows, its water deliveries are expected to increase to roughly 37,800 AFY by 2035 (Carollo, 2017).

The City of Merced's sole water supply source is groundwater from the Merced Subbasin, which is pumped from 19 active groundwater wells that are scattered throughout the City's service area. One of the City's groundwater wells is impacted by water quality issues associated with arsenic. Although the City of Merced's existing water supplies are provided solely from groundwater sources, the City anticipates using a small amount of surface water from MID to supplement its water supply in the future. A portion of such supply could be provided by MID in exchange for recycled water from the City. MID's deliveries to the City are initially expected to be roughly 60 acre-feet per year (AFY) (in 2020), rising to 15,000 AFY in 2030 (MID staff, Carollo, 2017).

Le Grand Community Services District

The Le Grand Community Services District provides domestic water service to residents in the unincorporated community of Le Grand. The community has a population of approximately 1,721 according to 2012-2016 Census estimates (U.S. Census Bureau, 2017) and is located in eastern Merced County, approximately 12 miles southeast of the City of Merced. Municipal water is supplied to the community of Le Grand by three groundwater wells in the Merced Subbasin capable of producing 1.8 mgd. According to the 2016 Merced County General Plan Land Use Element, average annual water use in Le Grand is 1,075 AFY (0.96 mgd).

Meadowbrook District, California American Water

Meadowbrook Water Company was founded in 1955 to serve a small subdivision in what is now known as the Franklin-Beachwood area. Most of the land in the Meadowbrook service area was originally agricultural land and dairy farms. In recent years, many farmers have subdivided their land and some of the dairies closed down with subdivisions constructed in their stead. In 2017, California American Water acquired Meadowbrook Water Company, and now owns and operates the area's water infrastructure, supplying groundwater from the Merced Subbasin to approximately 1,700 homes and businesses (Business Wire, 2017).

Winton Water and Sanitary District

The Winton Water and Sanitary District (WWSD) serves water to the unincorporated community of Winton and its surrounding area, located north of the City of Atwater. According to 2012-2016 American

Community Survey 5-year population estimates (the most up-to-date data available), the population of the community of Winton was 11,309 (U.S. Census Bureau, 2017). WWSD provides water services to approximately 2,982 connections, supplying an annual average of approximately 1,748 AFY (1.56 mgd), which is pumped from the Merced Subbasin (Merced County, 2016a).

Planada Community Services District

The Planada CSD provides domestic water service to residents in the unincorporated community of Planada, located in eastern Merced County along State Route 140. According to 2012-2016 American Community Survey 5-year population estimates (the most up-to-date data available), the community of Planada has a population of 4,499 (U.S. Census Bureau, 2017). Municipal water is obtained from the Merced Subbasin via six groundwater wells with a production capacity of 4.32 mgd. Groundwater is chlorinated prior to conveyance through a pressurized system. In 2012, Planada CSD produced 1,205 AFY (or an average of 1.08 mgd).

2.6.2 Agricultural Water Suppliers

The following agricultural water suppliers provide services to the Region.

- Chowchilla Water District
- Eastside Water District
- Le Grand – Athlone Water District
- Lone Tree Mutual Water Company
- Merced Irrigation District
- Merquin County Water District
- Plainsburg Irrigation District
- Sandy Mush Mutual Water Company
- Stevinson Water District
- Turlock Irrigation District
- Turner Island Water District

Information on each supplier is provided below.

Chowchilla Water District

The CWD, formed in 1949, serves portions of both Merced County and Madera County, and therefore is only partially located within the Merced Region. In total, CWD serves approximately 85,000 total acres of agricultural land, including over 400 water users.

CWD receives water from the Central Valley Project (CVP) via the Madera Canal and the Buchanan Dam. This water is conveyed to irrigation users through CWD's water distribution system which consists of 150 miles of unlined canals and 49 miles of pipeline. Between 2004 and 2013, CWD supplied an average of 141,412 AFY to its customers (CWD, 2017). In 2015, CWD supplies fell drastically to 527 AF as a result of drought, which caused reduced CVP allocations (CWD, 2015).

Eastside Water District

The Eastside Water District is located partially in the East Stanislaus IRWM Region and partially in the Merced Region. The District comprises 61,293 acres (Kauffman, 2017) and occupies most of the Dry Creek Watershed on the valley floor. The District does not directly supply water; it was formed as a cooperative effort by landowners to manage groundwater resources. Landowners within the Eastside Water District area rely predominantly on groundwater pumped from the Turlock Subbasin (roughly 160,000 AFY [Woodard

& Curran, 2018]), although in wet years limited amounts of water may be purchased from Turlock Irrigation District and MID (Eastside Water District, 2015).

Le Grand – Athlone Water District

The Le Grand – Athlone Water District provides water service south of the community of Le Grand, up to the border of the Chowchilla Water District. The Le Grand – Athlone Water District distributes water purchased from MID when available. In 2012, the Le Grand – Athlone Water District served approximately 322 AF of water from groundwater sources.

Lone Tree Mutual Water Company

Lone Tree Mutual Water Company (LTMWC) is a private water company that provides water for agricultural irrigation uses in the El Nido area. The majority of its water supply (73%) comes from groundwater; the remaining water comes from a combination of surface supplies diverted from the Eastside Bypass and recirculated tail and tile water (LTMWC, 2016). In total, LTMWC covers 12,718 acres; of this, 11,574 acres are irrigable agriculture (LTMWC, 2016). LTMWC's supply infrastructure includes approximately 17 miles of canals (mostly unlined), 23 miles of drains, 16 miles of pipelines, and 94 wells (LTMWC, 2016). From 2007 to 2015, LTMWC delivered an average of 33,179 AFY of groundwater (pumped from the Merced Subbasin) and 12,130 AFY of surface water (LTMWC, 2016).

Merced Irrigation District

MID, formed in 1919, is a regional water supplier that supplies water to users within its service area. In addition, MID also delivers water to satisfy other entitlements, and provides water to irrigators located outside of the MID service area. MID sells water, as supplies are available, to the following areas within the Merced Region:

- Merced Union High School (landscape application only)
- Le Grand-Athlone Water District
- Chowchilla Water District
- Unincorporated areas within MID's Sphere of Influence

In addition, MID fulfills water commitments to:

- Cowell Agreement Diverters, encompassing an area in excess of 20,000 acres in the Merced River valley between Snelling and Oakdale Road
- Stevinson Water District
- Various riparian and appropriated water users in Merced River and thorough MID system
- Merced National Wildlife Refuge

MID has made deliveries under various water transfers mainly for agricultural and environmental purposes, such as transfers to:

- DWR for instream flows under Davis Grunsky contract since 1967
- Lands within MID Sphere of Influence
- U.S. Bureau of Reclamation (USBR) and DWR for river instream flows under Vernalis Adaptive Management Plan between 1999 and 2011
- The Environmental Water Account
- Westlands Water District
- Delta Mendota Water Authority
- Kern County Water Agency and Dudley Ridge

- San Luis Wildlife Refuge – East Bear Creek unit

MID also provides irrigation water to eastern Merced County's agricultural land. MID's service area covers 164,000 acres, which includes approximately 133,000 acres of irrigated farmland (MID, 2016). Approximately 320,000 AF of water per year is distributed through 790 miles of canals and pipelines (MID, 2016). MID possesses pre-1914 diversion and storage rights from the Merced River and local streams. In addition, MID possesses a number of State Water Resources Control Board water licenses from Merced River, Mariposa Creek and Deadman Creek. Lake McClure is MID's principal water storage reservoir and has a capacity of approximately 1,025,000 AF (MID, 2016).

The *Merced Water Supply Plan* (WSP), completed in 1993 and updated in 2001, provides a general plan for overall water system expansion and recommendations for managing the water supply for the study area. The WSP Update was prepared by the City of Merced and MID in conjunction with the University of California, Merced. The Water Supply Plan identified five goals:

- Manage groundwater resources;
- Provide a high-quality, reliable supply of water for cities;
- Protect and enhance the economic base;
- Protect MID's Merced River water rights; and
- Maintain consensus on a water supply plan.

The WSP Update identified water needs and planning scenarios through the year 2040 for the study area, which includes 582,000 acres located in eastern Merced County and follows closely the Merced Subbasin. Historical water data showed that the use of surface water supplied by MID decreased in the Region, while groundwater pumping for irrigation rose. The change was attributed to five years of extended drought in the late 1980s and a lack in technological advancement for filtering surface water to levels adequate for sprinkler and drip systems, making groundwater more desirable. The WSP Update outlined potential consequences that could occur if aquifer levels continue to decline, including land subsidence, reduction of drought protection, imposition of regulatory control, higher energy usage and costs, and reduction in agricultural production.

The WSP Update also identified numerous planning scenarios to address future conditions and to achieve program goals. Common solutions were identified among the planning scenarios and developed into a base level of solutions for immediate response, including the following:

- Intentional recharge site investigations
- Incentives and related system improvements
- Surface water conservation and automation
- Agricultural capacity improvements
- Urban water conservation
- Urban groundwater to surface water conversion
- Participation in water rights issues
- Institutional program establishment

Other potentially costlier solutions may be required if specific "triggers" occur. For example, future regulatory actions on the Merced River may trigger the need for drought relief wells. As a next step, the WSP Update recommended formation of a committee to identify beneficiaries of program implementation and to allocate costs accordingly.

Merquin County Water District

Merquin County Water District services approximately 9,000 acres of in-District farmland with 14,281 AF of surface water supplied by Stevinson Water District / Eastside Canal and 8,000 AF of well water supplied by Merquin County Water District.

Stevinson Water District

Stevinson Water District serves a small area of approximately 3,600 acres in the northwest corner of the Region that abuts Merced River and the San Joaquin River, along the southeasterly banks of their confluence (Economic and Planning Systems, Inc., 2008). Stevinson Water District holds appropriative and adjudicated water rights to divert from the rivers and local streams. The District owns, operates and maintains the East Side Canal, a feature that can intercept flows from all Merced Streams (Bear Creek, Owens Creek, Mariposa Creek, and Deadman Creek) and their tributaries. The District receives approximately 26,400 AF annually from MID per an adjudicated agreement between the Districts (MID, 2016). The District provides surface water to agricultural users that lie south and west of the unincorporated community of Stevinson. Stevinson Water District also delivers water to Merquin County Water District (Economic and Planning Systems, Inc., 2008).

Turlock Irrigation District

A small portion of Turlock Irrigation District (TID) is located within the Region north of the Merced River and west of the confluence of Dry Creek and the Merced River. TID receives its surface water flows from the Tuolumne River. From 2010 to 2014, TID supplied an average of approximately 604,000 AFY, approximately 75% from surface water, 22% from groundwater and 3% from other supplies such as subsurface drainage, tailwater, spill recovery, and recycled wastewater (TID, 2015).

Turner Island Water District

Turner Island Water District, a California Water District, is located in the Turner Island area of Merced County. Situated along the San Joaquin River, the District is comprised of approximately 12,000 total acres split between the Delta-Mendota Subbasin and the Merced Subbasin. Turner Island Water District serves water to approximately 8,000 acres of farmland consisting of primarily row crop farming (cotton, tomatoes, wheat, melons, alfalfa, corn and vegetable crops), native and irrigated pasture, cattle grazing, and duck club/wetland habitat. The District delivers, on average, approximately 25,000 AFY of water of which approximately 50% is from surface water sources and 50% from groundwater pumping (L. Harris, personal communication, August 16, 2018). Historical surface water deliveries typical come from San Luis Canal Company, Eastside Canal Company, MID, and flood flows in the Eastside Bypass.

Plainsburg Irrigation District

Plainsburg Irrigation District is located to the southwest of the community of Planada. The District supplies groundwater to land owners in the area and purchases some surface water from MID when available.

Amsterdam Water District

Amsterdam Water District is a newly created district located along Canal Creek, northwest of the City of Merced. The District is mostly confined between Canal Creek and Hwy 59, and encompasses roughly 6,600 acres.

Sandy Mush Mutual Water Company

Sandy Mush Mutual Water Company covers a range of disconnected areas within the Merced Region, with the largest portions lying south of the City of Merced. In total, Sandy Mush Mutual Water Company covers approximately 29,000 acres.

Inactive Water Agencies

Sierra Water District is an inactive district located at the southwesterly corner of the Region, and land owners rely on groundwater for supply. Subsidence has occurred within the area, which is of special interest to the Region.

2.6.3 Water Supply Volumes

The volume of water supplied by each municipal and agricultural water supplier are shown in Table 2-4. Estimates of future water supplies are also included and were obtained from Urban Water Management Plans, when possible, and using best available data for other municipal and agricultural water suppliers.

Table 2-4: Anticipated Water Supply through 2040 (Municipal and Agricultural)

	2015 (AFY)	2020 (AFY)	2025 (AFY)	2030 (AFY)	2035 (AFY)	2040 (AFY)
Municipal						
City of Atwater[1]	14,737	17,084	19,805	19,805	19,805	19,805
City of Livingston[2]	2,191	2,257	2,330	2,413	2,503	2,604
City of Merced[3]	22,741	31,260	33,287	35,875	37,829	37,829
Le Grand CSD[4]	2,016	2,016	2,016	2,016	2,016	2,016
Planada CSD[4]	4,817	4,817	4,817	4,817	4,817	4,817
Winton Water and Sanitary District[4]	6,777	6,777	6,777	6,777	6,777	6,777
Meadowbrook District, California American West[5]	1,220	1,220	1,220	1,220	1,220	1,220
Agricultural						
MID – Groundwater[6]	36,858	2,000	1,000	0	0	0
MID – Surface Water[7]	516,110	516,110	516,110	516,110	516,110	516,110
Le Grand/Athlone Water District[5]	372	372	372	372	372	372
Merquin County Water District[5]	14,281	14,281	14,281	14,281	14,281	14,281
Stevinson Water District[8]	44,750	44,750	44,750	44,750	44,750	44,750
Turner Island Water District[9]	25,000	25,000	25,000	25,000	25,000	25,000

	2015 (AFY)	2020 (AFY)	2025 (AFY)	2030 (AFY)	2035 (AFY)	2040 (AFY)
Chowchilla Water District[10]	43,000	43,000	43,000	43,000	43,000	43,000

Notes:
1. Water supply projections from City of Atwater 2005 UWMP are available through 2025 (Boyle Engineering Corporation, 2007). Water supplies after 2025 are assumed to be equivalent to 2025 conditions.
2. Water supply projections from City of Livingston 2015 UWMP are available through 2040 (AM Consulting Engineers, 2016).
3. Water supply projections from City of Merced 2015 UWMP are available through 2035 (Carollo, 2017). Water supplies after 2035 are assumed to be equivalent to 2035 conditions.
4. Water supply projections for Winton Water and Sanitary District, Le Grand CSD, and Planada CSD assume the current capacity of groundwater supply infrastructure remains constant through 2040.
5. Water supply projections for Meadowbrook District California American Water Company, Le Grand/Athlone Water District, and Merquin County Water District assume the supply is equal to estimates of demand provided during preparation of the 2013 IRWMP.
6. MID groundwater supply projections (2020-2040) were provided by MID staff. 2015 groundwater pumping is available from the 2015 MID AWMP (MID, 2016). MID owns 242 groundwater supply wells, of which, 170 are currently operational. MID groundwater pumping increases during drought years as part of its conjunctive management. In addition, MID constituents utilize their personal groundwater wells either for supply or to supplement surface water supply. For example, in 2015 MID extracted roughly 36,858 AF and private agricultural users within its boundary extracted approximately 355,000 AF (MID, 2016).
7. MID surface water supply projects assume MID's water rights remain constant. According to the MID Water Management Plan (MID, 2003), MID has water rights that allow withdrawal and storage of up to 516,110 AF of surface water from the Merced River per year. As discussed in Section 2.4, SWRCB is proposing to reduce diversions from Merced River, which would curtail the use of the Merced River as a supply source for the Region; however at this time the outcome is unknown.
8. Water supply projections based on communication with Stevinson Water District. The listed supply projection is an average of the above normal year prediction (45,750 AF) and the below normal year prediction (43,750). No projections for a normal year were provided. A constant supply was assumed.
9. Supply for Turner Island Water District is assumed to be equal to the delivery amount provided by Turner Island Water District staff and is assumed to be constant through 2040.

Merced Stormwater Resources Plan

Chapter 3 Water Quality Compliance (V)

This chapter discusses the compliance of the Merced SWRP study area with applicable water quality regulations, including regulations at the federal, state, and local level. The USEPA is the federal agency responsible for implementing provisions in the CWA, while state and local regulations are overseen by the SWRCB and Central Valley RWQCB, respectively. The goal of the SWRP is to support compliance with these and other applicable regulations. This chapter also discusses how the SWRP supports goals and objectives in other local planning documents, including the Merced Integrated Regional Water Management Plan (MIRWMP), as well as pollutants in the Merced region and a discussion of water quality monitoring efforts.

3.1 Applicable Permits and Plans

3.1.1 Consistency with Water Quality Requirements

This section discusses the regulatory setting, including water quality requirements specific to the Merced Region and how the SWRP meets these requirements. All plan activities and projects must comply with California Environmental Quality Act (CEQA) and fully mitigate environmental impacts resulting from the activity or project, including as required by CWA Sections 401 and 404 and other federal state laws, regulations, and permits. It is the responsibility of the project's lead agency to ensure compliance with CEQA and all necessary permits prior to and during implementation.

SWRP Guideline Requirements Addressed in Section 3.1.1:

- ✓ Plan describes how it is consistent with and assists in, compliance with total maximum daily load implementation plans and applicable national pollutant discharge elimination system permits
- ✓ Plan identifies applicable permits and describes how it meets all applicable waste discharge permit requirements.
- ✓ Plan states that activities and projects comply with CEQA
- ✓ Plan states that projects within the plan that include substantial change or use of any material from a river, stream, or lake should avoid and minimize erosion, sediment transport, and hydromodification, and fully mitigate environmental impacts resulting from the project, as required by CWA Sections 401 and 404 and any other federal and state laws, regulations, and permits.

The CWA is the primary federal statute for water quality protection. It establishes the basic structure for regulating discharges of pollutants into waters of the United States (U.S.) and regulating water quality standards for surface water bodies. Originally passed in 1948, the CWA was significantly reorganized and expanded in 1972. The CWA Section 303(d) requires states to list surface water not meeting water quality standards. In addition, states also must prepare and implement a Total Maximum Daily Load for all water bodies on the Section 303(d) list of impaired waters.

The Porter-Cologne Act, passed in 1969, is the primary law governing water quality regulation in California. It established the SWRCB and divided California into nine regions, each overseen by a RWQCB; the Merced Region is part of the San Joaquin River Basin under the jurisdiction of the CVRWQCB. The Porter-Cologne Act mandates the development of water quality control plans – or Basin Plans – and also implements many of the provisions of the CWA, such as the National Pollutant Discharge Elimination System (NPDES) permitting program.

Basin Plan and 303(d) List

Water quality control plans, also known as basin plans, provide the basis for protecting water quality in California. Basin plans identify the existing and potential beneficial uses of waters in California and establish water quality objectives (WQOs) to protect these uses. The basin plans also contain implementation, surveillance, and monitoring plans to achieve the WQOs. Basin plans include enforceable prohibitions against certain types of discharges, including those that may pertain to nonpoint sources. Preparation and adoption of basins plans is required by the Porter-Cologne Act and supported by the Clean Water Act. While basin plans are adopted and amended by the RWQCBs, any adoption or revision of WQOs and beneficial use designations are subject to review by the USEPA.

The *Water Quality Control Plan for the Sacramento and San Joaquin River Basins* (the Basin Plan) covers the Merced Region. The Basin Plan was first adopted in 1975; the current edition – Fifth Edition, Revised May 2018 – incorporates 28 amendments approved since the Fourth Edition in 1998 (CVRWQCB, 2018). The majority of amendments since 1998 are related to control programs for pollutants, including chlorpyrifos, diazinon, and mercury. The Basin Plan establishes beneficial uses to be protected for the waters within the Region, WQOs to protect the identified beneficial uses, and an implementation program for achieving the objectives. This SWRP supports this effort by identifying projects that will help achieve the WQOs listed in the CVRWQCB Basin Plan.

The CVRWQCB compiled the 303(d) list of impaired water bodies within the Sacramento River and San Joaquin River Basins in the Basin Plan. Impaired waters are waters that do not meet water quality standards identified in the Basin Plan for that region, even after point sources of pollution have installed the minimum required levels of pollution control technology. To address these impaired water bodies, a TMDL must be developed. The list of impaired water bodies within the Merced Region is included in Table 3-1. More information on TMDLs is provided in the following section.

Table 3-1: 303(d) Listed Impaired Water Bodies in the Merced Region

Water Body	Pollutant / Stressor	Potential Source(s)[1]
Bear Creek (from Bear Valley to San Joaquin River)	Indicator Bacteria	Unknown
	Toxicity	Unknown
Black Rascal Creek (Merced County)	Toxicity	Unknown
	Dissolved Oxygen	Unknown
	Indicator Bacteria	Unknown
Deadman Creek (Merced County)	Chlorpyrifos	Agriculture
	Indicator Bacteria	Unknown
	Toxicity	Unknown
	Dissolved Oxygen	Unknown
	Arsenic	Unknown
Deep Slough (Merced County)	pH	Unknown
Duck Slough (Merced County)	Chlorpyrifos	Agriculture
	Toxicity	Unknown
	Indicator Bacteria	Unknown

Water Body	Pollutant / Stressor	Potential Source(s)[1]
Ingalsbe Slough (tributary to Merced River)	Toxicity	Unknown
Merced River, Lower (McSwain Reservoir to San Joaquin River)	Mercury	Unknown
	Toxicity	Unknown
	Chlorpyrifos	Agriculture
	Group A Pesticides	Unknown
	Temperature, water	Unknown
Miles Creek (Merced County)	Toxicity	Unknown
	Indicator Bacteria	Unknown
	Dissolved Oxygen	Unknown
San Joaquin River (Mendota Pool to Bear Creek)	Chlorpyrifos	Unknown
	Diazinon	Unknown
	Boron	Unknown
	DDT (Dichlorodiphenyl-trichloroethane)	Unknown
	Group A Pesticides	Unknown
	Toxicity	Unknown
San Joaquin River (Bear Creek to Mud Slough)	DDT (Dichlorodiphenyl-trichloroethane)	Unknown
	Arsenic	Unknown
	Group A Pesticides	Unknown
	Toxicity	Unknown
	Diuron	Agriculture
	Mercury	Unknown
	Electrical Conductivity	Unknown
	Total Dissolved Solids	Unknown
San Joaquin River (Mud Slough to Merced River)	DDT (Dichlorodiphenyl-trichloroethane)	Unknown
	Group A Pesticides	Unknown
	Selenium	Unknown
	Boron	Unknown
	Diazinon	Unknown
	Indicator Bacteria	Unknown
	Toxicity	Unknown
	Chlorpyrifos	Unknown

Water Body	Pollutant / Stressor	Potential Source(s)[1]
	Mercury	Unknown
	Electrical Conductivity	Unknown
San Joaquin River (Merced River to Tuolumne River)	Dichlorodiphenyltricholoethane (DDT)	Unknown
	Mercury	Unknown
	Group A Pesticides	Unknown
	Benzenehexachloride (alpha-BHC) or alpha-HCH	Unknown
	Chlorpyrifos	Unknown
	Toxicity	Unknown
	Dichlorodiphenyldichloroethylene (DDE)	Unknown
	Temperature, water	Unknown
	Electrical conductivity	Unknown
	Specific conductivity	Unknown
	Total dissolved solids	Unknown
Turner Slough (Merced County)	Toxicity	Unknown
	Indicator Bacteria	Unknown
	Oxygen, Dissolved	Unknown
	Specific Conductivity	Unknown
	Total Dissolved Solids	Unknown
Turner Slough (drains into San Joaquin River (Bear Creek to Mud Slough), Merced County)	Indicator Bacteria	Agriculture- animal
	Toxicity	Unknown

Notes:
1. The default value for potential source(s) is Unknown unless a source analysis has been performed or some other supporting information has been provided.
2. Source: CVRWQCB, 2016a.

Total Maximum Daily Loads (TMDLs)

The CWA requires that states establish a priority ranking for 303(d)-listed waters and develop TMDL action plans to improve water quality. A TMDL represents the maximum amount of a pollutant allowed to enter a waterbody so that the waterbody will meet and continue to meet water quality standards for that particular pollutant. Once set, a TMDL helps determine a pollutant reduction target and allocates load reductions necessary to the source(s) of the pollutant. In the Merced Region, TMDLs are established by the CVRWQCB. Pollutants covered by TMDLs relevant to the Merced Region are included in Table 3-2 and are discussed below. The Region will be addressing chlorpyrifos in the Lower Merced River (from McSwain Reservoir to San Joaquin River), Deadman Creek, and Duck Slough through an action other than a TMDL and is expecting attainment by 2026 (CVRWQCB, 2016b). This SWRP incorporates the TMDLs for the Merced Region and will support water quality improvements for impaired water bodies without an established TMDL.

Table 3-2: TMDLs Relevant to the Merced Region

Pollutants Covered	TMDL Name(s)	Resolution No.	Effective Date	Water Bodies Affected
Mercury, methylmercury	Sacramento – San Joaquin Delta Mercury and Methylmercury TMDL	R5-2010-0043[1]	2011	Sacramento – San Joaquin Delta
Dissolved oxygen	San Joaquin River Dissolved Oxygen TMDL	R5-2005-0005[2]	2006	San Joaquin River downstream of Friant Dam, downstream of major Eastside reservoirs
Salt, boron	Lower San Joaquin River Salt and Boron TMDL	R5-2004-0108[3]	2006	Lower San Joaquin River at Vernalis
Diazinon, chlorpyrifos	Lower San Joaquin Diazinon and Chlorpyrifos TMDL	R5-2005-0138[4]	2006	San Joaquin River from Mendota Dam to Vernalis
	South San Joaquin Delta Diazinon and Chlorpyrifos TMDL	R5-2006-0061[5]	2007	Sacramento – San Joaquin Delta
	Central Valley Pesticide TMDL	R5-2014-0041[6]	2017	San Joaquin River Watershed between Mendota Dam and Vernalis, downstream of major Eastside reservoirs

Notes:
1 .Source: CVRWQCB, 2010.
2. Source: CVRWQCB, 2005a.
3. Source: CVRWQCB, 2004.
4. Source: CVRWQCB, 2005b.
5. Source: CVRWQCB, 2006.
6. Source: CVRWQCB, 2014.

Mercury and Methylmercury

Mercury and methylmercury in the Merced Region are addressed by Resolution No. R5-2010-0043, *Amendments to the Water Quality Control Plan for the Sacramento River and San Joaquin River Basins for the Control of Methylmercury and Total Mercury in the Sacramento-San Joaquin Delta Estuary* (Sacramento-San Joaquin Delta Mercury TMDL). This TMDL helps attain the beneficial uses of fishing and wildlife in the Delta by lowering fish mercury levels in the Delta (CVRWQCB, 2010).

Because this TMDL applies to all water bodies within the legal boundaries of the Delta, no entities in the Merced Region are directly subject to this TMDL (CVRWQCB, 2010). However, due to the presence of mercury and methylmercury in the Merced Region and the Region's location upstream of the Delta, this TMDL is relevant to stormwater planning in the Region and projects implemented in the Region may help support achievement of TMDL goals.

Dissolved Oxygen

Dissolved oxygen in the Merced Region is addressed by Resolution No. R5-2005-0005, *Amending the Water Quality Control Plan for the Sacramento River and San Joaquin River basins for the Control Program for Factors Contributing to the Dissolved Oxygen Impairment in the Stockton Deep Water Ship Channel.* Approved in 2005, this TMDL addresses oxygen demanding substances that have the potential to

consume (or contribute to the growth of substances that have the potential to consume) oxygen from the water column (CVRWQCB, 2005a). The purpose of this TMDL is to achieve compliance with the Basin Plan dissolved oxygen WQOs in the Stockton Deep Ship Water Channel. This TMDL covers the San Joaquin River watershed that drains downstream of Friant Dam and upstream of the confluence of the San Joaquin River and Disappointment Slough, except above major reservoirs on the western slope of the Sierra Nevada foothills (CVRWQCB, 2005a).

Salt and Boron

Salt and boron in the Merced Region are addressed by Resolution No. R5-2004-0108, *Amendments to the Water Quality Control Plan for the Sacramento River and San Joaquin River Basins for the Control of Salt and Boron Discharges into the Lower San Joaquin River* (Lower San Joaquin River Salt and Boron). Approved by the USEPA in 2006, this TMDL helps achieve existing salinity and boron WQOs for the Lower San Joaquin River at Vernalis (CVRWQCB, 2004). The waste load allocations (WLAs) established by this TMDL are concentration-based and set equal to existing salinity WQOs for the Lower San Joaquin River near Vernalis (CVRWQCB, 2004). The CVRWQCB, USBR, and local water districts are responsible for implementing salinity controls.

Diazinon and Chlorpyrifos

Diazinon and chlorpyrifos in the Merced Region are addressed by three TMDLs, each covering different geographic areas. In 2006, Resolution No. R5-2005-0138, *Amendments to the Water Quality Control Plan for the Sacramento River and San Joaquin River Basins for the Control of Diazinon and Chlorpyrifos Runoff into the Lower San Joaquin River* (Lower San Joaquin River Diazinon and Chlorpyrifos TMDL) became effective. This was the first TMDL addressing pesticide use in the Merced Region and set numeric WQOs for diazinon and chlorpyrifos (CVRWQCB, 2005b).

Building on the Lower San Joaquin River Diazinon and Chlorpyrifos TMDL, the CVRWQCB passed Resolution No. R5-2006-0061, *Amendments to the Water Quality Control Plan for the Sacramento River and San Joaquin River Basins for the Control of Diazinon and Chlorpyrifos Runoff into the Sacramento-San Joaquin Delta* (Sacramento-San Joaquin Delta Diazinon and Chlorpyrifos TMDL), which took effect in 2007. This TMDL extended the WQOs set by the first TMDL to the Delta Waterways. The CVRWQCB is responsible for development and implementation of management practices to meet this TMDL (CVRWQCB, 2006).

In August 2017, the CVRWQCB and USEPA approved Resolution No. R5-2014-0041, *Amendments to the Water Quality Control Plan for the Sacramento River and San Joaquin River Basins for the Control of Diazinon and Chlorpyrifos Discharges* (Central Valley Pesticide TMDL). The Central Valley Pesticide TMDL further expands the two prior TMDLs and applies the same maximum chlorpyrifos and diazinon concentrations established by the Lower San Joaquin River Diazinon and Chlorpyrifos TMDL to additional water bodies in the Central Valley (CVRWQCB, 2014).

National Pollutant Discharge Elimination System (NPDES)

The Clean Water Act prohibits the discharge of pollutants from a point source unless a NPDES permit is granted. A NPDES permit limits what can be discharged, outlines monitoring and reporting requirements, and sets forth other provisions that protect water quality and public health. A NPDES permit provides two levels of control: technology-based limits and water quality-based limits.

The two basic types of NPDES permits issued are individual and general permits. Individual permits are specifically tailored to an individual facility, such as a wastewater treatment plant. A general permit covers a group of dischargers with similar characteristics within a given geographical location. NPDES permits

that apply to the Merced Region include the Construction General Permit, the Industrial General Permit, and the MS4 Permit. These permits are described in more detail below.

Construction General Permit

Construction projects that disturb one or more acres of soil or whose projects disturb less than one acre but are part of a larger common plan of development that in total disturbs one or more acres are required to obtain coverage under the General Permit for Discharges of Storm Water Associated with Construction Activity (Construction General Permit Order 2009-0009-DWQ). Construction activity subject to this permit includes clearing, grading and disturbances to the ground such as stockpiling or excavation, but does not include regular maintenance activities performed to restore the original line, grade, or capacity of a facility. The Construction General Permit requires the development of a Storm Water Pollution Prevention Plan (SWPPP) by a certified Qualified SWPPP Developer.

Projects included in the Merced Region SWRP would be required to comply with the Construction General Permit, and prepare a SWPPP, if they involve construction activities as identified by the permit.

Industrial General Permit

The Statewide General Permit for Storm Water Discharges Associated with Industrial Activities (Industrial General Permit Order 2014-0057-DWQ) implements the federally-required stormwater regulations in California for stormwater associated with industrial activities discharging to waters of the U.S. The Industrial General Permit regulates discharges associated with 10 federally defined categories of industrial activities. Industrial facilities such as manufacturers, landfills, mining, steam generating electricity, hazardous waste facilities, transportation with vehicle maintenance, larger sewage and wastewater plants, recycling facilities, and oil and gas facilities are typically required to obtain Industrial General Permit coverage. The SWRCB and RWQCBs implement and enforce the Industrial General Permit.

Projects included in the Merced Region SWRP would be required to comply with the Industrial General Permit if they involve industrial operations as identified by the permit.

Municipal Separate Storm Sewer System (MS4) Permit

An MS4 is a conveyance or system of conveyances that is:

- owned by a state, city, town, village, or other public entity that discharges to waters of the U.S.,
- designed or used to collect or convey stormwater (e.g., storm drains, pipes, ditches),
- not a combined sewer, and
- not part of a sewage treatment plant, or publicly owned treatment works (POTW).

The SWRCB issued a Phase II Small MS4 General Permit (Permit Number CA000004, Water Quality Order No. 2013-0001 DWQ) which was adopted and then became effective on July 1, 2013. The MS4 General Permit requires regulated small MS4s in urbanized areas, as well as small MS4s outside the urbanized areas that are designated by the permitting authority, to obtain NPDES permit coverage for their stormwater discharges. Each regulated MS4 is required to develop and implement a stormwater management program/approach to reduce and/or eliminate the discharge of pollutants from the MS4 to the maximum extent practicable (MEP) and effectively prohibit discharges of non-stormwater into its MS4, unless such discharges are authorized.

The Merced Storm Water Group (MSWG), a coalition of municipalities consisting of the City of Atwater, City of Merced and Merced County, developed the SWMP (Stantec, 2007). The SWMP is implemented to limit, to the MEP, the discharge of pollutants from the MSWG's storm sewer systems. The development

and implementation of the SWMP is to fulfill requirements of storm water discharges from Small MS4 operators in accordance with Section 402(p) of the CWA. The core objectives of the SWMP are to:

1. Identify and control those pollutants in urban runoff that exceed WQOs, as measured in the waters of the State and waters of the U.S., and protect the beneficial uses of the receiving waters;
2. Comply with the federal and State regulations to eliminate or control, to the MEP, the discharge of pollutants associated with urban runoff from the stormwater drainage system;
3. Develop a cost-effective program which focuses on the prevention of pollution in urban stormwater;
4. Seek cost-effective alternative solutions where prevention is not a practical solution for exceedances of WQOs; and
5. Coordinate the implementation of control measures with other agencies.

As part of the SWMP – and as required by the Phase II Small MS4 General Permit – the MSWG developed a Program Effectiveness Assessment and Improvement Plan (PEAIP). Published in 2015, the PEAIP addresses the MS4 Permit requirements as outlined in Provision E.14. The PEAIP also includes the strategy that the MSWGs will use to track the short- and long-term effectiveness of the stormwater program, the specific measures that will be used to assess the effectiveness of the prioritized best management practices (BMPs), groups of BMPs , and/or the stormwater program as a whole, and a description of how the information obtained through the PEAIP will be used to improve the stormwater program. BMPs identified in the PEAIP include pollution prevention/good housekeeping, construction site stormwater runoff control, and illicit discharge detection and elimination (Carrasquillo, 2015).

Waste Discharge Requirements (WDRs) Program

The Waste Discharge Requirements (WDRs) Program falls under SWRCB's Land Disposal Program which implements statewide regulations for sites and facilities where waste is discharged to land. Requirements for siting, operation, and closure of waste disposal sites are enforced through the issuance of WDRs and compliance and enforcement efforts to ensure adequate protection of water quality. Generally, the WDR Program regulates point discharges that are exempt pursuant to Subsection 20090 of Title 27 and not subject to the Federal Water Pollution Control Act, and that meet, and continue to meet, the preconditions listed for each specific exemption. Exemptions from Title 27 may be granted for nine categories of discharges including sewage, wastewater, underground injection, RWQCB cleanup actions, gas condensate, soil amendments, drilling units, reuse, and waste treatment in fully enclosed facilities. Projects included in the Merced Region SWRP would be required to comply with the WDR Program if they are not regulated under Title 27.

3.1.2 Consistency with IRWMPs and Other Local Plans

As further discussed Section 4.1, the Merced Integrated Regional Water Management Authority (MIRWMA), the regional water management group (RWMG) for the Merced IRWM region, administers and manages the SWRP planning process, providing overall direction and coordination with a RAC serving in an advisory role. The Merced SWRP was prepared in parallel with the MIRWMP Update. The same entities prepared both plans and participated in meetings and workshops. Upon completion of the SWRP, MIRWMA will adopt the Plan and it will be incorporated into the MIRWMP update by reference. The SWRP was made available for public comment and stakeholder review, and comments were incorporated to ensure consistency with local plans. RAC and MIRWMA members, each representing a different agency or interest within the Merced Region, also assisted in preparation of the SWRP and helped to ensure it was consistent with their respective local planning documents. In addition, during development of the SWRP, MIRWMA coordinated with various local planning organizations to confirm consistency between the SWRP and other local planning documents. For example, the Public Draft of the SWRP was provided to the Merced County Mosquito Abatement District for review and comment regarding mosquito and vector control.

SWRP Guideline Requirements Addressed in Section 3.1.2:

- ✓ Plan identifies (1) the existing IRWM group to which the Plan will be submitted, (2) other local plans that may affect or be affected by the plan (e.g., local watershed plans, groundwater management plans, salt and nutrient management plans), as applicable.
- ✓ Plan was vetted through local mosquito and vector control districts and maps and maintenance plans provided for comment.
- ✓ Plan discusses how the various stormwater management objectives within the watershed will protect or improve water quality, water supply reliability, and/or achieve other objectives.
- ✓ Plan includes a discussion of the added benefits to integration of multiple stormwater management strategies, as compared to stand-alone projects.
- ✓ Plan discusses how its objectives and projects fit into the broader water management goals of the applicable IRWM group.

Projects included in the SWRP will help address a variety of watershed goals and objectives, including protecting or improving water quality and water supply reliability. The SWRP also supports the broader water management objectives outlined in the MIRWMP. Table 3-3 highlights which of the 12 MIRWMP objectives are supported by the SWRP. While every SWRP project has unique goals and objectives, each project supports at least one MIRWMP goal. In addition, there are some projects that integrate multiple stormwater management strategies to meet multiple objectives. MIRWMA recognizes the added benefits provided to the region and watershed by projects that are able to integrate multiple stormwater management strategies. For example, the Fairfield Canal/El Nido Superhighway project would increase flood flow capacity while also providing storage; flood flows could also be conveyed to benefit wildlife refuges.

Table 3-3: MIRWMP Objectives Supported by the SWRP

Merced IRWM Objective	Supported by SWRP?	Example SWRP Project
Correct groundwater overdraft conditions, promote direct and in-lieu recharge, and identify supplemental water.	✓	Atwater-McSwain Regulating/Recharge Basin
Manage flood flows and stormwater runoff (including those caused by climate change) for public safety, water supply, recharge, and natural resource management.	✓	Bear Reservoir Enlargement and Downstream Levee and Channel Improvements
Meet demands for all uses, including agriculture, urban, and environmental resource needs	✓	Black Rascal Creek Flood Control Bypass/ Supplemental Groundwater Supply Improvements
Improve coordination of land use and water resources planning.	✓	While no project specifically addresses this MIRWMP objective, the SWRP itself helps support this objective
Effectively address climate change adaptation and/or mitigation in water resource management and infrastructure.	✓	McCoy Lateral Regulating Basin
Maximize water use efficiency, including expanding in-lieu recycled water projects where feasible.		
Protect and improve water quality for all beneficial uses, consistent with the Basin Plan.	✓	Black Rascal Creek Flood Control Project
Protect, restore, and improve natural resources.	✓	Black Rascal Creek Flood Control Bypass/ Supplemental Groundwater Supply Improvements
Address water-related needs of DACs.	✓	El Nido Recharge Basin
Protect and enhance water-associated recreation opportunities.		
Establish and maintain effective communication among water resource stakeholders in the Region.	✓	City of Merced Storm Drain Master Plan Update
Enhance public understanding of water management issues and needs.	✓	Rice Field Pilot Study Monitoring Wells

Once complete, the SWRP will be formally adopted by MIRWMA. In addition to the MIRWMP, other local plans that may affect or be affected by the SWRP include the Merced County General Plan, City of Merced General Plan, Urban Water Management Plans (UWMPs), Agricultural Water Management Plans (AWMPs), Merced Groundwater Sustainability Plan, climate action plans, and master plans for water, sewer, and stormwater. Each of these planning documents is discussed in more detail in Section 4.3.

3.2 Pollutant-Generating Activities

Table 3-1 above indicates the pollutants for each impaired water body in the Merced Region, which includes pollutants such as chlorpyrifos, toxicity, and bacteria. These pollutants are primarily generated by agricultural, resource extraction, and municipal/industrial activities (CVRWQCB, 2018). These major pollutant-generating activities are discussed in the following sections.

SWRP Guideline Requirements Addressed in Section 3.2:

- ✓ Plan identifies activities that generate or contribute to the pollution of storm water or dry weather runoff, or that impair the effective beneficial use of storm water or dry weather runoff.

3.2.1 Agriculture

Agriculture is the heart of Merced County's economy. In 2016, Merced County agriculture commodities grossed nearly $3.5 billion (Merced County, 2016b). Merced County is known for being a top producer of milk, almonds, chickens, cattle and calves, and sweet potatoes. Nearly 90 percent of all sweet potatoes consumed in California are grown in Merced County (Merced County Department of Agriculture, 2017).

As a result of agricultural activities in Merced County, stormwater and dry weather runoff from these areas is a significant contributor to pollutant loading of water bodies in the region. Agricultural runoff contributes to a number of pollutants of concern (POCs) including salts, nutrients, pesticides, trace elements, and sediments to the watershed (CVRWQCB, 2016b; City of Merced, 2015). Both legacy pesticides (DDE and DDT) and currently-used pesticides (chlorpyrifos) impair water bodies in the Merced Region. Fertilizer use can also result in high nitrate concentrations, which leads to low dissolved oxygen levels. Pesticide toxicity and low dissolved oxygen levels both contribute to fish and aquatic wildlife deaths. In addition, sediment discharge from agricultural areas can impair fisheries. Sediment also serves as a transport mechanism for compounds that are bound to soil particles, such as mercury and other heavy metals. Agricultural support activities associated with applying pesticides, disposing of pesticide rinse waters, and formulation of pesticides and fertilizers also contribute to the overall agricultural pollutant load. Animal confinement operations, such as dairy and egg production, also contribute significant nutrient and bacterial loads to the surrounding water bodies due to animal waste. Ammonia, nitrate, TDS, and coliform bacteria can all be attributed to animal confinement operations (CVRWQCB, 2016b).

3.2.2 Resource Extraction

Mineral extraction in the Region has increased in recent years due to technological advances which use cyanide and other reagents to cost-effectively extract gold from large volumes of ore. When improperly managed, mining materials such as ore, reagents, and tailings, have the potential to leach toxic materials such as mercury and arsenic into surface water bodies and groundwater (CVRWQCB, 2016b; City of Merced, 2015). Contaminated runoff can also occur at abandoned mining sites.

3.2.3 Municipalities and Industries

Municipal and industrial activities introduce a variety of POCs into stormwater. Urban stormwater runoff picks up a variety of pollutants from impermeable surfaces, including petroleum products from cars and roads, bacteria from pet waste, solvents and wood preservatives, heavy metals, and sewage from areas that experience sewer backups during storms (CVRWQCB, 2016b; City of Merced, 2015). Trash is also a common impairment in urban areas. Recognizing the importance of managing pollutants resulting from municipal and industrial activities, the SWMP was implemented, as discussed above. One of the overall goals of the SWMP is to reduce the potential water quality impacts of pollution from urban areas (CVRWQCB, 2016b).

3.3 Water Quality Monitoring

The Merced Region's MS4 Permit (Permit Number CA000004, Water Quality Order No. 2013-0001 DWQ) became effective on July 1, 2013. The MS4 General Permit requires regulated small MS4s in urbanized areas, as well as small MS4s outside the urbanized areas that are designated by the permitting authority, to obtain NPDES permit coverage for their stormwater discharges. Water quality monitoring in the Merced Region is conducted in accordance with the requirements in the Region's MS4 Permit. Small MS4 Permittees, such Merced County, are required to conduct monitoring of discharges to Areas of Biological Significance, TMDLs, or 303(d) impaired water bodies. Merced County prepares an annual monitoring checklist in accordance with the MS4 Permit and conducts monitoring in accordance with the Permit (primarily visual monitoring). In the future Merced County will be required to conduct monitoring of dissolved oxygen associated with the San Joaquin River Dissolved Oxygen TMDL, however, the implementation plan for this work is not due until December 2020. Monitoring in the City of Atwater also occurs in accordance with the MS4 Permit; storm water is only required to be sampled if discharge is observed during outfall inspections outside of a rain event.

SWRP Guideline Requirements Addressed in Section 3.3:

- ✓ To assess the effectiveness of Plan implementation on a watershed basis, Plan includes a monitoring component to collect statistically meaningful data.
- ✓ Plan includes monitoring requirements associated with applicable MS4 permit(s) and/or funding contracts.
- ✓ Plan states that for individual projects within a watershed that may impact or have a potential to impact water quality, a monitoring component that ensures the integration of existing local, regional, or statewide monitoring efforts is included.
- ✓ Plan states that watershed-wide and individual project data should be stored in centralized local, regional, or statewide water quality data collection systems.

All existing stormwater-related monitoring efforts conducted in the Merced Region support this SWRP and its objectives. Data collected as part of monitoring activities will be integrated into the SWRP and used to develop baseline understanding of water quality conditions, inform SWRP projects, and inform future stormwater management strategies. For all SWRP projects that may impact water quality, a monitoring component that ensure the integration of existing local, regional, or statewide monitoring efforts will be included. Projects that are implemented with grant or loan funding from state or federal entities will perform monitoring as required by the funding contract. Data at a watershed and individual project level may be stored in the online project database, as appropriate for the data collected. More information on data management can be found in Chapter 5.

Merced Stormwater Resources Plan

Chapter 4 Organization, Coordination, Collaboration (VI.B)

SWRP Guideline Requirements Addressed in Section 4.1:

- ✓ Local agencies and nongovernmental organizations were consulted in Plan development.
- ✓ Plan includes description of the existing IRWM groups implementing an IRWMP.
- ✓ Plan includes identification of and coordination with agencies and organizations (including, but not limited to public agencies, nonprofit organizations, and privately-owned water utilities) that need to participate and implement their own authorities and mandates in order to address the storm water and dry weather runoff management objectives of the Plan for the targeted watersheds.
- ✓ Plan includes identification of nonprofit organizations working on storm water and dry weather resource planning or management in the watershed.

4.1 Coordination with Local Planning Organizations

The development of the Merced SWRP was an extensive collaborative effort that hinged on contributions by multiple entities, including local agencies and nongovernmental organizations throughout the Merced IRWM Region. Collaboration and coordination increases the ability of agencies and governments to implement stormwater projects with wide benefits to multiple organizations. This chapter discusses the various levels and methods of coordination that occurred during preparation of this SWRP.

4.1.1 Merced SWRP Governance

Merced Integrated Regional Water Management Authority (MIRWMA)

MIRWMA, the RWMG for the Merced IRWM region, administers and manages the SWRP planning process, providing overall direction and coordination with a RAC serving in an advisory role. In 2016, MIRWMA was formed as a Joint Powers Authority to assume this role as RWMG for the Merced IRWM Region. MIRWMA is composed of the MID, Merced County, and the cities of Merced, Livingston, and Atwater. Collectively these agencies have jurisdiction over all the incorporated and unincorporated areas and associated interests of both urban and agricultural communities of the Region. No state- or federally-recognized Native American tribal communities were identified in the Region. Should any be recognized in the future, the governance structure would be revised to provide for their participation in MIRWMA should they be interested.

The governing bodies of MIRWMA member agencies collectively form the governing body of the RWMG, and elected officials and staff members from each MIRWMA member agencies coordinate through the Management and Policy committees as further described in the following sections.

The Management Committee

The Management Committee, comprised of staff from each MIRWMA member agency, is responsible for managing the day-to-day business, and serves as a bridge between the management and planning sides of SWRP and IRWMP development and implementation. As nonvoting participants, Management Committee

members support RAC meetings by providing information to support RAC decision-making and share MIRWMA member agency perspectives. Current Management Committee members are listed in Table 4-1.

Table 4-1: Current Management Committee Members

Representative	Agency
Justin Vinson	City of Atwater
Jose Antonio Ramirez	City of Livingston
Stephanie Dietz	City of Merced
Ken Elwin	City of Merced
Lacey Kiriakou	Merced County
Hicham Eltal	Merced Irrigation District
Daniel Chavez	Planada Community Services District (DAC)
Cynthia Benavidez	Le Grand Community Services District (DAC)

MIRWMA Board of Directors

The MIRWMA Board of Directors, comprised of one official from each MIRWMA member agency, is tasked with advising MIRWMA governing bodies on SWRP- and IRWMP-related business and policy based on recommendations of the RAC and Management Committee. Meetings of the MIRWMA Board of Directors are open to the public and include participation from each Board member, Management Committee members, and a RAC member appointed by the RAC to serve as a liaison to the Board. Current Board of Directors members are listed in Table 4-2.

Table 4-2: Current MIRWMA Board of Directors Members

Representative	Agency
Jim Vineyard	City of Atwater
Vacant	City of Livingston
Mike Murphy	City of Merced
Daron McDaniel	Merced County
Jeff Marchini	Merced Irrigation District

Regional Advisory Committee (RAC)

The RAC that advised MIRWMA through development of the SWRP included 16 members representing broad interests and perspectives in the Region related to water management, land use, natural resources and community stewardship. The purpose of the RAC is to review regional water management issues and needs, plans, projects, and work products developed throughout the ongoing SWRP process. The RAC is formed through a public process that has been, and will continue to be, used to continue stakeholder involvement throughout SWRP implementation. The RAC Charter is included as Appendix B.

In January 2018, MIRWMA released an open invitation for community and business representatives to serve on a Regional Advisory Committee for the IRWMP update and SWRP development. This process was advertised by MID, Merced County and the City of Merced via email, announcements in other water-related meetings (e.g., GSA coordination meetings), and personal outreach. Individuals with demonstrated

commitment to community service and civic leadership, prior experience participating on similar task forces and advisory committees, and an understanding of water issues, or who represent the diversity of the region, including community, business, agriculture, environmental and recreational perspectives on water, wastewater, groundwater, flood management, and water quality were encouraged to apply to serve on the RAC. Interests represented on the RAC include:

- Water Supply Interests (including water purveyors and self-supplied water users)
- Wastewater Interests (including wastewater agencies)
- Stormwater Interests
- Flood Control Interests (including flood control agencies)
- Local Government (municipal and county governments and special districts)
- Agricultural Interests
- Other Non-Agricultural Business Interests (including industry organizations and electrical corporations)
- Environmental Interests (including environmental stewardship organizations)
- Other Institutional Interests (including UC Merced)
- Disadvantaged Community and Environmental Justice Interests
- Recreational Interests
- Community/Neighborhood Interests

Individuals who are not members of the RAC but are interested in maintaining active involvement in the SWRP process are encouraged to do so. All monthly RAC meetings are open to the public to allow any interested parties to participate in the SWRP development and implementation.

4.1.2 Other Coordination

Public Meetings and Project Solicitation

Additional agency involvement occurred during the project solicitation period when MIRWMA member agencies, RAC committee member agencies, and other entities within the SWRP planning area were encouraged to submit projects via the SWRP's online project database (also used for the MIRWMP, providing efficiencies for when entities enter projects into both plans). During the solicitation period from July 9, 2018 through August 31, 2018, a total of 21 projects were submitted. The online project database allows project information to be viewed by anyone and promotes coordination in the future as agencies can stay informed regarding projects throughout the Region. Additional information regarding the Merced online project database can be found in Chapter 8.

Both organizations and members of the public participated in SWRP development through public meetings. During SWRP preparations, two public workshops were held and comments on the Public Draft SWRP were encouraged. Coordination via public outreach is discussed further in Chapter 8.

Project Proponents

Project proponents comprise an additional stakeholder group formed during project solicitation. Project proponents are the agencies and organizations responsible for SWRP project implementation and, like other stakeholders, are encouraged to maintain active involvement in the SWRP process. Project proponents can volunteer to serve on the RAC or may participate as the public. Since project proponents are the entities implementing SWRP projects, their involvement is necessary to address SWRP objectives.

Merced IRWM Region

The Merced SWRP planning area and IRWM region share the same boundaries and are both overseen by MIRWMA. Due to the significant overlap, the two plans share the same online project database system, which promotes increased coordination between these two efforts. In addition, entities coordinating on the MIRWMP (MIRWMA, the RAC, and other stakeholders) are the same entities that prepared the SWRP. This overlap in agencies, coordination, and collaboration provides a deeper understanding of parallels in the planning efforts. Upon completion, the SWRP will be incorporated into the MIRWMP by reference.

4.1.3 Implementation Authority

To achieve the benefits associated with SWRP project implementation, a range of agencies would need to exercise their authority. Depending on the project location, type, and lead agency, the agencies or organizations involved would differ. Participation and coordination among these project proponents are critical for the goals of the SWRP to be achieved.

The primary entities necessary for stormwater management are the local jurisdictions: the County of Merced (the lead agency providing stormwater management within the unincorporated areas of the Region) and the cities of Atwater, Livingston, and Merced where stormwater management is the responsibility of the individual jurisdiction.

On a local scale, planning and implementation of stormwater and dry weather runoff capture projects listed in the SWRP will be the responsibility of project proponents. This stakeholder contingency will largely consist of MIRWMA member agencies, RAC committee member agencies, and other entities within the planning area.

4.1.4 Non-profit Organizations

Non-profit organizations in the County that work on stormwater and dry weather runoff planning or management, or would be interested in these efforts, include:

- East Merced Resources Conservation District
- Self-Help Enterprises
- San Joaquin Raptor Rescue Center
- The Nature Conservancy

These organizations are included on the SWRP stakeholder contact list and received information related to project submittal, public workshops, and the SWRP public draft.

4.2 Community Participation

During development of the SWRP, MIRWMA and the RAC continued to reach out to interested parties by personally contacting potentially interested individuals and hosting public workshops. The workshops were advertised through public service announcements, newspaper advertisements, web postings and email distribution lists. A joint stakeholder list for the MIRWMP and Merced SWRP was prepared,

SWRP Guideline Requirements Addressed in Section 4.2:

- ✓ Community participation was provided for in Plan development.
- ✓ Plan includes identification and discussion of public engagement efforts and community participation in Plan development.

based on the 2013 MIRWMP stakeholder list, and was updated with contact information provided by individuals attending the public workshops and with interested parties identified as part of the Merced Groundwater Sustainability Plan (GSP). In addition to the two public workshops, the public was able to participate via submission of projects to the SWRP, submission of comments on the Public Draft SWRP, and participation in RAC meetings (Table 4-3).

Table 4-3: Public Meetings

Meeting	Date
Call for Projects	July 9-August 31, 2018
Public Workshop #1	July 11, 2018
Public Draft SWRP	January 2019
Public Review Period	February-March 2019 (30 days)
Public Workshop #2	January 23, 2019
Final SWRP	March 2019

Community involvement in the SWRP is discussed further in Chapter 8.

4.3 Relation to Other Planning Documents

SWRP Guideline Requirements Addressed in Section 4.3:

- ✓ Plan describes the relationship of the Plan to other existing planning documents, ordinances, and programs established by local agencies

The SWRP does not replace other local planning documents, but rather uses these existing documents and plans to develop a regional framework for understanding stormwater management. Flood protection and stormwater management intrinsically build upon local planning efforts, since flooding issues can be either managed or exacerbated depending on the location and extent of impervious surfaces within the area. In addition, stormwater runoff quality and quantity are directly influenced by the type, location, and density of adjacent development. The relationship and linkages between these local planning documents and the SWRP are described in Table 4-4.

Table 4-4: SWRP Consulted Local Planning Documents

Planning Document	Relation to SWRP
Merced County General Plan	Implemented stormwater projects would need to be consistent with the County's General Plan which details critical stormwater planning information, such as the Region's current and proposed land use and build out. This SWRP and its implemented projects will contribute to the General Plan's goals, such as Land Use Element Goal 7 ("Ensure that development in county/city fringe areas is well planned and adequately serviced by necessary public facilities and infrastructure") and Public Facilities and Services Element Goal 3 ("Ensure the management of stormwater in a safe and environmentally sensitive manner through the provision of adequate storm drain facilities that protect people, property, and the environment").
City General Plan	Stormwater projects implemented through this SWRP would also need to be consistent with the City General Plans for Merced, Livingston, and Atwater. Collectively, these agencies have jurisdiction over all the incorporated and unincorporated areas and associated interests of both urban and agricultural communities of the Region.
Urban Water Management Plans (UWMPs)	By law, UWMPs are prepared by urban water suppliers every five years to support the suppliers' long-term resource planning to ensure that adequate water supplies are available to meet existing and future water needs. Since these documents provide detail such as water system descriptions, supplies and demands, and supply reliability, they can influence and inform how SWRP projects are implemented should any mutual benefits exist (such as a groundwater replenishment project which can capture stormwater and improve the system's water supply). Only the City of Merced prepared a 2015 UWMP.
Agricultural Water Management Plans (AWMPs)	Like UWMPs, AWMPs provide water use and quality information for large agricultural portions of the Region's unincorporated areas. MID and Long Tree Mutual Water Company each prepared an AWMP in 2016.
Groundwater Sustainability Plan (GSP)	The passage of the Sustainable Groundwater Management Act in 2014 established a new structure for managing California's groundwater resources at the local level by local agencies. Categorized as a high priority basin, the Merced Region was required to form one or more Groundwater Sustainability Agency and develop and implement one or more GSPs. The Merced GSP will cover the SWRP area, and SWRP project implementation will need to be consistent with the goals and additional stormwater projects proposed in this plan
Water, Sewer, and Stormwater Master Plans	Master planning documents detail an agency's current infrastructure and identifies projects that may be implemented in the future to supply projected growth and build out. SWRP projects can be incorporated into these master plans when they are updated. The cities of Merced, Livingston, and Atwater have master plans.
Integrated Regional Water Management Plans (IRWMPs)	The Merced SWRP is like the MIRWMP in that they share the same boundaries (Merced IRWM region), are governed by the same agencies (MIRWMA and RAC), and compile information from agencies and the community throughout the region on proposed projects to achieve regional stormwater management goals. Projects proposed in the SWRP are also included in the MIRWMP, meaning public participation and input garnered through both efforts can increase community outreach.

Planning Document	Relation to SWRP
Climate Action Plan	Climate action plans outline a region's strategy to reduce greenhouse gas emissions, as well as address projected local climate change impacts and potential mitigation measures. SWRP project implementation will need to comply with guidelines set out in these plans since construction has the potential to contribute to these impacts. Currently, the City of Merced is the only agency with a Climate Action Plan. Merced County is currently developing a Climate Action Plan.

4.4 Collaboration

MIRWMA and its committees were formed in 2016 to assume responsibility for continued IRWMP and SWRP preparation and updates in coordination with the RAC (Section 4.1.1). In addition to the regular meetings of the RAC and MIRWMA Board of Directors, the SWRP program provides two web-based venues for local agencies and stakeholders to coordinate and identify opportunities for collaboration: the MIRWMP website and Merced online project database. These resources are discussed further in Chapter 8.

4.4.1 Coordination with Local Agencies

Prior to Plan implementation, the SWRP must be adopted by MIRWMA's member agencies: the MID, County of Merced, and Cities of Merced, Atwater, and Livingston. Adoption of the SWRP is the formal acceptance of the plan and indicates support of the program. Other agencies, such as project proponents, that desire to formally indicate their support for the SWRP are also encouraged to adopt the plan, which may occur at later dates. As MIRWMA members, the following agencies intent to adopt the SWRP: the Cities of Merced, Atwater, and Livingston, Merced County, and MID. Adopting resolutions are included in Appendix B.

Individual SWRP project implementation will occur as project feasibility, funding, and local bureaucracy allows. Funding will occur through agencies implementing their own authority such as, but not limited to, securing grants, establishing general funds, or levying taxes or bonds. Projects and funding would need to be approved by the agency's City Council, Board of Supervisors, Board of Directors, or other administrative committee in compliance with the agency's bylaws and protocols.

SWRP Guideline Requirements Addressed in Section 4.4:

- ✓ Plan includes identification of required decisions that must be made by local, state, or federal regulatory agencies for Plan implementation and coordinated watershed-based or regional monitoring and visualization
- ✓ Plan describes planning and coordination of existing local governmental agencies, including where necessary new or altered governance structures to support collaboration among two or more lead local agencies responsible for plan implementation.
- ✓ Plan explains why individual agency participation in various isolated efforts is appropriate.

Continued coordination with local permitting authorities will also be critical to the implementation of projects in the SWRP. In the Merced IRWM Region, if a stormwater project has the potential to impact human health or environmental health quality (such as a stormwater project that contributes to groundwater recharge), then the primary agency with permitting authority is the Merced County Environmental Health Division. Merced County is engaged in the SWRP

as a member of MIRWMA and the Environmental Health Division is specifically represented by the Merced County's Management Committee staff member.

4.4.2 Coordination with State and Federal Agencies

Project implementation relies heavily on funding secured through state and federal agencies as grants and low interest loans. When funding is received from these sources, ongoing coordination is required during and following project implementation. In addition to local permitting agencies, coordination and approval may be required from federal and state agencies, and CEQA/National Environmental Policy Act (NEPA) environmental reviews may need to be conducted. These state and federal permitting/environmental agencies may include but are not limited to: U.S. Army Corps of Engineers (USACE), USEPA, U.S. Department of Fish and Wildlife Service, SWRCB, California Department of Fish and Wildlife, and California EPA.

For some projects (such as those funded through the Prop 1 Storm Water or IRWM grant programs) monitoring may be required following project completion. The type and degree of monitoring will be project specific, and project proponents are responsible for uploading the required monitoring information to the designated state database.

Merced Stormwater Resources Plan

Chapter 5 Quantitative Methods (VI.C)

5.1 Quantitative Methods Overview

All SWRPs must include "a metrics-based and integrated evaluation and analysis of multiple benefits to maximize water supply, water quality, flood management, environmental, and other community benefits within the watershed" (California Water Code, § 10562 (b)(2)). As part of developing a SWRP, quantitative methodologies for identifying and prioritizing stormwater and dry weather runoff capture projects must be identified. The quantitative methodologies used in this SWRP consist of the following main components:

- Project scoring methodology
- Quantitative methods used by project proponents to estimate project benefits
- Aggregation of all benefits of SWRP projects

SWRP Guideline Requirements Addressed in Section 5.1:

✓ Plan includes an integrated metrics-based analysis to demonstrate that the Plan's proposed storm water and dry weather capture projects and programs will satisfy the Plan's identified water management objectives and multiple benefits.

The following sections discuss the details of quantitative methodologies used in the SWRP. These include the project scoring methodology, methods of estimating project benefits, and the method for assessing overall benefits of the SWRP. This chapter summarizes the specific metrics used to quantify benefits in each of the SWRP categories (water quality, water supply, flood management, environmental, and community). The chapter also describes tools that may be used by project proponents to quantify project benefits (e.g., available models) and the method used for determining the total benefits of SWRP projects. These collective benefits of the SWRP are used to evaluate the SWRP's potential progress toward achieving its stormwater management goals (i.e., attaining the benefits listed in the SWRP).

5.2 Benefit Metrics

As noted above, the SWRP Guidelines have established five different categories of benefits that are of interest in relation to stormwater planning. These are: water quality, water supply, flood management, environmental, and community benefits. The SWRP Guidelines also established specific main and additional benefits within each of these five categories (SWRCB, 2015). The main benefits within each category are listed in Table 5-1, and the additional benefits are shown in Table 5-2. Specific quantitative metrics were identified for the main and additional benefits; these metrics are also displayed in Table 5-1 and Table 5-2.

The benefits listed in Table 5-1 and Table 5-2 were developed based on the SWRP Guidelines. Specific metrics for each main and additional benefits were established with input from the RAC during SWRP development. The specific benefit metrics were then used in the project prioritization methodology (discussed in Section 6.3) created to reflect the Region's stormwater management priorities (for example, the methodology includes consideration of benefits to DACs, which make up a large proportion of the Region).

Table 5-1: SWRP Main Benefits and Quantitative Metrics

Benefit Category	Benefit	Quantitative Metrics
Water Quality Benefits	Increased filtration and/or treatment of runoff	• Average annual pollutant load reduction (unit varies by pollutant) • Volume of water treated (mgd) • Volume of runoff infiltrated (AFY)
Water Supply Benefits	Water supply reliability	• Increase in water supply through direct groundwater recharge (AFY) • Increase in water supply through direct use (AFY)
	Conjunctive use	• Increase in water supply through in lieu recharge/conjunctive use (AFY)
Flood Management Benefits	Decreased flood risk by reducing runoff rate and/or volume	• Reduction in peak flow discharge (cfs) • Reduction in volume of potential flood water (AFY)
Environmental Benefits	Environmental habitat protection and improvement, including wetland enhancement/creation, riparian enhancement, and/or instream flow improvement	• Size of habitat protected or improved (acres) • Amount of instream flow rate improvement (cfs)
	Increased urban green space	• Size of increase in urban green space (acres)
Community Benefits	Employment opportunities provided	• Number of employment opportunities provided
	Public education	• Number of outreach materials provided, or events conducted

Table 5-2: SWRP Additional Benefits and Quantitative Metrics

Benefit Category	Benefit	Quantitative Metrics
Water Quality Benefits	Nonpoint source pollution control	• User-defined
	Reestablished natural water drainage and treatment	• User-defined
Water Supply Benefits	Water conservation	• Reduction in water use (AFY)
Flood Management Benefits	Reduced sanitary sewer overflows	• Reduction in sewer overflow volumes (AFY)
Environmental Benefits	Reduced energy use, greenhouse gas emissions, or provides a carbon sink	• Amount of energy consumption reduced (kilowatt-hours (kWh)/year) • Amount of greenhouse gas emissions reduced (tons/year)
	Reestablishment of natural hydrograph	• User-defined
	Water temperature improvements	• Amount of temperature improvement
Community Benefits	Community involvement	• Number of participants per year
	Enhance and/or create recreational and public use areas	• Estimated visits per year

5.3 Tools for Quantitative Benefit Assessment

The SWRP online database allows project proponents to submit quantitative information about their project's benefits. The quantitative information provided by the project proponents was used to aggregate the benefits associated with each project included in the SWRP. It is the responsibility of project proponents to determine appropriate quantitative methods for calculating the benefits of their project. In some cases, quantitative assessments have been conducted as part of a planning effort or feasibility study undertaken in support of the project. In other cases, the project benefits may be estimates based on the best available information. Below are brief summaries of some quantitative assessment tools that can be used by stormwater project proponents to estimate their project benefits:

- USEPA System for Urban Stormwater Treatment and Analysis Integration (SUSTAIN): SUSTAIN is used to develop plans for flow and pollution control measures to protect source waters and meet water quality goals (USEPA, 2014). SUSTAIN is a decision support system that can analyze multiple projects. It allows the user to develop optimal BMP combinations at various scales and evaluate them based on cost and effectiveness. SUSTAIN performs hydrologic and water quality monitoring and can be used to identify practices that will help achieve water quality objectives.
- USEPA Storm Water Management Model (SWMM) is a dynamic hydrology-hydraulic water quality simulation model used for stormwater planning, analysis, and design (USEPA, 2017). SWMM is primarily useful for assessment of urban areas. SWMM accounts for a range of hydrologic processes that produce runoff and includes a flexible set of hydraulic modeling

capabilities used to route runoff and external inflows through the drainage system network of pipes, channels, storage/treatment units and diversion structures. SWMM can also estimate the production of pollutant loads associated with stormwater runoff and the reduction in pollutant loading attributable to a project. SWMM can also model the performance (including infiltration, percolation, and runoff reduction) of Low Impact Development (LID) stormwater controls.

- The Central Valley Hydrology Study (CVHS) was developed by DWR and the USACE to provide a basis for defining existing hydrologic conditions at locations throughout the Central Valley to support flood management analyses (DWR and USACE, 2015). CVHS includes the following study products: unregulated flow-frequency curves at key locations (201 analysis points) in the Central Valley; unregulated flow-time series; reservoir operations models of Central Valley reservoirs developed in the Reservoir System Simulation (HEC-ResSim) software, and regulated flow-times series (unregulated flows routed through the reservoir simulation model). The unregulated and regulated flow-time series were developed using the USACE Hydrologic Engineering Center's River Analysis System (HEC-RAS). In addition to flow simulations and water quality analyses, HEC-RAS can also be used to map datasets such as floodplain boundaries. SWRP project proponents can use the CVHS models to evaluate flood management benefits related to peak flow discharges and changes in the volume of potential flood water.

5.4 Integrated Metrics-Based Analysis

As discussed in detail in Chapter 6, a Call for Projects was conducted in Summer 2018 for the SWRP. Following the close of the Call for Projects, an integrated metrics-based analysis of project benefits was conducted. This analysis served to quantify the overall benefits of the SWRP (assuming that every project submitted is implemented), thereby demonstrating the SWRP's potential to address stormwater management objectives.

The integrated analysis was supported via the online project database. This database was first developed for use during preparation of the 2013 MIRWMP. For the 2018 MIRWMP update and development of the SWRP, the database was expanded to include fields specific to stormwater and dry-weather runoff projects. This facilitated information-gathering for the integrated analysis. Through the online project database, project proponents can easily submit, review, organize, and update their information electronically. Part of the additions to the database included fields for project proponents to submit information on quantitative benefits of the project (as shown in Table 5-1 and Table 5-2.) Project proponents may submit information for the benefits suggested in the database, or they may provide their own metric for any main or additional benefit. Table 5-3 summarizes the benefits provided by each project in the SWRP.

The integrated analysis was based on the benefit information provided by project proponents. It is assumed that each project proponent has the fullest knowledge of their project and its benefits, and their benefit estimates have been reported as they were submitted to the online project database. Note that the SWRP does include planning documents or feasibility studies which may have provided quantitative benefit information, even though they are not construction projects. In these cases, project proponents may have included benefits that would occur after implementation of the projects included in the documents (see Table 5-3 and notes). These projects have been denoted throughout the following sections as "Non-Construction" projects. In contrast, other projects have been noted as "Construction" projects and are categorized as either "Conceptual" (for projects with no planning yet completed) or "Implementation" (for any project that has progressed past a purely conceptual stage). Project benefits discussed in the following sections have been broken down by these categories in order to accurately represent SWRP benefits.

The SWRP is envisioned to be a living document. Practically, this means that project information will continue to be updated and added in the future, following the completion of this SWRP document. New Calls for Projects will likely occur prior to funding solicitation periods or as needed. The online project database facilitates these updates, as project proponents may add new information at any point as their project progresses (including additional quantitative information about project benefits). As projects are added and updated, more quantitative information will be accrued in the database which will allow for an increasingly thorough analysis of benefits.

The following sections describe the evaluation methods and analysis results for each of the five SWRP benefit categories based on the projects that were submitted during the 2018 Call for Projects.

Table 5-3: SWRP Benefit Summary by Project

Project Name	Project Status	Project Type	Water Quality Benefits	Water Supply Benefits	Flood Management Benefits	Environmental Benefits	Community Benefits
Atwater-McSwain Regulating/Recharge Basin	Planning	Construction		X	X		
Bear Reservoir Enlargement and Downstream Levee and Channel Improvements	Planning	Construction		O	O		
Black Rascal Creek Flood Control Bypass/ Supplemental Groundwater Supply Improvements	Conceptual	Construction		O	X	O	
Black Rascal Creek Flood Control Project	Design	Construction	O	X	X	O	
Burns Reservoir Enlargement and Downstream Levee and Channel Improvements	Planning	Construction		O	O		
City of Merced Storm Drain Master Plan Update	Planning	Plan Development	X	X	O	O	X
Crocker Dam Modification	Conceptual	Construction		X	X	O	
El Nido Recharge Basin	Conceptual	Construction		X	X		O
Fairfield Canal/ El Nido Superhighway	Conceptual	Construction		X	X	O	
Lake Yosemite Booster Pump Station	Conceptual	Construction		X	X	O	
Livingston Canal Lining Project	Construction	Construction		X			
Main Canal at Head Seismic Rehab	Conceptual	Construction		X	O	X	O
Main Canal Offstream Regulating Reservoir Study	Conceptual	Feasibility Study		X	X		
Mariposa Reservoir Enlargement and Downstream Levee and Channel Improvements	Planning	Construction		O	O		
McCoy Lateral Regulating Basin	Conceptual	Construction		X	X		

Project Name	Project Status	Project Type	Water Quality Benefits	Water Supply Benefits	Flood Management Benefits	Environmental Benefits	Community Benefits
Merced Groundwater Subbasin LIDAR	Conceptual	Plan Development	O	X	X	O	
Merced Irrigation Flood-MAR Canal Automation	Conceptual	Construction		X	X		
Owens Reservoir Enlargement and Downstream Levee and Channel Improvements	Planning	Construction		O	O		
Real Time Simulation Flood Control Modeling - Bear Creek	Conceptual	Plan Development		X	X		
Rice Field Pilot Study Monitoring Wells	Planning	Construction		X	O	O	O
Study for Potential Water System Intertie Facilities from Merced I.D. to LeGrand-Athlone W.D. and Chowchilla W.D.	Conceptual	Feasibility Study		X	O		X

Notes: X = project provides a quantitative benefit; O = projects provides a benefit, but quantitative information was not submitted. In some cases, quantified benefits were entered for a non-construction project (e.g., a planning study such as a master plan). These benefits would not be realized directly following completion of the non-construction project, but rather if subsequent construction projects resulting from the planning study/evaluation are constructed (e.g., a project evaluated in a feasibility study).

5.4.1 Water Quality Projects Analysis

The SWRP has established frameworks for evaluating water quality benefits from several angles. The online project database enables project proponents to submit information on a range of water quality considerations. First, project proponents are able to indicate whether their project supports any TMDLs that may be relevant to the Region (discussed in Section 3.1). These include:

- Sacramento-San Joaquin Delta Mercury and Methylmercury TMDL
- San Joaquin River Dissolved Oxygen TMDL
- Lower San Joaquin River Salt and Boron TMDL
- Lower San Joaquin River Diazinon and Chlorpyrifos TMDL; Sacramento-San Joaquin Delta Diazinon and Chlorpyrifos TMDL; Central Valley Pesticide TMDL (which address the same constituents but have different geographic scopes)

SWRP Guideline Requirements Addressed in Section 5.4.1:

✓ Plan includes an analysis of how each project and program complies with or is consistent with, applicable NPDES permits. The analysis should simulate the proposed watershed-based outcomes using modeling, calculations, pollutant mass balances, water volume balances, and/or other methods of analysis. Describes how each project or program will contribute to the preservation, restoration, or enhancement of watershed processes (as described in Guidelines section VI.C.2.a)

Project proponents had the option to address their project's relationship to the 303(d) List of Impaired Water Bodies and NPDES permitting via two additional questions in the online project database. Proponents could indicate whether their project would reduce pollutant discharges to any 303(d)-listed water bodies, and then provide the names of specific water bodies that would benefit. Project proponents were also able to note whether the project is compliant with the conditions of applicable NPDES permits.

Finally, project proponents could submit quantitative benefit information for a variety of water quality improvements. For example, for the SWRP main benefit "increased filtration and/or treatment of runoff," suggested quantitative metrics were provided in the online project database, including average annual pollutant reduction of total suspended solids (TSS), mercury, chlorpyrifos, trash, total nitrogen, and other constituents. Measurements, such as the volume of water treated, could also be entered. The online project database also allows project proponents to provide their own metric for any project benefit; entries are not limited to the specific suggestions contained in the database. Project proponents were responsible for determining their own project water quality benefits using available calculation tools or standardized methods. In order to estimate benefits, project proponents typically require information on stormwater or dry weather runoff quality, precipitation quantity, and project capacity to intercept and/or treat runoff.

Water quality benefits were aggregated for the Region as a whole, with all projects claiming water quality benefits occurring in the Middle San Joaquin-Lower Chowchilla watershed. A total of three projects noted that they would provide water quality benefits according to the information entered into the online project database by the project proponents. The number of projects providing increased infiltration and/or treatment of runoff and nonpoint source pollution control are summarized in Table 5-4. Locations of projects providing these benefits are shown in Figure 5-1.

Table 5-4: Number of Projects Providing SWRP Water Quality Benefits

Water Quality Benefits	Construction Projects		Non-Construction Projects	Total
	Conceptual	Implementation		
Number of projects providing increased filtration and/or treatment of runoff	-	1	1	2
Number of projects providing nonpoint source pollution control	-	-	1	1

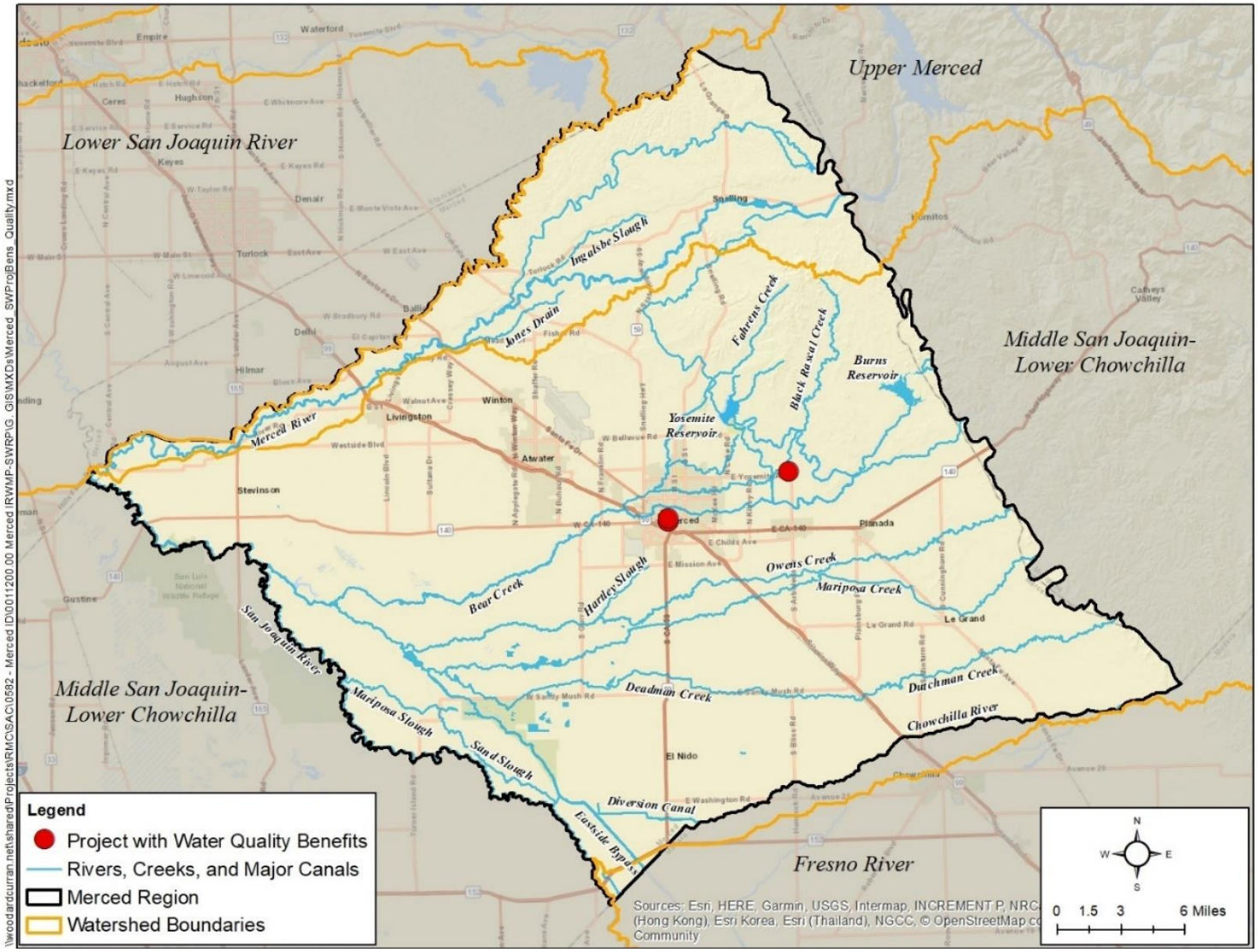
During the 2018 Call for Projects, no quantitative water quality benefits were noted for any construction projects. One non-construction project, the *City of Merced Storm Drain Master Plan Update*, estimated benefits that would result from implementation of projects in the Master Plan. Quantitative water quality benefits are summarized in Table 5-5. Recognizing that these estimates rely on implementation of the Master Plan, there is potential to improve water quality by reducing pollutant loading of trash by 90,000 lbs/year, treating 200 mgd of water, and infiltrating 500 AFY of runoff.

Table 5-5: Quantitative Water Quality Benefits Provided by SWRP Projects

SWRP Benefit Metric	Construction Projects		Non-Construction Projects	Total
	Conceptual	Implementation		
Trash (lbs/yr)	-	-	90,000	90,000
Volume of water treated (mgd)	-	-	200	200
Volume of runoff infiltrated (AFY)	-	-	500	500

As projects develop, it is anticipated that a greater range of water quality benefits will be calculated with more certainty. Project proponents may add this information to the online project database at any time; new Calls for Projects will also be conducted in the future as necessary to prepare for grant solicitation periods which will also prompt project proponents to provide updated information. Therefore, it is expected that more robust estimates of the SWRP water quality benefits will be available as SWRP implementation progresses. More data on stormwater quality will also become available as projects are implemented and pre- and post-construction monitoring is conducted, allowing better estimates of water quality improvements.

Figure 5-1: SWRP Projects with Water Quality Benefits



SWRP Projects and Watershed Processes

In addition to the water quality benefits noted above, SWRP projects can also play a role in the preservation, restoration, and/or enhancement of various watershed processes. For example, urbanization has reduced the permeability of land surfaces in some locations, disrupting the natural process of infiltration and groundwater recharge, and stormwater projects have the potential to help restore these processes. Groundwater recharge in particular is of concern due to the Region's reliance on groundwater supply. Several specific processes that may be improved via stormwater projects are:

- Overland flow: Overland flow results when precipitation reaches the ground but does not immediately infiltrate and instead must run over the land. Projects that slow or detain stormwater runoff or reduce impervious surfaces will reduce the amount of overland flow in the Region, which is of particular concern in areas that experience flooding. Such projects are discussed further in Section 5.4.2and Section 5.4.3.
- Groundwater recharge and infiltration: Projects that improve groundwater recharge and infiltration may provide water quality benefits by reducing pollutant discharges into surface water bodies. The SWRP includes two projects that would improve infiltration and/or treatment of runoff. Additional projects that would provide groundwater recharge and infiltration are discussed in Section 5.4.2, Stormwater Capture and Use/Water Supply Projects Analysis.
- Interflow: Interflow occurs following storm events as shallow groundwater flow from a storm event percolates into deeper layers of a groundwater basin. This interaction varies from place to place based on geological characteristics of the area. Projects that improve groundwater infiltration generally improve interflow volume as well.
- Evapotranspiration: Projects that increase vegetative cover may also result in an increase in evapotranspiration and can help provide stormwater attenuation. SWRP projects that include habitat improvements or planting of native vegetation may increase evapotranspiration rates. Relevant projects are discussed in Section 5.4.4, Environmental and Community Benefits Analysis.
- Delivery of sediment to receiving waters: Natural watershed processes and ecosystem services such as water filtration may be altered by insufficient or excess sediment delivery. The SWRP identifies Total Suspended Solids (TSS) as a specific priority issue which will continue to be addressed as SWRP projects develop.
- Delivery of organic matter to receiving waters: Delivery of organic matter follows similar pathways as sediment. This may be an area for the Region to consider further with future stormwater and dry-weather runoff projects.
- Chemical and biological transformation: Projects in the SWRP will support chemical and biological transformation (i.e., attenuation of pollutants as water passes through the soil column before or after reaching a receiving water body) by improving infiltration and reducing impervious surfaces and overland flows.

5.4.2 Stormwater Capture and Use/Water Supply Projects Analysis

Due to the Merced Region's reliance on groundwater, the use of stormwater capture for groundwater recharge is of particular interest in the Region. As discussed in Section 2.5, DWR's basin prioritization in support of SGMA designated the Merced and Chowchilla Subbasins as being in a state of critical overdraft. Therefore, projects that support increased recharge of the groundwater basin and/or decrease groundwater use are critical to the Region in providing water supply reliability benefits.

SWRP Guideline Requirements Addressed in Section 5.4.2:

- ✓ For storm water capture and use project analysis: Plan includes an analysis of how collectively the projects and programs in the watershed will capture and use the proposed amount of storm water and dry weather runoff.
- ✓ For water supply project analysis: Plan includes an analysis of how each project and program will maximize and/or augment water supply.

Project proponents supplied information on stormwater capture and use and water supply benefits via the online project database. Project proponents had the option to select any main or additional SWRP water supply benefit (shown in Table 5-1 and Table 5-2). Further, project proponents had the option to provide quantitative project information for a variety of metrics. The metrics supporting the stormwater capture and use projects analysis were as follows, each reflecting the Region's focus on improving water supply reliability:

- Increase in supply through direct groundwater recharge (AFY)
- Increase in supply through direct use (AFY)
- Increase in supply through in lieu recharge/conjunctive use (AFY)
- Reduction in water use (AFY)

The number of projects submitted to the SWRP that provide water supply benefits are shown in Table 5-6. Every project submitted to the SWRP provides a water supply benefit reflecting the Region's major water management priorities.

Table 5-6: Number of Projects Providing SWRP Water Supply Benefits

Water Supply Benefits	Construction Projects		Non-Construction Projects	Total
	Conceptual	Implementation		
Number of projects providing water supply reliability	8	8	5	21
Number of projects providing conjunctive use	6	3	3	12
Number of projects providing water conservation	5	2	3	10

Quantified water supply benefits that can be achieved through stormwater capture and use were analyzed collectively across the Region. The water supply benefits provided by construction projects in the SWRP are approximately 85,800 AFY of supply achieved through direct recharge, direct use, and/or in-lieu recharge/conjunctive use (Table 5-7). An additional 1,850 AFY of increased water use efficiency and/or conservation could also be achieved through implementation of SWRP projects. Two projects would

provide such benefits; one project would line a canal that is both a stormwater and irrigation facility, thereby reducing seepage; and the second would add a regulating reservoir which would provide flood control and reduce over-deliveries. Quantification of project benefits was conducted by project proponents using available models, studies, or best available information. Information needed to quantify supply benefits could include factors such as soil type, recharge potential, groundwater pumping, and infrastructure capacity. Certain projects in this category are located outside the SWRP Region, but still provide SWRP benefits within the Region boundaries. Project locations are shown in Figure 5-2.

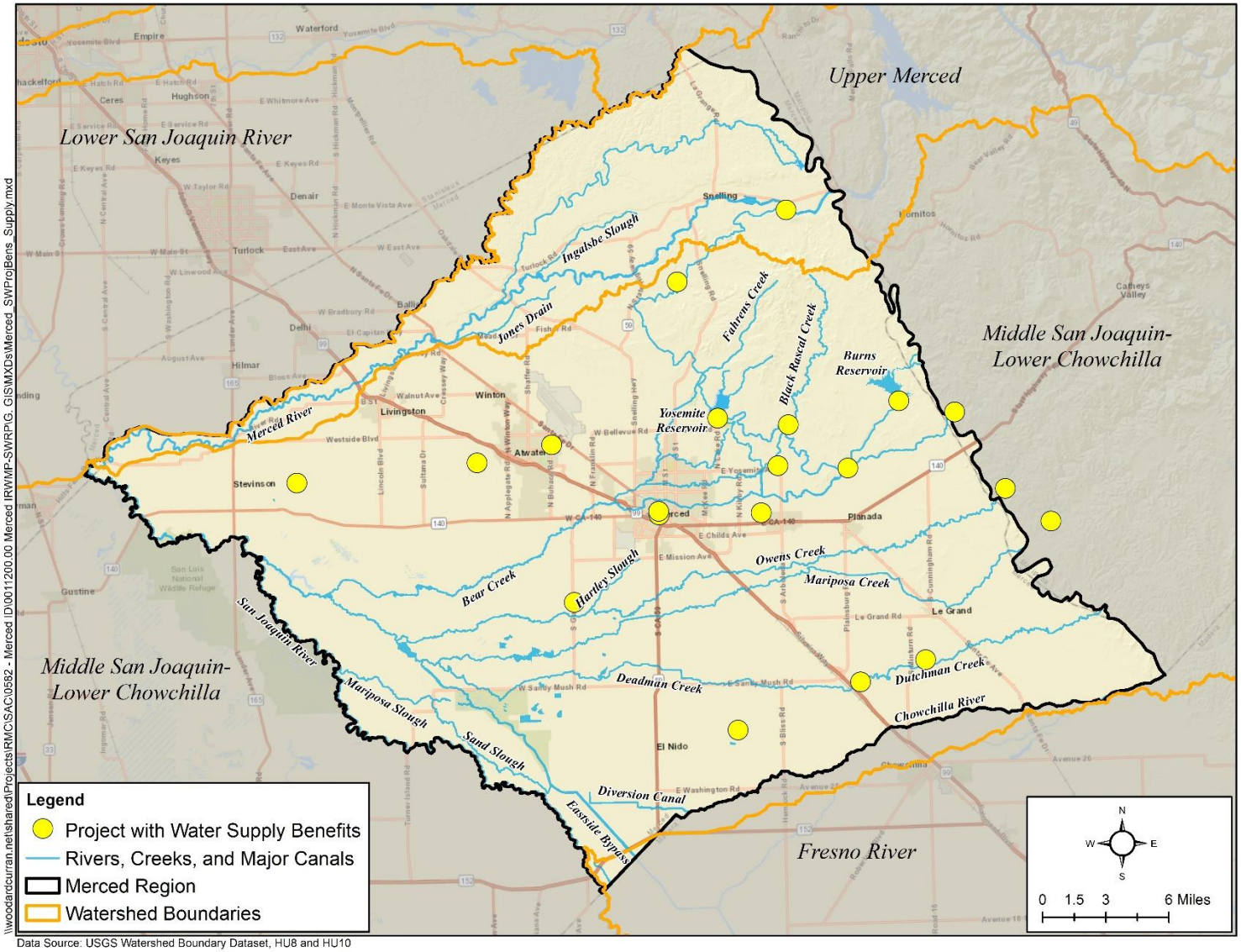
Table 5-7: Quantitative Water Supply Benefits Provided by SWRP Projects

SWRP Benefit Metric	Construction Projects		Non-Construction Projects	Total
	Conceptual	Implementation		
Increase in water supply through direct groundwater recharge (AFY)	143,300	4,857	128,500	276,657
Increase in water supply through direct use (AFY)	541,000	-	40,000*	581,000
Increase in water supply though in lieu recharge/conjunctive use (AFY)	-	-	40,000*	40,000
Reduction in water use (AFY)[1]	1,100	750	-	1,850

[1]Reductions in water use would be achieved through lining a canal (which is both a stormwater and irrigation facility) to reduce seepage and by adding a regulating reservoir which would provide flood control and also reduce over-deliveries.

*These 40,000 AFY entries represent supply available from a single project; the water captured may be directly used and/or may support in-lieu recharge. Therefore these two benefit amounts are not additive.

Figure 5-2: SWRP Projects Providing Water Supply Benefits via Stormwater Capture and Use



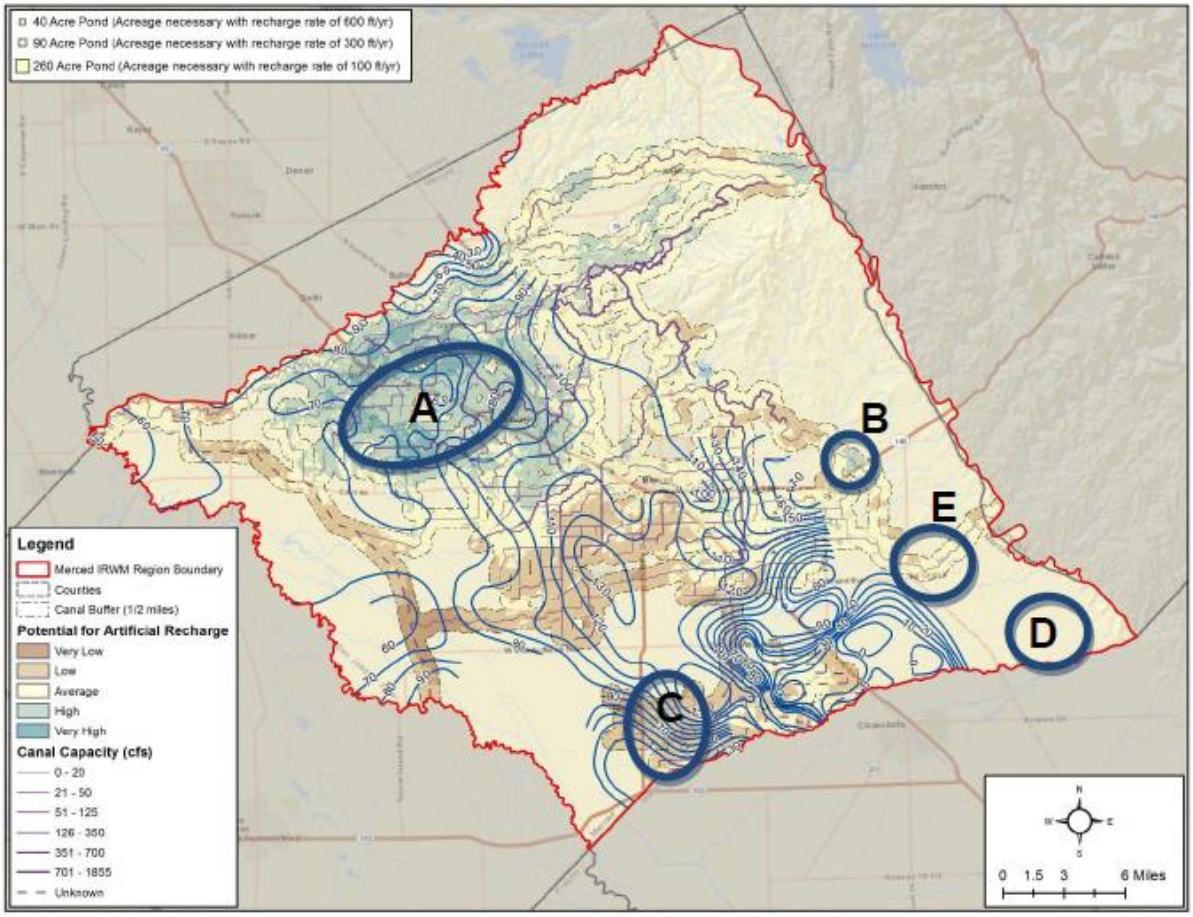
Groundwater Recharge Feasibility Study

As part of the 2013 MIRWMP, a *Groundwater Recharge Feasibility Study* was carried out to understand the nature of recharge in the Merced Region (RMC, 2013b). The study sought to identify areas that have high groundwater recharge potential to inform the development of artificial recharge facilities and any other groundwater protection programs. The study characterized recharge mechanisms in the basin in three different ways: natural, anthropogenic, and facility siting. Natural recharge refers to recharge associated with rainfall and streamflow that likely occurred prior to development in the region. Anthropogenic recharge refers to recharge that is ongoing today given existing land use and irrigation practices. Facility siting recharge examines potential in areas where there may be the highest success for artificial recharge facilities such as spreading basins.

The analysis was based heavily on understanding the existing surface and subsurface conditions of the Merced Region. Physical characteristics were compiled into multiple spatial datasets in a geographic information system software, including land use, hydrologic soil groups, slope, texture of subsurface materials, presence and thickness of the Corcoran Clay, depth to groundwater, and groundwater flow direction. Each of these characteristics were weighted according to the degree to which they impact groundwater recharge, then these criteria were ranked based on how applicable they are to successful recharge. These datasets were overlain and their ranking criteria aggregated to produce index maps of the region showing locations of high to low recharge potential. The study also describes the various codes and regulations that may impact development of artificial recharge projects in the Region. In addition, it includes an explanation of existing and recommended monitoring protocols to collect and track groundwater recharge.

This overlay analysis showed the overall most suitable recharge areas to be centered near the communities of Livingston and Atwater in the northwest portion of the Merced Region. Five "Opportunity Areas," where there is a high potential for artificial recharge, were identified and described (Figure 5-3). Opportunity Area A is located south and east of Livingston; Opportunity Area B is located north of Planada; Opportunity Area C is located near El Nido; and Opportunity Area D is located in the eastern corner of the Merced Region. Opportunity E is located near Le Grand. The study also included a high level, conceptual analysis of how the Region could meet basin sustainability goals through augmenting their existing artificial recharge. The study did not lay out prescriptive conclusions, rather, it identified areas where further investigation should be carried out when the Region chooses to pursue artificial recharge expansion. This study can serve as a useful resource for agencies in the Region as they explore potential recharge projects. In fact, within Opportunity Area B, a project was formulated and received grant funding as part of the SGMA Prop 1 funding process. The proposed Planada Recharge Basin Pilot Project will benefit the community of Planada (a SDAC) by identifying a viable site to recharge groundwater in a high-priority, critically-overdrafted basin. Limited recharge sites exist within and around Planada because of the geology of the area, in particular the prevalence of underlying clay layers. The goal of this project is to develop a pilot recharge basin near Planada and evaluate whether groundwater recharge using surface water supplies can improve local groundwater levels for this SDAC. Objectives of this project are to evaluate two potential groundwater recharge sites in the vicinity of the Planada SDAC and to construct and successfully operate a three-year pilot groundwater recharge basin.

Figure 5-3: Opportunity Areas for Groundwater Recharge (with Groundwater Elevations and Recharge Facility Siting Index) (RMC, 2013b)



5.4.3 Flood Management Projects Analysis

Flood management benefits of the SWRP were assessed by aggregating project information that was provided by project proponents during the 2018 Call for Projects. Major flood management benefits considered include decreased flood risk and reduced sanitary sewer overflows associated with flooding. A total of 20 SWRP projects indicated that they would provide flood risk reduction, and 12 indicated that they would reduce sanitary sewer overflows (Table 5-8). Projects that would provide these benefits are displayed in Figure 5-4.

SWRP Guideline Requirements Addressed in Section 5.4.3:

✓ For flood management project analysis: Plan includes an analysis of how each project and program will maximize and/or augment water supply.

Table 5-8: Number of Projects Providing SWRP Flood Management Benefits

Flood Management Benefits	Construction Projects		Non-Construction Projects	Total
	Conceptual	Implementation		
Number of projects providing decreased flood risk by reducing runoff rate and/or volume	8	7	5	20
Number of projects providing reduced sanitary sewer overflows	3	6	3	12

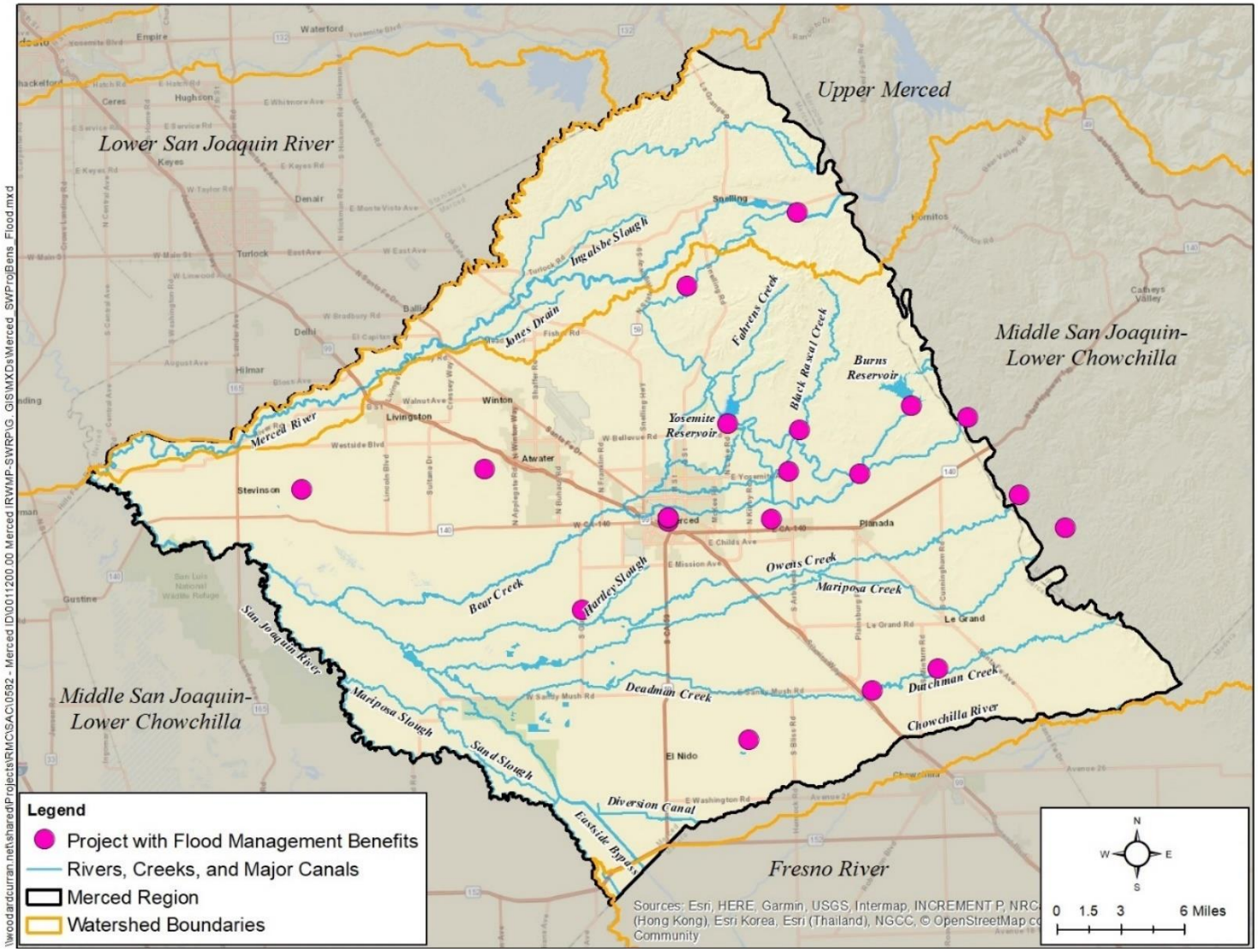
Flood management benefits were quantified by project proponents. Quantification of these benefits would likely require use of hydraulic models in order to assess a project's impact on the larger storm drainage and/or sanitary sewer system. Data that would feed into such an assessment includes spatial information on relevant infrastructure and watershed features, including location and flow capacity. Project proponents could enter specific quantitative information on parameters such as peak flow reduction, flood volume reduction, or reduction in sanitary sewer overflows into the online project database. Estimates of quantitative benefits provided by the SWRP project proponents were aggregated across the Region, with the results summarized in Table 5-9.

Table 5-9: Quantitative Flood Management Benefits Provided by SWRP Projects

SWRP Benefit Metric	Construction Projects		Non-Construction Projects	Total
	Conceptual	Implementation		
Reduction in peak flow discharge (cfs)	8,607	2,000	1,300	11,907
Reduction in volume of potential flood water (AFY)	98,060	120	10,000	108,180

The water supply augmentation benefits associated with stormwater projects (including flood management projects) are quantified and discussed above in Section 5.4.2, Stormwater Capture and Use/Water Supply Projects Analysis. Flood control projects that also provide supply augmentation will create up to approximately 85,900 AFY increase in water supply (as a subset of the total water supply benefits listed in Table 5-7).

Figure 5-4: SWRP Projects with Flood Management Benefits



5.4.4 Environmental and Community Benefits Analysis

SWRP Guideline Requirements Addressed in Section 5.4.4:

✓ Plan includes a narrative of how each project and program will benefit the environment and/or community, with some type of quantitative measurement.

Environmental benefits considered in the SWRP include items such as habitat protection and restoration, greenhouse gas emission reductions, instream flow improvements, and increased urban green space. In order to quantify these benefits, a variety of metrics could be employed. Some benefits are relatively straightforward to calculate, such as the number of acres of habitat that may be restored. This information would be determined during project planning and design. Other benefits in this category, such as reestablishment of the natural hydrograph, would require more extensive field data collection or monitoring to assess in a quantitative manner. Several SWRP projects at a variety of stages provide environmental benefits (Table 5-10). Of the SWRP projects that noted environmental benefits, only one provided a quantitative metric (Table 5-11). As projects develop further, more benefits will likely be quantified. The locations of projects that have environmental benefits are shown in Figure 5-5. One project is located within the Upper Merced watershed, with the others located in the Middle San Joaquin-Lower Chowchilla Watershed.

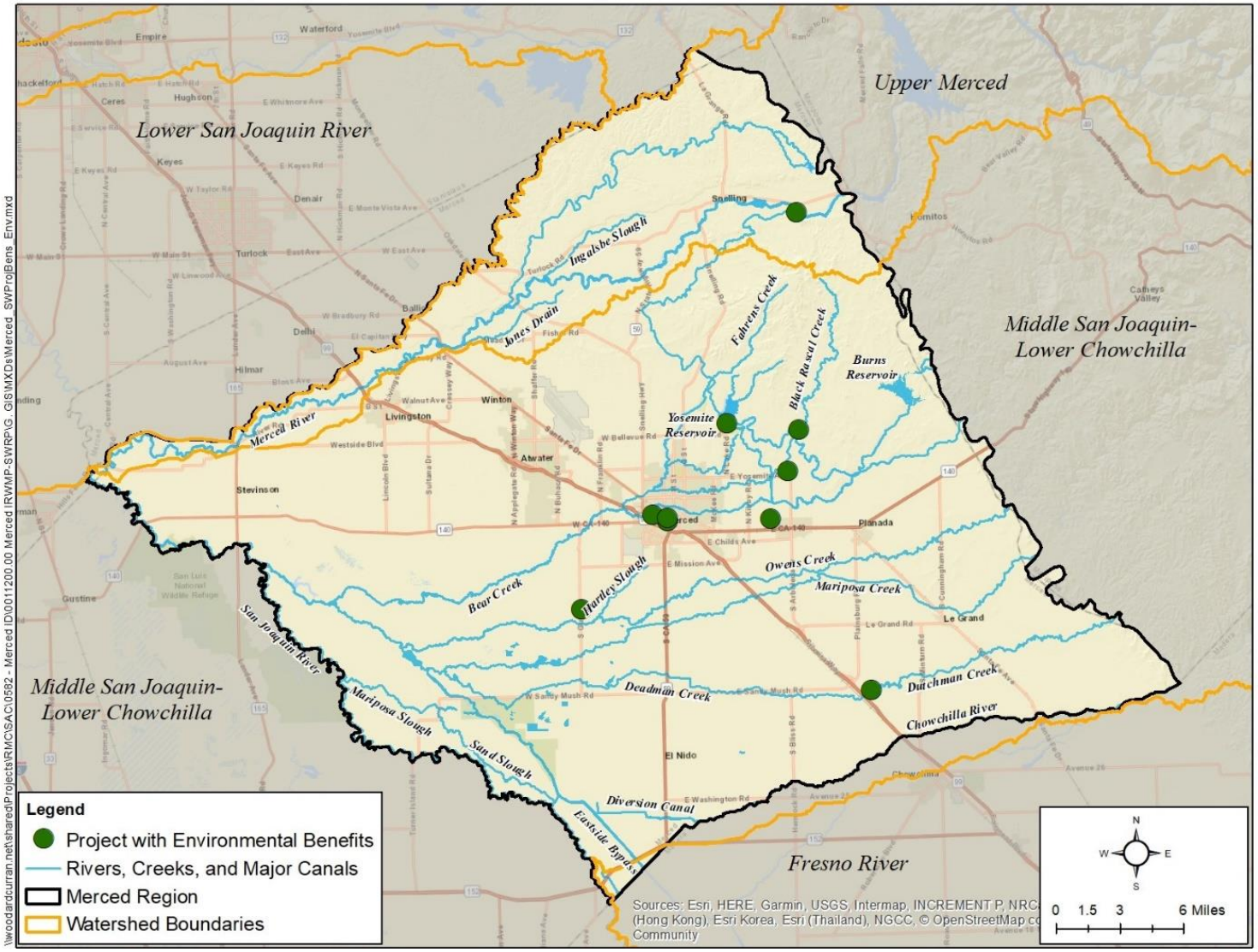
Table 5-10: Number of Projects Providing SWRP Environmental Benefits

Environmental Benefits	Construction Projects		Non-Construction Projects	Total
	Conceptual	Implementation		
Number of projects providing environmental habitat protection and improvement, including wetland enhancement/creation, riparian enhancement, and/or instream flow improvement	5	-	1	6
Number of projects providing increased urban green space	1	-	-	1
Number of projects providing reduced energy use, greenhouse gas emissions or providing a carbon sink	-	2	-	2
Number of projects providing reestablishment of natural hydrograph	-	-	1	1

Table 5-11: Quantitative Environmental Benefits Provided by SWRP Projects

SWRP Benefit Metric	Construction Projects		Non-Construction Projects	Total
	Conceptual	Implementation		
Size of increase in urban green space (acres)	150	-	-	150

Figure 5-5: SWRP Projects with Environmental Benefits



Community benefits of stormwater and dry-weather runoff projects could include public outreach and education, other forms of community involvement, employment opportunities, or enhanced public areas. Unlike other types of benefits that are not realized until project construction is complete, community benefits may occur at any stage of project development (for example, community outreach may occur early in a project life cycle in order to improve community support and solicit feedback). The number of SWRP projects that provide various community benefits are listed in Table 5-12, and their locations are shown in Figure 5-6. In addition to the SWRP main and additional benefits included in the SWRP Guidelines, the online project database also included a space for proponents to note whether their project would create open space, parks, etc., in a DAC with a deficit of such spaces. While the Region is relatively rural and does not lack open space, recreational opportunities and parks in DACs are of interest in the Region.

Table 5-12: Number of Projects Providing SWRP Community Benefits

Community Benefits	Construction Projects		Non-Construction Projects	Total
	Conceptual	Implementation		
Number of projects providing employment opportunities	-	-	1	1
Number of projects providing public education	-	1	1	2
Number of projects providing community involvement	1	-	1	2
Number of projects that enhance and/or create recreational and public use areas	1	-	-	1
Other benefit - create or restore habitat, open space, parks, recreation, or green space in a DAC with a deficit of such spaces	2	-	1	3

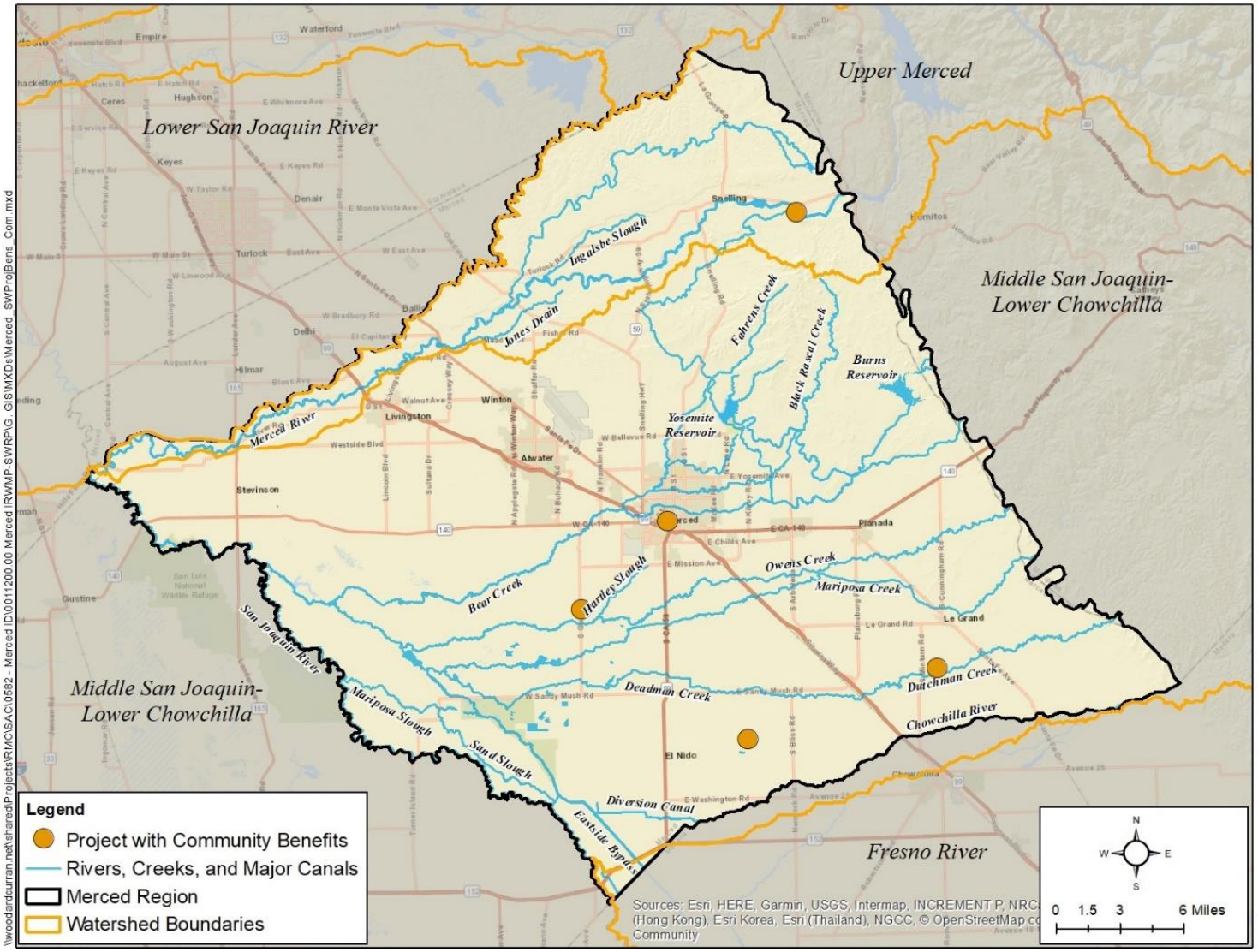
Metrics for quantifying community benefits may include items such as number of jobs provided by a project (e.g., construction job opportunities), number of survey participants, or number of outreach events held. Estimating these benefits may rely largely on the project proponent's experience and planning (rather than data analysis or modeling), since community benefits are not necessarily tied to a specific physical benefit as may be the case for other benefit categories. Quantified community benefits have been aggregated across the Region and are summarized in Table 5-13.

Table 5-13: Quantitative Community Benefits Provided by SWRP Projects

SWRP Benefit Metric	Construction Projects		Non-Construction Projects	Total
	Conceptual	Implementation		
Number of employment opportunities provided	-	-	2	2
Number of outreach materials provided or events conducted	-	-	3	3
Number of participants per year[1]	-	-	150	150

[1]Participants include members of the public who attend stakeholder meetings, City Council study sessions, and City Council meetings.

Figure 5-6: SWRP Projects with Community Benefits



5.4.5 DAC Benefits Analysis

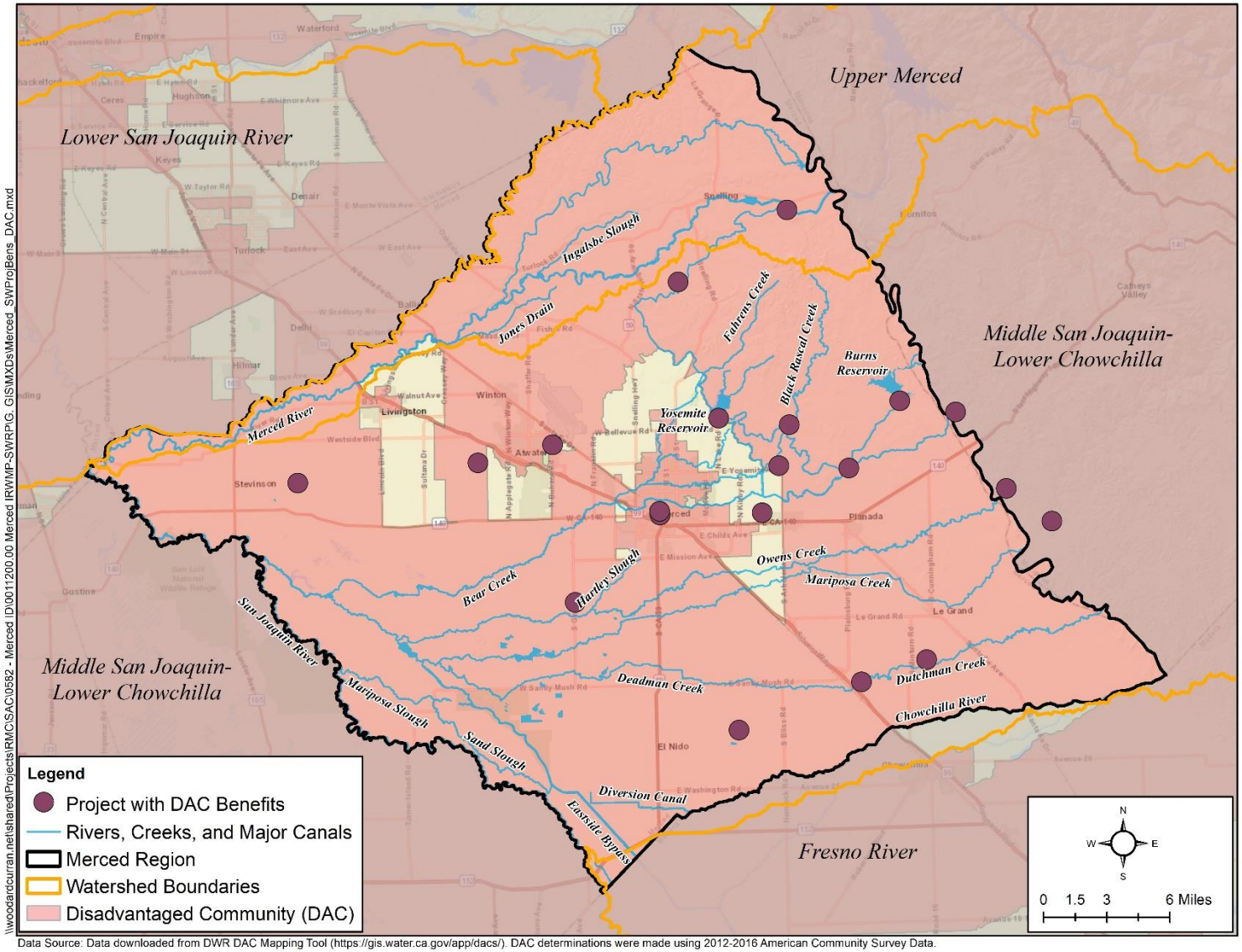
A large portion of the Merced Region is classified as a DAC. The SWRP project prioritization methodology (discussed in Section 6.3) places emphasis on projects that benefit these communities, as a project's DAC benefit accounts for 15% of its overall score. Therefore, projects that benefit DACs are a key priority within the Merced Region.

Project benefits to DACs may include any of the benefits discussed in the preceding sections, including increased water supply reliability, improved water quality, and flood risk reduction. The number of projects providing benefits to DACs are summarized in Table 5-14. All 21 projects in the SWRP provide DAC benefits, with all 21 projects providing benefits to one or more specific communities. The locations of projects benefitting DACs are shown in Figure 5-7.

Table 5-14: Number of SWRP Projects Benefitting DACs

Community Benefits	Construction Projects		Non-Construction Projects	Total
	Conceptual	Implementation		
Number of projects providing benefits to specific identified DACs	8	8	5	21

Figure 5-7: SWRP Projects that Provide Benefits to Disadvantaged Communities



Data Source: Data downloaded from DWR DAC Mapping Tool (https://gis.water.ca.gov/app/dacs/). DAC determinations were made using 2012-2016 American Community Survey Data.

5.5 Information and Data Management

The SWRP is a regional document, and proactive data management helps ensure that the diverse agencies in the Merced Region can benefit from information generated by projects throughout the Region (not only in their own jurisdiction or service area). For the purposes of the SWRP, the term "data" may include technical documentation (such as designs, feasibility studies, and reports), as well as technical information collected as part of project or program planning, design, implementation, and operation. Sharing of these data helps facilitate collaboration and transparency within the Region, and can also inform plans for future projects.

SWRP Guideline Requirements Addressed in Section 5.5:

- ✓ Plan describes data collection and management, including: a) mechanisms by which data will be managed and stored; b) how data will be accessed by stakeholders and the public; c) how existing water quality and water quality monitoring will be assessed; d) frequency at which data will be updated; and e) how data gaps will be identified.

5.5.1 Data Management and Storage

Data management and storage is the responsibility of the individual project proponent. The Merced Region's online project database is one available tool for project proponents to manage their project information. The database was developed during preparation of the 2013 MIRWMP as a tool for locating, connecting, sharing and integrating projects within the Region, and promoting collaboration among project proponents and the public. The database is now jointly used for project solicitation and project sharing for both the MIRWMP and Merced SWRP. Project proponents may update their project information in the database at any time as the project develops and is implemented. For example, budget and schedule may be updated continuously, and project benefits may be updated as the project moves from a conceptual stage toward implementation.

Any interested member of the public can register in the Merced Region online project database to view information and collaborate on projects. The site includes space for collaborators to share notes and documents related to their projects, and the project proponent has the option to make these items visible for public users interested in following the project progress. Data are also shared via submission to publicly-accessible statewide databases. For example, under certain grant programs (such as IRWMP and Storm Water Grant Program [SWGP]), project proponents are required to prepare project-specific monitoring plans that identify how monitoring and analytical techniques and quality assurance and quality control (QA/QC) procedures are compatible with the requirements of relevant federal and statewide database(s). In general, state databases have specific requirements for data submittal (format and procedural) that will need to be followed. Geospatial data maintained and submitted by project proponents should be accompanied by applicable metadata that describes each dataset, including projection and datum information, dataset description, and data lineage. Relevant databases include those summarized below. Projects implemented outside of these grant programs are also highly encouraged to submit their data to statewide databases so that it can provide the widest possible benefit. Databases used may include:

- **California Environmental Data Exchange Network (CEDEN):** CEDEN is a central system designed to find and share information about California's water bodies, including streams, lakes, rivers, and the coastal ocean. CEDEN aggregates water quality, aquatic habitat, and wildlife health data collected by groups throughout California and makes it accessible to environmental managers and the public. The CEDEN data templates are available on the CEDEN website: http://www.ceden.org/

- **Water Data Library (WDL):** The State's WDL is maintained by DWR. It stores data from various monitoring stations, including groundwater level wells, water quality stations, surface water stage and flow sites, rainfall/climate observers, and well logs. Information regarding the WDL can be found at: http://wdl.water.ca.gov/
- **California Statewide Groundwater Elevation Monitoring (CASGEM):** Projects collecting groundwater elevation should be compatible with the needs of the CASGEM program. As the designated Monitoring Entity for the Merced Groundwater Subbasin, MAGPI is the entity responsible for providing regular and systematic monitoring of groundwater elevations to DWR. To support MAGPI's efforts, project-collected groundwater elevation data must provide well identification number, measurement date, reference point and land surface elevation, depth to water, method of measuring water depth and measurement quality codes. Additional information on the CASGEM program is available at: https://water.ca.gov/Programs/Groundwater-Management/Groundwater-Elevation-Monitoring--CASGEM
- **Surface Water Ambient Monitoring Program (SWAMP):** Projects collecting surface water data will be required to adhere to SWAMP data collection protocols. Typical data collection techniques for surface waters include both field measurements and laboratory analysis. Field measurements are either collected using meters or field kits for a common list of constituents including but not limited to: water temperature, pH, conductivity, dissolved oxygen and turbidity. There are many possible constituents measured in surface waters that require laboratory analysis, most commonly fecal indicator bacteria, metals, nutrients, persistent organic pollutants, and turbidity. SWAMP provides guidance on methods and quality assurance, which can be found at: https://www.waterboards.ca.gov/water_issues/programs/swamp/qapp/swamp_QAPrP_2017_Final.pdf SWAMP also provides resources, such as sample field data sheets
- **Groundwater Ambient Monitoring and Assessment program (GAMA):** Projects collecting groundwater data will be required to adhere to GAMA data collection protocols. The GAMA Priority Basin Project is grouped into 35 groundwater basin groups called "study units." Each study unit is sampled for common contaminants regulated by the SWRCB DDW and for unregulated chemicals. Testing for these chemicals will help public and private groundwater users to manage this resource. Results from the Central Eastside San Joaquin study unit, which includes the Merced Region, can be found at http://www.waterboards.ca.gov/gama/. Some of the chemical constituents that are sampled by the GAMA Priority Basin Project include nitrate, total and fecal coliform bacteria, pesticides, and emerging contaminants (e.g., pharmaceuticals).
- **Wetland and Riparian Area Monitoring Program (WRAMP):** Projects involving wetland restoration must meet the criteria for and be compatible with WRAMP. WRAMP is intended to track trends in wetland extent and condition to determine the performance of wetland, stream, and riparian protection programs in California. The program defines standardized assessment methods and data management with the goal of minimizing new costs and maximizing public access to assessment information. Additional information on the WRAMP program is available at: https://mywaterquality.ca.gov/monitoring_council/wetland_workgroup/docs/2010/tenetsprogram.pdf
- **California Data Exchange Center (CDEC):** DWR maintains the California Data Exchange Center (CDEC) which installs, maintains, and operates an extensive data collection network including automatic snow reporting gages and precipitation and river stage sensors for flood forecasting. CDEC is accessible at https://cdec.water.ca.gov/

5.5.2 Data Needs

Review of existing water management plans, RAC discussions, and public input identified specific data needs within the Merced Region. These needs include:

- Up-to-date, spatially-referenced land use data that includes recent agriculture-to-agriculture conversions that impact water demands in the Region
- Groundwater data to assess current groundwater conditions and to determine necessary management activities
- Local groundwater water quality data to determine the suitability of recharge areas

Implementation of the SWRP will assist in meeting these data needs. Identified data gaps will be addressed through project implementation and may be filled through parallel efforts such as the Merced SGMA process and IRWMP and GSP implementation. In some cases, these gaps may be filled by projects specifically designed to collect needed data, and in other cases, data gaps may be addressed indirectly through data reported in project performance monitoring plans. Several projects included in the SWRP aim to fill data gaps that have been identified in the Region, for example:

- Merced Groundwater Subbasin LIDAR: This project would gather LIDAR data of the Merced Subbasin. The data would be used in conjunction with weather forecast data to predict local stormflows from rainfall events. This data would also aid with MID's proposed real-time modeling of Bear, Black Rascal, and Burns Creeks.
- Real-Time Simulation Flood Control Modeling: This project consists of modeling Bear, Black Rascal, and Burns Creeks. These three creeks (or the confluence of them) run through the City of Merced and have historically caused flooding to the area. The real-time simulation model would utilize HEC-RAS and HEC-HMS modeling software. The ability to run real-time simulations will improve the ability to forecast flood flows and flood events. This forecasting will be critical in utilizing flood flows for managed aquifer recharge projects in the area. It will also enable MID to be better prepared for flood flows which happen during the irrigation season. Excess surface water is often conservatively spilled in anticipation of a rain event that occurs during the irrigation season due to lack of forecasting information.
- Rice Field Pilot Study Monitoring Wells: This project entails construction of groundwater monitoring wells to evaluate the efficacy of MID's rice field recharge pilot project, in which floodwaters are diverted to rice fields for recharge. This project would yield data on the recharge capacity that can be achieved from this project.

5.5.3 Data Collection

Data collected in conjunction with implemented projects will vary based on the type and scope of each individual project, but may include:

- streamflow
- surface water deliveries
- groundwater elevations
- groundwater pumping
- precipitation
- volume of water impounded or recharged
- locations and sizes of water-related facilities
- land use
- contaminant plume location and extent
- water quality data
- locations of sensitive habitats and species
- hydrogeologic and hydrologic data
- visitor days at recreational areas
- community members served by educational events

Project proponents may also develop data through numerical tools such as hydrologic models. Working with the project proponents, agencies, regional stakeholders, MIRWMA, and the RAC will continue to seek out data needed to address regional data gaps on an ongoing basis. Potential data sources are listed in Table 5-15. Identified data gaps will be filled as new data sources and/or monitoring activities are identified.

Table 5-15: Potential Sources of Water Resources Data

Federal	State	Local
National Climatic Data Center	California Irrigation Management Information System	City Planning Departments
National Resource Conservation District	Department of Fish & Wildlife	East Merced Resource Conservation District
Army Corps of Engineers	Department of Public Health	Merced County Association of Governments
Bureau of Reclamation	Department of Water Resources	Merced Area Groundwater Pool Interests
U.S. Fish & Wildlife Service	State Water Resources Control Board & the Regional Water Quality Control Board	Merced County
U.S. Geologic Survey	California Natural Diversity Database	Merced Irrigation District
National Marine Fisheries Service	California Department of Pesticide Regulation	Merced Streams Group
U.S. Environmental Protection Agency		University of California, Merced Stakeholders
The Nature Conservancy		Water and Wastewater Districts
U.S. Forest Service		

5.5.4 Quality Assurance/Quality Control Measures and Data Updates

Individual project proponents will be responsible for reviewing data collection and QA/QC protocols to validate that data were collected in accordance with QA/QC procedures required as part of the project monitoring program. In addition, project proponents will be responsible for "spot-checking" all data for accuracy at the time of entry to the database to identify any apparent errors. Once data collection and QA/QC has been completed in accordance with provisions of the approved project-specific monitoring plan, the project proponent will submit the compatible data to the appropriate federal or statewide database.

Frequency of data updates will be determined by project proponents on a project-by-project basis, or as required by applicable permits. The schedule for updating data will vary depending on what is appropriate

for a given project type. Ongoing regional monitoring associated with existing programs such as the Small MS4 Permit and CASGEM will continue to be conducted as stipulated by the relevant permit or program. Data associated with this monitoring will be published in accordance with permit or program requirements.

5.5.5 Data Sharing

MIRWMA, the RAC, project proponents, and other SWRP planning participants are all jointly responsible for data dissemination. During SWRP development, data were disseminated via public workshops, RAC meetings, the SWRP website and online project database postings. During implementation, the Merced online project database may be used to share project information and data collected as part of the SWRP. As noted above, any member of the public may create an account to access the online project database where they can view detailed information on SWRP projects.

Individuals without internet access may contact one of MIRWMA's member agencies to request hard copies of specific datasets. Project proponents will also be required to submit data to statewide database(s) specified in the approved project-specific monitoring plan.

Environmental documentation processes (i.e. CEQA and NEPA) are another method of disseminating data for review by interested stakeholders and the public. Completion of environmental documentation will be the sole responsibility of project proponents and will be completed on a project-by-project basis.

Chapter 6 Identification and Prioritization of Projects (VI.D)

In order to identify stormwater management projects for implementation, the Region conducted a public "Call for Projects" from July 9, 2018 through August 31, 2018 to solicit projects for consideration for inclusion in the SWRP. Organizations from across the Region submitted a total of 22 projects addressing a wide variety of water supply, water quality, flood management, environmental, and community needs for inclusion in the Merced SWRP. While all of the projects included in the SWRP play a role in the effective management of stormwater and dry weather runoff resources in the Region, a prioritization process was developed to help manage the project list and determine which projects best meet regional needs. The prioritization process allows projects to be ranked for implementation using a transparent method. In addition, the process encourages the development and identification of projects well-suited to meet the identified needs of the Merced Region.

Throughout the SWRP development process, the Region has engaged stakeholders across multiple areas of water resource management to identify priorities for the Region and to prioritize projects for implementation. This section presents the process for prioritization and selection of SWRP projects, including:

- Procedures for soliciting and submitting projects to the SWRP.
- Procedures for reviewing and prioritizing projects submitted to the SWRP, including quantitative score methodology.
- Projects that meet particular stormwater planning priorities as outlined in the Storm Water Resource Plan Guidelines (SWRCB, 2015).

6.1 Project Solicitation

To provide efficiencies and streamline project entry for project proponents, the Call for Projects for the SWRP occurred at the same time as the Call for Projects for the MIRWMP. In addition, the same web-based project database was used for project solicitation. Thus, the project submittal process for the SWRP aligns with the process used for the 2018 MIRWMP Update. This process involves three major steps: solicitation, prioritization, and selection.

Solicitation can be described as the "Call for Projects" that provide SWRP benefits within the Region. The objective of this step is to compile a comprehensive list of stormwater and dry-weather runoff projects for the Region. Any individual(s), public agency representatives, or non-profit organization with common water interests and needs can submit a project to the SWRP. In 2013, an online project database was developed to aid in the submittal, collection, and management of project information for use in the MIRWMP planning effort (www.mercedirwmp.org/projects.html). Given the alignment of the two programs (IRWM and Storm Water Resources Planning), the same online database was used for both programs.

The online database continues to be used today and provides stakeholders with access to project information. Stakeholders can access the online project database from the project website, enter and edit project information, and submit projects for inclusion in both the MIRWMP and now, the Merced SWRP. The online project database was updated in 2018 to allow for SWRP project submittal. A hard-copy project information form was also developed to allow individuals without internet access an equal opportunity to participate.

In order to submit a project into the SWRP, the project proponent was required to provide basic project information, including a project description and discussion of how the project provides SWRP benefits, estimated costs, project status, and project sponsor information. The online project database allows this project information to be reviewed, organized, and easily updated by the project proponent. Access to project summaries is also available via the online project database to all interested parties with the goal of improving transparency and encouraging integration. Anyone, including members of the public, may create an online project database account and view project information. Figure 6-1 presents a screenshot of the Merced IRWM/SWRP online project database website.

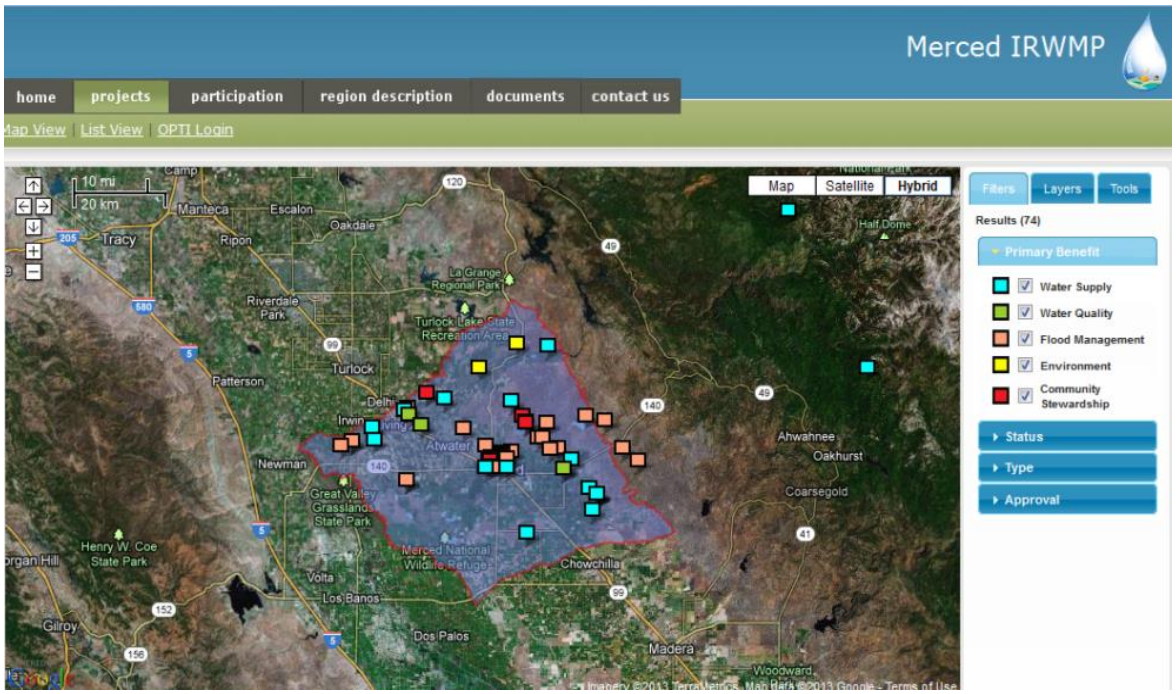
Project solicitation was announced to the public through various channels beginning in early July 2018. Notices regarding the Call for Projects were sent to Merced SWRP stakeholders via email, and advertisements were placed on the Merced IRWM/SWRP website. A public meeting was also held on July 11, 2018, to provide background on the SWRP and instructions on using the online project database. Throughout the Call for Projects, technical support was provided to online project database users.

Project submittals were requested beginning July 9, 2018, with a submittal deadline of August 31, 2018. While projects can continue to be modified and new projects can be submitted for consideration for inclusion in the SWRP, only projects submitted on or before August 31, 2018 are listed in the snapshot of projects presented in this SWRP. It should be noted, however, that the list of projects presented in this SWRP is not the official project list; the official project list, which is continually updated and revised, resides in the online project database accessible through the Merced IRWMP/SWRP planning website (http://mercedirwmp.org/projects.html). This SWRP does not require revision, update, or re-adoption following changes to the living project list.

In order to facilitate review and organization of the project submittals, the Merced online project database provides the option of printing or exporting a detailed list of all projects submitted. This project list was used in discussions of submitted projects with the RAC and other stakeholders.

The online project database is open at all times for submittal of new SWRP projects as well as editing and revising existing projects. As new funding opportunities and/or SWRP updates arise, the Merced Region will issue further Calls for Projects with deadlines appropriate to those opportunities. Projects at all stages of development were and will continue to be accepted into the project database and SWRP, ranging from conceptual planning projects to implementation-ready construction projects.

Figure 6-1: Merced IRWMP/SWRP Project Submittal Website



6.2 Project Eligibility

SWRP Guideline Requirements Addressed in Section 6.2:

✓ Each project in accordance with the Plan contributes to at least two or more Main Benefits and the maximum number of Additional Benefits as listed in Table 4 of the Guidelines.

After the August 31, 2018 deadline, projects submitted through the Call for Projects were reviewed, ranked, and prioritized using a two-step screening and scoring approach. Figure 6-2 illustrates the overall process for screening and prioritization of projects for the SWRP. As shown in this figure, projects submitted for consideration were first evaluated for consistency with the SWRP eligibility requirements. To be considered for inclusion in the SWRP, a project is required to fulfill the following four conditions:

1. **Project must be sponsored by an eligible applicant.** Proposition 1 (Water Code section 79712(a)) states that eligible applicants are: public agencies, 501(c)(3) nonprofit organizations, public utilities, federally recognized Indian tribes, state Indian tribes listed on the Native American Heritage Commission's Tribal Consultation List, and mutual water companies.

2. **Project must be a stormwater or dry weather runoff project.** A stormwater project is defined as a project affecting temporary surface water runoff and drainage generated by immediately preceding storms. A dry weather runoff project is defined as a project affecting surface water runoff and flow in storm drains, flood control channels, or other means of runoff conveyance produced by non-stormwater resulting from irrigation, residential, commercial and industrial activities.

3. **Project must contribute to two or more SWRP main benefits.** SWRP main benefits include water supply reliability, increased filtration of runoff, and decreased flood risk. The full list of SWRP main benefits is shown in Table 5-1.

4. **Project must contribute to at least one SWRP additional benefits.** SWRP additional benefits include nonpoint source pollution control, reestablished natural water drainage and treatment, and community involvement. The full list of SWRP additional benefits are shown in Table 5-2.

These eligibility requirements ensure that submitted projects will be eligible to receive funding from the SWRCB Prop 1 Storm Water Grant Program. The eligibility requirements also ensure that each project provides multiple benefits as required by the SWRP Guidelines. Projects are screened for these four criteria in order to qualify for inclusion in the SWRP. Projects that did not meet these requirements were not included in the SWRP. Projects included in the SWRP do not need to be physically located within the Region, but the benefits of the project must accrue at least in part to the Region. Projects that met the four criteria above passed the screening process and moved on to the next step of the project review process: scoring and ranking. All projects submitted during the 2018 Call for Projects met the initial screening process.

6.3 Project Prioritization

A project prioritization process was developed by the RAC to rank projects and programs for implementation. The prioritization process is intended to be a simple, quantitative, and objective tool for evaluating projects. To evaluate and prioritize projects as part of the SWRP development process, the scoring and ranking process takes into account three fundamental components:

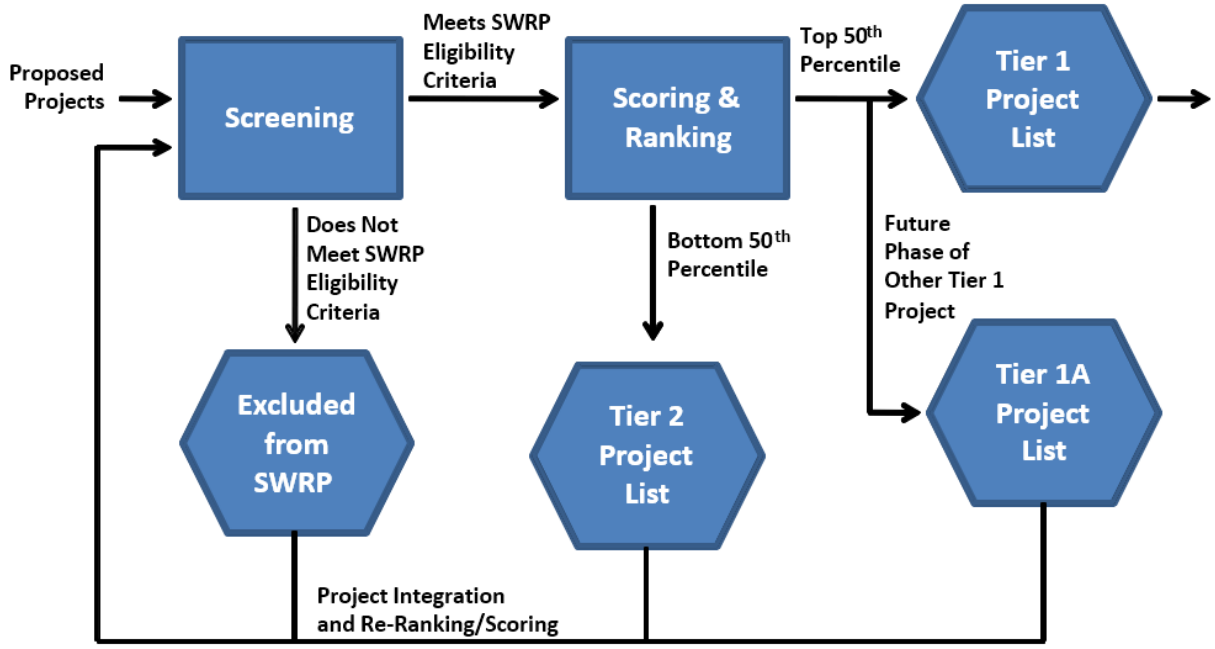
1. SWRP Main and Additional Benefits,
2. Project status and feasibility, and
3. Regional watershed priorities.

SWRP Guideline Requirements Addressed in Section 6.3:

- ✓ Plan uses appropriate quantitative methods for prioritization of projects.
- ✓ Plan prioritizes projects and programs using a metric-driven approach and a geospatial analysis of multiple benefits to maximize water supply, water quality, flood management, environmental, and community benefits within the watershed.

These components also take into account the guidance provided in the SWRP Guidelines, which encourage prioritization of projects based on factors such as quantifiable benefits, project location, and funding status. As such, the components established above were used to prioritize projects. The quantitative scoring methodology is detailed in Table 6-1 and discussed in further detail below.

Figure 6-2: Prioritization Process Overview



The prioritization process, which was established by the RAC, was developed by integrating a variety of factors to ensure that the greatest needs within the Region are met (e.g., water quality, water supply, community needs), and that projects are implementable. Through facilitated meetings, the RAC established the relative importance of each of these criteria. The approach to scoring projects and the relative importance of each criterion is presented in Table 6-1. Project scoring was developed to identify projects that:

- Provide SWRP main benefits,
- Provide SWRP additional benefits,
- Are ready for implementation,
- Make use of public lands or existing rights-of-way,
- Have funding support,
- Benefit DACs,
- Support existing TMDLs,
- Reduce pollutant discharges into 303(d)-listed water bodies, and
- Augment water supply via groundwater recharge.

Each project was evaluated with respect to the criteria presented in Table 6-1. For each criterion, a project could receive a raw score of up to 100 points. The raw scores were then weighted by a percentage to reflect the relative importance of the different prioritization criteria. Based on the outcome of this evaluation, each project received a final, weighted score of up to 100 points. Projects were then ranked with the highest-scoring project ranked as number one. Projects within the top 50th percentile (i.e., all projects with scores greater than the median score) were designated as Tier 1 projects that strongly contribute to the attainment of regional goals and objectives. Future phases of Tier 1 projects were considered Tier 1A projects, as they would not be considered to be high priorities for implementation until after the related Tier 1 projects had been completed. The bottom 50th percentile (i.e., all projects below the median) were considered Tier 2 projects. While these projects are considered to be important for improving stormwater management in the Region, they are not currently considered the Region's highest priorities for implementation.

Scoring for each submitted project was based on the project information provided by the project proponent in the online project database. In 2018, no projects were submitted using the hard copy submittal form; in the future, if hard copy forms are used, responses will be entered into the online project database (likely by members of a designated RAC subcommittee). Project proponents remain responsible for ensuring that their project information is accurate in the online project database, as this information forms the basis for ranking projects.

Table 6-1: Project Scoring Guide

Component	Criterion	Scoring Procedure	Raw Score Assigned	% of Score	Subtotal
1. SWRP Main and Additional Benefits	Provides SWRP Main Benefits	Score based on # of benefits provided and # of quantitative metrics provided	20 points per Main Benefit met, plus an additional 20 points for every benefit with a quantitative metric provided, to a maximum of 100 points	25	40
	Provides SWRP Additional Benefits	Score based on # of strategies employed	20 points per Additional Benefit met, plus an additional 20 points for every benefit with a quantitative metric provided, to a maximum of 100 points	15	
2. Project Status and Feasibility	Is Ready to be Implemented	Score based on degree of work needed prior to implementation	Ready to construct / implement (or is a paper study) = 100 pts Preliminary Design Completed = 75 pts Planning Completed = 50 pts Planning in Progress = 25 pts No Work Completed = 0 pts	10	30
	Land Considerations	Score based on right-of-way status	Project is located on public land or has an existing easement or right-of-way agreement = 100 pts Project is not on public land and has no easement or right-of-way in place = 0 pts	10	
	Is supported by entities that have created permanent, local, or regional funding	Score based on Yes/No response	Yes = 100 pts No = 0 pts	10	

Component	Criterion	Scoring Procedure	Raw Score Assigned	% of Score	Subtotal
3. Regional Watershed Priorities	Provides a Benefit to DACs (can be a SWRP Main Benefit, SWRP Additional Benefit, or Other Benefit)	Score based on providing targeted benefits to more significantly DACs within the region, considering household income and percentage of households below the poverty level	Project directly benefits Planada, El Nido or Franklin/Beachwood = 100 pts Project directly benefits Le Grand or Winton = 75 pts Project directly benefits Atwater, Snelling, Livingston, Stevinson, or DAC areas of City of Merced = 50 pts Project directly benefits regional community, but benefits not targeted to a specific DAC = 25 pts Does not provide a benefit to a DAC = 0 pts	15	30
	Supports existing TMDLs	Score based on number of TMDLs checked	Supports 2 or more TMDLs = 100 pts Supports 1 TMDL = 50 points Supports no TMDLs = 0 points	5	
	Reduces pollutant discharges into a 303(d) listed Impaired Water Body	Score is based on Yes/No response	Yes = 100 pts No = 0 pts	5	
	Augments water supply via groundwater recharge	Score based on whether project provides groundwater recharge and associated quantitative measurement	Provides quantitative measure of groundwater recharge volume = 100 pts Provides groundwater recharge but does not quantify the amount = 50 points Does not provide groundwater recharge = 0 pts	5	
Total					100

The following subsections outline the project selection factors developed by the RAC for use in the project prioritization process. The scoring criteria were arranged into three categories as described below: (1) SWRP Main and Additional Benefits, (2) Project Status and Feasibility, and (3) Regional Watershed Priorities. Appendix A provides a snapshot of projects included in the SWRP (as of August 31, 2018) and includes a summary of points awarded in each portion of the project prioritization process.

6.3.1 SWRP Main and Additional Benefits

Table 6-1 lists the points awarded to a project for each SWRP main and additional benefit that the project would provide. SWRP main benefits accounted for 25% of the project's overall score, the greatest weight for any one criterion, and SWRP additional benefits accounted for a further 15% of the overall score. These weights reflect the relative importance of SWRP benefits as the primary consideration for projects ranking. Additional points were awarded if a quantitative metric was provided for a given benefit (either main or additional). Through this scoring component, the SWRP places an emphasis on quantification of benefits; it also provides an incentive for project proponents to include these metrics when entering projects into the online project database. The quantitative metrics provided by project proponents support the integrated analysis in Section 5.4.

6.3.2 Project Status and Feasibility

Is Ready to be Implemented

Project status, also known as "readiness to proceed," is considered during project prioritization as project status may be a key component of funding eligibility. Projects are scored based upon the degree of work required before they can be implemented and current status of completion. However, the RAC and MIRWMA also recognize that readiness to proceed is not necessarily a reason to exclude projects from the SWRP. Even conceptual projects may be included in the SWRP, as they may move toward implementation in the future and provide stormwater management benefits.

Project status was assessed based on project proponents' responses to questions related to the status of planning, design, environmental documentation and permitting efforts. Projects that were either a feasibility study, plan development, or other paper study were considered ready to be implemented and thus received the maximum possible score. The weight of the implementation score was 10% of the total project score.

Land Considerations

A priority of SWRP planning is to make use of public lands or existing rights-of-way to implement stormwater projects. Projects were scored based on whether they would use existing public lands or easements. The project information database included a question to determine whether the project is located on public lands, and if not, whether the project has an existing easement or right-of-way agreement established. If either of these conditions were met, projects received a full score for this criterion. This criterion was worth 10% of the overall project score.

Supported by Permanent, Local, or Regional Funding

Projects also received scores based on their funding sources. Specifically, projects received credit if their project proponent indicated that they have created permanent, local, or regional funding for the project. A specific question was dedicated to this criterion in the online project database, and projects received a full 100 points if a funding source or partial funding source had been established. This criterion accounts for 10% of the total project score.

6.3.3 Regional Watershed Priorities

Benefits to DACs

DAC considerations are captured through a dedicated scoring criterion. The state defines a DAC as a community with an annual median household income (MHI) that is less than 80% of the statewide annual MHI. Based on estimates of MHI from the U.S. Census American Community Survey from 2012-2016, 80% of the statewide MHI equals $51,026 (U.S. Census, 2017). The project prioritization process used to develop the SWRP project list considered whether or not projects benefit DACs based on the degree of economic distress experienced by communities. The more disadvantaged a given community is, the greater the score awarded for this criterion. If a project was found to benefit multiple DACs, the highest number of points possible were awarded (i.e., based on the most disadvantaged community benefitted). The RAC grouped the Region's DACs into scoring tiers based on a combination of the communities' MHI as viewed by census place, and local knowledge of economic conditions. This criterion makes up 15% of a project's total score.

Supports Existing TMDLs

One of the regional watershed priorities is to implement projects that support existing TMDLs. TMDLs relevant to the Region are fully described in Section 3.1.1. Six TMDLs covering four sets of pollutants were deemed relevant to the Region. Although entities in the Merced Region are not subject to all six of these TMDLs, stormwater projects in the Region have the ability to support water quality improvements that would help achieve TMDL goals. Project proponents were able to indicate support for relevant TMDLs in the online project database. Projects that supported one or more TMDLs were awarded points based on the number of TMDLs supported. The TMDL score accounted for 5% of a project's total score.

Reduces Pollutant Discharges to 303(d)-Listed Water Bodies

The Region also elected to give priority to projects that would reduce pollutant discharges to 303(d)-listed impaired water bodies. When submitting projects to the online project database, project proponents indicated whether their projects would support this goal, and what water body would benefit. Scores were awarded based on whether or not a project would reduce pollutant discharges into any 303(d)-listed water body (a yes or no answer). This criterion had a weight of 5% of the total score.

Augments Water Supply via Groundwater Recharge

Finally, due to the significance of groundwater within the Region, the Region prioritized stormwater projects that augment water supply via groundwater recharge. Projects that could quantify their water supply benefits received the highest possible score, while projects that would recharge groundwater but did not have a quantified estimate received an intermediate score. This criterion was evaluated through a yes or no question in the online project database, and using the benefit information (quantified or unquantified) provided by the project proponents. This criterion made up 5% of the total project score.

6.4 Projects Addressing SWRP Guideline Priorities

SWRP Guideline Requirements Addressed in Section 6.4:

- ✓ Plan identifies opportunities to augment local water supply through groundwater recharge or storage for beneficial use of storm water and dry weather runoff,
- ✓ Plan identifies opportunities for source control for both pollution and dry weather runoff volume, onsite and local infiltration, and use of storm water and dry weather runoff.
- ✓ Plan identifies projects that reestablish natural water drainage treatment and infiltration systems, or mimic natural system functions to the maximum extent feasible.
- ✓ Plan identifies opportunities to develop, restore, or enhance habitat and open space through storm water and dry weather runoff management, including wetlands, riverside habitats, parkways, and parks.
- ✓ Plan identifies opportunities to use existing publicly owned lands and easements, including, but not limited to, parks, public open space, community gardens, farm and agricultural preserves, school sites, and government office buildings and complexes, to capture, clean, store, and use storm water and dry weather runoff either onsite or offsite.

In accordance with Water Code Section 10562, subd. (d), SWRPs must identify opportunities to implement a variety of water resource management strategies. The SWRP Guidelines reference five strategies as summarized in Table 6-2. This table includes example projects for the Merced Region based on the project descriptions provided in the online project database. Collectively, these are referred to here as "priority project opportunities." Each priority project opportunity was included in the online project database so that project proponents could indicate whether their project would address the opportunity (either in the project benefit information or in supplementary questions). The detailed online project database form is included in Appendix A. The following questions were used in the project solicitation form in order to determine if the project would address the priority project opportunity.

1. Does the project augment water supply by capturing storm water for recharging into a groundwater basin?
2. Does the project provide increased filtration and/or treatment of runoff?
3. Does the project reestablish natural water drainage and treatment?
4. Does the project provide environmental habitat protection and improvement, including wetland enhancement/creation, riparian enhancement, and/or instream flow improvement?
5. Is the project located on public land? If not, does the project have an easement or right of way agreement with a local land owner?

Table 6-2: Addressing Priority Project Opportunities

Priority Project Opportunity	Ways to Address Opportunity through Stormwater Management	Addressing Opportunity in Merced SWRP
Augment local water supply through groundwater recharge or storage for beneficial use of storm water and dry weather runoff	Stormwater projects can provide water supply benefits by capturing stormwater runoff. Stormwater can be used directly after capture, or can be used after entering a groundwater basin. Project types that augment water supply could include retention basins, dry wells, and other on-site rainwater capture and infiltration, such as rain gardens.	Supply augmentation opportunities are important in the Region since groundwater is a key supply source, and because flooding can be an issue. A range of opportunities to augment water supply have been identified in the SWRP; these would primarily use stormwater to provide groundwater basin recharge. For instance, the *El Nido Recharge Basin Project* would augment water supply by constructing a new recharge basin and conveyance facilities.
Provide source control for both pollution and dry weather runoff volume, onsite and local infiltration, and use of storm water and dry weather runoff	Source control of pollutants can be achieved through onsite and local infiltration using LID techniques, such as permeable pavement, retention planters, and biological treatment options. Wetland areas and stream buffers can be used to provide filtration of pollutants such as sediment. Use of stormwater can also reduce the need for landscape irrigation.	Projects that fit this description in the Merced SWRP often provide pollution source control via flood reduction, as flood flows can result in large amounts of pollutants being flushed into waterways and potentially cause sanitary sewer overflows. Nonpoint source pollutant discharges from agricultural lands could also be addressed through the types of stormwater projects noted here. Projects such as the *Black Rascal Creek Flood Control Project* would both alleviate flooding and flood-related pollution helping to address this priority project opportunity.
Reestablish natural water drainage treatment and infiltration systems, or mimic natural system functions to the maximum extent feasible	Impermeable surfaces can alter natural drainage patterns and reduce the amount of natural treatment that occurs as stormwater flows to receiving waters. More natural drainage can be achieved by reducing runoff rate, improving infiltration, and establishing buffer areas around receiving waters. Projects that infiltrate stormwater into the groundwater basin would likely aid in reestablishing natural water treatment and infiltration.	Multiple SWRP projects aim to improve groundwater recharge and infiltration, as management of the groundwater basin and flood control are key concerns in the Region. Projects would slow flood flows and allow greater recharge of floodwaters, while increasing attenuation of pollutants as stormwater passes through the soil column or other environmental buffers.

Priority Project Opportunity	Ways to Address Opportunity through Stormwater Management	Addressing Opportunity in Merced SWRP
Develop, restore, or enhance habitat and open space through storm water and dry weather runoff management, including wetlands, riverside habitats, parkways, and parks	Enhancement of parks and other open space areas can provide an opportunity to implement many of the stormwater management practices mentioned in this section. Stream buffers, bioswales, wetlands, and permeable surfaces can all be used in such areas to improve stormwater drainage and treatment.	The Merced Region is home to a large amount of open space and agricultural land, including the Merced National Wildlife Refuge (MNWR). MID provides water to the MNWR to help sustain these habitats. Continued improvements to MID's infrastructure to allow operational flexibility, such as the *Fairfield Canal/El Nido Superhighway Project*, support transfers of water to this and other local refuges. Open spaces and recreational areas in urban locations can also be enhanced through stormwater projects.
Use existing publicly owned lands and easements, including, but not limited to, parks, public open space, community gardens, farm and agricultural preserves, school sites, and government office buildings and complexes, to capture, clean, store, and use storm water and dry weather runoff either onsite or offsite	In order to maximize efficiency of both space and cost, projects may be implemented on existing publicly-owned lands or rights-of-way. This includes stormwater projects that can be implemented in areas such as parks, medians, parking lots, and other publicly-owned areas. This may also include stormwater projects that are implemented at existing municipal stormwater conveyance facilities.	Like many areas throughout the State, the Merced Region contains aging infrastructure that is in need of rehabilitation to provide its full benefits. Projects can often be conducted on existing facilities without the need for purchases of land or establishment of new easements. Projects such as the *Black Rascal Creek Flood Control Bypass/Supplemental Groundwater Supply Improvements* project would improve stormwater management without requiring any work to be conducted outside existing MID facilities.

6.5 Design Criteria and BMPs for New Development and Redevelopment

Although the SWRP itself does not create design criteria or BMPs, these may still be relevant to stormwater projects implemented within the Region, and thus are summarized in this section.

SWRP Guideline Requirements Addressed in Section 6.5:

- ✓ For new development and redevelopments (if applicable): Plan identifies design criteria and BMPs to prevent storm water and dry weather runoff pollution and increase effective storm water and dry weather runoff management for new and upgraded infrastructure and residential, commercial, industrial, and public development.

General plan documents, such as the Merced County General Plan, support stormwater BMPs, but do not contain prescriptive design requirements. For example, the Merced General Plan includes the following Goals and Policies related to stormwater management:

- Goal PSF-3: Ensure the management of stormwater in a safe and environmentally sensitive manner through the provision of adequate storm drainage facilities that protect people, property, and the environment.
- Policy PSF-3.2: Require that new development in unincorporated communities includes adequate stormwater drainage systems. This includes adequate capture, transport, and detention/retention of stormwater.
- Policy PSF-3.5: Require on-site detention/retention facilities and velocity reducers when necessary to maintain pre-development storm flows and velocities in natural drainage systems.
- Policy PSF-3.6: Encourage stormwater detention/retention project designs that minimize drainage concentrations and impervious coverage, avoid floodplain areas, are visually unobtrusive and, where feasible, provide a natural watercourse appearance and a secondary use, such as recreation.
- Policy NR-3.2: Require minimal disturbance of vegetation during construction to improve soil stability, reduce erosion, and improve stormwater quality (Merced County, 2012).

The City of Merced General Plan also includes support for proper stormwater management during development, including in Policy 5.1.c, which states: "All new development proposals will be reviewed for consistency with the plan and shall be responsible for construction of storm water retention basins, collection, treatment and disposal facilities necessary to adequately support the project" (City of Merced, 2012a).

In terms of stormwater-specific documents, the Cities of Atwater and Merced collaborated with other Phase II Small MS4 Permittees outside the Merced Region (including 12 cities and 3 counties) to prepare a *Post-Construction Standards Plan* (WGR Southwest, Inc., 2014). This plan was prepared to guide project proponents and municipal staff through the various site design requirements of the Phase II Small MS4 Permit. The plan also helps agencies inform developers about actions needed to manage stormwater at locations where new development or redevelopment occur. The *Post-Construction Standards Plan* is intended to help developers mitigate stormwater impacts often encountered during and after construction to comply with the Phase II Small MS4 Permit; it summarizes design measures and BMPs that may be used to achieve these goals. For example, small projects (creating or replacing between 2,500 and 5,000 square feet of impervious surface) must implement site design measures, which include elements such as stream buffers, vegetated swales, and porous pavement. Benefits of these design measures include improved

stormwater infiltration, reduced rates of runoff, and lower pollutant loading to water bodies. Large projects (which would create or replace over 5,000 square feet of impervious surface) must implement site design measures, and in addition they must identify source control measures for pollutants (e.g., proper tracking and storage of hazardous materials).

A Construction General Permit administered by the SWRCB (Order No. 2009-0009-DWQ) regulates stormwater runoff from any construction site that disturbs one or more acres of soil. In order to comply with the General Permit, developers must prepare and implement a SWPPP, which would include BMPs for reducing pollution during construction. The California Stormwater Quality Association (CASQA) *Stormwater Best Management Practice Handbook* includes a thorough discussion of BMPs for construction sites (CASQA, 2003). These may include the capture of sediment using silt fences, reducing wind erosion by applying water to the site, and preventing spills of hazardous materials. CASQA also makes SWPPP templates available for purchase for both construction and industrial/commercial users.

Project proponents are ultimately responsible for ensuring that appropriate BMPs are used during project design and construction. Project proponents must also ensure that their project designs are vetted by the appropriate vector control districts (the Merced County Mosquito Abatement District for all projects physically located within the Merced Region).

Merced Stormwater Resources Plan

Chapter 7 Implementation Strategy and Schedule (VI.E)

7.1 Implementation Strategy

7.1.1 Implementation Strategy Overview

Implementation of the SWRP will occur via the implementation of individual projects contained within the SWRP. All SWRP projects must provide multiple SWRP benefits; therefore, as each SWRP project is implemented, benefits will be achieved. Projects will generally progress through planning, design, and construction phases, with benefits (e.g., stormwater capture, pollutant loading reduction) being realized at the completion of the projects. After completion, projects will be monitored to ensure that the project goals are being met and that SWRP benefits are being achieved. The more SWRP projects that are implemented, the greater the cumulative SWRP benefits will be for the Merced Region. Periodically, the SWRP itself will be evaluated in order to keep the document current, and to assess the progress of the Region toward its overall goals.

SWRP Guideline Requirements Addressed in Section 7.1:

- ✓ Plan projects and programs are identified to ensure the effective implementation of the storm water resource plan pursuant to this part and achieve multiple benefits.
- ✓ The Plan identifies the development of appropriate decision support tools and the data necessary to use the decision support tools.
- ✓ Plan describes implementation strategy, including: timeline for submitting Plan into existing plans, as applicable; specific actions by which Plan will be implemented; all entities responsible for project implementation; description of community participation strategy; procedures to track status of each project; timelines for all active or planned projects; procedures for ongoing review, updates, and adaptive management of the Plan; a strategy and timeline for obtaining necessary federal, state, and local permits.

7.1.2 Responsible Entities

In 2016, MIRWMA, was formed to assume responsibility for continued updates of the Merced IRWMP, and also took responsibility for preparing a SWRP in the same region. In coordination with a 16-member RAC, MIRWMA developed this SWRP. MIRWMA members includes MID, Merced County, the City of Merced, the City of Livingston, and the City of Atwater. MIRWMA is responsible for overall direction, funding of SWRP preparation, and approval for the SWRP development process; the governing bodies of the MIRWMA member agencies collectively form the governing body of MIRWMA, and elected officials and staff members from each of the MIRWMA member agencies coordinate through the committees of MIRWMA.

- A Management Committee, comprised of staff from each MIRWMA member agency, responsible for managing the day-to-day business of the SWRP program.
- The MIRWMA Board of Directors, comprised of one official from each MIRWMA member agency, tasked with advising the MIRWMA governing bodies on SWRP-related business and policy based on recommendations of the RAC and Management Committee.

Collectively, the MIRWMA member agencies have jurisdiction over all of the incorporated and unincorporated areas of the Region and associated interests of both urban and agricultural communities in the Region. All five of these entities have statutory authority over water supply and management. The

MIRWMA member agencies are envisioned to be equal partners in management of the SWRP and will be responsible for managing the Merced SWRP program indefinitely. The organization of MIRWMA may evolve based on advisement by the RAC and discussion among the MIRWMA member agencies. MIRWMA's commitment to the implementation of this SWRP will be formalized through the adoption of the SWRP by MIRWMA.

MIRWMA and its member agencies are responsible for development of the SWRP and monitoring implementation of the SWRP. However, the individual project proponents are each responsible for implementing their own projects. The project proponents of all projects submitted to the SWRP during the 2018 Call for Projects are listed in Appendix A. No linkages or interdependencies between projects were identified for this set of projects; in the future, linkages would be noted in the project information appendix.

7.1.3 Community Participation Strategy

Because SWRP implementation will occur via implementation of individual projects, community participation will generally occur in relation to a particular project. Community participation throughout the SWRP development process is discussed in detail in Chapter 8. Project proponents may conduct outreach and solicit community participation in various ways as they implement projects. These could include public forums, workshops, and public comment periods. Project proponents may notify the public of such opportunities via methods such as newspaper announcements, radio/television/online ads, flyers, web postings, email or snail mail notifications, and signage at project sites. MIRWMA encourages all project proponents to engage in public processes during project development and implementation; however, it is up to the individual project proponents to take these types of steps.

Many projects may be required to conduct public processes through mechanisms outside the SWRP planning process. For example, CEQA includes public notice and comment requirements. Additionally, most SWRP projects would be subject to approval by a City Council or Board of Supervisors; such approval would occur at a public meeting where comments could be provided. Therefore, some level of community participation will be included in all projects.

7.1.4 Decision Support Tools

The primary decision support tool used in the SWRP is the online project database and associated project prioritization method (discussed in detail Chapter 6). The online project database allows standardized data to be collected for all projects in a user-friendly, transparent, web-based platform. Projects must provide at least two Main SWRP benefits and one Additional SWRP benefit in order to be included in the SWRP. Through the online project database, project proponents also provide other information that is used in the project prioritization process, such as whether the project benefits a DAC or supports TMDL implementation. The prioritization methodology, which was approved by the RAC, is intended to help the Region identify projects that may be best suited for future grant opportunities; however, the scores are not intended to preclude any project from implementation. Further, project information may be updated over time in the online project database, as project proponents are free to input the latest project information at any point.

Data submitted to the online project database by project proponents includes project description, location, feasibility, progress toward implementation (e.g., planning, design, construction), budget, SWRP benefit information, and other data. The full project information form is provided in Appendix A. The online project database relies on the project proponents to fill out their own project information. Therefore, data gaps may exist in the database due to a lack of information, particularly when projects have not been fully developed.

The project prioritization method aims to incentivize project proponents to provide complete information by awarding more points for quantified benefit information, for example.

7.1.5 Project Timelines and Status Tracking

The timelines for all projects submitted during the 2018 Call for Projects is included in Appendix A, if this information was provided by project proponents. Of the 21 projects submitted, 12 are at a conceptual stage, and nine have progressed past the conceptual stage (to planning, design, or construction). As projects develop, project proponents are able to update their information in the online project database at any time. Therefore, the online project database will be the primary method of tracking project status. In the case of projects that are under construction or funded through grant programs, the tracking measures discussed in Section 7.4.2 would be implemented.

7.1.6 Permitting

Permits will be secured as individual projects progress toward implementation. It is the responsibility of the project proponent to determine what permit requirements must be met, and to secure their own federal, state and/or local permits prior to relevant deadlines. For projects submitted to the SWRP during the 2018 Call for Projects, the status of permitting (relative to other project phases, such as planning and design) is summarized in Appendix A (if the status was provided by the project proponent).

7.1.7 Plan Updates

The SWRP may require periodic updates to account for changes in regional conditions or modifications to SWRP Guidelines. MIRWMA and the RAC appreciate the need to continue to hold regular meetings to keep up to date on regional conditions, priorities, and stormwater management strategies. Through these meetings, the governing body (MIRWMA) and stakeholders (the RAC) will continue to discuss and coordinate on critical water-related needs to determine whether shifts in regional objectives or priorities are needed to maintain currency with local conditions and needs. When changes are dictated, MIRWMA, in consultation with the RAC, will prepare amendments or full updates to the SWRP, as appropriate. Changes to SWRCB's SWRP guidelines may also necessitate updates to the SWRP. Continuation of MIRWMA and RAC collaboration will ensure the Region is prepared to respond to future changes. The project list, accessible through the MIRWMP website and online project database, is a living document and can be updated in real-time without requiring a full Plan update or re-adoption.

7.1.8 Adaptive Management

The Plan Performance Review process will include an adaptive management component which will allow MIRWMA to respond to lessons learned from analyzing collected performance measure and project monitoring data. Adaptive management also allows the Region to incorporate new information about the effects of climate change as new tools and information becomes available. With this information, MIRWMA, in coordination with the RAC, may consider modifying Region priorities, performance measures, and the project review and prioritization process. These actions may, in turn, determine the types of projects that will be selected and implemented in the future.

Local agencies implementing projects as part of SWRP implementation will monitor for the parameters specified in project monitoring plans in order to determine how well each project is fulfilling its objectives. This information will be fed back into the project's decision-making structure to adapt the project to better meet its overall objectives. Only by consistent monitoring and analysis can projects successfully achieve

their objectives and provide measurable benefits. Monitoring will also provide a clear reporting mechanism for the public, decision-makers, and regional planners to determine the planned versus actual value of the project. When the SWRP is updated in the future and regional priorities are revisited, the RAC will discuss and evaluate the status of SWRP implementation. The results of project-specific monitoring efforts will be utilized to identify areas where SWRP implementation may need to be modified to best achieve SWRP benefits moving forward.

When projects included in the SWRP are implemented independently from the SWRP program (i.e., without Storm Water Grant Program funding), project proponents will be encouraged to prepare and administer project-specific monitoring plans that are generally consistent with the monitoring plans described above. During the Plan Performance Review, MIRWMA will assess the extent to which the SWRP benefits have been achieved based on the projects and programs completed throughout the Region. In this way, progress made toward achieving stormwater benefits by projects implemented outside of the SWGP or IRWM Grant Program will be assimilated into the Plan Performance Review.

7.2 Resources for Plan Implementation

Project funding is a major obstacle for the implementation of projects in the Merced Region. Demands on limited local funds continue to increase, construction costs continue to rise, and existing infrastructure requires maintenance or upgrades to meet growing demands. Agencies are challenged to balance costs associated with ensuring the highest standards of water quality and supply reliability for existing customers while protecting and enhancing the sensitive ecosystems within the region.

SWRP Guideline Requirements Addressed in Section 7.2:

- ✓ Plan identifies resources for Plan implementation, including: 1) projection of additional funding needs and sources for administration and implementation needs; and 2) schedule for arranging and securing Plan implementation financing

Funding is particularly difficult for the Merced Region due to the economic distress of its communities. The poverty rate in Merced County was estimated to be 23.8% in 2017 (U.S. Census Bureau, 2018b). Given the Merced Region's economic conditions, MIRWMA and regional stakeholders are mindful of the need to implement the SWRP, including any projects or programs considered for implementation, in a cost-effective manner.

Moving forward, MIRWMA recognizes that the bulk of the cost to maintain the SWRP must come from its member agencies. MIRWMA is committed to continuing to fund a useful and implementable SWRP. Using in-kind services performed by staff from their respective agencies, supplemented by grant funding when available, MIRWMA's member agencies intend to implement periodic plan performance reviews, continue coordinating and participation in meetings of the RAC, organize stakeholder outreach efforts, and update the SWRP as needed in the future to help ensure it responds appropriately to current day conditions and issues. MIRWMA is committed to providing staff time to organize and attend RAC meetings (distributed among the staff of the MIRWMA member agencies) and organize and attend biannual meetings of the MIRWMA Board of Directors (distributed among elected officials and staff members).

The estimated costs of projects included in the Merced SWRP range from hundreds of thousands of dollars to multi-million-dollar projects. Estimated costs for the snapshot of projects that was included in the SWRP as of August 2018 is presented in Appendix A. The list of projects in the appendix also identifies local funding sources and existing grants that have been secured by the project proponent, if applicable. The majority of the project proponents have not yet successfully identified local funding sources to support implementation of their proposed projects. The combined estimated cost of the projects within this Plan is

approximately $125 million. Of this amount, approximately $11.3 million, or 9% of the total estimated costs, has been secured (either through local funds or grant funding). As illustrated by this snapshot of projects, funding can pose a challenge in Region; therefore, agencies in the Region often seek to maximize potential grant awards.

Generally, project and program costs must be borne primarily by the project proponents. However, outside funding provides assistance critical to moving projects from planning to construction. While grants and loans represent unsecured sources of funding, in a region where some water and sewer enterprise funds have been running at a significant deficit and the rate base is composed of DACs, there is significant uncertainty in local sources of funding. Due to lack of funding, some projects which are "shovel-ready" have not been completed. In other cases, projects to meet critical regional water management needs are unable to move beyond planning phases due to inadequate funding.

Project implementation schedules will be determined by project proponents. Typical components of project implementation include environmental documentation, permitting, design, contracting, construction, and performance monitoring. The specific stages, and the duration of each stage, will vary from project to project. Depending on project eligibility, project proponents may apply for grant funding to support planning and/or construction components of their projects. Through the online project database, project proponents can provide up-to-date information about their project implementation status. The schedule information for projects that were submitted during the 2018 Call for Projects is included in Appendix A, if provided by the project proponent.

MIRWMA will fund oversight of the SWRP through in-kind time and limited material commitments, but outside sources of funding will be needed to supplement locally-available funds and advance some critical projects. It should be recognized that each project proponent has a unique set of revenue and financing methods and sources. This SWRP does not provide an exhaustive list of funding sources available. Many of the same funding sources and/or mechanisms would be used for continued development of the SWRP and for project/program implementation. Potential funding sources for furthering the Merced SWRP and implementing projects are listed in Table 7-1, and the funding mechanisms are further described below.

Table 7-1: Funding Sources for Development of the SWRP and Implementation of Projects

Funding Mechanisms	Continued SWRP	Project / Program Implementation	Certainty & Longevity of Funding
User Rates / Recovery		✓	Dependent upon rate structure adopted by project proponents
Capacity Fees		✓	Dependent upon rate structure adopted by project proponents
User Fees		✓	Dependent upon rate structure adopted by project proponents
Special Assessments		✓	Dependent upon the ability to demonstrate direct and unique benefits to parcels. Once in place this represents high certainty of funding.
General or Capital Improvement Funds	✓	✓	Dependent upon budgets adopted by project proponents and participating agencies

Funding Mechanisms	Continued SWRP	Project / Program Implementation	Certainty & Longevity of Funding
Revenue Bonds		✓	Dependent upon debt carried by project proponents & bond market
Local, State, or Federal Grant Programs	✓	✓	Dependent upon future local, state, and federal budgets, and success in application process
Low-interest Loan Programs		✓	Dependent upon future local, state, and federal budgets, and success in application process

- **User Rates/Rate Recovery**. User rates or rate recovery pays for the operations and maintenance of a water agency or public utility's system. Within a water agency user rate, there is a fixed cost component that covers costs that do not vary with the amount of supplied water, such as labor and overhead expenses, and a variable cost component that covers costs that are based on the amount of pumping and treatment needed to meet the water demands of the customers. These costs, such as electrical and chemical costs, vary with the amount of supplied water. A water agency customer pays a monthly fixed rate and a variable rate based on the metered usage. In some cases, the variable rate includes an allowance for water use and the variable rate is charged only if the customer's usage exceeds the fixed allowance. In tiered water rates, the variable fee increases with water consumption. For services without meters, a single monthly rate is assessed based on assumed consumption. Unmetered customers may also be assessed miscellaneous fees, including charges for swimming pools.

  Regional stakeholders understand the need to fully vet projects before passing the costs of projects onto ratepayers in the form of increased water and wastewater rates. Additionally, regional stakeholders have expressed the need for projects designed to address existing water management needs to be economically sustainable given the current population/ratepayers. As such, the certainty of funding for projects which propose rate increases will be largely dependent on the support garnered for the project and ratepayers understanding of the project need. Rate increases could be implemented on an ongoing basis.

- **Capacity Fees**. Capacity fees are charged to users who create new or additional demand on water or wastewater systems. Capacity fees are used to achieve and maintain equity among its past, present and future customers. They are typically charged per connection, measured in equivalent dwelling units (EDUs). A single connection may encompass more than one EDU.

  California law requires that these charges comply with the Mitigation Act (AB1600, Government Code 66000 et seq.) which states that there needs to be nexus between the connection and costs, and that fees should be proportionate to the cost of providing service. Capacity fees could also be implemented by agencies on an ongoing basis.

- **User Fees**. Monthly user fees are assessed by water agencies when facilities are implemented that directly benefit existing customers. This is particularly true for water agencies that are developing conjunctive use water systems in which existing customers may have paid for the groundwater component when they paid the development fee (through the purchase of the home). The surface water and/or recycled water component is a new water supply for a water agency that is needed for

conjunctive use with groundwater supplies. Income from this monthly revenue source may be used to pay debt service on debt financed assets.

- **Special Assessments**. Upon compliance with Proposition 218, a government agency (including a JPA such as MIRWMA) can impose a special assessment on properties that receive a special benefit from the public project that is being constructed.

  As the Region works to address critical flood management needs, it may be necessary to form a Flood Control District or a JPA comprised of agencies with authority over flood management. The Flood Control District or JPA could focus on the creation of drainage areas, flood control zones and other special assessment areas to support design, construction and maintenance of flood and stormwater management facilities. The Flood Control District would absorb all functions currently performed by the Merced Streams Group.

  An assessment district for maintaining the groundwater basin, such as the districts authorized under AB3030, could be created and properties could be assessed to support groundwater recharge projects and monetary cost of purchased recharge water. Similarly, the GSAs may use powers given to them under SGMA to fund projects that promote groundwater sustainability (such as stormwater runoff capture and recharge projects).

- **General or Capital Improvement Funds**. General or capital improvement funds are monies that an agency sets aside to fund general operations and/or facility improvements, upgrades, and at times development. These funds are usually part of the overall revenue stream, allocated on an ongoing or annual basis, and may or may not be project-specific.

- **Revenue Bonds**. In cases in which large facilities are needed to support current services and future growth, revenue bonds may be issued to pay for new capital. In this way, large facilities can be paid for by bonded debt service at the time of construction with repayment of the debt service over a 20- to 30-year timeframe. This is a preferred approach to paying for high-cost facilities because it avoids the perceived over-collection of fees from past customers that go toward facilities that serve present and future customers. The drawback to bonded debt is that it cannot be accomplished with capacity fees alone due to the variability and uncertainty of new development over time. A user rate is needed as a bond document covenant in the event that development fees are not adequate to make the required annual payment for the debt service. Revenue bonds could be issued on an ongoing basis as the need arises.

- **Local, State, and Federal Grant Programs.** Grant programs typically include a local matching requirement to establish a commitment to promoting and completing the study or project. Grants also typically carry relatively high administration costs due to extensive reporting requirements, and in most cases only a small portion of the grant may be used to cover these expenses. Grant programs that Regional project proponents may consider for future project funding are listed below, along with the estimated timing of the next funding period, if known.
  - DWR Proposition (Prop) 1 IRWM Implementation Grants (early 2019)
  - DWR Prop 1 Central Valleys Tributaries Program (fall 2018)
  - DWR Small Communities Flood Risk Reduction (timing TBD)
  - DWR Urban Flood Risk Reduction (timing TBD)
  - SWRCB Prop 1 Storm Water Grant Program Implementation Grants (early 2019)

  - SWRCB CWA Section 319(h) Non-Point Source Grant Program (annually winter/spring)
  - California Department of Fish and Wildlife Prop 1 and Fisheries Restoration Grants (timing TBD)
  - California Wildlife Conservation Board Habitat Enhancement and Restoration Program Grants (timing TBD)
  - U.S. Bureau of Reclamation WaterSMART Cooperative Watershed Management Program (ongoing)
  - U.S. Department of Agriculture (USDA) Rural Development Water and Waste Disposal Grant Program (ongoing)
  - USDA Water and Environmental Programs (Fall 2018)

- **Low-interest Loan Programs.** Several funding agencies provide low-interest loans for implementation of water resources projects, saving project proponents significant amounts of money compared to traditional bonds. These include:

  - SWRCB Clean Water State Revolving Fund (SRF) Program: Historically, the Clean Water SRF has had approximately $200 to $300 million available in loans each year to help cities, towns, districts, Native American tribal governments, and any designated and approved management agency under Section 208 of the Clean Water Act to construct publicly-owned facilities including wastewater treatment, local sewers, water reclamation facilities, nonpoint source projects, and development and implementation of estuary comprehensive conservation and management plans. The interest rate is half of the most recent General Obligation Bond Rate at the time of the funding commitment. Over the last five years, the Clean Water SRF loan interest rate has ranged from 1.8% to 2.1% and loans are paid back over 30 years (SWRCB, n.d.). Available loan funding is dependent upon federal appropriations.
  - SWRCB Drinking Water SRF Program: The Drinking Water SRF program provides financial assistance to public water systems to finance a wide variety of drinking water planning and infrastructure construction projects needed to achieve or maintain compliance with SDWA. There is no application deadline and financing is limited only by the water system's ability to borrow. The interest rate is 50 percent of California's average general obligation bond rate obtained by the State Treasurer for the previous calendar year, 1.8% for 2018. Repayment term is up to 30 and begins within one year after project completion. Stormwater projects that also provide water supply benefits (e.g., treatment, storage) could qualify for funding under this program.
  - California Infrastructure and Economic Development Bank (I-Bank) Infrastructure SRF Program: The I-Bank Infrastructure SRF Program provides financing to public agencies and nonprofit corporations sponsored by public agencies for a wide variety of infrastructure and economic development projects, including drainage, water supply, and flood control projects. Funding is available in amounts ranging from $50,000 to $25 million, with repayment terms ranging from the useful life of the project up to a 30-year maximum.

7.3 IRWMP Submittal

SWRP Guideline Requirements Addressed in Section 7.3:

- ✓ The Plan will be submitted, upon development, to the applicable integrated regional water management (IRWM) group for incorporation into the IRWM plan.

As discussed in Chapter 1, MIRWMA administers both the Merced IRWMP and Merced SWRP. Therefore, the efforts to update the MIRWMP for 2018 and to develop the Merced SWRP have been closely coordinated and are being overseen by the same representatives. Upon completion of the SWRP, the SWRP Executive Summary will be included as an appendix of the MIRWMP. The two documents are expected to be finalized and adopted concurrently or nearly concurrently in early 2019. MIRWMA will also oversee any future updates to the SWRP and provide for inclusion of updated information in the MIRWMP as necessary. Because the Merced SWRP study area boundary is congruent with the Merced IRWM Region, the Merced SWRP does not need to be submitted to any other IRWM group for incorporation.

7.4 Implementation Performance Measures and Tracking

7.4.1 Plan Performance and Monitoring

SWRP Guideline Requirements Addressed in Section 7.4:

- ✓ Plan describes how implementation performance measures will be tracked.

This section describes the process by which MIRWMA will periodically verify that the Region is efficiently making progress towards meeting the SWRP objectives and implementing projects listed in the plan. Project proponents are responsible for ensuring that each project in the SWRP is monitored to comply with all applicable rules, laws, and permit requirements during implementation. This section describes the general process that will be employed to track plan performance and to monitor progress being made to implement the projects contained in this plan.

MIRWMA will periodically conduct a Plan Performance Review. This will occur during updates to the SWRP, or as needed. The Plan Performance Review will evaluate progress made toward achieving SWRP benefits and will be administered by MIRWMA and supported by the RAC or a workgroup thereof.

Two tables will be generated with each Plan Performance Review: one that addresses the extent to which the SWRP benefits have been met, and one that describes progress made in implementing the projects listed in the SWRP. The first table, which will be entitled “Progress Toward Achieving SWRP Benefits,” will report the aggregate of the performance measure data collected and submitted by the reporting agencies for each of the SWRP benefits listed in Table 5-1 and Table 5-2. An example reporting template is shown in Table 7-2. The second table will be entitled “Status of Project Implementation” and will list all of the projects within the Merced online project database that have been approved for inclusion in the SWRP, including project information such as the project proponent, implementation status, and funding sources. Table 7-3 shows a template for this table.

Table 7-2: Example Reporting Template: Progress Toward Achieving SWRP Benefits

Merced SWRP Project Implemented	Project Status	SWRP Benefit				Performance Measure(s)	Monitoring Results
		Increased filtration and/or treatment of runoff	Water supply reliability	Decreased flood risk by reducing runoff rate and/or volume	Water temperature improvements		
Project 1	Completed in month year				✓	Amount of temperature improvement	Reduced the temperature of the X River by Y°C
Project 2	Completed in month year		✓			Increase in water supply through direct groundwater recharge (AFY)	Recharged X AFY into the Y Groundwater Basin
Project 3	Completed in month year			✓		Reduction in volume of potential flood water (AFY)	Reduced volume of potential flood water by X AFY

Table 7-3: Example Reporting Template: Status of Project Implementation

Project	Proponent	Status of Project Implementation	Secured Funding Sources
Project 4	Project Proponent 4	Feasibility Study underway	None to date
Project 5	Project Proponent 5	90% design complete; Environmental Impact Report complete	SWGP grant ($x million)
Project 6	Project Proponent 6	Ready to construct – 100% plans & specs complete, CEQA document complete	Clean Water SRF loan ($x million)

7.4.2 Project-Specific Data Collection and Monitoring Plans

Proponents of projects implemented as part of the Merced SWRP may be required to develop project-specific monitoring plans prior to, or in conjunction with, project implementation, as required by applicable grant agreements or other documentation. Project proponents will be responsible for performing monitoring activities, collecting and validating the data, and submitting data to relevant statewide databases. For projects that receive funding for project implementation through the IRWM Program or Storm Water Grant Program, project proponents will likely be required to prepare project-specific monitoring plan(s) consistent with the requirements outlined in the SWRP and the grant agreement and implement the monitoring plan accordingly. Each monitoring plan will include information as required per relevant guidelines or grant agreements. Storm Water Grant Program-funded projects would be required to prepare a project monitoring plan that includes a schedule with an estimated timeline of monitoring activities which MIRWMA will use as a guide for overall program implementation. Consistent with DWR and/or SWRCB grant requirements, which require reporting as part of the grant agreement, data collected and analyses performed for grant-funded projects will be reported to appropriate statewide databases, along with required documentation and an evaluation of project performance. This will help to ensure that implemented projects provide SWRP benefits as originally intended.

Project-specific monitoring plan requirements will vary based on the type of project being implemented. All projects must adhere to appropriate State guidelines for monitoring, depending upon the type of data being collected, in order to be implemented through the SWRP. These include:

- Projects that involve surface water quality must meet the criteria for and be compatible with the SWRCB SWAMP, http://www.waterboards.ca.gov/water_issues/programs/swamp/tools.shtml.
- All projects that involve groundwater quality must meet the criteria for and be compatible with the SWRCB GAMA program, http://www.waterboards.ca.gov/gama/.
- Projects collecting groundwater elevation should be compatible with the needs of the CASGEM program, http://www.water.ca.gov/groundwater/casgem/.
- All projects that involve wetland restoration must meet the criteria for and be compatible with the State WRAMP, http://www.waterboards.ca.gov/mywaterquality/monitoring_council/wetland_workgroup/docs/2010/tenetsprogram.pdf.

Project-specific monitoring plans may be required to include information such as the following:

- A table describing what is being monitored for the project (e.g. water quality, water depth, flood frequency), and effects the project may have on habitat or particular species (before and after construction).
- Measures to remedy or react to problems encountered during monitoring.
- Location of monitoring.
- Monitoring frequency.
- Monitoring protocols/methodologies and quality QA/QC procedures, including who will perform the monitoring.
- A description of how those monitoring protocols / methodologies and QA/QC procedures are consistent with requirements for applicable statewide databases including SWAMP, GAMA, and WRAMP.
- Procedures and a schedule for incorporating collected data into statewide database(s).
- Procedures to ensure the monitoring schedule is maintained and that adequate funding is available to maintain monitoring of the project throughout the scheduled monitoring timeframe

In developing monitoring plans, project proponents should keep in mind the SWRP benefits that the project is intended to provide. Tracking these benefits provides a way to assess each submitted project's contribution to the realization of SWRP benefits. Monitoring each project's contribution to the SWRP benefits can assist with the assessing the SWRP's overall progress towards achieving the quantifiable benefits to water quality, water supply, flood management, environment, and community.

Project proponents will be solely responsible for completing data collection in accordance with the approved project-specific monitoring plan, which will clearly identify monitoring and analytical techniques and QA/QC procedures to be implemented, and will describe how those techniques are compatible with the requirements of appropriate statewide database(s). Individual project proponents will be responsible for reviewing the data collection and QA/QC protocols to validate that data were collected in accordance with QA/QC procedures required as part of the project monitoring program. In addition, project proponents will be responsible for "spot-checking" all data for accuracy at the time of entry into the database to identify any apparent errors. Once data collection and QA/QC has been completed in accordance with provisions of the approved project-specific monitoring plan, project proponents will submit the compatible data to the appropriate statewide database(s). Project proponents will also provide MIRWMA with confirmation that the data has been submitted to the appropriate statewide database(s) consistent with the project-specific monitoring plan.

Data collected by project proponents may also be made available to the public through the Merced IRWMP/SWRP website or through the online project database. The availability of data to stakeholders and members of the public is discussed further in Chapter 8. In addition, a separate database, the Merced Hydrologic Data Management System (Merced HydroDMS) was developed during preparation of the 2013 MIRWMP to serve as the centralized data management system (DMS) for project proponents within the Merced Region. The system included data entry forms for users to submit data and tools to automate report and chart preparation based on available data. This collaboration was to be used to identify and fill data gaps, document the status of current water resources problems, detect new problems, and provide information to the Region to track MIRWMP implementation progress. The Merced HydroDMS is undergoing a transition, including an update to a new platform, as part of the Merced GSP planning process. The upgraded DMS, known as Merced GSP Online Project Tracking and Integration Program (Opti) DMS, expanded upon the HydroDMS both on functionality and data. The GSP is still underway and thus, data are

still being collected and reviewed, and data gaps are being identified. Future planning efforts will determine how the Opti DMS may be utilized to support MIRWMP implementation.

7.4.3 Data-Sharing

MIRWMA, the RAC, project proponents, and other stormwater planning participants are all jointly responsible for data dissemination. During development of the SWRP, data were disseminated via public workshops, RAC meetings and Merced IRWMP/SWRP website postings. Additionally, an online database used during the Merced IRWM planning process will be used to share project information and data collected as part of the SWRP (discussed further in Chapter 6). Environmental documentation processes (i.e. CEQA and NEPA) are another method of disseminating data for review by interested stakeholders and the public due to the public meetings and public review periods often associated with CEQA and NEPA compliance; completion of environmental documentation will be the sole responsibility of project proponents and will be completed on a project-by-project basis.

Chapter 8 Education, Outreach, and Public Participation (VI.F)

SWRP Guideline Requirements Addressed in Section 8.1:

- ✓ Outreach and Scoping: Community participation is provided for in Plan implementation.
- ✓ Plan describes public education and public participation opportunities to engage the public when considering major technical and policy issues related to the development and implementation of the Plan.
- ✓ Plan identifies specific audiences including local ratepayers, developers, locally regulated commercial and industrial stakeholders, nonprofit organizations, and the general public.
- ✓ Plan includes a schedule for initial public engagement and education.

8.1 Outreach Plan

Engaging stakeholders and members of the public is integral to the SWRP development and implementation process. Outreach included RMWG and RAC personally contacting interested individuals and hosting public workshops. The workshops were advertised through newspaper advertisements, web postings, email distribution lists, and personal communication with potential project proponents. MIRWMA also provided information briefings to elected officials (City Councils, County Board of Supervisors, and Merced Irrigation District Board of Directors), community organizations, and neighborhoods to keep them informed and involved. Before adopting the final Merced SWRP, each governing body will conduct a public hearing to receive public comments.

During outreach efforts, the SWRP stakeholder list was continuously updated with contact information provided by individuals attending the public workshops and with interested parties identified to date as part of the Merced GSP. The stakeholder contact list was used to disseminate information regarding the preparation of the SWRP, the Call for Projects, public workshops, RAC meetings, and the Public Draft of the SWRP. Agencies and organizations represented on the stakeholder contact list are shown in Table 8-1. The stakeholder list will continue to be updated on an ongoing basis as new contacts are identified.

Table 8-1: Agencies/Organizations Represented on the Stakeholder Contact List

Category	Agency/Organization
Cities	Atwater, Livingston, Merced
Agricultural	Cunningham Ranch, PH Ranch, Riverdance Farms, Shannon Pump Co., Weimer Farms, Merced County Farm Bureau
Counties	Merced County, Merced County Association of Governments
Water Suppliers	Ballico Community Water Service District, Chowchilla Water District, Franklin County Water District, Le Grand CSD, Athlone Water District, Lone Tree Mutual Water Company, Cal-Am Water (formerly Meadowbrook Water Company), Merced Irrigation District, Merquin County Water District, Planada Community Services District, Stevinson Water District, Turner Island Water District, Winton Water and Sanitary District
Census-Designated Places and Unincorporated Communities	El Nido (DAC), Franklin/Beachwood (DAC), Le Grand (DAC), Snelling (DAC), Stevinson (DAC), Planada (DAC), Winton (DAC)
Non-Profits/Community Organizations	East Merced Resources Conservation District, Protect Our Water, Self-Help Enterprises, San Joaquin Raptor Rescue Center, The Nature Conservancy
State and Federal Agencies	California Department of Water Resources, Central Valley - Regional Water Quality Control Board, Natural Resources Conservation Service, U.S. Fish and Wildlife Service
Education/University	UC Merced, UC Merced Sierra Nevada Research Institute
Other	AMEC Geomatrix, CLGardiner Associates, Commercial Construction Co., Davids Engineering, Inc., E-PUR, Fremming, Parson & Pecchenino, GEI Consultants, Inc., Licensed Pest Control Advisor, Peterson, Brustad, and Pivetti, Inc., Phase I Construction, Thompson Insurance Agency, Tulare-Kings Counties Builders Exchange

Two public workshops and a Public Draft review period were held during SWRP development to encourage community input and participation. Table 8-2 provides a summary of these meetings, which were announced via the website and emails to the stakeholder contact list. These public meetings provide a platform for community members to learn about what an SWRP is and how they can participate in the development of the document.

Table 8-2: Public Engagement and Education Schedule

Meeting	Date
Call for Projects	July 9-August 31, 2018
Public Workshop #1	July 11, 2018
Public Draft SWRP	February 2019
Public Review Period	February-March 2019 (30 days)
Public Workshop #2	January 23, 2019
Final SWRP	March 2019

Key SWRP decisions will be made following thorough discussion and vetting by all interested parties. At RAC meetings, members and alternates assume responsibility for raising issues, concerns, and ideas from their communities and constituents who are not able to attend the meetings. RAC members are also expected to inform and educate constituents of the information and discussions from each meeting.

In addition to the regular coordination meetings of the RAC and MIRWMA Board of Directors, Merced Region provides two web-based venues for local agencies and stakeholders to coordinate and identify opportunities for cooperative management: the Merced IRWMP website and Merced online project database.

The Merced IRWMP website (www.mercedirwmp.org) was developed to serve as a source of information for individuals interested in learning basic information about the IRWMP and SWRP. The homepage features a News and Events section which is intended to keep visitors informed of upcoming meetings. The website also contains a Documents section where public meeting agendas and notes, working documents, and final reports are posted. Program materials are posted on to the website to keep stakeholders informed of activities being pursued at the regional level.

The Merced Region's online project database (http://irwm.rmcwater.com/merced/), maintains the Region's project list and provides a venue for increased collaboration between project proponents. The database also allows any member of the public that registers for access to view and follow projects of interest. Users that register as community members can also enter new projects and share projects with other community members, enabling multiple entities to collaborate on a single project.

Finally, the Public Draft SWRP was posted on the website for a 30-day review period and was announced via email to the stakeholder contact list. The Public Draft and comment period were also announced and discussed via newspaper notices published in English in the *Merced Sun-Star* and in Spanish in *Vida en el Valle* on January 9 and 16, 2019 and a public workshop on January 23, 2018 in Merced. Public outreach materials are included in Appendix D.

8.1.1 Initial Public Engagement and Education Schedule

Initial community engagement for the SWRP occurred with the public workshop held on July 11, 2018. This aligned with the Call for Projects that began just two days prior. The Call for Projects and public workshop provided opportunities for members of the public to learn about the SWRP planning process, purpose, and ways they could participate. The second workshop was held in January 2019. Throughout development of the SWRP, announcements were sent to the stakeholder contact list and updates to the Merced IRWM website and online project database were made. The Public Draft SWRP was published in February 2019 and the public comment period occurred during February and March 2019. Following completion of the SWRP, public outreach and engagement will likely occur as part of individual project implementation or in parallel with new Calls for Projects or SWRP Updates.

8.1.2 SWRP Audience

The outreach process during SWRP development was designed to include a range of groups that would be interested in stormwater management as well as water management planning more broadly. The following list summarizes outreach to specific groups identified in the SWRP Guidelines; other stakeholder groups are identified in Table 8-1.

- Developers: Developers in the County generally become involved in stormwater management as they work to comply with applicable regulations, including stormwater pollution prevention measures that may be required as part of the CEQA process.
- Commercial/industrial: Commercial and industrial stakeholders will likely become engaged in stormwater planning during local permitting processes.
- Local ratepayers: Water purveyors have been engaged with the SWRP. As the SWRP is implemented, water purveyors can assist with outreach to their ratepayers through website announcements or bill inserts, as appropriate.
- Nonprofit organizations: Outreach occurred to nonprofit organizations via the stakeholder contact list (detailed in Table 8-1).
- General public: The general public has the opportunity to engage with the SWRP through the SWRP website, online project database, public workshops, RAC meetings, and through their local governments (including Merced County).

8.2 Outreach Mechanisms and Processes

SWRP Guideline Requirements Addressed in Section 8.2:

✓ Plan describes mechanisms, processes, and milestones that have been or will be used to facilitate public participation and communication during development and implementation of the Plan.

The outreach methods used for preparation of the SWRP are detailed in Section 8.1. This engagement included email notifications via the stakeholder contact list, public workshops (Table 8-2), and postings to the SWRP website and online project database. Through these activities, interested parties were notified of the SWRP development, Call for Projects submittal window, public workshops, RAC meetings, publishing of the SWRP Public Draft, and other project milestones.

While public participation will continue as SWRP implementation occurs through individual projects, the level of engagement may vary as responsibility of public outreach shifts from MIRWMA to the project proponents. Project proponents will largely consist of MIRWMA and RAC public agency member bodies, as well as other agencies within the Merced Region. As such, projects proposed by these agencies would need approval from their governing body for funding. This approval would generally follow a presentation or agenda item at a public meeting, such as a board meeting or City Council meeting, that is subject to public noticing requirements. These meeting minutes and agendas would also be archived as part of the governing bodies' record, ensuring that communication surrounding the project remains transparent.

For status updates on project implementation, the online project database allows any member of the public that registers to access project information and follow projects of interest. The Merced Region will also continue to update its website throughout implementation, posting notifications and documents surrounding new Calls for Projects or project updates.

Regardless of the lead agency, any projects subject to CEQA and/or NEPA would also be required to comply with public noticing and comment requirements. Additionally, projects funded through grants may be required to comply with requirements related to information-sharing (such as uploading data collected during and after project implementation to publicly-accessible databases). Public outreach compliance would become the responsibility of the project proponents.

8.3 Public Engagement

SWRP Guideline Requirements Addressed in Section 8.3:

- ✓ Plan describes mechanisms to engage communities in project design and implementation.
- ✓ Plan describes strategies to engage disadvantaged and climate vulnerable communities within the Plan boundaries and ongoing tracking of their involvement in the planning process.
- ✓ Plan describes efforts to identify and address environmental injustice needs and issues within the watershed.

8.3.1 Community Engagement in Design and Implementation

Beyond general education and outreach, technical- and policy-related input was encouraged from the public throughout development and implementation of the SWRP. During SWRP development, the public was invited to submit any technical comments or design questions on the Public Draft during the public review period. Technical or design issues pertinent to SWRP implementation would be related to specific projects. While it is the responsibility of the project proponents to solicit public feedback, the online project database allows the community to view early project stages and directly engage in pre-design by emailing the project proponent or MIRWMA directly. Since many of these projects will be implemented by a public agency, the public will also have opportunities to voice their comments and concerns at open meetings. Prior to construction, projects will likely be required to complete an environmental impact review process which also solicits public input and review.

Stormwater policy changes would not be driven by the SWRP process or project implementation, but rather from the governing bodies that make up the MIRWMA member agencies. Policy decisions, such as new ordinances, would need to be presented and approved at a publicly notified open meeting. Any policy changes that are approved will need to be incorporated into subsequent SWRPs.

8.3.2 Disadvantaged and Climate Vulnerable Community Outreach and Environmental Justice

Outreach to DACs and Climate Vulnerable Communities

The majority of the Merced Region (88% of the geographic area) is currently considered a DAC. The Region includes the cities of Atwater, Livingston, and Merced, and the unincorporated communities of Cressy, El Nido, Franklin/Beachwood, Le Grand, Planada, Snelling, Stevinson and Winton. All of these cities and communities, with the exception of Cressey, have MHIs of less than 80% of the statewide MHI, thus meeting the State's definition of a DAC (based on data from 2010-2014 obtained from DWR's DAC Mapping Tool, https://gis.water.ca.gov/app/dacs/). Although Cressey is not recognized as a DAC by the State's definition, it is considered a DAC for the purposes of the IRWMP and SWRP planning after consulting local knowledge of economic conditions.

From the beginning stages of SWRP development, DAC interests were represented by two dedicated RAC members throughout the planning process. Further, the cities of Atwater, Livingston, and Merced, all DACs, are members of MIRWMA and are represented on the Management Committee. Additional DAC participation within the Management Committee includes staff from the Le Grand and Planada Community Services Districts and Merced County which helps to represent unincorporated DACs. DAC representation in the RAC includes a diverse list of community members who represent interests such as farming, business, and education.

Climate vulnerable communities are those most susceptible to the harmful effects of climate change. In Merced County, anticipated impacts include reduced water supply and quality and an increase in potential flooding and wildfire events as climate projections anticipate increases in temperature and evapotranspiration rates that reduce groundwater recharge and surface permeability. While many of these are global predictions, the Merced Region is at a particularly high risk given its considerable percentage of DACs. Because DACs tend to have fewer resources to implement projects and adapt to a changing environment, they are considered climate vulnerable communities. Thus, the outreach performed by the Merced Region to DACs was also relevant to climate vulnerable communities within the Region that may not have adequate resources to respond to or mitigate climate change.

Strategies the Merced Region has used to engage disadvantaged and climate vulnerable communities and track their involvement in the planning process include direct outreach to these communities, encouragement of participation on the RAC, conducting public workshops, and through the public comment period, as well as the project solicitation process. Utilizing the existing Merced IRWMP website to post information and announcements related to the IRWMP update and the SWRP allowed for information access to anyone with internet access. In addition, using online project database, the web-based portal for SWRP project solicitation, allowed any member of the public that registers to add projects, access project information, and follow projects of interest. When completing the online project information form, project proponents were able to state if its project addressed critical water supply or water quality needs of a DAC and identify the specific DACs that would benefit from the project. Project proponents, including DACs that entered projects, can update their project information in the database at any time, contributing to ongoing involvement and tracking of DAC projects.

Environmental Justice

Environmental justice is defined in California law (Government Code section 65040.12) as the fair treatment of people of all races, cultures, and incomes with respect to the development adoption, implementation, and enforcement of environmental laws, regulations, and policies. Environmental justice is addressed by ensuring that all stakeholders have access to the SWRP planning decision-making process and that minority and/or low-income populations do not bear disproportionate adverse human health or environmental impacts from SWRP and project implementation. Environmental justice is addressed through the Merced Region' open and transparent SWRP planning process. Conducting public workshops, and utilizing the existing Merced IRWMP website, as well as the online project database, allowed for DACs, climate vulnerable communities, and members of the public to participate in the SWRP planning process, regardless of financial contribution. Construction of project facilities, which can have short-term or long-term impacts such as noise and traffic disruption for neighboring communities, is often an environmental justice concern. Prior to implementing projects as part of the SWRP, project proponents are expected to do a preliminary analysis of the areas that could be affected by construction of project facilities to ensure that construction nuisance impacts and long-term impacts will not be borne predominantly by any minority population or low-income group. This would also be required should a project be subject to NEPA.

The Region attempted to identify environmental injustice needs and issues in the Region during the project solicitation process. The online database project form requested that project proponents state whether environmental justice impacts of the projects have been evaluated, and if the project would address any existing environmental justice concerns.

In pursuing future regional grant opportunities, MIRWMA and the RAC will ensure that agencies and stakeholders representing potential environmental justice areas have equal access to participate in the Region's project selection processes. However, local funding match requirements that are often required

by grant programs may prohibit these agencies from being able to compete for funding. In situations in which local funding match requirements can be waived (e.g., often available through the IRWM implementation grant process) or the agencies are able to provide match, MIRWMA and the RAC will work to ensure small community projects are given due consideration and are not consistently deferred in favor of agencies serving greater populations or agencies with greater resources.

Merced Stormwater Resources Plan

Chapter 9 References

AECOM. 2015. *City of Merced Water Master Plan.*

AM Consulting Engineers. 2016. *City of Livingston 2015 Urban Water Management Plan*. October.

AMEC Geomatrix, Inc. 2008. *Merced Groundwater Basin, Groundwater Management Plan Update, Merced County, CA.* July 29.

Business Wire. 2017. *California American Water Acquires Meadowbrook Water Company*. April 1, 2017. Available at https://www.businesswire.com/news/home/20170401005009/en/California-American-Water-Acquires-Meadowbrook-Water-Company

California Department of Public Health (CDPH). 2011. *MCLs, DLRs, and PHGs for Regulated Drinking Water Contaminants.* July 2011. Available at http://www.cdph.ca.gov/certlic/drinkingwater/Pages/MCLsandPHGs.aspx

CDPH. 2012. *1,2,3,-Trichloropropane*, (updated November 2). Accessed at http://www.cdph.ca.gov/certlic/drinkingwater/Pages/123tcp.aspx

California Department of Water Resources (DWR). 2018. *Disadvantaged Communities Mapping Tool.* Available at https://gis.water.ca.gov/app/dacs/. Accessed on August 13, 2018.

California State Water Resources Control Board (SWRCB). 2015. *Storm Water Resource Plan Guidelines.* December.

SWRCB. 2017. *Frequently Asked Questions about Hexavalent Chromium in Public Water Systems.* September. Available at: https://pubapps.waterboards.ca.gov/drinking_water/certlic/drinkingwater/documents/chromium6/chrome_6_faqs.pdf

SWRCB. N.d. *California Drinking Water State Revolving Fund Interest Rate History*. Accessed at https://www.waterboards.ca.gov/drinking_water/services/funding/documents/srf/dwsrf_interest_rate_history.pdf on September 12, 2018.

Carollo. 2007a. *City of Livingston Water Distribution System Master Plan*. July. ftp://exchange.livingstoncity.com/WDSMP2007.pdf

Carollo. 2007b. *City of Livingston Wastewater Collection System Master Plan*. July. ftp://exchange.livingstoncity.com/WASTEWATERCOLLECTIONSYSTEMMASTERPLANJULY2007.pdf

Carollo. 2017. *City of Merced 2015 Urban Water Management Plan*. November.

Carrasquillo, Lorraine M. 2015. *Merced Stormwater Program: Program Effectiveness Assessment and Improvement Plan for City of Merced, City of Atwater, and Merced County*. June.

Central Valley Regional Water Quality Control Board (CVRWQCB). 2004. *Amendments to the Water Quality Control Plan for the Sacramento River and San Joaquin River Basins for the Control of Salt and Boron Discharges into the Lower San Joaquin River.* Available at: https://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/resolutions/r5-2004-0108.pdf

CVRWQCB. 2005a. *Amending the Water Quality Control Plan for the Sacramento River and San Joaquin River basins for the Control Program for Factors Contributing to the Dissolved Oxygen Impairment in the Stockton Deep Water Ship Channel*. Available at: https://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/resolutions/r5-2005-0005.pdf

CVRWQCB. 2005b. *Amendments to the Water Quality Control Plan for the Sacramento River and San Joaquin River Basins for the Control of Diazinon and Chlorpyrifos Runoff into the Lower San Joaquin River.* Available at: https://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/resolutions/r5-2005-0138.pdf

CVRWQCB. 2006. Amendments to the Water Quality Control Plan for the Sacramento River and San Joaquin River Basins for the Control of Diazinon and Chlorpyrifos Runoff into the Sacramento-San Joaquin Delta. Available at: https://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/resolutions/r5-2006-0061.pdf

CVRWQCB. 2010. *Amendment to the Water Quality Control Plan for the Sacramento River and San Joaquin River Basins for the Control of Methylmercury and Total Mercury in the Sacramento-San Joaquin Delta Estuary*. Available at: https://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/resolutions/r5-2010-0043_res.pdf

CVRWQCB. 2014. *Amendments to the Water Quality Control Plan for the Sacramento River and San Joaquin River Basins for the Control of Diazinon and Chlorpyrifos Discharges*. Available at: https://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/resolutions/r5-2014-0041_res.pdf

CVRWQCB. 2016a. *California 2014 and 2016 303(d) combined list table*. Available at: https://www.waterboards.ca.gov/centralvalley/water_issues/tmdl/impaired_waters_list/#intrpt2014_2016

CVRWQCB. 2016b. *The Water Quality Control Plan (Basin Plan) for the California Regional Water Quality Control Board, Central Valley Region, Fourth Edition, for the Sacramento River Basin and San Joaquin River Basin. Revised July 2016 (with Approved Amendments).*

Chowchilla Water District (CWD). 2015. *Chowchilla Water District SBx7-7 Supplement Report, 2015 Update.* December 2015.

CWD. 2017. *Chowchilla Water District Water Management Plan, 2014 Criteria*. April 2017.

Economic & Planning Systems, Inc. 2007. *Final Report, County of Merced, Water and Sewer Service Providers Municipal Service Review*. May 24.

Economic & Planning Systems, Inc. 2008. *Final Report, County of Merced, Agricultural Irrigation Service Providers Municipal Service Review*. October 23.

EMC Planning Group, Inc. 2016. *City of Atwater General Plan, Housing Element*. March.

City of Livingston. 2008. *2025 General Plan*. October. https://www.livingstoncity.com/vertical/Sites/%7BD74BD72B-ED1F-4198-8BE1-70824D6808D7%7D/uploads/%7B81FCA78B-E60B-4AF2-B33B-EDF9532E2C42%7D.JPG

Lone Tree Mutual Water Company (LTMWC). 2016. *Agricultural Water Management Plan*. June.

Merced, City of. 2012a. *Merced Vision 2030 General Plan*. January.

Merced, City of. 2012b. *Climate Action Plan*. October. https://www.cityofmerced.org/depts/cd/planning/climate_action_plan/default.asp

Merced, City of. 2015. *Merced Stormwater Program: Program Effectiveness Assessment and Improvement Plan for City of Merced, City of Atwater, and Merced County*. Available at: https://www.cityofmerced.org/civicax/filebank/blobdload.aspx?BlobID=18457

Merced County. 2012. 2030 *Merced County General Plan Update Draft Program Environmental Impact Report.* November.

Merced County. 2013. *2030 Merced County General Plan*. December.

Merced County. 2016a. *Merced County General Plan Update, Land Use Element*. July.

Merced County. 2016b. *Merced County Department of Agriculture – Annual Report on Agriculture 2016*.

Merced Irrigation District (MID). 2016. *Merced Irrigation District Agricultural Water Management Plan.* July.

Pacific Municipal Consultants (PMC). 2000. *City of Atwater General Plan*. July.

Stantec. 2007. *Merced Storm Water Group Storm Water Management Program*. April.

Stantec. 2017. *City of Merced Wastewater Collection System Master Plan*. December. https://www.cityofmerced.org/civicax/filebank/blobdload.aspx?BlobID=19637

Storm Water Consulting, Inc. 2007. *City of Livingston Storm Drainage Master Plan*. July. ftp://exchange.livingstoncity.com/RevisedFinalSDMP2007.pdf

RMC Water and Environment. 2013a. *Merced Integrated Regional Water Management Plan*. http://mercedirwmp.org/files/MIRWMP%20Revised%20Final.pdf

RMC Water and Environment. 2013b. *Merced Integrated Regional Water Management Plan: Groundwater Recharge Feasibility Study*. August.

RMC Water and Environment. 2013c. *Merced Integrated Regional Water Management Plan: Salt and Nutrient Study*. August.

Turlock Irrigation District (TID). 2015. *2015 Agricultural Water Management Plan*. November.

United States Census Bureau. 2017. *2012-2016 American Community Survey 5-Year Estimates*. https://factfinder.census.gov/faces/nav/jsf/pages/community_facts.xhtml Accessed August 6, 2018

United States Census Bureau. 2018a. *2017 Population Estimates. May*. Accessed at https://factfinder.census.gov/faces/nav/jsf/pages/community_facts.xhtml on August 6, 2018

United States Census Bureau. 2018b. *Merced County Poverty Status in the Past 12 Months*. Available at https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_16_1YR_S1701&prodType=table. Accessed September 18, 2018.

United States Environmental Protection Agency (USEPA). 2014. *System for Urban Stormwater Treatment and Analysis IntegratioN (SUSTAIN).* Available at https://www.epa.gov/water-research/system-urbanstormwater-treatment-and-analysis-integration-sustain#resources

USEPA. 2017. *Storm Water Management Model (SWMM).* Available at https://www.epa.gov/waterresearch/storm-water-management-model-swmm

WGR Southwest, Inc. 2014. *Post-Construction Standards Plan: A Guidance Document on Storm Water Post-Construction Design Measures for Developers and Plan Checkers.*

Woodard and Curran. 2018. *East Stanislaus Integrated Regional Water Management Plan Update*. February.

MIRWMA
Merced Integrated Regional
Water Management Authority

Merced Stormwater Resources Plan
Public Draft

Appendices

Prepared by:

WOODARD &CURRAN

February 2019

Appendix **A** – **SWRP Checklist and Self-Certification**

SWRP Self-Certification Checklist to be Inserted

Appendix **B** – **RAC Charter**

Merced IRWM Program
Regional Advisory Committee (RAC) Charter

October 2018

This document is intended to establish rules and guidelines for the Regional Advisory Committee (RAC) for the Merced Integrated Regional Water Management (IRWM) planning process and Stormwater Resources Plan (SWRP) development process. The RAC is a fundamental component of governance for the Merced IRWM Program and regional stormwater resources planning.

Table of Contents

1. Purpose

The Merced IRWM Program was established in 2009 by the Regional Water Management Group (RWMG), at the time comprised of the Merced Irrigation District, City of Merced, and Merced County. The Region completed its first IRWMP in 2013 based on the California Department of Water Resources (DWR) 2012 Proposition 84 IRWM Guidelines. Following the release of updated Proposition 1 IRWM Guidelines in 2016, the Region began preparing an update to the Merced IRWMP. Concurrently, the Region is preparing a Stormwater Resources Plan (SWRP). In 2016, the cities of Atwater and Livingston were added to the RWMG and the five agencies together formed a Joint Powers Authority (JPA), the Merced Integrated Regional Water Management Authority (MIRWMA). MIRMWA functions as the RWMG for the Merced Region, with its Board of Directors having decision-making authority on matters related to the IRWMP and SWRP. MIRWMA also has a Management Committee, which consists of staff who play a day-to-day role in managing the IRWMP and SWRP programs.

The RAC is an advisory body which provides recommendations to MIRWMA on topics related to the IRWM Program and stormwater resources planning. MIRWMA gives primary consideration to the recommendations of the RAC and incorporates the RAC's recommendations into documents prepared for presentation to the MIRWMA governing bodies. The RAC was originally formed in April 2012 to assist the RWMG (prior to the formation of MIRWMA) with completion of the Merced IRWMP and prioritization of projects for a Proposition 84 funding application. Since its formation, the RAC has continued to serve as an advisory body, providing recommendations to MIRWMA on key issues related to IRWM planning and funding applications, and now stormwater resources planning as well. The RAC and MIRWMA have established the following purpose for the RAC:

- Represent the broad interests and perspectives in the region.
- Assist in the implementation and revision of the Merced IRWMP and preparation and implementation of the Merced SWRP.
- Encourage cooperative planning among various aspects of water resources management in the Merced Region.
- Foster constructive, meaningful discussion of regional water management issues and needs, goals and objectives, plans and projects, and future funding and governance.
- Advise MIRWMA and the governing bodies on these topics.

This charter documents the establishment of the RAC, sets forth RAC member composition, duties, and responsibilities, and outlines organization and operation of the group. Throughout this document, references to IRWM planning and the IRWMP also include stormwater resources planning and the SWRP, as both these efforts fall under MIRMWA's purview and the broad definition of integrated water management for the Region.

2. Role of the Regional Advisory Committee (RAC)

The role of the RAC overlaps with the Purpose of the RAC listed in Section 1 above. The general role of the RAC is as follows:

a. Communicating regional perspectives to MIRWMA
b. Representing regional perspectives as the Merced IRWMP and SWRP are developed and implemented (e.g., by providing comment on draft documents)
c. Sharing knowledge among the RAC and MIRWMA members as appropriate to facilitate cooperative planning
d. Providing insight on regional water management issues and goals, plans, and projects, and the implementation of those items

As an advisory body to MIRWMA , the RAC is also specifically tasked with advising MIRWMA on certain topics. The RAC works closely with MIRWMA to develop recommendations for the following:

a. Adopting updates to the IRWMP for the Merced Region.
b. Establishing criteria for prioritizing projects to be submitted for IRWM grant programs.
c. Reevaluating projects submitted for grant funding, when necessary.
d. Approving and submitting grant applications.

When necessary, workgroups will be formed to meet separately and work on an issue or topic that cannot readily be resolved in the broader RAC setting.

3. Meetings

RAC Meetings

RAC meetings will be conducted on a quarterly basis or as-needed. During updates of the IRWMP, for example, the RAC may meet more frequently, such as on a monthly basis. Conversely, there could be instances where a quarterly meeting may not be needed and would be cancelled. If applicable, RAC meetings shall be noticed in accordance with the Brown Act. The RAC Chair coordinates Brown Act noticing. If desired by RAC Members, additional RAC meetings may be scheduled and noticed at least one week in advance.

Meetings shall be conducted in accordance with this Charter. The RAC Chair or Vice Chair will determine if a quorum exists at any RAC meeting. Formal voting may not occur without a quorum of RAC members; however, presentations and discussion of agenda topics may occur.

A quorum shall be defined as having at least one representative from 6 of the 10 RAC caucuses in attendance.

Workgroup Meetings

Workgroups are convened as needed by the Management Committee (staff from the MIRWMA member agencies who manage the IRWMP and SWRP on a day-to-day basis) with input and participation by the RAC. Workgroup meetings shall be conducted in accordance with this Charter. There are no quorum requirements for Workgroup meetings. Workgroups are not subject to Brown Act requirements and may not be publicly noticed in advance. Every effort will be made to post workgroup meetings in advance on the Merced IRWM website (www.merceirwmp.org).

Results of Workgroup meetings will be reported to the RAC at the next scheduled RAC meeting.

4. RAC Member Composition

There are ten membership categories (herein referred to as caucuses) for voting members of the RAC. These caucuses include Agriculture, Business (non-agricultural), Natural Resources/Watersheds, Disadvantaged Communities/Environmental Justice, Land Use, Water/Wastewater Management, Academic/Educational, Civic, Recreation, and At Large. The RWMG representatives participate as ex officio (non-voting) members of the RAC. State, federal, and regional agencies and organizations may also participate as non-voting members. The following is a general overview of the composition of each caucus. **Attachment A** provides a detailed description of the RAC Member Composition.

Membership Categories (Caucuses)	**Maximum Number of Representatives**
1. Agriculture: Representatives of dairy, ranching, and commodity farming, including large and small operations, row and tree crops.	4
2. Business: Representatives of food processing and other industrial activities, commercial enterprises, and building and real estate, including chambers of commerce and business associations (banking participation is important).	4

3. Natural Resources and Watersheds: Organizations focused on preserving, enhancing, and managing natural resources and watersheds, including fisheries and wetlands.	4
4. Disadvantaged Communities/Environmental Justice: Representatives of disadvantaged neighborhoods and small communities with water management challenges (rural and urban).	2
5. Land Use: Representatives of land planners (or assessor), planning commissions, and land use advocates.	3
6. Water/Wastewater Management: Public agencies and private entities that are not members of the RWMG and have statutory authority to supply municipal or irrigation water, manage wastewater, or provide flood control in the region.	3
7. Academic/Educational: Representatives of K-12 and college/university educators and academics.	2
8. Civic: Representatives of community organizations, including community service, good government, and taxpayer interests.	2
9. Recreation: Representatives of fishing, boating, birding, and park interests.	2
10. At Large Members: Other agencies and entities with interest in and/or impact on water resource management.	4
11. Non-Voting Members: RWMG members and State, Federal, and regional agencies and organizations who are interested parties.	5 RWMG, plus other agencies

All RAC members must be knowledgeable in the field or interest that they represent. As such, RAC members must represent a public agency, non-governmental organization, professional organization, academia, or business. In addition, the overarching goals for RAC membership are for the RAC to be geographically diverse, to represent multiple stakeholders, and to be approximately balanced between public agencies and non-profits.

5. RAC Member Attributes and Duties

The following are desired attributes for RAC members and their alternates:

1. Have knowledge and experience in water resources management.
2. Represent an agency, organization, tribe, academia, or interests that are under-represented in the region (e.g., disadvantaged communities or unincorporated areas).
3. Have the ability and desire to objectively articulate the perspective of his/her RAC seat and caucus at a level beyond that of his/her individual organization.
4. Provide recommendations with the best interests of the entire Merced IRWM region in mind.

In relation to attribute 3 listed above, RAC members are grouped into ten caucuses, each of which has specific seats that are outlined in **Attachment A**.

The following are general duties for which RAC members and their alternates are responsible:

1. Attend meetings consistently – participation in 75% of the meetings annually is the minimum expectation.
2. Come prepared – review materials ahead of time and provide comments as appropriate.
3. Be responsive to requests between meetings.

4. Act as a point of contact within his/her individual organization for collection and dissemination of information related to the IRWM Program.
5. Disseminate information about the IRWM Program to his/her contacts, as appropriate.
6. Designate an alternate to attend and participate in RAC meetings in his/her absence.
7. Recuse him/herself from discussion and voting if he/she has a personal interest or stake in the outcome.

RAC members and their alternates are subject to recusal due to conflicts of interest in accordance with *Government Code Title 9, Political Reform; Chapter 7, Conflicts of Interest.* A conflict of interest is defined as a RAC member using his/her position to influence IRWM program decisions in which he/she has a financial interest (§87100). Recusal will occur per the discretion of MIRWMA, in consultation with the RAC Membership Workgroup described in Section 8.

All Workgroup members are also expected to display the attributes and duties listed above. The recusal policy also applies to ad-hoc Workgroup members.

6. RAC Member and Alternate Terms

RAC members and their alternates will serve three-year terms, with one-third of the RAC membership terms ending in each year. RAC member and alternate terms do not apply to the non-voting members (including the RWMG). Upon selection of the RAC membership, the members (and their alternates) will be randomly selected for one-, two-, or three-year terms. All subsequent RAC members will serve three-year terms with one-third of the RAC membership terms ending each year. There is no limit to the number of terms served (consecutive or otherwise).

Beginning in 2019, RAC member terms will begin and end on March 1 each year. The RAC member selection process will typically occur in January and February.

7. RAC Member Replacement

A portion of the RAC membership will be replaced each year in February. As outlined in Section 6, terms for one-third of the RAC membership shall expire every year, however, there are no term limits. RAC member replacement shall occur via the process outlined below:

1. MIRWMA will solicit interest from all IRWM stakeholders, including RAC members whose terms are expiring. If chosen, the RAC may use an application process. **Attachment B** of this document contains the RAC Application that will be accepted from January 1st through 31st.
2. A RAC Membership Workgroup will be convened to develop recommendations for RAC member replacement. The Workgroup will be comprised of 8 members of the RAC whose terms are not expiring (to avoid self-appointments), with no more than one representative of each voting caucus. The full RAC shall identify the 8 members of the Membership Workgroup at a regular RAC meeting, no later than December of each year. Members of the Management Committee may participate as non-voting members of the Membership Workgroup.
3. The Membership Workgroup will establish the application solicitation process with support from the Management Committee, which will receive and distribute the applications for the Membership Workgroup. The Workgroup will review the RAC member applicants to confirm that they meet the RAC Member Composition stipulated in **Attachment A**.
4. If MIRWMA does not receive applications to fill each open seat on the RAC, the Management Committee will reopen the application period for one week and the Workgroup meeting will be delayed.
5. The Workgroup representatives may distribute the list of applicants to the voting caucuses and work with the caucus members to develop a recommendation for the new members of their caucus, if desired.

6. In February, the Workgroup will meet to review the applicants and provide a recommendation to the MIRWMA Board of Directors on the RAC membership. The recommendation must be specific enough to ensure that RAC membership is retained as specified in the RAC Member Composition in Attachment A. If the Workgroup cannot reach a consensus recommendation, it will inform the MIRWMA Board of Directors of this situation.
7. The MIRWMA Board of Directors will review the recommendation. If the RAC membership recommendation is not approved, the MIRWMA Board of Directors will refer it back to the RAC Membership Workgroup with specific requests for revision. Applicants will be notified by MIRWMA of their appointment to the RAC, and at that time will be asked to appoint a permanent alternate who is suitable to participate on the RAC under the member composition guidelines described in Attachment A. RAC members selected by the Workgroup will be assigned a three-year term.
8. The new RAC membership will be effective on March 1st.

Each RAC Membership Workgroup will remain in place throughout the year to address any membership issues that arise over those two years, including replacement of a member who retires or resigns.

8. Member and Alternate Attendance

All RAC members and their alternates are required to sign the RAC Attendance Policy document (refer to **Attachment C**), which stipulates that members are expected to participate in at least 75% of the RAC meetings each year. If RAC members cannot be present during a meeting or meetings, their alternates are expected to fill the RAC member's position without interruption to the RAC.

At the end of each calendar year, the RAC Membership Workgroup will review attendance of each RAC member and their alternates over the past 12 months to determine if they are in compliance with the RAC Attendance Policy. At the last RAC meeting of each calendar year, the RAC Membership Workgroup will present its attendance findings to the RAC, which will be responsible for deciding if members are in violation of the RAC Attendance Policy and therefore should be replaced as stipulated in Section 8.

9. Member Termination

In the event that MIRWMA and the RAC determine that a RAC member is not complying with the RAC member attributes and duties in Section 5, termination of that person's membership will be discussed by the RAC Membership Workgroup in closed session. The RAC Membership Workgroup may recommend termination and replacement to the full RAC, which will review the recommendation and inform the person of their termination. Replacement of that person will also be recommended by the RAC Membership Workgroup and approved by the MIRWMA Board of Directors.

10. RAC Chair and Vice Chair Roles

The RAC Chair and Vice Chair must be RAC members.

Although not required, the following attributes are desirable for the Chair and Vice Chair:

- Chair: prior experience working in the role of a Chair of a committee.
- Vice Chair: attributes and ability to assume Chair role and responsibilities, but not necessarily as much experience as the Chair.
- Chair and Vice Chair should come from different caucus groups (refer to Section 4).
- Should have already served at least 2 years on RAC, so they are familiar with the purpose, structure, and content of meetings.
- Willing and able to attend each RAC meeting during 3-year term.
- Ability to even-handedly articulate all interests.
- Consensus-builder.

The role of the Chair and Vice Chair will vary between RAC meetings; however, the Vice Chair's primary role is to take on Chair responsibilities in the absence of the Chair and/or at the discretion of the Chair. General responsibilities for the Chair are as follows:

1. Review RAC agenda prior to finalization and distribution to stakeholders (one week prior to RAC meetings).
2. Meet with the Management Committee prior to each RAC meeting to go over the RAC agenda and presentation(s) so that the RAC meeting runs smoothly and without interruption.
3. Manage the RAC agenda, select members to speak in turn, and keep the RAC on task and on time.
4. Convene each RAC meeting and initiate introductions.
5. Organize and call on public speakers during appropriate agenda items (if applicable) and determine public comment procedures (refer to Section 15).
6. Identify when the RAC has reached an impasse and needs to move forward with formal voting to resolve an issue (refer to Section 12).
7. Summarize key decisions and action items at the end of each RAC meeting.
8. Close meetings.
9. Ensure that notes are prepared summarizing discussion, agreements, and decisions.
10. Review and provide comments on RAC meeting notes.

The Chair and Vice Chair will serve for a period of two (2) years, concurrently. There is no limit to the number of terms served.

11. RAC Liaison to the MIRWMA Board of Directors

The RAC Chair will serve as liaison to the MIRWMA Board of Directors (also referred to as the MIRWMA Policy Committee), unless they delegate those duties to the Vice Chair. The RAC liaison will serve the following functions on behalf of the RAC.

1. Represent the interests, discussion, conclusions, and recommendations of the RAC.
2. Enlist other RAC members as necessary to represent RAC expertise and perspectives.
3. Report to the RAC on MIRWMA Board of Directors discussions, deliberations, and actions.

12. RAC Decision Process

The RAC, as an advisory body to MIRWMA, will strive to achieve consensus to the maximum extent possible. If consensus is not achievable, the Chair or Vice Chair shall call for a vote. All financial matters (e.g., identification of projects for inclusion in a grant application) require a vote.

Decision Making by Consensus

The RAC will strive to achieve consensus through discussion and debate at RAC meetings. For purposes of the RAC, consensus is defined as Level 1-4 on the list of consensus levels provided below:

1. I can say an **unqualified 'yes'** to the decision. I am satisfied that the decision is an expression of wisdom of the group.
2. I find the decision **perfectly acceptable**. It is the best of the real options we have available to us.
3. I can **live with** the decision. However, I'm not especially enthusiastic about it.
4. I do not fully agree with the decision and need to register my view about it. However, I do not choose to block the decision and will **stand aside**. I am willing to support the decision because I trust the wisdom of the group.
5. I do not agree with the decision and feel the need to **block** the decision being accepted as consensus.

6. I feel that we have no clear sense of unity in the group. We need to do more work before consensus can be achieved.

If needed, during discussion, the RAC Chair shall ask for a show of hands indicating each member's "consensus level" for the specific decision at hand. If all RAC members are a "consensus level" 1-4, the decision may proceed as a consensus decision. The Chair will provide an opportunity for those who are at "consensus level" 4 to express their concerns. If not all the RAC members are in consensus (one or more members are at "consensus level" 5 or 6), the RAC shall continue discussions to try to reach consensus. The RAC Chair is responsible for deciding when the RAC is at an impasse and will call for a vote at that point.

Voting Procedures

The RAC will make non-consensus decisions by vote:

- For approving all non-financial matters, if a vote is necessary due to the lack of consensus, a simple majority vote will be sufficient.
- For approving all financial matters (e.g., selection of projects for a grant application), a super majority (2/3 vote) of the RAC quorum will be required.
- In any case where the RAC is at a formal voting impasse and cannot make a decision, it will be up to MIRWMA's discretion to decide how to resolve the issue.

Once the RAC Chair has determined that the RAC is at an impasse and a vote is necessary, he/she will ask for a motion and a second. After the motion has been seconded, the RAC members will be given an opportunity for further discussion on the specific components of the motion. Following this discussion, the RAC Chair will call for a show of hands to pass or fail that motion.

13. Workgroup Member Selection

Periodically, the RAC will request the organization of an ad-hoc Workgroup to meet separately and work on an issue or topic that cannot readily be resolved in the broader RAC setting. Workgroups have historically been convened to provide direction to the RAC on matters such as project selection for grant funding. Note that the role of Workgroups is to provide a recommendation to the RAC; Workgroups are not charged with making decisions for the IRWM Program.

The RWMG may include a non-voting, non-RAC member to any Workgroup, if deemed appropriate for transparency and to provide expert knowledge.

Ad-Hoc Workgroups

The following process shall be followed when convening ad-hoc Workgroups:

1. The Management Committee and the RAC will jointly determine that a Workgroup is necessary, the number of members, and the topics. The RAC will identify the RAC representation for each Workgroup. Workgroups can also include representatives who are not RAC members.
2. If the RAC determines that representation from each caucus is preferred for a Workgroup, each caucus will deliberate and inform the RAC of their chosen representative(s) to the Workgroup. Workgroup members do not have to be current RAC members, but can be other stakeholders representing the caucus. If the caucus cannot reach a consensus recommendation, it will inform the RAC of this situation.
3. The RAC will review the proposed Workgroup members and provide a recommendation to the Management Committee. If the RAC cannot reach a consensus recommendation, it will inform the Management Committee of this situation.
4. The Management Committee will review the recommendation. Applicants will be notified by the Management Committee of their appointment to the Workgroup.

Project Selection Workgroup

The following process shall be followed when convening a Project Selection Workgroup to review and select projects for inclusion within a funding application:

1. The Project Selection Workgroup will be comprised of 5 MIRWMA representatives (one from each agency) and one representative from each voting caucus, for a total of up to 15 members.
2. The RAC caucuses will deliberate and inform the RAC of their chosen primary representative and alternate to the Workgroup. Project Selection Workgroup members must be current RAC members. If the caucus cannot reach a consensus recommendation, it will inform the RAC of this situation.
3. The RAC will review the proposed Workgroup members and provide a recommendation to the MIRWMA Board of Directors. If the RAC cannot reach a consensus recommendation, it will inform the MIRWMA Board of Directors of this situation.
4. The MIRWMA Board of Directors will review the recommendation. Applicants will be notified by the Management Committee of their appointment to the Workgroup.

14. Workgroup Decision Process

Workgroups, as advisory bodies to the RAC, will strive to achieve consensus to the maximum extent possible. If consensus is not achievable, the Chair or Vice Chair shall call for a vote. All financial matters require a vote. **Attachment D** provides a summary of the Workgroup Decision Process.

Project Selection Workgroup Decision Process

Because they address financial matters (e.g., selection of projects for a grant application), the Project Selection Workgroups have a unique decision process. In addition to the ground rules, consensus definitions, and Chair selection process provided in Attachment D, the following policies shall be followed when convening Project Selection Workgroups:

- Workgroup discussion will be limited to primary members, not alternates. Agenda will include multiple scheduled breaks so primary and alternate members have a chance to caucus and discuss progress of meeting. Alternates must still attend to hear the discussion should they need to serve in primary capacity at a later meeting.
- Any Workgroup member with a personal financial interest in a submitted project (see conflict of interest definition in Section 6) must step down from the Workgroup. If this arises, the Workgroup member will be replaced by his/her alternate and a new alternate will be selected.
- Only primary members should vote, even in informal polling (otherwise representation is skewed). If a primary member abstains for any reason, their alternate may vote.
- Workgroup members may vote on packages that contain projects submitted by their agency or organization; however, they will recuse themselves from discussing and/or advocating for projects.

15. Public Comments at RAC Meetings

RAC meetings are open to the public, and public comments are welcomed and encouraged. To ensure that members of the public have an adequate chance to provide comments, the RAC Chair will invite public comments to members of the public in attendance on any agenda item in which the RAC is making a decision or formulating a recommendation. An open public comment period may be offered at the end of RAC meetings to allow members of the public to speak to non-agenda topics.

If there is substantial public interest or comment on a topic, the RAC Chair or Vice Chair may implement the following procedures to ensure that such comments are received in a timely manner:

- Members of the public will be asked to fill out a speaker card to indicate their name, affiliation, contact, and the specific agenda item they wish to speak to (if applicable).

- Speaker cards will be limited to one per person per agenda item. Participants may submit multiple speaker cards to address multiple agenda items.
- The RAC Chair or Vice Chair will invite those who submitted speaker cards to address the agenda item prior to calling for a consensus decision and/or vote on that item.
- Speaker cards will generally allow three minutes of public speaking time per speaker. However, in the event that there are a large number of public speaker comments, it will be up to the discretion of the RAC Chair or Vice Chair to reduce the time for each public speaker to ensure that all agenda items are addressed and that the RAC meeting closes on time.

Attachment A
RAC Membership Composition

The following are the ten voting categories (caucuses) and invited non-voting participants in the Merced Regional Advisory Committee (RAC). The caucuses represent the diverse interests of the Merced Region. Within each caucus, the subcategories (numbered lists) identify the types of interests that may be represented; however, the RAC and MIRWMA will maintain the flexibility to identify and appoint RAC members who best represent regional interests of the category, without a rigid adherence to the subcategories listed.

Voting Categories / Caucuses (Maximum Number of Representative per Caucus shown in parentheses)

Agriculture (4)
Representatives of farming and ranching operations, including large and small farms/ranches, irrigated and non-irrigated agriculture, and tree and row crops.

- Commodity farming
- Dairy ranching
- Non-irrigated ranching or farming
- Other (at-large) agriculture

Business (4)
Representatives of non-farm business activities in the region, including business associations.

- Food processing and industrial operations
- Commercial businesses
- Institutions (e.g. college/university administration)
- Building and real estate

Natural Resources and Watersheds (4)
Agencies and entities focused on preserving, enhancing, and managing natural resources and watersheds, including fisheries and wetlands.

- Fisheries
- Wetlands
- Habitat/land preservation
- Conservation

Disadvantaged Communities/Environmental Justice (2)
Representatives of disadvantaged neighborhoods and small communities with water management challenges.

- Urban DAC
- Rural DAC

Land Use (3)
Representatives with land planning expertise, including land planners (assessor), planning commissioners, and land use advocates.

- Incorporated
- Unincorporated
- Advocacy

Water/Wastewater Management (3)
Public agencies and private entities that are not members of the RWMG and have statutory authority to supply municipal or irrigation water, manage wastewater, or provide flood control in the region.

- Agricultural water supply
- Wastewater
- Flood management

Academic/Educational (2)
Representatives of K-12 and college/university educators and academics.

- K-12
- College/university

Civic (2)
Representatives of community organizations, including community service, good government, and taxpayer interests.

Recreation (2)
Representatives of fishing, boating, birding, and park interests.

Other (At Large) Members (4)
Other agencies and entities with interest in and/or impact on water resource management.

Total voting members: 30

Non-Voting Members

MIRWMA members and state, federal, and regional agencies who are interested parties

Merced Integrated Regional Water Management Authority (5)

1. County of Merced
2. Merced Irrigation District
3. City of Merced
4. City of Atwater
5. City of Livingston

Others

1. Department of Water Resources
2. Regional Water Quality Control Board
3. U.S. Fish and Wildlife Service
4. California Department of Fish and Wildlife
5. U.S. Army Corps of Engineers
6. Adjacent IRWM Regions

Attachment B
Merced Integrated Regional Water Management (IRWM) Program Regional Advisory Committee (RAC) Membership Application

The RAC serves as an advisory body providing recommendations to MIRWMA on key issues related to IRWM planning, stormwater resources planning, and related funding applications.

Thank you for your interest in serving on the RAC. Having an involved and dedicated RAC is vital to successful ongoing IRWM planning efforts in the Merced Region. RAC meetings are held **quarterly**, or as needed.

The following are desired attributes for RAC members and their alternates:

1. Have knowledge and experience in water resources management.
2. Represent an agency, organization, tribe, academia, or interests that are under-represented in the region.
3. Have the ability and desire to objectively articulate the perspective of his/her RAC seat and caucus at a level beyond that of his/her individual organization.
4. Provide recommendations with the best interests of the entire Merced IRWM region in mind.

In relation to criterion 3 listed above, RAC members are grouped into ten caucuses, each of which has a specified number of seats as outlined in **Attachment A**.

The following are general duties for which RAC members and their alternates are responsible:

1. Attend meetings consistently – participation in 75% of the meetings annually is the minimum expectation.
2. Come prepared – review materials ahead of time and provide comments as appropriate.
3. Be responsive to requests between meetings.
4. Act as a point of contact within his/her individual organization for collection and dissemination of information related to the IRWM Program.
5. Disseminate information about the IRWM Program to his/her contacts, as appropriate.
6. Designate an alternate to attend and participate in RAC meetings in his/her absence.
7. Recuse him/herself from discussion and voting if he/she has a personal interest or stake in the outcome.

The RAC has a formal charter (see www.mercedirwmp.org) which contains the rules and guiding principles established for the RAC. Please review the RAC Charter before submitting your application to ensure that you are able and willing to serve on the RAC and follow the guidelines and rules established in the RAC Charter.

If you have any questions about the Merced IRWM Program or the RAC, please contact the Merced IRWM Program Manager Hicham ElTal (heltal@mercedid.org, (209) 722-5761).

Attachment B – RAC Membership Application

Merced Integrated Regional Water Management (IRWM) Program
Regional Advisory Committee (RAC) Membership Application

Please return this form to Hicham ElTal (heltal@mercedid.org) by <date>. Selected RAC members will be notified by <date>; their first RAC meeting will be <date>.

Name: _____

Organization: _____

Email: _____ Phone Number: _____

Please indicate which specific seat within the RAC you are applying for (refer to Attachment A for detailed descriptions).

1st Choice:_____
Caucus Interest

2nd Choice:_____
Caucus Interest

Please indicate if you meet the eligibility criteria:

☐ Represent an agency, organization, tribe, academia, or interests that are under-represented in the region.

Describe your knowledge and experience related to water management, including participation in the IRWM Program, stormwater resources planning, or other water resource policy, planning, outreach, or implementation efforts:

_____

_____

_____

Describe how your experience and knowledge allows you to:

1. **Have the ability and desire to objectively articulate the perspective of your interest and caucus at a level beyond that within your individual organization.**
2. **Provide recommendations with the best interests of the entire Merced IRWM region in mind.**

_____

_____

_____

Describe how your position within your organization allows you to:

1. **Act as a point of contact within your individual organization for collection and dissemination of information related to the IRWM Program.**
2. **Disseminate information about the IRWM Program to your contacts, as appropriate.**

_____

_____

_____

_____

Attachment C
Merced Integrated Regional Water Management (IRWM) Program / Storm Water Resources Plan (SWRP)
Regional Advisory Committee (RAC) Attendance Policy

Thank you for your commitment to being an active member of the Merced RAC. Having an involved and dedicated RAC is vital to successful ongoing IRWM and SWRP planning efforts in the Merced region. The RAC meetings are held quarterly or as-needed.

To that end, the RAC has established an attendance policy that expects participation in at least 75% of the RAC meetings annually. The RAC recognizes that you may occasionally be unavailable due to schedule conflicts, sickness, or other emergencies. In such case, an alternate may attend in your place to ensure that the RAC benefits from the water resources perspective you represent. Please document your alternate below.

If neither you nor your alternate can attend, absences should be communicated to the Merced IRWM Program Manager Hicham ElTal (heltal@mercedid.org, (209) 722-5761). When your absence is foreseeable, please provide as much notice as possible. When you are absent from RAC meetings, your participation is truly missed.

Excessive absences may lead the RAC to request your resignation. If you fail to respond, the RAC will consider that you have voluntarily resigned your position. We appreciate your support, understanding, and acknowledgement of your time commitment to the RAC by your signature below.

I acknowledge and agree by my signature below to abide by this policy to the fullest extent practicable.

RAC Member

Print Name _____

Signature _____ **Date**_____

RAC Alternate

Print Name _____

Attachment D
Decision Process for RAC Workgroups

Ground Rules

1. Treat everyone with respect and courtesy.
2. Provide everyone an opportunity to participate: all perspectives are valued.
3. Listen actively and openly.
4. Focus on new input; avoid redundancy.
5. Be concise and constructive.
6. Have fun.

Levels of Consensus

Consensus is achieved if all participants indicate that they are at Levels 1 through 4 (not Levels 5 or 6). The Levels of Consensus are:

1. I can say an **unqualified 'yes'** to the decision. I am satisfied that the decision is an expression of wisdom of the group.
2. I find the decision **perfectly acceptable**. It is the best of the real options we have available to us.
3. I can **live with** the decision. However, I'm not especially enthusiastic about it.
4. I do not fully agree with the decision and need to register my view about it. However, I do not choose to block the decision and will **stand aside**. I am willing to support the decision because I trust the wisdom of the group.
5. I do not agree with the decision and feel the need to **block** the decision being accepted as consensus.
6. I feel that we have no clear sense of unity in the group. We need to **do more work** before consensus can be achieved.

Considerations for Voting Rules

- Workgroups should strive to achieve consensus, which is defined as all Workgroup members voting at Consensus Levels 1 through 4.
- If Workgroup members are not in consensus (one or more members vote at Consensus Level 5 or 6), the Workgroup should continue discussion in an attempt to reach consensus.
- The Workgroup Chair will be responsible for deciding when the group is at an impasse, and is responsible for calling a vote at that point.
- For approving all non-financial matters, if a vote is necessary due to the lack of consensus, a simple majority vote will be sufficient.
- For approving all financial matters (e.g. selection of projects for a grant application), a super majority (2/3 vote) of the Workgroup will be required.
- When voting, Workgroup members only will vote. Alternates will only vote if the Workgroup member is absent or abstains.

Attachment D – RAC Workgroup Decision Process

Chair and Vice Chair Selection Process

1. Determine who is eligible: RAC members and alternates, preferably not MIRWMA members.
2. Provide an overview of preferred Chair/Vice Chair attributes:
   - Chair: prior experience in chair role
   - Vice Chair: attributes and ability to assume Chair role and responsibilities, but not as much experience as the Chair
   - Chair and Vice-chair should come from different categories (caucuses), e.g., agriculture, business, natural resources
   - Willing and able to serve
   - Ability to even-handedly articulate all interests
   - Consensus-builder
3. Outline responsibilities (see below).
4. Nominate and/or volunteer members to be the Chair and Vice Chair.
5. Reach consensus and/or vote.

Responsibilities of Workgroup Chair and Vice-Chair

General

- Oversight of Workgroup meetings and planning topics.
- Vice-Chair will be responsible in the absence of Chair and/or at the discretion of Chair.

Responsibilities Applicable to Workgroup Meetings

- Coordinate with Management Committee or Consultant on elements of the agenda prior to Workgroup meetings to understand overall goals, outcomes, and purpose.
- Convene meetings and initiate introductions.
- Ensure that someone is assigned to record notes of discussion, conclusions, agreements, and action items.
- Review and provide feedback on draft notes from meetings.
- Identify when the Workgroup has reached an impasse and needs to move forward with formal voting to resolve an issue.
- Summarize key decisions and action items at the end of each Workgroup meeting.
- Close meetings.

Responsibilities Applicable to RAC Meetings

- Report back to the RAC on Workgroup progress at RAC meetings.
- Coordinate with RWMG or Consultant on presentation materials for RAC meetings.
- Coordinate with Workgroup members from various caucuses to ensure that all perspectives are incorporated into presentations.

Responsibilities of Workgroup Members

1. Attend meetings consistently.
2. Come prepared (review materials ahead of time).
3. Be responsive to requests between meetings.
4. Follow the Ground Rules.
5. Represent RAC members within your caucus and keep them informed.

Appendix C – Project Solicitation and Prioritization

Appendix C – Project Solicitation and Prioritization

Appendix C contains materials summarizing the projects submitted during the 2018 Merced SWRP project solicitation period, as well as information on project prioritization and scoring.

Appendix **D** – P**ublic Outreach Materials**

Appendix C – Project Solicitation and Prioritization

Appendix C contains materials summarizing the projects submitted during the 2018 Merced SWRP project solicitation period, as well as information on project prioritization and scoring.

Merced SWRP 2018
Project Summary

Project Name	Project Proponent	Project Type	Project Status	Project Description	Primary Benefit	Project Score
Atwater-McSwain Regulating/Recharge Basin	Merced Irrigation District	Construction	Planning	The project entails construction of a regulating/recharge basin. The project will provide groundwater recharge in the area and also serve as a regulating reservoir to be used by MID operations personnel. Water supply benefits will be achieved via groundater recharge, as the groundwater basin supports both agricultural and urban water supply. The storage provided by this basin could also be used in a storm event to store excess water for controlled releases at a later date when it is safe to do so. During construciton, the basin will be excavated, and automated inlet and outlet gates will be constructed along with the necessary flow measurement and control. The overall footprint of the project site is estimated at 20 acres, and the basin will occupy approximately 15 acres. These numbers are approximate and will be solidified at a later date.	Water Supply	50.5
Bear Reservoir Enlargement and Downstream Levee and Channel Improvements	Merced Streams Group (County of Merced, City of Merced, & Merced Irrigation District)	Construction	Planning	Bear Reservoir was constructed in the early 1950's as an element of the Merced Streams Group Project authorized by Congress's 1944 Flood Control Act. The Flood Control Act of 1970 called for three additional flood control reservoirs, enlargement of existing reservoirs, and 52 miles of levee and channel modifications. To date only one additional reservoir has been built (Castle Dam). The enlargement of Bear Reservoir and downstream levee and channel improvements would increase the level of flood protection to the most populated areas of Merced County. Bear Reservoir was originally constructed to provide protection for up to a 50-year storm event. The State of California has adopted legislation that calls for a minimum of 200-year flood protection for urbanized areas. This project would meet the requirements of the new flood control legislation.	Flood Management	30.5
Black Rascal Creek Flood Control Bypass/ Supplemental Groundwater Supply Improvements	Merced Irrigation District	Construction	Conceptual	MID's Le Grand Canal is a critical flood control facility capable of conveying water from the Lake Yosemite watershed. The canal originates at Lake Yosemite and terminates around the town of Le Grand, however during flood season it is intercepted midway by a coffer dam along with a breach, created by MID, at its crossing with Black Rascal Creek that diverts all drainage to the creek. The Le Grand Canal contributes up to 600 CFS of floodwater to Black Rascal creek. Without an existing flood control reservoir on Black Rascal Creek, the Lake Yosemite flood flows pose significant flooding risks to the City of Merced, adjacent unincorporated areas, and several communities downstream of Merced. Additionally, breaching of the canal prevents flows from continuing downstream within the canal, depriving agricultural areas of precious storm water supply. This project proposes a set of gates in the canal to replace the breach which is installed annually, allowing MID to redirect and control flood flows. This proposed control structure can also be utilized to send flood flows on alternate, longer routes creating an artificial offset to the timing of peak storm flows as well as permit storm flows to be directed to alternate creeks and artificial groundwater recharge areas. The potential for groundwater recharge cannot be understated as the Le Grand Canal supplies a large area that has historically faced declining groundwater levels and limited recharge.	Water Supply	63.5
Black Rascal Creek Flood Control Project	Merced Streams Group (County of Merced, City of Merced, Merced Irrigation District)	Construction	Design	Construction of a regulating reservoir on Black Rascal Creek. Project location is immediately north of Yosemite Avenue and Arboleda Drive in northeast Merced. Project will provide protection against a 200-year storm event and will provide much needed flood control on the currently unprotected Black Rascal Creek Watershed. Project will be beneficial to the project area and also to all downstream areas. The reservoir will maintain a deadpool for wildlife purposes. During the flood season, the reservoir will act primarily as a flood control retarding basin. During the irrigation season, the reservoir will regulate irrigation flows thereby increasing Merced Irrigation District system water efficiency without impacting power generation scheduling at New Exchequer Dam with the Independant System Operator (ISO).	Flood Management	71
Burns Reservoir Enlargement and Downstream Levee and Channel Improvements	Merced Streams Group (County of Merced, City of Merced, Merced Irrigation District)	Construction	Planning	Burns Reservoir was constructed in the early 1950's as an element of the Merced Streams Group Project authorized by Congress's 1944 Flood Control Act. The Flood Control Act of 1970 called for three additional flood control reservoirs, enlargement of existing reservoirs, and 52 miles of levee and channel modifications. To date only one additional reservoir has been built (Castle Dam). The enlargement of Burns Reservoir and downstream levee and channel improvements would increase the level of flood protection to the most populated areas of Merced County. Burns Reservoir was originally constructed to provide protection for up to a 50-year storm event. The State of California has adopted legislation that calls for a minimum of 200-year flood protection for urbanized areas. This project would meet the requirements of the new flood control legislation.	Flood Management	30.5

Project Name	Project Proponent	Project Type	Project Status	Project Description	Primary Benefit	Project Score
City of Merced Storm Drain Master Plan Update	City of Merced, MID	Plan Development	Planning	The City of Merced is seeking to prepare a revised Storm Drain Master Plan based upon the City's updated General Plan (Merced Vision 2030). The City Storm Drain last master plan was developed in 2002. Since then, the City's drainage system has been expanded and upgraded. The revised Storm Drain Master Plan will identify capacity deficiencies in several major segments of the City's storm drain system particularly with those areas of the system that rely intricately upon the Merced Irrigation District (MID) canal system for stormwater conveyance. The City will also look at ways to utilize storm runoff capture for groundwater recharge and reuse as irrigation water. The purpose of updating the storm drain master plan is to incorporate all of the projects completed since the last master plan was prepared into an updated storm drain computer model and master plan document, and to identify and prioritize a new set of storm drain projects to further improve the storm drain system in the City. The prioritized set of storm drain improvement projects for future funding.	Flood Management	59.5
Crocker Dam Modification	Merced Irrigation District	Construction	Conceptual	This project encompasses installation of automatic gates at MID's Crocker Dam, located just west of Merced at the bifurcation of Black Rascal Creek and Bear Creek. Crocker Dam is a fixed structure with removable plates that are installed every spring (sometimes multiple times depending on late rains) to raise the water level to allow irrigation diversions. The current configuration severely limits the operational flexibility and control over this facility, as the gate is primarily either "up" or "down," and opening or lowering the gate is a difficult task. It is proposed to replace these plates with automatic gates. The automatic gates would allow for MID to remotely operate the dam and adaptively manage the flows in Bear Creek/Black Rascal Creek. This would provide improved flood control downstream, water storage, and be a supply for groundwater recharge from stormwater (FloodMARS).	Water Supply	48
El Nido Recharge Basin	Merced Irrigation District	Construction	Conceptual	This project entails construction of additional recharge basins in El Nido. Work will include purchase, design of the recharge basin, design of the water conveyance facilities, design of the monitoring network and data collection program, and development of operations guidelines. Based on the design, permits and approvals will be obtained prior to construction. Construction activities include construction of the basin, construction of the recharge facilities, drilling of monitoring wells, installation of flow meters and check structures, and surveying. After construction the basin will be monitored for two years to gage the success of the basin and modify the operations guidelines if necessary.	Water Supply	48
Fairfield Canal/ El Nido Superhighway	Merced Irrigation District	Construction	Conceptual	This project will consist of flood flow capacity improvements and canal automation which is essential for implementing Flood-MAR projects and conveying water to MID's existing El Nido Groundwater Recharge Basin. Additionally, canal automation will improve flood control operations especially when spring storms overlap with the irrigation season. During flood season, canal automation can also be used to turn the canals into mini flood control reservoirs, filling each pool level and storing water for release when safe. This will essentially, create miles of flood control storage. These types of operations are currently not possible as the conveyance system is over a century old and requires frequent manual adjustment for flow fluctuations. The Fairfield and El Nido Canal system can convey water to over 52,000 acres. This project would open that acreage up to potential groundwater recharge and flood control projects. During the irrigation season, canal automation will also help to reduce spills conserve water.	Water Supply	48
Lake Yosemite Booster Pump Station	Merced Irrigation District	Construction	Conceptual	Lake Yosemite receives inflows from MID's Main Canal. It has four primary outlets; the Tower Lateral, the Sells Lateral, the Fairfield Canal, and the Le Grand Canal. During winter operations, the lake level is so low that only the Tower Lateral can be used for outflow (unless a major storm event occurs) due to the other 3 canal headgates having a higher invert. This project entails installation of booster pump station to allow for full utilization of Lake Yosemite's storage capacity and diversion facilities. The Booster pump would permit MID to move Lake Yosemite water to other portions of the district and be a key tool in implementing Flood-MAR projects.	Water Supply	48
Livingston Canal Lining Project	Merced Irrigation District	Construction	Construction	The project will line a portion of the canal section of the Livingston Canal through the City of Atwater. The Livingston Canal is both a stormwater facility and irrigation facility.	Flood Management	36
Main Canal at Head Siesmic Rehab	Merced Irrigation District	Construction	Conceptual	This project entails retrofitting the head gates of the main canal for seismic purposes. The Main Canal serves approximately 150,000 acres in the MID place of use.	Water Supply	48.5
Main Canal Offstream Regulating Reservoir Study	Merced Irrigation District	Feasibility Study	Conceptual	Perform a study on a 10,000 AF offstream regulating reservoir.	Water Supply	61

Merced SWRP 2018
Project Summary

Project Name	Project Proponent	Project Type	Project Status	Project Description	Primary Benefit	Project Score
Mariposa Reservoir Enlargement and Downstream Levee and Channel Improvements	Merced Streams Group (County of Merced, City of Merced, Merced Irrigation District)	Construction	Planning	Mariposa Reservoir was constructed in the early 1950's as an element of the Merced Streams Group Project authorized by Congress's 1944 Flood Control Act. The Flood Control Act of 1970 called for three additional flood control reservoirs, enlargement of existing reservoirs, and 52 miles of levee and channel modifications. To date only one additional reservoir has been built (Castle Dam). The enlargement of Mariposa Reservoir and downstream levee and channel improvements would increase the level of flood protection to Planada and Le Grand. Both are DAC's in Merced County. Mariposa Reservoir was originally constructed to provide protection for up to a 50-year storm event. The State of California has adopted legislation that calls for a minimum of 200-year flood protection for urbanized areas. This project would meet the requirements of the new flood control legislation.	Flood Management	30.5
McCoy Lateral Regulating Basin	Merced Irrigation District	Construction	Conceptual	This project includes constructing and integrating a regulating basin near the termination of Merced Irrigation District's (MID) McCoy Lateral, the furthest southwestern operational discharge location in the District. MID is required to provide Stevinson Water District with 24,600 AF annualy. The McCoy Lateral is currently one of the waterways in which water is delivered to Stevinson Water District. This basin will increase water supply management through increasing the efficiency, consistency and reliability of deliveries to MID Growers and Stevinson Water District. The project will also allow for the increase in the amount of flows traversing the westerly region of MID, thereby improving the water quality in the area in terms of temperature, decreased algae growth, PH balance and overall suitability for agricultural and landscape use.	Water Supply	43.5
Merced Groundwater Subbasin LIDAR	Merced Irrigation District	Plan Development	Conceptual	This project consists of LIDAR data of the Merced Groundwater Subbasin. This data will be used in conjunction with weather forecast data to predict local stormflows from rainfall events. The data will be tied to MID's proposed real time modeling of Bear, Black Rascal, and Burns Creeks.	Water Supply	61
Merced Irrigation Flood-MAR Canal Automation	Merced Irrigation District	Construction	Conceptual	Merced Irrigation District is proposing automation of certain facilities to enhance Flood-MAR capabilities and expand areas which can be recharged with stormwater events. The project consists of automating certain facilities including but not limited to the Washington Lateral, Northside Canal, Livingston Canal, Le Grand Canal, Caton Lateral, Escaladian Canal, Hammett Lateral, Atwater Canal, Cressey Lateral, and Arena Canal. Currently these canals have manual structures which require frequent human adjustment and inputs to safely manage flows. By automatizing these facilities, the district will be able to safely accommodate volatile and unpredictable storm flows while keeping canal levels high enough for Flood-MAR purposes. Additionally, this project will better manage surface water diversions and increase distribution efficiency by reducing spills.	Water Supply	48
Owens Reservoir Enlargement and Downstream Levee and Channel Improvements	Merced Streams Group (County of Merced, City of Merced, Merced Irrigation District)	Construction	Planning	Owens Reservoir was constructed in the early 1950's as an element of the Merced Streams Group Project authorized by Congress's 1944 Flood Control Act. The Flood Control Act of 1970 called for three additional flood control reservoirs, enlargement of existing reservoirs, and 52 miles of levee and channel modifications. To date only one additional reservoir has been built (Castle Dam). The enlargement of Owens Reservoir and downstream levee and channel improvements would increase the level of flood protection to Planada and Le Grand, both DAC's. Owens Reservoir was originally constructed to provide protection for up to a 50-year storm event. The State of California has adopted legislation that calls for a minimum of 200-year flood protection for urbanized areas. This project would meet the requirements of the new flood control legislation.	Flood Management	30.5
Real Time Simulation Flood Control Modeling - Bear Creek	Merced Irrigation District	Plan Development	Conceptual	This project consists of modeling Bear, Black Rascal, and Burns Creeks. These three creeks (or the confluence of them) run through the City of Merced and have historically caused flooding to the area. The real time simulation model (RTS) would utilize HEC-RAS and HEC-HMS modeling software. The ability to run real time simulations will improve the ability to forecast flood flows and flood events. This forecasting will be critical in utilizing flood flows for FLOOD-MAR projects in the area. Additionally, it will enable MID to be better prepared for flood flows which happen during the irrigation season. Excess surface water is often conservatively spilled in anticipation of a rain event that occurs during the irrigation season due to lack of forecasting information.	Flood Management	56
Rice Field Pilot Study Monitoring Wells	Merced Irrigation District	Construction	Planning	This Project entails construction of at least 3 groundwater monitoring wells to evaluate the efficacy of MID's rice field recharge pilot project.	Water Supply	53.5

Merced SWRP 2018
Project Summary

Project Name	Project Proponent	Project Type	Project Status	Project Description	Primary Benefit	Project Score
Study for Potential Water System Intertie Facilities from Merced I.D. to LeGrand-Athlone W.D. and Chowchilla W.D.	Chowchilla Water District	Feasibility Study	Conceptual	Merced Irrigation District (MID), LeGrand-Athlone Water District (LGAWD) and Chowchilla Water District (CWD) desire to investigate the feasibility of improving and constructing water conveyance facilities to allow the transferring of irrigation water from MID to LGAWD and CWD. This analysis would review hydrologic data to assess how much water is available from MID for transfer to LGAWD and CWD, when it is available, and how this water availability matches with the demands from LGAWD and the Merced County portion of CWDs service area. A preliminary topographic survey would be performed to gather data on portions of two of the proposed alignments south of the Planada Canal and one south of the Fancher Lateral. A hydraulic analysis of the conveyance system utilizing HEC-RAS computer software would be utilized to bring alternative amounts of water to the districts. A cost analysis for the various options would be prepared.	Water Supply	65

Project Scoring Guide for SWRP Project List

Component	Criterion	Scoring Procedure	Raw Score Assigned	Final 2018 Weights	
				% of Score	Subtotal
1. SWRP Main and Additional Benefits	Provides SWRP Main Benefits	Score based on # of benefits provided and # of quantitative metrics provided	20 points per Main Benefit met, plus an additional 20 points for every benefit with a quantitative metric provided, to a maximum of 100 points	25	40
	Provides SWRP Additional Benefits	Score based on # of benefits provided and # of quantitative metrics provided	20 points per Additional Benefit met, plus an additional 20 points for every benefit with a quantitative metric provided, to a maximum of 100 points	15	
2. Project Status and Feasibility	Is Ready to be Implemented	Score based on degree of work needed prior to implementation	Ready to construct / implement = 100 pts Preliminary Design Completed = 75 pts Planning Completed = 50 pts Planning in Progress = 25 pts No Work Completed = 0 pts	10	30
	Land Considerations	Score based on right-of-way status	Project is located on public land or has an existing easement or right-of-way agreement = 100 pts Project is not on public land and has no easement or right-of-way in place = 0 pts	10	
	Is supported by entities that have created permanent, local, or regional funding	Score is based on Yes/No response	Yes = 100 pts No = 0 pts	10	
3. Regional Watershed Priorities	Provides a Benefit to Disadvantaged Communities (DACs) (can be a SWRP Main Benefit, SWRP Additional Benefit, or Other Benefit)	Score based on providing targeted benefits to more significantly disadvantaged communities within the region, considering household income and percentage of households below the poverty level	Project directly benefits El Nido, Planada or Franklin/Beachwood = 100 pts Project directly benefits Le Grand or Winton = 75 pts Project directly benefits Atwater, Snelling, Livingston, Stevinson, or DAC areas of City of Merced = 50 pts Provides benefit to regional community benefits but not targeted to a specific DAC = 25 pts Does not provide a benefit to a disadvantaged community = 0 pts	15	30
	Supports existing TMDLs	Score based on number of TMDLs checked	Supports 2 or more TMDLs = 100 pts Supports 1 TMDL = 50 points Supports no TMDLs = 0 points	5	
	Reduces pollutant discharges into a 303(d) listed Impaired Water Body	Score is based on Yes/No response	Yes = 100 pts No = 0 pts	5	
	Augments water supply via groundwater recharge	Score based on whether project provides groundwater recharge and associated quantitative measurement	Provides quantitative measure of groundwater recharge volume = 100 pts Provides groundwater recharge but does not quantify the amount = 50 points Does not provide groundwater recharge = 0 pts	5	
Total:					**100**

Merced SWRP 2018
Project Scores and Rankings

Project Name	Project Proponent	Project Type	Project Status	Score	Tier[1]	Estimated Cost	Primary Benefit
Black Rascal Creek Flood Control Project	Merced Streams Group (County of Merced, City of Merced, Merced Irrigation District)	Construction	Design	71	1	$ 35,761,703	Flood Management
Study for Potential Water System Intertie Facilities from Merced I.D. to LeGrand-Athlone W.D. and Chowchilla W.D.	Chowchilla Water District	Feasibility Study	Conceptual	65	1	$ 100,000	Water Supply
Black Rascal Creek Flood Control Bypass/ Supplemental Groundwater Supply Improvements	Merced Irrigation District	Construction	Conceptual	63.5	1	$ 1,000,000	Water Supply
Main Canal Offstream Regulating Reservoir Study	Merced Irrigation District	Feasibility Study	Conceptual	61	1	$ 240,000	Water Supply
Merced Groundwater Subbasin LIDAR	Merced Irrigation District	Plan Development	Conceptual	61	1	$ 150,000	Water Supply
City of Merced Storm Drain Master Plan Update	City of Merced, MID	Plan Development	Planning	59.5	1	$ 300,000	Flood Management
Real Time Simulation Flood Control Modeling - Bear Creek	Merced Irrigation District	Plan Development	Conceptual	56	1	$ 100,000	Flood Management
Rice Field Pilot Study Monitoring Wells	Merced Irrigation District	Construction	Planning	53.5	1	$ 250,000	Water Supply
Atwater-McSwain Regulating/Recharge Basin	Merced Irrigation District	Construction	Planning	50.5	1	$ 3,300,000	Water Supply
Main Canal at Head Siesmic Rehab	Merced Irrigation District	Construction	Conceptual	48.5	1	$ 1,600,000	Water Supply
Crocker Dam Modification	Merced Irrigation District	Construction	Conceptual	48	2	$ 1,240,000	Water Supply
El Nido Recharge Basin	Merced Irrigation District	Construction	Conceptual	48	2	$ 500,000	Water Supply
Fairfield Canal/ El Nido Superhighway	Merced Irrigation District	Construction	Conceptual	48	2	$ 3,000,000	Water Supply
Lake Yosemite Booster Pump Station	Merced Irrigation District	Construction	Conceptual	48	2	$ 100,000	Water Supply
Merced Irrigation Flood-MAR Canal Automation	Merced Irrigation District	Construction	Conceptual	48	2	$ 6,500,000	Water Supply
McCoy Lateral Regulating Basin	Merced Irrigation District	Construction	Conceptual	43.5	2	$ 3,282,600	Water Supply
Livingston Canal Lining Project	Merced Irrigation District	Construction	Construction	36	2	$ 3,100,000	Flood Management
Bear Reservoir Enlargement and Downstream Levee and Channel Improvements	Merced Streams Group (County of Merced, City of Merced, & Merced Irrigation District)	Construction	Planning	30.5	2	$ 20,000,000	Flood Management
Burns Reservoir Enlargement and Downstream Levee and Channel Improvements	Merced Streams Group (County of Merced, City of Merced, Merced Irrigation District)	Construction	Planning	30.5	2	$ 15,000,000	Flood Management
Mariposa Reservoir Enlargement and Downstream Levee and Channel Improvements	Merced Streams Group (County of Merced, City of Merced, Merced Irrigation District)	Construction	Planning	30.5	2	$ 15,000,000	Flood Management
Owens Reservoir Enlargement and Downstream Levee and Channel Improvements	Merced Streams Group (County of Merced, City of Merced, Merced Irrigation District)	Construction	Planning	30.5	2	$ 15,000,000	Flood Management

1. Tier 1 includes projects that scored in the top 50th percentile, Tier 2 includes projects that scored in the bottom 50th percentile. The median score is 48.

Merced SWRP 2018
Project Score Details

Project Information			Scoring Criteria:	Individual Criterion Scores									
Project Name	Project Proponent	Primary Benefit	Criteria Weights:	SWRP Main Benefits 25%	SWRP Additional Benefits 15%	Is Ready to be Implemented 10%	Right-of-Way / Public Land Status 10%	Local Funding Support 10%	Benefits DACs 15%	Supports TMDLs 5%	Reduces Pollutant Discharges to 303(d)-Listed Water Bodies 5%	Augments Water Supply via Grounwater Recharge 5%	Total Weighted Score -
Atwater-McSwain Regulating/Recharge Basin	Merced Irrigation District	Water Supply		100	20	25	0	0	100	0	0	100	50.5
Bear Reservoir Enlargement and Downstream Levee and Channel Improvements	Merced Streams Group (County of Merced, City of Merced, & Merced Irrigation District)	Flood Management		40	20	25	0	0	100	0	0	0	30.5
Black Rascal Creek Flood Control Bypass/ Supplemental Groundwater Supply Improvements	Merced Irrigation District	Water Supply		80	40	0	100	100	100	0	0	50	63.5
Black Rascal Creek Flood Control Project	Merced Streams Group (County of Merced, City of Merced, Merced Irrigation District)	Flood Management		100	40	50	0	100	100	0	100	100	71
Burns Reservoir Enlargement and Downstream Levee and Channel Improvements	Merced Streams Group (County of Merced, City of Merced, Merced Irrigation District)	Flood Management		40	20	25	0	0	100	0	0	0	30.5
City of Merced Storm Drain Master Plan Update	City of Merced, MID	Flood Management		100	80	100	0	0	50	0	0	100	59.5
Crocker Dam Modification	Merced Irrigation District	Water Supply		100	20	0	0	0	100	0	0	100	48
El Nido Recharge Basin	Merced Irrigation District	Water Supply		100	20	0	0	0	100	0	0	100	48
Fairfield Canal/ El Nido Superhighway	Merced Irrigation District	Water Supply		100	20	0	0	0	100	0	0	100	48
Lake Yosemite Booster Pump Station	Merced Irrigation District	Water Supply		100	20	0	0	0	100	0	0	100	48
Livingston Canal Lining Project	Merced Irrigation District	Flood Management		40	40	100	0	0	50	0	0	50	36
Main Canal at Head Siesmic Rehab	Merced Irrigation District	Water Supply		100	40	0	0	0	100	0	0	50	48.5
Main Canal Offstream Regulating Reservoir Study	Merced Irrigation District	Water Supply		100	40	100	0	0	100	0	0	100	61
Mariposa Reservoir Enlargement and Downstream Levee and Channel Improvements	Merced Streams Group (County of Merced, City of Merced, Merced Irrigation District)	Flood Management		40	20	25	0	0	100	0	0	0	30.5
McCoy Lateral Regulating Basin	Merced Irrigation District	Water Supply		80	40	0	0	0	100	0	0	50	43.5
Merced Groundwater Subbasin LIDAR	Merced Irrigation District	Water Supply		100	40	100	0	0	100	0	0	100	61
Merced Irrigation Flood-MAR Canal Automation	Merced Irrigation District	Water Supply		100	20	0	0	0	100	0	0	100	48
Owens Reservoir Enlargement and Downstream Levee and Channel Improvements	Merced Streams Group (County of Merced, City of Merced, Merced Irrigation District)	Flood Management		40	20	25	0	0	100	0	0	0	30.5
Real Time Simulation Flood Control Modeling - Bear Creek	Merced Irrigation District	Flood Management		80	40	100	0	0	100	0	0	100	56
Rice Field Pilot Study Monitoring Wells	Merced Irrigation District	Water Supply		100	40	25	0	0	100	0	0	100	53.5
Study for Potential Water System Intertie Facilities from Merced I.D. to LeGrand-Athlone W.D. and Chowchilla W.D.	Chowchilla Water District	Water Supply		100	0	100	0	100	100	0	0	100	65

Projects submitted during Call for Projects from July 9, 2018 to August 31, 2018.

Project Name:

Description:

Contact:

Partner(s):

Total Cost:

Last Update: Wednesday Nov 14, 2018

Instructions Overview Proponents Objectives Strategies Benefits and Impacts Schedule and Budget IRWM Program Consistency SWRP Program Consistency SWRP Benefits

Instructions Top

Project Submittal Form

The Merced Integrated Regional Water Management (IRWM) Region is soliciting projects for inclusion in the 2018 Merced IRWM Plan and Merced Storm Water Resources Plan (SWRP). Project proponents are encouraged to submit projects using the online project database available at http://www.mercedirwmp.org/projects.html.

Fields noted with an asterisk (*) are required.

Please submit projects by August 23, 2018. Questions should be directed to:

Jennifer Kidson
Woodard & Curran
(408) 831-4817
jkidson@woodardcurran.com

Overview Top

Project Info

*Select the Plan(s) for which you would like to enter your project (select IRWMP, SWRP, or both):

☐ **Merced Integrated Regional Water Management Plan:** Any project that would like to be considered for IRWM funding should select this program. Projects must meet at least one IRWM Plan Objective and be within the Merced IRWM Region in order to be considered for inclusion in the Plan. Other eligibility criteria for inclusion in a grant application is discussed in the Prop 1 Eligibility section. For more information about the IRWM grant program visit the California Department of Water Resources' website.

☐ **Merced Stormwater Resources Plan:** All storm water and dry weather runoff capture projects (e.g., green infrastructure, rainwater and storm water capture, storm water treatment facilities, and demonstration or pilot projects that are consistent with the eligibility requirements of Prop 1, Chapter 7) should select this program, regardless of whether they are seeking IRWM and/or Storm Water grant funding. Inclusion in the Storm Water Resource Plan (SWRP) is required for storm water and dry weather runoff capture projects seeking Proposition 1 funding through any funding program. For more information about the Storm Water Grant Program visit the State Water Resources Control Boards website.

Project Name: *

Project Description: * Provide a one paragraph description of your project

Project Type: *

Select

If other, please specify:

Project Website: Provide URL to project website, if available

Project Location

Project Coordinates: Enter decimal latitude and longitude below or

Latitude: * Longitude: *

Project Area:

File Name	Type

OR describe the project location:

Other Info

Project Need: Provide a one paragraph description of the need for your project.*

Technical Feasibility

Is this project technically feasible?* ☐ Yes ☐ No

List studies (e.g., Feasibility Study, Facilities Plan) that have been completed for this project. If feasibility studies have not been completed, describe how feasibility has been determined.*

Planning Documents: List local or regional planning documents that identify this project (e.g., Recycled Water Master Plan, Water Master Plan, drought contingency planning documents).

Supporting Documentation: Attach feasibility studies and planning documents relevant to this project

File Name	Description (relevancy, agency, weblink, date, etc.)	Type

Linkages with Other Projects: If applicable, describe how the project is related to other projects in the region or neighboring regions

Project Photos: Attach project photos, if available.

File Name	Description	Type

Data Management

What data will be collected from the project or monitoring of the project?

How will the data be disseminated/shared with the region?

How will the data be maintained?

Proponents Top

Project Proponent

Agency/Organization submitting project for consideration: *

Project Proponent (i.e., Agency/Organization implementing project) (if different than entity submitting project):

IRWMP Adoption

Is the project proponent planning to adopt the Merced IRWM Plan? * ☐ Yes ☐ No

If the project proponent is not currently planning to adopt the Merced IRWM Plan, will it adopt the plan if your project is selected for IRWM implementation funding? ☐ Yes ☐ No

Project Proponent Primary Contact

Name: *

Title:

Agency/Organization: *

Email Address: *

Phone Number: * Ext:

Address: *

Project Proponent Secondary Contact

Name:

Title:

Agency/Organization:

Email Address:

Phone Number: Ext:

Address:

Partners

Project Partners List partner agencies/organizations. Indicate which partners are located within the region:

Other Stakeholders List other stakeholders:

Stakeholder Outreach Describe any stakeholder outreach that has been conducted to date for this project:

Objectives Top

Objectives

***Regional Objectives** - Select all that apply. For each selected objective, provide a short description of how the project contributes to the IRWM Plan Objective. The Merced IRWM Region considers all the IRWMP Objectives to be high priority; within this, some have been deemed highest priority.

☐ **Objective A:** Correct groundwater overdraft conditions, promote direct and in-lieu recharge, and identify supplemental water.
☐ **Objective B:** Manage flood flows and stormwater runoff (including those caused by climate change) for public safety, water supply, recharge, and natural resource management.
☐ **Objective C:** Meet demands for all uses, including agriculture, urban, and environmental resource needs.
☐ **Objective D:** Improve coordination of land use and water resources planning.
☐ **Objective E:** Effectively address climate change adaptation and/or mitigation in water resource management and infrastructure.
☐ **Objective F:** Maximize water use efficiency, including expanding in-lieu recycled water projects where feasible.
☐ **Objective G:** Protect and improve water quality for all beneficial uses, consistent with the Basin Plan.
☐ **Objective H:** Protect, restore, and improve natural resources.
☐ **Objective I:** Address water-related needs of disadvantaged communities (DACs).
☐ **Objective J:** Protect and enhance water-associated recreation opportunities.

☐ **Objective K:** Establish and maintain effective communication among water resource stakeholders in the Region.
☐ **Objective L:** Enhance public understanding of water management issues and needs.

Strategies Top

Resource Management Strategies

***Resource Management Strategies** - Select all that apply:

Reduce Water Demand
☐ Agricultural Water Use Efficiency
☐ Urban Water Use Efficiency

Improve Operational Efficiency and Transfers
☐ Conveyance - Regional/Local
☐ System Reoperation
☐ Water Transfers

Increase Water Supply
☐ Conjunctive Management & Groundwater Storage
☐ Recycled Municipal Wastewater
☐ Surface Storage - Regional/Local

Improve Water Quality
☐ Drinking Water Treatment and Distribution
☐ Groundwater Remediation/Aquifer Remediation

- ☐ Matching Quality to Use
- ☐ Pollution Prevention
- ☐ Salt and Salinity Management
- ☐ Urban Runoff Management

Improve Flood Management

- ☐ Flood Management

Practice Resources Stewardship

- ☐ Agricultural Land Stewardship
- ☐ Ecosystem Restoration
- ☐ Forest Management
- ☐ Land Use Planning and Management
- ☐ Recharge Area Protection
- ☐ Sediment Management
- ☐ Watershed Management

People and Water

- ☐ Economic Incentives (Loans, Grants, and Water Pricing)
- ☐ Outreach and Engagment
- ☐ Water and Culture
- ☐ Water-Dependent Recreation

Other Strategies

- ☐ Crop Idling for Water Transfers
- ☐ Irrigated Land Retirement
- ☐ Rainfed Agriculture

Benefits and Impacts Top

Primary Benefit

Primary Benefit - Select one of the following: *

- ☐ Water Supply
- ☐ Water Quality
- ☐ Flood Management
- ☐ Environment
- ☐ Community Stewardship

Overall Benefits and Impacts

If the project involves phased/construction implementation, estimate benefits that will be realized following completion of each phase:

DAC, Native American, and Environmental Justice Benefits and Considerations

Does the project address a critical water supply or water quality need of a DAC? ☐ Yes ☐ No

The DAC status of communities may be determined using DWR's Water Management Planning Tool, available at https://gis.water.ca.gov/app/boundaries/. DACs may be identified at the census designated place, census tract, and/or block group level. A community may also be considered a DAC if an income survey has been completed demonstrating that the community meets DAC criteria (a median household income less than 80% of the California median household income).

If Yes, describe the need and how the project addresses it:

Identify specific DACs that will benefit from the project

- ☐ Atwater
- ☐ El Nido
- ☐ Franklin/Beachwood

☐ Le Grand
☐ Livingston
☐ Merced

☐ Planada
☐ Snelling
☐ Stevinson
☐ Winton

Environmental Justice

Environmental justice can be defined as the fair treatment of people of all races, cultures, and incomes with respect to the development, adoption, implementation, and enforcement of environmental laws, regulations, and policies. Environmental justice seeks to redress inequitable distribution of environmental burdens (e.g. pollution, industrial facilities) and access to environmental goods (e.g. clean water and air, parks, recreation, nutritious foods, etc.).

Have the environmental justice impacts of the projects been evaluated? ☐ Yes ☐ No
If Yes, describe the potential impacts or benefits and efforts to mitigate environmental justice concerns:

Will the project address an existing environmental justice issue? ☐ Yes ☐ No
If Yes, describe the environmental justice issue and how the project will address it:

Native American Tribal Communities

Will the project benefit Federally- or State-recognized Native American tribal communities? ☐ Yes ☐ No
If Yes, describe how Native American Tribal communities will benefit:

Climate Change Adaption:

Climate change adaption includes activities to adjust to the actual or expected future climate.

Does the project help the water system adapt to vulnerabilities to climate change effects? ☐ Yes ☐ No
If Yes, describe how adaptation(s) are achieved:

Does the project provide adaptation to changes in the amount, intensity, timing, quality, and/or variability of runoff and recharge? ☐ Yes ☐ No
If Yes, describe how adaptation(s) are achieved:

Does the project provide an adaptation to sea level rise (either direct or indirect adaptations)? ☐ Yes ☐ No
If Yes, describe how adaptation(s) are achieved:

Climate Change Mitigation:

Climate change mitigation includes activities to reduce and stabilize the levels of greenhouse gases in the atmosphere.

Does the project reduce energy consumption and/or greenhouse gas emissions? ☐ Yes ☐ No
If Yes, describe how energy consumption or emissions are reduced:

Does the project consider the contribution of the project to reducing greenhouse gas emissions as compared to project alternatives? ☐ Yes ☐ No

If Yes, describe how this was considered:

Does the project consider the ability of the project to help the Merced Region reduce greenhouse gas emissions as new projects are implemented over the 20-year planning horizon? ☐ Yes ☐ No

If Yes, describe how this was considered:

Schedule and Budget Top

Project Status

Project Status: * Select

Schedule Details - Provide start and end dates for each of the following; if not applicable, please check N/A

Planning:	Start Date:		End Date:		N/A: ☐
Design/Engineering+:	Start Date:		End Date:		N/A: ☐
Environmental Documentation++:	Start Date:		End Date:		N/A: ☐
Permitting+++:	Start Date:		End Date:		N/A: ☐
Acquisition of Rights-of-Way++++:	Start Date:		End Date:		N/A: ☐
Development of Financing:	Start Date:		End Date:		N/A: ☐
Construction/Implementation+++++:	Start Date:		End Date:		N/A: ☐
Environmental Mitigation Efforts:	Start Date:		End Date:		N/A: ☐
Post Project Monitoring:	Start Date:		End Date:		N/A: ☐

+If design is currently underway, has the pre-design been completed? ☐ Yes ☐ No

++ Describe environmental documentation planned or required, e.g. ND, MND, EIS/EIR:

+++ Describe permits required for the project and note which permits have been obtained to date:

++++ Is the project located on public land? ☐ Yes ☐ No

If not, does the project have an easement or right-of-way agreement with a local landowner? ☐ Yes ☐ No

+++++ If project involves phased construction/implementation, provide start and end dates for each phase:

Project Schedule

Attach project workplan and/or schedule if available

File Name	Description (relevancy,agency, weblink, date, etc.)	Type

Project Costs

Estimated Project Cost: *

Project Cost Breakdown: *

☐ N/A ☐ Unknown ☐ Project Management:

☐ N/A ☐ Unknown ☐ Land Purchase/Easement:

☐ N/A ☐ Unknown ☐ Planning:

☐ N/A ☐ Unknown ☐ Environmental Documentation:

☐ N/A ☐ Unknown ☐ Construction/Implementation:

☐ N/A ☐ Unknown ☐ Environmental Mitigation/Compliance:

☐ N/A ☐ Unknown ☐ Construction Administration:

☐ N/A ☐ Unknown ☐ Annual Operations and Maintenance:

☐ N/A ☐ Unknown ☐ Other:

Specify Other:

Total (Not including Annual Operations and Maintenance): $0.00

Base Year for Costs (i.e., 2017 dollars?): *

Estimated Project Life (for infrastructure projects):

Click here for a list of general infrastructure life spans.

Economic Feasibility

Has a project economic analysis and/or benefit cost ratio been developed for the project? ☐ Yes ☐ No

Attach economic analysis and/or benefit cost ratio if available.

File Name	Description (relevancy,weblink, date, etc.)	Type

Project Funding

Is the project supported by entities that have created permanent, local, or regional funding? ☐ Yes ☐ No

Amount that will be funded from local cost match or in kind contributions:

Describe the source(s) of local funding match:

Amount of funding secured through existing grants:

Describe existing grant source(s):

Total estimated cost currently unfunded:

IRWM Program Consistency Top

Statewide Priorities

Select all that apply. For detailed information regarding the Statewide Priorities, see pages 8-11 of the 2016 IRWM Guidelines, available here:

- ☐ Make Conservation a California Way of Life
- ☐ Increase Regional Self-Reliance and Integrated Water Management Across All Levels of Government
- ☐ Achieve the Co-Equal Goals for the Delta
- ☐ Protect and Restore Important Ecosystems
- ☐ Manage and Prepare for Dry Periods
- ☐ Expand Water Storage Capacity and Improve Groundwater Management
- ☐ Provide Safe Water for All Communities
- ☐ Increase Flood Protection

Proposition 1 Project Eligibility

Is your project ready to be considered for Proposition 1 Implementation Grant? ☐ Yes ☐ No

Does your project contribute to addressing nitrate, arsenic, perchlorate, or hexavalent chromium contamination? ☐ Yes ☐ No

For urban water suppliers, do you have a 2015 Urban Water Management Plan that has been approved by DWR? If you are not an urban water supplier, check N/A.+ ☐ Yes ☐ No ☐ N/A

For urban water suppliers+, are you in compliance with the water meter requirements in the California Water Code? If you are not an urban water supplier, check N/A.+ ☐ Yes ☐ No ☐ N/A

For agricultural water suppliers++, are you implementing efficient water management practices as required by SBx7-7 and did you adopt an Agricultural Water Management Plan by December 31, 2015? If you are not an agricultural water supplier, check N/A.++ ☐ Yes ☐ No ☐ N/A

Are you in compliance with the groundwater management requirements listed on pages 11-12 of the 2016 IRWM Guidelines? (Refer to this PDF for requirements.) ☐ Yes ☐ No ☐ N/A

Are you in compliance with the California Statewide Groundwater Elevation Monitoring (CASGEM) requirements listed on page 12 of the 2016 IRWM Guidelines (Water Code §10920)? (Refer to this PDF for requirements.) ☐ Yes ☐ No ☐ N/A

For surface water diverters, are you in compliance with the California Water Code surface water diversion reporting requirements? If you are not surface water diverter, check N/A. ☐ Yes ☐ No ☐ N/A

+An urban water supplier is defined as a supplier providing water to more than 3,000 urban customers or supplying more than 3,000 acre-feet of water to urban customers.
++An agricultural water supplier is defined as a supplier providing water to 10,000 or more irrigated acres, excluding recycled water.

SWRP Program Consistency Top

SWRP Program Consistency

This section is only required for stormwater projects (i.e., if you checked the SWRP box in the Project Info section). If you are submitting your project only to the IRWMP, you can skip this section.

The primary purpose of the SWRP is to identify and assess projects that promote stormwater as a resource, prioritizing those multi-benefit projects that can best meet the identified planning area and watershed priorities. All stormwater and dry weather runoff capture projects must now be included in a SWRP to be eligible for state grant funding; projects included in the SWRP may be eligible to apply for upcoming funding opportunities.

SWRP Project Eligibility

Each project must meet all of the following to be included in the SWRP.
Can the Project be sponsored by an eligible applicant? ☐ Yes ☐ No
Is the project a storm water or dry weather runoff project? ☐ Yes ☐ No
Does the project meet 2 or more of the following SWRP Main Benefits? ☐ Yes ☐ No

Water Quality - Increased filtration and/or treatment of runoff Water Supply - Water supply reliability Water Supply - Conjunctive use Flood Management - Decreased flood risk by reducing runoff rate and/or volume Environmental - Environmental and habitat protection and/or improvement Environmental - Increased urban green space Community - Employment opportunities provided Community - Public education

Does the project meet at least one of the following SWRP Additional Benefits? ☐ Yes ☐ No
Water Quality - Nonpoint source pollution control Water Quality - Reestablished natural water drainage and treatment Water Supply - Water conservation Flood Management - Reduced sanitary sewer overflow Environmental - Reduced energy use, greenhouse gas emissions, or provides a carbon sink Environmental - Reestablishment of natural hydrograph Environmental - Water temperature improvements Community - Community involvement Community - Enhance and/or create recreational and public use areas

Merced Regional Watershed Priorities

Does the Project implement water quality improvements to help achieve the goals of an existing TMDL? (check all that apply)
☐ Sacramento-San Joaquin Delta Mercury and Methylmercury TMDL
☐ San Joaquin River Dissolved Oxygen TMDL
☐ Lower San Joaquin River Salt and Boron TMDL
☐ Lower San Joaquin River Diazinon and Chlorpyrifos TMDL; Sacramento-San Joaquin Delta Diazinon and Chlorpyrifos TMDL; Central Valley Pesticide TMDL

Does the project reduce pollutant discharges into a 303(d) listed Impaired Water Body? ? (The current 303(d) list, as of July 2018, can be found on the State Water Resources Control Board website here: https://www.waterboards.ca.gov/water_issues/programs/tmdl/integrated2014_2016.shtml)
☐ Yes ☐ No

If Yes, please list water body:

Does the project augment water supply by capturing storm water for recharging into a groundwater basin? ☐ Yes ☐ No

Does the Project provide a SWRP Main or Additional Benefit (listed above) to a disadvantaged community or economically distressed area? ☐ Yes ☐ No

If Yes, please list communities:

Is the project compliant with the conditions of applicable NPDES permits? ☐ Yes ☐ No

SWRP Benefits Top

SWRP Benefits

This section is only required for stormwater projects (i.e., if you checked the SWRP box in the Project Info section). If you are submitting your project only to the IRWMP, you can skip this section.

Water Quality Benefits

Does the project provide any of the following benefits (check all that apply and provide applicable quantitative estimate, if available):

☐ Increased filtration and/or treatment of runoff (SWRP Main Benefit)

Average annual pollutant load reduction:

TSS (lbs/yr):

Mercury (lbs/yr):

Diazinon (lbs/yr):

Chlorpyrifos (lbs/yr):

Selenium (lbs/yr):

Diuron (lbs/yr):

Bacteria - fecal coli. / E. coli (MPN/yr):

Pyrethroids (lbs/yr):

Trash (lbs/yr):

Total nitrogen (lbs/yr):

Other constituent (insert metric):

Volume of water treated (mgd):

Volume of runoff infiltrated (AF/year):

Other quantitative metric:

☐ Nonpoint source pollution control (SWRP Additional Benefit)

Provide qualitative metric:

☐ Reestablished natural water drainage and treatment (SWRP Additional Benefit)

Provide quantitative metric:

Describe how the project will achieve these benefits (description is required if any of the above benefits are selected):

Describe the method or study used to quantify the benefits described above (description is required if a quantitative estimate was provided):

Water Supply Benefits

Does the project provide any of the following benefits (check all that apply and provide applicable quantitative estimate, if available):

☐ Water supply reliability (SWRP Main Benefit)

Increase in water supply through direct groundwater recharge (af/year):

Increase in water supply through direct use (af/year):

Other quantitative metric:

☐ Conjunctive use (SWRP Main Benefit)

Increase in water supply though in lieu recharge/conjunctive use (af/year):

Other quantitative metric:

☐ Water conservation (SWRP Additional Benefit)

Reduction in water use (af/year):

Other quantitative metric:

Describe how the project will achieve these benefits (description is required if any of the above benefits are selected):

Describe the method or study used to quantify the benefits described above (description is required if a quantitative estimate was provided):

Flood Management Benefits

Does the project provide any of the following benefits (check all that apply and provide applicable quantitative estimate, if available):

☐ Decreased flood risk by reducing runoff rate and/or volume (SWRP Main Benefit)

Reduction in peak flow discharge (cfs):

Reduction in volume of potential flood water (af/year):

Other quantitative metric:

☐ Reduced sanitary sewer overflows (SWRP Additional Benefit)

Reduction in sewer overflow volumes (af/year):

Other quantitative metric:

Describe how the project will achieve these benefits (description is required if any of the above benefits are selected):

Describe the method or study used to quantify the benefits described above (description is required if a quantitative estimate was provided):

Environmental Benefits

Does the project provide any of the following benefits (check all that apply and provide applicable quantitative estimate, if available):

☐ Environmental habitat protection and improvement, including wetland enhancement/creation, riparian enhancement, and/or instream flow improvement (SWRP Main Benefit)

Size of habitat protected or improved (acres):

Amount of instream flow rate improvement (cfs):

Other quantitative metric:

☐ Increased urban green space (SWRP Main Benefit)

Size of increase in urban green space (acres):

Other quantitative metric:

☐ Reduced energy use, greenhouse gas emissions, or provides a carbon sink (SWRP Additional Benefit)

Amount of energy consumption reduced (KWH/year):

Amount of GHG emissions reduced (tons/year):

Other quantitative metric:

☐ Reestablishment of natural hydrograph (SWRP Additional Benefit)

Provide quantitative metric:

☐ Water temperature improvements (SWRP Additional Benefit)

Amount of temperature improvement (degrees F):

Describe how the project will achieve these benefits (description is required if any of the above benefits are selected):

Describe the method or study used to quantify the benefits described above (description is required if a quantitative estimate was provided):

Community Benefits

Does the project provide any of the following benefits (check all that apply and provide applicable quantitative estimate, if available):

☐ Employment opportunities provided (SWRP Main Benefit)

Number of employment opportunities provided:

Other quantitative metric:

☐ Public education (SWRP Main Benefit)

Number of outreach materials provided or events conducted:

Other quantitative metric:

☐ Community involvement (SWRP Additional Benefit)

Number of participants per year:

Other quantitative metric:

* Minimum Required Information for Project Submission

☐ Enhance and/or create recreational and public use areas (SWRP Additional Benefit)

Estimated visits per year:

quantitative metric:

☐ Create or restore habitat, open space, parks, recreation or green open space in a DAC with a deficit of such spaces (Other Benefit)

Area of habitat restored, open space created, etc:

Other quantitative metric:

Describe how the project will achieve these benefits (description is required if any of the above benefits are selected):

Describe the method or study used to quantify the benefits described above (description is required if a quantitative estimate was provided):

Merced Stormwater Resources Plan
Project Cost Information

Project Name	Project Proponent	Project Status	Total Estimated Project Cost	Project Cost Details, if provided										Base Year for Costs	Local Funding Secured to Date	Grant Funding Secured to Date
				Project Management	Land Purchase/ Easement	Planning	Environmental Documentation	Construction/ Implementation	Environmental Mitigation/ Compliance	Construction Administration	Annual Operations and Maintenance	Other	Specify Other			
Main Canal Offstream Regulating Reservoir Study	Merced Irrigation District	Conceptual	$ 240,000	-	-	$240,000.00	-	-	-	-	-	-	-	2012	$ 60,000	-
Main Canal at Head Seismic Rehab	Merced Irrigation District	Conceptual	$ 1,600,000	$200,000.00	-	$100,000.00	-	$1,200,000.00	-	$100,000.00	-	-	-	2012	$ 400,000	-
Livingston Canal Lining Project	Merced Irrigation District	Construction	$ 3,100,000	-	-	-	-	-	-	-	-	-	-	2012	-	-
McCoy Lateral Regulating Basin	Merced Irrigation District	Conceptual	$ 3,282,600	$91,200.00	$50,000.00	$138,700.00	$42,000.00	$2,960,700.00	-	-	-	-	-	2014	$ 821,000	-
Black Rascal Creek Flood Control Project	Merced Streams Group (County of Merced, City of Merced, Merced Irrigation District)	Design	$ 35,761,703	-	$15,000,000.00	-	$530,000.00	$14,691,829.00	$2,000,000.00	$1,669,181.00	-	$1,870,693.00	Contingences	2017	-	$ 10,000,000
Study for Potential Water System Intertie Facilities from Merced ID to LeGrand-Athlone WD and Chowchilla WD	Chowchilla Water District	Conceptual	$ 100,000	-	-	$100,000.00	-	-	-	-	-	-	This is a feasibility study	2018	$ 2,550	-
Bear Reservoir Enlargement and Downstream Levee and Channel Improvements	Merced Streams Group (County of Merced, City of Merced, & Merced Irrigation District)	Planning	$ 20,000,000	-	-	-	-	-	-	-	-	-	-	2012	-	-
El Nido Recharge Basin	Merced Irrigation District	Conceptual	$ 500,000	-	-	-	-	-	-	-	-	-	-	2012	-	-
Burns Reservoir Enlargement and Downstream Levee and Channel Improvements	Merced Streams Group (County of Merced, City of Merced, Merced Irrigation District)	Planning	$ 15,000,000	-	-	-	-	-	-	-	-	-	-	2012	-	-
Owens Reservoir Enlargement and Downstream Levee and Channel Improvements	Merced Streams Group (County of Merced, City of Merced, Merced Irrigation District)	Planning	$ 15,000,000	-	-	-	-	-	-	-	-	-	-	2012	-	-
Mariposa Reservoir Enlargement and Downstream Levee and Channel Improvements	Merced Streams Group (County of Merced, City of Merced, Merced Irrigation District)	Planning	$ 15,000,000	-	-	-	-	-	-	-	-	-	-	2012	-	-
Atwater-McSwain Regulating/Recharge Basin	Merced Irrigation District	Planning	$ 3,300,000	-	-	-	-	-	-	-	-	-	-	2017	-	-
Black Rascal Creek Flood Control Bypass/ Supplemental Groundwater Supply Improvements	Merced Irrigation District	Conceptual	$ 1,000,000	-	-	-	-	-	-	-	-	-	-	2018	-	-
Crocker Dam Modification	Merced Irrigation District	Conceptual	$ 1,240,000	-	-	-	-	-	-	-	-	-	-	2018	-	-
Fairfield Canal/ El Nido Superhighway	Merced Irrigation District	Conceptual	$ 3,000,000	-	-	-	-	-	-	-	-	-	-	2017	-	-
Lake Yosemite Booster Pump Station	Merced Irrigation District	Conceptual	$ 100,000	-	-	-	-	-	-	-	-	-	-	2017	-	-
Merced Irrigation Flood-MAR Canal Automation	Merced Irrigation District	Conceptual	$ 6,500,000	-	-	-	-	-	-	-	-	-	-	2017	-	-
Real Time Simulation Flood Control Modeling - Bear Creek	Merced Irrigation District	Conceptual	$ 100,000	-	-	-	-	-	-	-	-	-	-	2018	-	-
Merced Groundwater Subbasin LIDAR	Merced Irrigation District	Conceptual	$ 150,000	-	-	-	-	-	-	-	-	-	-	2018	-	-
City of Merced Stom Drain Master Plan Update	City of Merced	Planning	$ 300,000	-	-	$200,000.00	$100,000.00	-	-	-	-	-	-	2019	$ 50,000	-
Rice Field Pilot Study Monitoring Wells	Merced Irrigation District	Planning	$ 250,000	-	-	-	-	-	-	-	-	-	-	2017	-	-

Projects submitted during Call for Projects from July 9, 2018 to August 31, 2018.

Project Name	Project Proponent	Project Status	Planning		Design / Engineering		Environmental Documentation		Permitting		Right-of-Way Acquisition		Development of Financing		Construction / Implementation		Environmental Mitigation Efforts	
			Start	End	Start	End	Start	End	Start	End	Start	End	Start	End	Start	End	Start	End
Main Canal Offstream Regulating Reservoir Study	Merced Irrigation District	Conceptual	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Main Canal at Head Seismic Rehab	Merced Irrigation District	Conceptual	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Livingston Canal Lining Project	Merced Irrigation District	Construction	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
McCoy Lateral Regulating Basin	Merced Irrigation District	Conceptual	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Black Rascal Creek Flood Control Project	Merced Streams Group (County of Merced, City of Merced, Merced Irrigation District)	Design	6/1/2006	5/31/2012	1/1/2019	4/7/2020	9/1/2016	5/28/2019	10/1/2018	3/31/2020	1/1/2014	10/1/2014	-	-	1/19/2021	4/11/2022	-	-
Study for Potential Water System Intertie Facilities from Merced ID to LeGrand-Athlone WD and Chowchilla WD	Chowchilla Water District	Conceptual	6/1/2019	6/1/2020	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bear Reservoir Enlargement and Downstream Levee and Channel Improvements	Merced Streams Group (County of Merced, City of Merced, & Merced Irrigation District)	Planning	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
El Nido Recharge Basin	Merced Irrigation District	Conceptual	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Burns Reservoir Enlargement and Downstream Levee and Channel Improvements	Merced Streams Group (County of Merced, City of Merced, Merced Irrigation District)	Planning	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Owens Reservoir Enlargement and Downstream Levee and Channel Improvements	Merced Streams Group (County of Merced, City of Merced, Merced Irrigation District)	Planning	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mariposa Reservoir Enlargement and Downstream Levee and Channel Improvements	Merced Streams Group (County of Merced, City of Merced, Merced Irrigation District)	Planning	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Atwater-McSwain Regulating/Recharge Basin	Merced Irrigation District	Planning	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Black Rascal Creek Flood Control Bypass/ Supplemental Groundwater Supply Improvements	Merced Irrigation District	Conceptual	1/1/2019	6/30/2019	7/1/2019	7/31/2021	7/1/2019	7/31/2021	8/1/2021	11/30/2021	8/1/2021	11/30/2021	1/1/2019	6/30/2019	12/1/2021	7/31/2022	12/1/2021	7/31/2022
Crocker Dam Modification	Merced Irrigation District	Conceptual	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fairfield Canal/ El Nido Superhighway	Merced Irrigation District	Conceptual	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lake Yosemite Booster Pump Station	Merced Irrigation District	Conceptual	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Merced Irrigation Flood-MAR Canal Automation	Merced Irrigation District	Conceptual	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Real Time Simulation Flood Control Modeling - Bear Creek	Merced Irrigation District	Conceptual	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Merced Groundwater Subbasin LIDAR	Merced Irrigation District	Conceptual	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
City of Merced Stom Drain Master Plan Update	City of Merced	Planning	4/30/2019	9/30/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rice Field Pilot Study Monitoring Wells	Merced Irrigation District	Planning	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Public Workshop 1, July 11, 2018

2018 Merced SWRP/IRWMP Update

Public Workshop #1

July 11, 2018

Presenter:
Leslie Dumas

woodardcurran.com

Agenda

- Region Background
- Summary of IRWM Program and Prop 1
- Summary of SWRP Program and Guidelines
- Plan Adoption
- Implementation Funding
- How to Submit a Project
- Next Steps and Q&A

INTRODUCTIONS

IRWM AND MERCED REGION BACKGROUND

What Is Integrated Regional Water Management (IRWM)?

- A collaborative effort to identify and implement water management solutions on a regional scale that:
  - Increases regional self-reliance
  - Reduces conflict
  - Manages water to concurrently achieve social, environmental, and economic objectives

IRWM Program Background

- The California Department of Water Resources (DWR) began the IRWM program in 2004
- Purpose of an IRWMP:
  - Develop regional understanding
  - Identify water resources needs and solutions
  - Maximize benefits through integration of water management strategies
  - Leverage regional resources through partnerships
  - Be eligible for State funding through the IRWM grant program
- IRWM funding has been provided through Prop 50, Prop 84, and now Prop 1

IRWM Regions

- To be eligible for funding, Regions must:
  - Be governed by a Regional Water Management Group with statutory authority over water management
  - Be approved through a structured "Regional Acceptance Process"
  - Prepare an IRWM Plan consistent with program standards

IRWM Regions

An IRWMP Region is...

- Defined by those organizations who created it
- Defined by water management issues and potential solutions
- Not restricted to political boundaries
- Typically within a State Hydrologic Area

What is an Integrated Regional Water Management Plan (IRWMP)?

An IRWMP *is*...

- ✓ A planning document
- ✓ A description of water-related resources, challenges, goals, and solutions
- ✓ An opportunity for regional partnerships and coordination
- ✓ A vehicle to facilitate State funding

An IRWMP is *not*...

- × A substitute for local planning
- × A decrease in agency responsibilities or autonomy
- × A policy document
- × Comprehensive project documentation

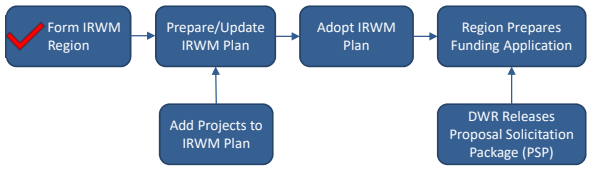
Contributors Include...

- Water and Wastewater Agencies
- Counties
- Cities
- Public Groups
- Private Organizations
- Members of the Public

An IRWM Plan and Process Helps by…

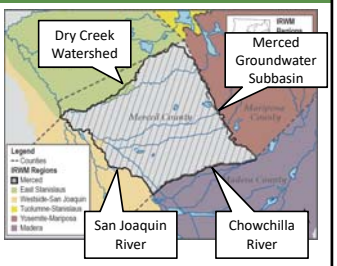
- Consolidating information
- Encouraging discussion among stakeholders
- Evaluating projects on a regional scale
- Increasing chances of project implementation
  - Combining projects
  - Maximizes eligibility for IRWM implementation funding

IRWMP Process Overview



Background

- Formed in 2009
- First IRWMP was completed in 2013
- Current plan is compliant with 2012 IRWMP (Prop 84) Guidelines



Merced Region Cities and Communities

- Atwater
- Celeste
- Cressey
- El Nido
- Franklin/Beechwood
- Le Grant
- Livingston
- Merced
- Planada
- Snelling
- Stevinson
- Tuttle
- UC Merced
- Winton

Merced Region Groundwater Subbasins

- Merced
- Turlock
- Chowchilla
- Delta-Mendota

Region Governance

IRWM Program Status

- Prop 1 approved in 2014, allocating $510 million to the IRWM grant program
- New Guidelines were released by DWR in 2016
- IRWMPs must comply with 2016 (Prop 1) Guidelines to be eligible for funding
- Updates to the 2013 Merced IRWMP are required to comply with 2016 Guidelines

SUMMARY OF SWRP PROGRAM AND GUIDELINES

Stormwater Resources Planning

- Concurrently with the IRWMP Update, the Merced Region is preparing a Stormwater Resources Plan (SWRP)

SWRP Background

- SB 985 (2014) requires public agencies to develop a SWRP in order to receive grant funds from a bond for stormwater projects
- An integrated plan focusing on regional watershed-based storm water priorities and developing multiple benefit projects

IRWMP vs. SWRP

- IRWMP
  - DWR Program
  - Broad water management focus
  - Generally qualitative

- SWRP
  - SWRCB Program
  - Specific stormwater focus
  - More quantitative

Both plans include project solicitation and prioritization processes.

Major SWRP Requirements

- Watershed/Planning Area Identification
- Water Quality Compliance
- Organization, Coordination, Collaboration
- Quantitative Methods
- Identification and Prioritization of Projects
- Implementation Strategy and Schedule
- Education, Outreach, Public Participation

Prop 1 SWRP Funding Availability

- Prop 1 allocated $200 million to Storm Water Grant Program
- Planning Grants: ~$10 million awarded
- Round 1 Implementation Grants: ~$80 million awarded
- Round 2 Implementation Grants: ~$90 million available (est. early 2019)

IRWM IMPLEMENTATION FUNDING

Prop 1 IRWM Funding Availability

- $510 million available statewide
- $31 million available in San Joaquin River Funding Area over multiple rounds of funding
- 10% allocated to disadvantaged community projects

Grant Eligibility

- Project Proponent Eligibility Requirements
  - Must be a public agency, non-profit, public utility, mutual water company , or State- or federally-recognized Indian Tribe
  - Must comply with Section II.B of IRWM Guidelines (adopt IRWMP, comply with SGMA, AWMP/UWMP, water meter requirements, etc.)

Grant Eligibility

- Project Eligibility Requirements
  - Must be in an IRWM Plan
  - Have benefits within the IRWM Region
  - Provide multiple benefits

Inter-regional projects are allowed

Eligible Project Types

- Water reuse and recycling (non-potable, IPR and DPR)
- Efficiency and conservation measures
- Surface and underground water storage
- Regional water conveyance facilities
- Watershed protection, restoration, and management
- Stormwater resource management
- Conjunctive use
- Desalination
- Water quality improvements
- Decision support tools to evaluate regional supply and demand

Past IRWM Funding Awards in the Region

- Prop 84, Round 2 – awarded $3,190,335
  - Merced County Black Rascal Flood Control Project
  - Planada CAS Water Conservation Project
  - Merced ID El Nido Area Recharge
  - UC Merced/EMRCD/Merced ID Merced River Education and Enhancement Program
- Prop 84, Round 3 – awarded $2,900,252
  - Merced ID Highlands Groundwater Conservation Project
  - Merced ID Cressey Recharge Basin Enlargement Project
  - Le Grant Water Meter Conservation Project

Prop 1 IRWM Implementation Grant Schedule

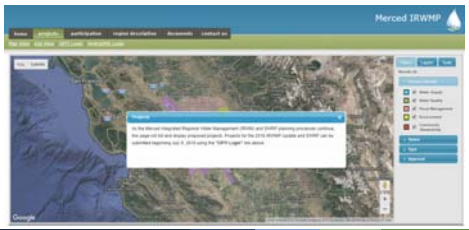
- Draft PSP – September 2018
- Final PSP – late 2018
- Pre-application workshops – February-July 2019
- Applications due – ~8 weeks after pre-application workshop

How to Get Your Project in the IRWMP

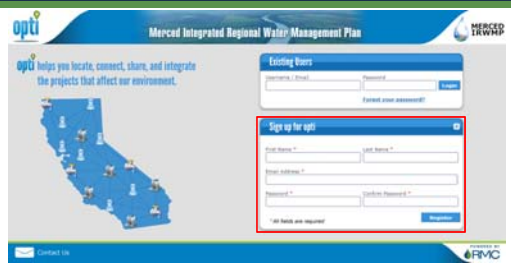
- Call for Projects - Formal period for submitting projects for inclusion in the IRWMP and SWRP
- July 9, 2018 – August 23, 2018

How Do I Submit a Project?

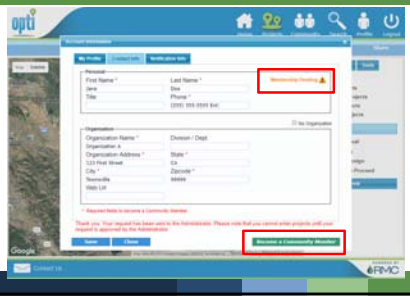
- Via online database, Opti. Accessible at www.mercedirwmp.org.



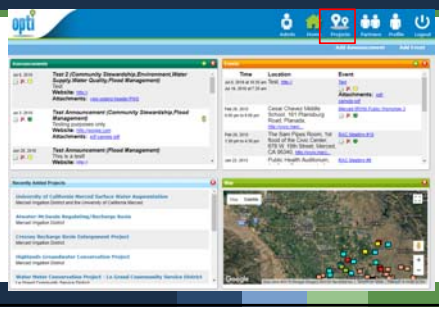
Creating an Opti Account



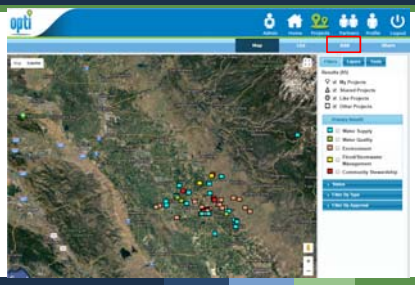
Creating an Opti Account



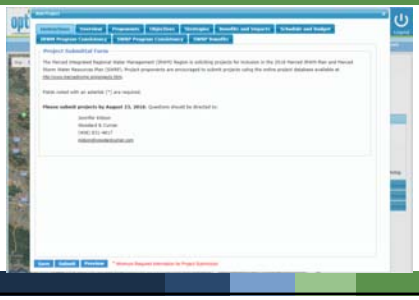
Adding a Project



Adding a Project

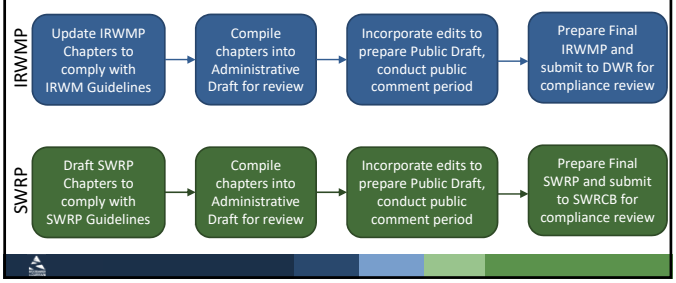


Entering a Project – Instructions Tab



SCHEDULE AND NEXT STEPS

IRWMP Update/SWRP Preparation Process



Public Workshops

- Public Workshop 1 (July 11, 2018)
  - Announce IRWMP Update/SWRP and Call for Projects
- Public Workshop 2 (November 2018)
  - Announce Public Draft IRWMP and SWRP

How to Participate

- Attend meetings:
  - Public workshops, Merced Integrated Regional Water Management Authority meetings, Regional Advisory Council meetings
- Add projects to the IRWMP and/or SWRP
- Provide comments on Public Draft IRWMP and SWRP (to be made available online)
- Sign up to receive email announcements

QUESTIONS?

Project Team

Leslie Dumas, P.E., D.WRE
Senior Water Resources Engineer, Woodard & Curran
Phone: (916) 999-8778
e-mail: ldumas@woodardcurran.com

Lindsey Wilcox, P.E.
Project Engineer, Woodard & Curran
Phone: (914) 513-2212
e-mail: lwilcox@woodardcurran.com

Jen Kidson
Water Resources Planner, Woodard & Curran
Phone: (408) 831-4817
e-mail: jkidson@woodardcurran.com

opti quick start guide

Opti **helps you locate, connect, share, and integrate IRWMP project information within your IRWM Community. This Quick Start Guide will assist you to jump start the use of *Opti*.**

How to Gain Access to Opti

Opti is a public system. On the login screen, input the required information and click on the *Register* button. Once your account has been successfully created, you may enter your email and password in the "Existing Users" box and click *Login*.

How to Navigate Opti

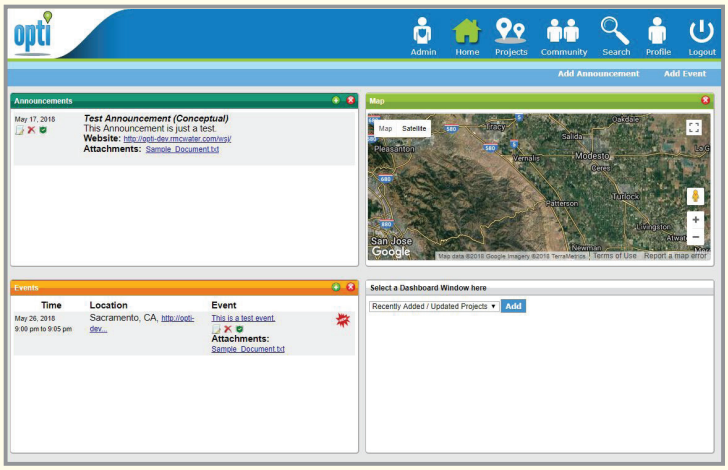
Once logged into ***Opti***, information and tools are accessible via the navigation bar. Click on the icons to display different modules in your screen. Modules provided are:

- **Home –** displays Announcements, Events, and Recently Added Projects
- **Projects –** displays a map or list of the projects and allows users to add or share projects
- **Community –** displays a list of Individuals and Organizations
- **Search –** provides various criteria to find projects of interest
- **Profile –** allows users to manage their profile information and access the User Guide

How to View Announcements and Events

Announcements and Events are posted in the **Home** page.

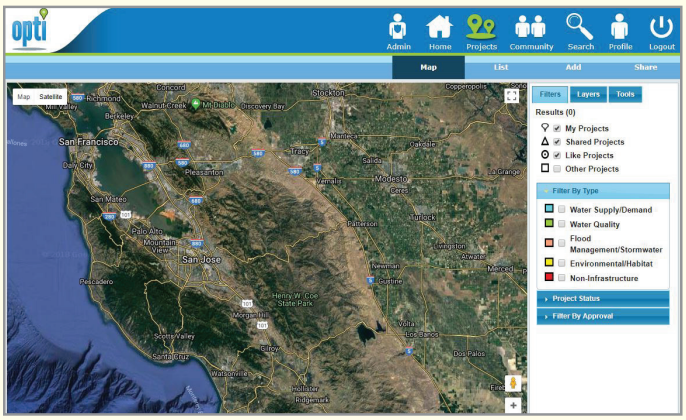
- Click on an Announcement or Event hyperlink to view the details and download attachments.
- Click on **Add Announcement** or **Add Event** in the sub-navigation bar to add a new announcement or event.



How to Become a Community Member

To add and submit projects to ***Opti***, you must first become a Community Member.

- Click on the **Profile** icon to open your account information.
- Fill out all the required fields and click the *Become a Community Member* button at the bottom of the **Contact Info** window. You will receive an email when your request has been authorized.



NOTE: *Your project will not be visible to the public until you have submitted it to the administrator and it has been accepted for publication.*

How to Add a New Project

To add a project to ***Opti***:

- Click on the **Projects** icon in the navigation bar
- Click **Add** in the sub-navigation bar. If you are a Community Member, the project entry screens will open.
- Fill out the project information and click the *Save* button.
- You may continue to update project information prior to and after submitting the project to the administrator.

How to Share a Project

The Share Tool allows a select group of users to be able to view and edit your project prior to and after submission.

- Click on the **Projects** icon in the navigation bar
- Click on **Share** in the sub-navigation bar to open the Share Tool.

How to View Project Details

To view project details and update your project:

- Click on the **Projects** icon in the navigation bar.
  - In the Map view, mouse over your project and click on the project title when it appears.
  - In the List view, filter the list to show "My Projects" and select your project.
- A new window will open with the project details.
- Click on **Details** in the sub-navigation bar to view and edit project information.

WOODARD & CURRAN

Merced Integrated Regional Water Management Plan

Project Name:

Description:

Contact:

Partner(s):

Total Cost:

Last Update: Tuesday Jul 10, 2018

Instructions Overview Proponents Objectives Strategies Benefits and Impacts Schedule and Budget IRWM Program Consistency SWRP Program Consistency SWRP Benefits

Instructions Top

Project Submittal Form

The Merced Integrated Regional Water Management (IRWM) Region is soliciting projects for inclusion in the 2018 Merced IRWM Plan and Merced Storm Water Resources Plan (SWRP). Project proponents are encouraged to submit projects using the online project database available at http://www.mercedirwmp.org/projects.html.

Fields noted with an asterisk (*) are required.

Please submit projects by August 23, 2018. Questions should be directed to:

Jennifer Kidson
Woodard & Curran
(408) 831-4817
jkidson@woodardcurran.com

Overview Top

Project Info

*Select the Plan(s) for which you would like to enter your project (select IRWMP, SWRP, or both):

☐ **Merced Integrated Regional Water Management Plan:** Any project that would like to be considered for IRWM funding should select this program. Projects must meet at least one IRWM Plan Objective and be within the Merced IRWM Region in order to be considered for inclusion in the Plan. Other eligibility criteria for inclusion in a grant application is discussed in the Prop 1 Eligibility section. For more information about the IRWM grant program visit the California Department of Water Resources' website.

☐ **Merced Stormwater Resources Plan:** All storm water and dry weather runoff capture projects (e.g., green infrastructure, rainwater and storm water capture, storm water treatment facilities, and demonstration or pilot projects that are consistent with the eligibility requirements of Prop 1, Chapter 7) should select this program, regardless of whether they are seeking IRWM and/or Storm Water grant funding. Inclusion in the Storm Water Resource Plan (SWRP) is required for storm water and dry weather runoff capture projects seeking Proposition 1 funding through any funding program. For more information about the Storm Water Grant Program visit the State Water Resources Control Boards website.

Project Name: *

Project Description: * Provide a one paragraph description of your project

Project Type: *

Select

If other, please specify:

Project Website: Provide URL to project website, if available

Project Location

Project Coordinates: Enter decimal latitude and longitude below or

Latitude: * Longitude: *

Project Area:

File Name	Type

OR describe the project location:

Other Info

Project Need: Provide a one paragraph description of the need for your project.*

Technical Feasibility

Is this project technically feasible?* ☐ Yes ☐ No

List studies (e.g., Feasibility Study, Facilities Plan) that have been completed for this project. If feasibility studies have not been completed, describe how feasibility has been determined.*

Planning Documents: List local or regional planning documents that identify this project (e.g., Recycled Water Master Plan, Water Master Plan, drought contingency planning documents).

Supporting Documentation: Attach feasibility studies and planning documents relevant to this project

File Name	Description (relevancy, agency, weblink, date, etc.)	Type

Linkages with Other Projects: If applicable, describe how the project is related to other projects in the region or neighboring regions

Project Photos: Attach project photos, if available.

File Name	Description	Type

Data Management

What data will be collected from the project or monitoring of the project?

How will the data be disseminated/shared with the region?

How will the data be maintained?

Proponents Top

Project Proponent

Agency/Organization submitting project for consideration: *

Project Proponent (i.e., Agency/Organization implementing project) (if different than entity submitting project):

IRWMP Adoption

Is the project proponent planning to adopt the Merced IRWM Plan? * ☐ Yes ☐ No

If the project proponent is not currently planning to adopt the Merced IRWM Plan, will it adopt the plan if your project is selected for IRWM implementation funding? ☐ Yes ☐ No

Project Proponent Primary Contact

Name: *

Title:

Agency/Organization: *

Email Address: *

Phone Number: * Ext:

Address: *

Project Proponent Secondary Contact

Name:

Title:

Agency/Organization:

Email Address:

Phone Number: Ext:

Address:

Partners

Project Partners List partner agencies/organizations. Indicate which partners are located within the region:

Other Stakeholders List other stakeholders:

Stakeholder Outreach Describe any stakeholder outreach that has been conducted to date for this project:

Objectives Top

Objectives

***Regional Objectives** - Select all that apply. For each selected objective, provide a short description of how the project contributes to the IRWM Plan Objective. The Merced IRWM Region considers all the IRWMP Objectives to be high priority; within this, some have been deemed highest priority.

- ☐ **Objective A:** Correct groundwater overdraft conditions, promote direct and in-lieu recharge, and identify supplemental water.
- ☐ **Objective B:** Manage flood flows and stormwater runoff (including those caused by climate change) for public safety, water supply, recharge, and natural resource management.
- ☐ **Objective C:** Meet demands for all uses, including agriculture, urban, and environmental resource needs.
- ☐ **Objective D:** Improve coordination of land use and water resources planning.
- ☐ **Objective E:** Effectively address climate change adaptation and/or mitigation in water resource management and infrastructure.
- ☐ **Objective F:** Maximize water use efficiency, including expanding in-lieu recycled water projects where feasible.
- ☐ **Objective G:** Protect and improve water quality for all beneficial uses, consistent with the Basin Plan.
- ☐ **Objective H:** Protect, restore, and improve natural resources.
- ☐ **Objective I:** Address water-related needs of disadvantaged communities (DACs).
- ☐ **Objective J:** Protect and enhance water-associated recreation opportunities.

- ☐ **Objective K:** Establish and maintain effective communication among water resource stakeholders in the Region.
- ☐ **Objective L:** Enhance public understanding of water management issues and needs.

Strategies Top

Resource Management Strategies

***Resource Management Strategies** - Select all that apply:

Reduce Water Demand

- ☐ Agricultural Water Use Efficiency
- ☐ Urban Water Use Efficiency

Improve Operational Efficiency and Transfers

- ☐ Conveyance - Regional/Local
- ☐ System Reoperation
- ☐ Water Transfers

Increase Water Supply

- ☐ Conjunctive Management & Groundwater Storage
- ☐ Recycled Municipal Wastewater
- ☐ Surface Storage - Regional/Local

Improve Water Quality

- ☐ Drinking Water Treatment and Distribution
- ☐ Groundwater Remediation/Aquifer Remediation

- ☐ Matching Quality to Use
- ☐ Pollution Prevention
- ☐ Salt and Salinity Management
- ☐ Urban Runoff Management

Improve Flood Management

- ☐ Flood Management

Practice Resources Stewardship

- ☐ Agricultural Land Stewardship
- ☐ Ecosystem Restoration
- ☐ Forest Management
- ☐ Land Use Planning and Management
- ☐ Recharge Area Protection
- ☐ Sediment Management
- ☐ Watershed Management

People and Water

- ☐ Economic Incentives (Loans, Grants, and Water Pricing)
- ☐ Outreach and Engagment
- ☐ Water and Culture
- ☐ Water-Dependent Recreation

Other Strategies

- ☐ Crop Idling for Water Transfers
- ☐ Irrigated Land Retirement
- ☐ Rainfed Agriculture

Benefits and Impacts Top

Primary Benefit

Primary Benefit - Select one of the following: *

- ☐ Water Supply
- ☐ Water Quality
- ☐ Flood Management
- ☐ Environment
- ☐ Community Stewardship

Overall Benefits and Impacts

If the project involves phased/construction implementation, estimate benefits that will be realized following completion of each phase:

DAC, Native American, and Environmental Justice Benefits and Considerations

Does the project address a critical water supply or water quality need of a DAC? ☐ Yes ☐ No

The DAC status of communities may be determined using DWR's Water Management Planning Tool, available at https://gis.water.ca.gov/app/boundaries/. DACs may be identified at the census designated place, census tract, and/or block group level. A community may also be considered a DAC if an income survey has been completed demonstrating that the community meets DAC criteria (a median household income less than 80% of the California median household income).

If Yes, describe the need and how the project addresses it:

Identify specific DACs that will benefit from the project

- ☐ Atwater
- ☐ El Nido
- ☐ Franklin/Beachwood

☐ Le Grand
☐ Livingston
☐ Merced

☐ Planada
☐ Snelling
☐ Stevinson
☐ Winton

Environmental Justice

Environmental justice can be defined as the fair treatment of people of all races, cultures, and incomes with respect to the development, adoption, implementation, and enforcement of environmental laws, regulations, and policies. Environmental justice seeks to redress inequitable distribution of environmental burdens (e.g. pollution, industrial facilities) and access to environmental goods (e.g. clean water and air, parks, recreation, nutritious foods, etc.).

Have the environmental justice impacts of the projects been evaluated? ☐ Yes ☐ No
If Yes, describe the potential impacts or benefits and efforts to mitigate environmental justice concerns:

Will the project address an existing environmental justice issue? ☐ Yes ☐ No
If Yes, describe the environmental justice issue and how the project will address it:

Native American Tribal Communities

Will the project benefit Federally- or State-recognized Native American tribal communities? ☐ Yes ☐ No
If Yes, describe how Native American Tribal communities will benefit:

Climate Change Adaption:

Climate change adaption includes activities to adjust to the actual or expected future climate.

Does the project help the water system adapt to vulnerabilities to climate change effects? ☐ Yes ☐ No
If Yes, describe how adaptation(s) are achieved:

Does the project provide adaptation to changes in the amount, intensity, timing, quality, and/or variability of runoff and recharge? ☐ Yes ☐ No
If Yes, describe how adaptation(s) are achieved:

Does the project provide an adaptation to sea level rise (either direct or indirect adaptations)? ☐ Yes ☐ No
If Yes, describe how adaptation(s) are achieved:

Climate Change Mitigation:

Climate change mitigation includes activities to reduce and stabilize the levels of greenhouse gases in the atmosphere.

Does the project reduce energy consumption and/or greenhouse gas emissions? ☐ Yes ☐ No
If Yes, describe how energy consumption or emissions are reduced:

Does the project consider the contribution of the project to reducing greenhouse gas emissions as compared to project alternatives? ☐ Yes ☐ No

If Yes, describe how this was considered:

Does the project consider the ability of the project to help the Merced Region reduce greenhouse gas emissions as new projects are implemented over the 20-year planning horizon? ☐ Yes ☐ No

If Yes, describe how this was considered:

Schedule and Budget Top

Project Status

Project Status: * Select

Schedule Details - Provide start and end dates for each of the following; if not applicable, please check N/A

Planning:	Start Date:		End Date:		N/A: ☐
Design/Engineering+:	Start Date:		End Date:		N/A: ☐
Environmental Documentation++:	Start Date:		End Date:		N/A: ☐
Permitting+++:	Start Date:		End Date:		N/A: ☐
Acquisition of Rights-of-Way++++:	Start Date:		End Date:		N/A: ☐
Development of Financing:	Start Date:		End Date:		N/A: ☐
Construction/Implementation+++++:	Start Date:		End Date:		N/A: ☐
Environmental Mitigation Efforts:	Start Date:		End Date:		N/A: ☐
Post Project Monitoring:	Start Date:		End Date:		N/A: ☐

+If design is currently underway, has the pre-design been completed? ☐ Yes ☐ No

++ Describe environmental documentation planned or required, e.g. ND, MND, EIS/EIR:

+++ Describe permits required for the project and note which permits have been obtained to date:

++++ Is the project located on public land? ☐ Yes ☐ No

If not, does the project have an easement or right-of-way agreement with a local landowner? ☐ Yes ☐ No

+++++ If project involves phased construction/implementation, provide start and end dates for each phase:

Project Schedule

Attach project workplan and/or schedule if available

File Name	Description (relevancy,agency, weblink, date, etc.)	Type

Project Costs

Estimated Project Cost: *

Project Cost Breakdown: *

☐ N/A ☐ Unknown ☐ Project Management:

☐ N/A ☐ Unknown ☐ Land Purchase/Easement:

☐ N/A ☐ Unknown ☐ Planning:

☐ N/A ☐ Unknown ☐ Environmental Documentation:

☐ N/A ☐ Unknown ☐ Construction/Implementation:

☐ N/A ☐ Unknown ☐ Environmental Mitigation/Compliance:

☐ N/A ☐ Unknown ☐ Construction Administration:

☐ N/A ☐ Unknown ☐ Annual Operations and Maintenance:

☐ N/A ☐ Unknown ☐ Other:

Specify Other:

Total (Not including Annual Operations and Maintenance): $0.00

Base Year for Costs (i.e., 2017 dollars?): *

Estimated Project Life (for infrastructure projects):

Click here for a list of general infrastructure life spans.

Economic Feasibility

Has a project economic analysis and/or benefit cost ratio been developed for the project? ☐ Yes ☐ No

Attach economic analysis and/or benefit cost ratio if available.

File Name	Description (relevancy,weblink, date, etc.)	Type

Project Funding

Is the project supported by entities that have created permanent, local, or regional funding? ☐ Yes ☐ No

Amount that will be funded from local cost match or in kind contributions:

Describe the source(s) of local funding match:

Amount of funding secured through existing grants:

Describe existing grant source(s):

Total estimated cost currently unfunded:

IRWM Program Consistency Top

Statewide Priorities

Select all that apply. For detailed information regarding the Statewide Priorities, see pages 8-11 of the 2016 IRWM Guidelines, available here:

- ☐ Make Conservation a California Way of Life
- ☐ Increase Regional Self-Reliance and Integrated Water Management Across All Levels of Government
- ☐ Achieve the Co-Equal Goals for the Delta
- ☐ Protect and Restore Important Ecosystems
- ☐ Manage and Prepare for Dry Periods
- ☐ Expand Water Storage Capacity and Improve Groundwater Management
- ☐ Provide Safe Water for All Communities
- ☐ Increase Flood Protection

Proposition 1 Project Eligibility

Is your project ready to be considered for Proposition 1 Implementation Grant? ☐ Yes ☐ No

Does your project contribute to addressing nitrate, arsenic, perchlorate, or hexavalent chromium contamination? ☐ Yes ☐ No

For urban water suppliers, do you have a 2015 Urban Water Management Plan that has been approved by DWR? If you are not an urban water supplier, check N/A.+ ☐ Yes ☐ No ☐ N/A

For urban water suppliers+, are you in compliance with the water meter requirements in the California Water Code? If you are not an urban water supplier, check N/A.+ ☐ Yes ☐ No ☐ N/A

For agricultural water suppliers++, are you implementing efficient water management practices as required by SBx7-7 and did you adopt an Agricultural Water Management Plan by December 31, 2015? If you are not an agricultural water supplier, check N/A.++ ☐ Yes ☐ No ☐ N/A

Are you in compliance with the groundwater management requirements listed on pages 11-12 of the 2016 IRWM Guidelines? (Refer to this PDF for requirements.) ☐ Yes ☐ No ☐ N/A

Are you in compliance with the California Statewide Groundwater Elevation Monitoring (CASGEM) requirements listed on page 12 of the 2016 IRWM Guidelines (Water Code §10920)? (Refer to this PDF for requirements.) ☐ Yes ☐ No ☐ N/A

For surface water diverters, are you in compliance with the California Water Code surface water diversion reporting requirements? If you are not surface water diverter, check N/A. ☐ Yes ☐ No ☐ N/A

+An urban water supplier is defined as a supplier providing water to more than 3,000 urban customers or supplying more than 3,000 acre-feet of water to urban customers.
++An agricultural water supplier is defined as a supplier providing water to 10,000 or more irrigated acres, excluding recycled water.

SWRP Program Consistency Top

SWRP Program Consistency

This section is only required for stormwater projects (i.e., if you checked the SWRP box in the Project Info section). If you are submitting your project only to the IRWMP, you can skip this section.

The primary purpose of the SWRP is to identify and assess projects that promote stormwater as a resource, prioritizing those multi-benefit projects that can best meet the identified planning area and watershed priorities. All stormwater and dry weather runoff capture projects must now be included in a SWRP to be eligible for state grant funding; projects included in the SWRP may be eligible to apply for upcoming funding opportunities.

SWRP Project Eligibility

Each project must meet all of the following to be included in the SWRP.
Can the Project be sponsored by an eligible applicant? ☐ Yes ☐ No
Is the project a storm water or dry weather runoff project? ☐ Yes ☐ No
Does the project meet 2 or more of the following SWRP Main Benefits? ☐ Yes ☐ No

Water Quality - Increased filtration and/or treatment of runoff Water Supply - Water supply reliability Water Supply - Conjunctive use Flood Management - Decreased flood risk by reducing runoff rate and/or volume Environmental - Environmental and habitat protection and/or improvement Environmental - Increased urban green space Community - Employment opportunities provided Community - Public education

Does the project meet at least one of the following SWRP Additional Benefits? ☐ Yes ☐ No
Water Quality - Nonpoint source pollution control Water Quality - Reestablished natural water drainage and treatment Water Supply - Water conservation Flood Management - Reduced sanitary sewer overflow Environmental - Reduced energy use, greenhouse gas emissions, or provides a carbon sink Environmental - Reestablishment of natural hydrograph Environmental - Water temperature improvements Community - Community involvement Community - Enhance and/or create recreational and public use areas

Merced Regional Watershed Priorities

Does the Project implement water quality improvements to help achieve the goals of an existing TMDL? (check all that apply)
☐ Sacramento-San Joaquin Delta Mercury and Methylmercury TMDL
☐ San Joaquin River Dissolved Oxygen TMDL
☐ Lower San Joaquin River Salt and Boron TMDL
☐ Lower San Joaquin River Diazinon and Chlorpyrifos TMDL; Sacramento-San Joaquin Delta Diazinon and Chlorpyrifos TMDL; Central Valley Pesticide TMDL

Does the project reduce pollutant discharges into a 303(d) listed Impaired Water Body? ? (The current 303(d) list, as of July 2018, can be found on the State Water Resources Control Board website here: https://www.waterboards.ca.gov/water_issues/programs/tmdl/integrated2014_2016.shtml)
☐ Yes ☐ No

If Yes, please list water body:

Does the project augment water supply by capturing storm water for recharging into a groundwater basin? ☐ Yes ☐ No

Does the Project provide a SWRP Main or Additional Benefit (listed above) to a disadvantaged community or economically distressed area? ☐ Yes ☐ No

If Yes, please list communities:

Is the project compliant with the conditions of applicable NPDES permits? ☐ Yes ☐ No

SWRP Benefits Top

SWRP Benefits

This section is only required for stormwater projects (i.e., if you checked the SWRP box in the Project Info section). If you are submitting your project only to the IRWMP, you can skip this section.

Water Quality Benefits

Does the project provide any of the following benefits (check all that apply and provide applicable quantitative estimate, if available):

☐ Increased filtration and/or treatment of runoff (SWRP Main Benefit)

- Average annual pollutant load reduction:
  - TSS (lbs/yr):
  - Mercury (lbs/yr):
  - Diazinon (lbs/yr):
  - Chlorpyrifos (lbs/yr):
  - Selenium (lbs/yr):
  - Diuron (lbs/yr):
  - Bacteria - fecal coli. / E. coli (MPN/yr):
  - Pyrethroids (lbs/yr):
  - Trash (lbs/yr):
  - Total nitrogen (lbs/yr):
  - Other constituent (insert metric):
- Volume of water treated (mgd):
- Volume of runoff infiltrated (AF/year):
- Other quantitative metric:

☐ Nonpoint source pollution control (SWRP Additional Benefit)

- Provide qualitative metric:

☐ Reestablished natural water drainage and treatment (SWRP Additional Benefit)

- Provide quantitative metric:

Describe how the project will achieve these benefits (description is required if any of the above benefits are selected):

Describe the method or study used to quantify the benefits described above (description is required if a quantitative estimate was provided):

Water Supply Benefits

Does the project provide any of the following benefits (check all that apply and provide applicable quantitative estimate, if available):

☐ Water supply reliability (SWRP Main Benefit)

- Increase in water supply through direct groundwater recharge (af/year):
- Increase in water supply through direct use (af/year):
- Other quantitative metric:

☐ Conjunctive use (SWRP Main Benefit)

Increase in water supply though in lieu recharge/conjunctive use (af/year):

Other quantitative metric:

☐ Water conservation (SWRP Additional Benefit)

Reduction in water use (af/year):

Other quantitative metric:

Describe how the project will achieve these benefits (description is required if any of the above benefits are selected):

Describe the method or study used to quantify the benefits described above (description is required if a quantitative estimate was provided):

Flood Management Benefits

Does the project provide any of the following benefits (check all that apply and provide applicable quantitative estimate, if available):

☐ Decreased flood risk by reducing runoff rate and/or volume (SWRP Main Benefit)

Reduction in peak flow discharge (cfs):

Reduction in volume of potential flood water (af/year):

Other quantitative metric:

☐ Reduced sanitary sewer overflows (SWRP Additional Benefit)

Reduction in sewer overflow volumes (af/year):

Other quantitative metric:

Describe how the project will achieve these benefits (description is required if any of the above benefits are selected):

Describe the method or study used to quantify the benefits described above (description is required if a quantitative estimate was provided):

Environmental Benefits

Does the project provide any of the following benefits (check all that apply and provide applicable quantitative estimate, if available):

☐ Environmental habitat protection and improvement, including wetland enhancement/creation, riparian enhancement, and/or instream flow improvement (SWRP Main Benefit)

Size of habitat protected or improved (acres):

Amount of instream flow rate improvement (cfs):

Other quantitative metric:

☐ Increased urban green space (SWRP Main Benefit)

Size of increase in urban green space (acres):

Other quantitative metric:

☐ Reduced energy use, greenhouse gas emissions, or provides a carbon sink (SWRP Additional Benefit)

Amount of energy consumption reduced (KWH/year):

Amount of GHG emissions reduced (tons/year):

Other quantitative metric:

☐ Reestablishment of natural hydrograph (SWRP Additional Benefit)

Provide quantitative metric:

☐ Water temperature improvements (SWRP Additional Benefit)

Amount of temperature improvement (degrees F):

Describe how the project will achieve these benefits (description is required if any of the above benefits are selected):

Describe the method or study used to quantify the benefits described above (description is required if a quantitative estimate was provided):

Community Benefits

Does the project provide any of the following benefits (check all that apply and provide applicable quantitative estimate, if available):

- ☐ Employment opportunities provided (SWRP Main Benefit)
  - Number of employment opportunities provided:
  - Other quantitative metric:
- ☐ Public education (SWRP Main Benefit)
  - Number of outreach materials provided or events conducted:
  - Other quantitative metric:
- ☐ Community involvement (SWRP Additional Benefit)
  - Number of participants per year:
  - Other quantitative metric:
- ☐ Enhance and/or create recreational and public use areas (SWRP Additional Benefit)
  - Estimated visits per year:
  - quantitative metric:
- ☐ Create or restore habitat, open space, parks, recreation or green open space in a DAC with a deficit of such spaces (Other Benefit)
  - Area of habitat restored, open space created, etc:
  - Other quantitative metric:

Describe how the project will achieve these benefits (description is required if any of the above benefits are selected):

Describe the method or study used to quantify the benefits described above (description is required if a quantitative estimate was provided):

* Minimum Required Information for Project Submission

Ad Order Information

Ad Number	Ad Type	Production Method	Production Notes
0003737122-01	MER-Legal Liner	AdBooker	

External Ad Number	Ad Attributes	Ad Released	Pick Up
		No	

Ad Size	Color
2 X 29 li	

Product	Placement	Times Run	Schedule Cost
MER-Merced Sun-Star	0300 - Legals Classified	2	$198.36

Run Schedule Invoice Text	Position
NOI UPDATE PUBLIC WORKSHOP JENNIFER MC	0301 - Legals & Public Notices

Run Dates
06/29/2018, 07/04/2018

Product	Placement	Times Run	Schedule Cost
MER-upsell.mercedsunstar.com	0300 - Legals Classified	2	$30.00

Run Schedule Invoice Text	Position
NOI UPDATE PUBLIC WORKSHOP JENNIFER MC	0301 - Legals & Public Notices

Run Dates
06/29/2018, 07/04/2018

NOTICE OF INTENT OF THE MERCED INTEGRATED REGIONAL WATER MANAGEMENT AUTHORITY TO PREPARE AN UPDATE TO THE MERCED INTEGRATED REGIONAL WATER MANAGEMENT PLAN

NOTICE IS HEREBY GIVEN that the Merced Integrated Regional Water Management Authority (MIRWMA) intends to prepare an update of the 2013 Merced Integrated Regional Water Management Plan (IRWMP). The Merced IRWMP is intended to encourage collaboration among participants to integrate regional strategies for management of water resources. The Merced IRWMP update will ensure continued compliance with the most recent State IRWM guidelines released in 2016.

All interested persons are invited to attend a public workshop scheduled for 3:00 pm on July 11, 2018 at City of Merced Council Chambers, 678 W 18th Street, Merced, for the purpose of notifying and informing the public about opportunities to participate in the update of the Merced IRWMP. This meeting is an opportunity for residents to learn about the State's IRWM Program, to see a presentation summarizing the IRWMP update process, and to learn how they can participate in the Plan Update and submit projects or comments for incorporation into the Plan. The Call for Projects, to solicit projects for inclusion in the Merced IRWMP update, will also be discussed as project solicitation will occur from approximately July 9, 2018 through August 23, 2018. Information related to the public workshop and the update of the Merced IRWMP will be posted at the Merced IRWMP website: mercedirwmp.org. If you have any questions, please call Hicham Eltal at Merced Irrigation District at (209) 354-2854 any weekday from 8:00 a.m. to 5:00 p.m.
MER- 3737122 6/29, 7/4

Public Workshop 2, January 23, 2019

2018 Merced SWRP/IRWMP Update

Public Workshop #2

January 23, 2019

Presenter:
Leslie Dumas

woodardcurran.com

Agenda

- Summary of Integrated Regional Water Management Program
- Overview of 2018 Merced Integrated Regional Water Management Plan Update
- Summary of Stormwater Resource Plan Program
- Overview of Stormwater Resource Plan
- Next Steps and Q&A

INTRODUCTIONS

SUMMARY OF INTEGRATED REGIONAL WATER MANAGEMENT PROGRAM

What Is Integrated Regional Water Management (IRWM)?

- A collaborative effort to identify and implement water management solutions on a regional scale that:
  - Increases regional self-reliance
  - Reduces conflict
  - Manages water to concurrently achieve social, environmental, and economic objectives

IRWM Program Background

- The California Department of Water Resources (DWR) began the IRWM program in 2004
- Purpose of an IRWMP:
  - Develop regional understanding
  - Identify water resources needs and solutions
  - Maximize benefits through integration of water management strategies
  - Leverage regional resources through partnerships
  - Be eligible for State funding through the IRWM grant program
- IRWM funding has been provided through Prop 50, Prop 84, and now Prop 1

IRWM Regions

- To be eligible for funding, Regions must:
  - Be governed by a Regional Water Management Group with statutory authority over water management
  - Be approved through a structured "Regional Acceptance Process"
  - Prepare an IRWM Plan consistent with program standards

IRWM Regions

An IRWMP Region is...

- Defined by those organizations who created it
- Defined by water management issues and potential solutions
- Not restricted to political boundaries
- Typically within a State Hydrologic Area

What is an Integrated Regional Water Management Plan (IRWMP)?

An IRWMP *is*...

- ✓ A planning document
- ✓ A description of water-related resources, challenges, goals, and solutions
- ✓ An opportunity for regional partnerships and coordination
- ✓ A vehicle to facilitate State funding

An IRWMP is *not*...

- × A substitute for local planning
- × A decrease in agency responsibilities or autonomy
- × A policy document
- × Comprehensive project documentation

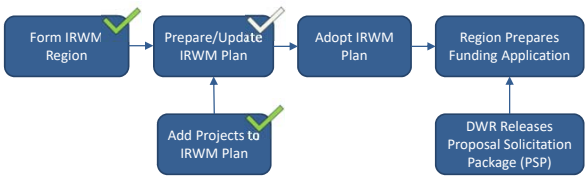
Contributors Include...

- Water and Wastewater Agencies
- Counties
- Cities
- Public Groups
- Private Organizations
- Members of the Public

An IRWM Plan and Process Helps by…

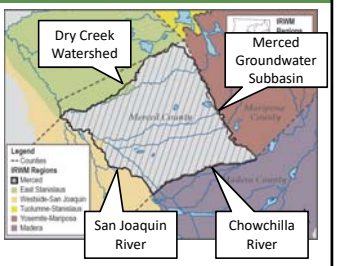
- Consolidating information
- Encouraging discussion among stakeholders
- Evaluating projects on a regional scale
- Increasing chances of project implementation
  - Combining projects
  - Maximizes eligibility for IRWM implementation funding

IRWMP Process Overview



Merced Region Background

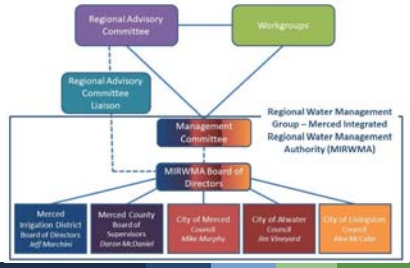
- Region formed in 2009
- First IRWMP was completed in 2013
- Current plan is compliant with 2012 IRWMP (Prop 84) Guidelines



Merced Region Cities and Communities

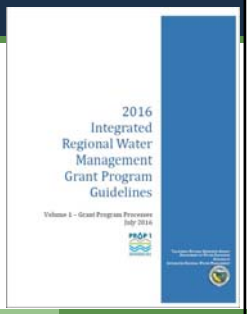
- Atwater
- Celeste
- Cressey
- El Nido
- Franklin/Beechwood
- Le Grant
- Livingston
- Merced
- Planada
- Snelling
- Stevinson
- Tuttle
- UC Merced
- Winton

Region Governance



IRWM Program Status

- Prop 1 approved in 2014, allocating $510 million to the IRWM grant program
- New Guidelines were released by DWR in 2016
- IRWMPs must comply with 2016 (Prop 1) Guidelines to be eligible for funding
- Updates to the 2013 Merced IRWMP are required to comply with 2016 Guidelines



OVERVIEW OF 2018 MERCED INTEGRATED REGIONAL WATER MANAGEMENT PLAN UPDATE

Merced IRWMP Contents

- Ch 1: Introduction
- Ch 2: Region Description
- Ch 3: Governance
- Ch 4: Objectives
- Ch 5: Resource Management Strategies
- Ch 6: Project Review Process
- Ch 7: Impacts and Benefits
- Ch 8: Plan Performance and Monitoring
- Ch 9: Data Management
- Ch 10: Finance
- Ch 11: Technical Analysis
- Ch 12: Relation to Local Water Planning
- Ch 13: Relation to Local Land Use Planning
- Ch 14: Stakeholder Involvement
- Ch 15: Coordination
- Ch 16: Climate Change

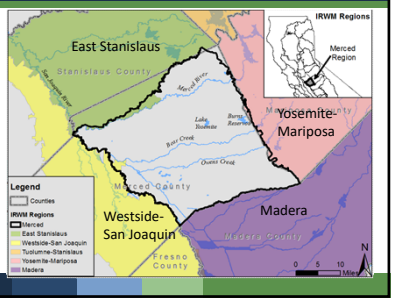
CHAPTER 2: REGION DESCRIPTION

Chapter 2 Describes the Region

Political Boundaries	Watersheds	Land Use	Demographics
Groundwater	Flood Zones	Water Supply	Water Demand

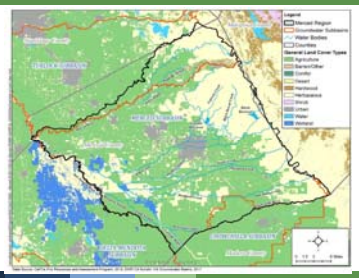
Neighboring IRWM Regions

- East Stanislaus
- Westside-San Joaquin
- Madera
- Yosemite-Mariposa
- Tuolumne-Stanislaus



Land Use

- Primarily agricultural
- Some urban



Merced Region Groundwater Subbasins

- Merced
- Turlock
- Chowchilla
- Delta-Mendota

Watersheds

- USGS Watersheds:
  - Upper Merced
  - Middle San Joaquin-Lower Chowchilla

Disadvantaged Communities

- Planada
- Winton
- Le Grand
- El Nido
- Livingston
- Merced
- Atwater
- Franklin/Beachwood
- Snelling
- Stevinson

Water, Wastewater, and Recycled Water in the Region

- Chapter 2 discusses water suppliers
- Chapter 2 also discusses:
  - Water supplies and demands
  - Wastewater treatment and collection
  - Nonpotable water use
  - Water quality

Water Suppliers

CHAPTER 3: GOVERNANCE

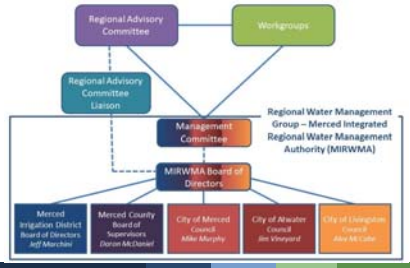
Governance Overview

- Merced Integrated Regional Water Management Authority (MIRWMA), a JPA, consists of:
  - Merced Irrigation District
  - Merced County
  - City of Merced
  - City of Atwater
  - City of Livingston

Governance Overview

- MIRWMA acts as the Regional Water Management Group (RWMG)
- RWMG is broken into Policy and Management Committees
  - Management Committee – staff managing IRWMP on a day-to-day basis
  - Policy Committee – elected officials providing oversight and approval
- Regional Advisory Committee (RAC) provides stakeholder input

Region Governance



CHAPTER 4: OBJECTIVES

Region Objectives

- The RAC updated the Region objectives in spring 2018. These include:
  - Correct groundwater overdraft conditions.
  - Manage flood flows and stormwater runoff (including those caused by climate change) for public safety, water supply, recharge, and natural resource management.
  - Meet demands for all uses, including agriculture, urban, and environmental resource needs.
  - *Additional objectives relate to water use efficiency, water quality, recreation, communication, and climate change*

CHAPTER 5: RESOURCE MANAGEMENT STRATEGIES

Resource Management Strategies (RMS)

- Intended to encourage a diversified approach to water management
- RMS are defined in DWR's 2013 California Water Plan Update
- RMS were considered in terms of:
  - Supporting Regional goals
  - Climate change adaptation/mitigation

RMS Categories

- RMS Categories are:
  - Reduce Water Demand
  - Improve Operational Efficiency and Transfers
  - Increase Water Supply
  - Improve Water Quality
  - Improve Flood Management
  - Practice Resource Stewardship
  - People and Water
  - Other Strategies

CHAPTER 6: PROJECT REVIEW PROCESS

Project Solicitation and Prioritization

- The IRWMP contains a process to select projects for inclusion in the IRWM Plan.
- Per the 2016 Guidelines, the selection process must include the following components:
  - Procedures for submitting a project to the RWMG.
  - Procedures for review of projects considered for inclusion in to the IRWMP. These procedures must, at a minimum, consider the following factors:
    - Plan objectives; RMS; technical feasibility; DACs and EJ considerations; project cost/financing; project status; strategic considerations for IRWMP implementation; climate change adaptation and mitigation; plan adoption; reducing dependence on the Delta.
- A list of the selected projects

2018 Call for Projects

- A Call for Projects was opened on July 9, 2018
- A Public Workshop was held on July 11, 2018
- Call for Projects closed on August 31, 2018
- 41 Projects were submitted
- Projects were prioritized based on criteria established by the RAC

Projects Included...

- Reservoir improvements
- Flood control
- Recharge basins
- Well construction
- Canal improvements
- Conveyance construction
- Education and outreach
- Climate change modeling
- Flood control modeling
- Floodplain restoration
- Feasibility studies
- Water efficiencies rebates
- Water meter installation
- Wellhead treatment

CHAPTER 7: IMPACTS AND BENEFITS

Impacts and Benefits

- Chapter describes the impacts and benefits of implementing the MIRWMP and projects
- Discusses impacts and benefits of various categories of projects (e.g., conjunctive management projects, pollution prevention projects, habitat improvement projects, etc.)

CHAPTER 8: PLAN PERFORMANCE AND MONITORING

Plan Performance and Monitoring

- Describes how Plan performance will be measured and monitored
- MRIWMA will periodically evaluate progress toward meeting Merced Region Objectives

CHAPTER 9: DATA MANAGEMENT

Data Management

- Data will be managed by individual project proponents and may be uploaded to the online project database as appropriate.
- Data will be submitted to publicly-accessible statewide databases as required

CHAPTER 10: FINANCE

Finance

- Identifies known and potential funding sources for ongoing funding of the IRWM Plan and projects

CHAPTER 11: TECHNICAL ANALYSIS

Technical Analysis

- Technical Analysis chapter lists the key documents used in preparing the MIRWMP
  - Urban Water Management Plans
  - Agricultural Water Management Plans
  - City and County General Plans
  - Groundwater Management Plans
  - Basin Plan
  - Climate Change literature
  - Etc.

CHAPTER 12: RELATION TO LOCAL WATER PLANNING

Relation to Local Water Planning

- Chapter describes how the MIRWMP relates to local planning documents and programs
  - Urban and Agricultural Water Management Plans
  - Stormwater Resources Plan
  - Groundwater planning and SGMA
  - Wastewater planning

CHAPTER 13: RELATION TO LOCAL LAND USE PLANNING

Relation to Local Land Use Planning

- Describes relationship between land use documents and MIRWMP
- Discusses coordination between land use agencies and water management agencies
  - Some agencies have jurisdiction over both
  - Coordination occurs through public processes, CEQA, permitting processes

CHAPTER 14: STAKEHOLDER INVOLVEMENT

Opportunities for Stakeholder Involvement

- Regional Advisory Committee (RAC)
- Receive announcements via stakeholder contact list
- Submit a project to the online project database
- View project information in online project database
- Provide public comments on IRWMP
- Comment at Board/Council meetings

CHAPTER 15: COORDINATION

Coordination

- The IRWM Process facilitates coordination with:
  - The public
  - Neighboring IRWM Regions
  - Local and regional agencies
  - State and federal agencies

CHAPTER 16: CLIMATE CHANGE

Climate Change

- Discusses potential effects of climate change on Merced Region
- Identifies climate change vulnerabilities
- Considers climate change adaptation and mitigation measures

Regional Climate Change Impacts

- Climate Changes
  - Warmer temperatures
  - More variable precipitation
  - More intense storm events
  - Decreased snowpack
  - Altered timing of precipitation and snowmelt
  - More droughts
- Regional Impacts
  - Reduced water supply, increased pressure on groundwater
  - Increased evapotranspiration, longer growing season
  - More severe storm events and flooding

IRWMP Next Steps

- Provide Comments on Public Draft IRWMP
  - Public Comment Period closes on 2/22/2019
  - Draft can be accessed on Merced IRWMP website: www.mercedirwmp.org
- Comments can be submitted via email to Hicham Eltal at heltal@mercedid.org
- Final IRWMP will be submitted to DWR for review and adopted (early 2019)
- Prepare for funding opportunities (Prop 1 Round 1 IRWM Implementation Grants)

SUMMARY OF STORMWATER RESOURCES PLAN PROGRAM

Stormwater Resources Planning

- Being prepared concurrently with the IRWMP Update
- Maximizing funding opportunities under both IRWM and SWRP grant programs

SWRP Background

- SB 985 (2014) requires public agencies to develop a SWRP in order to receive grant funds from a bond for stormwater projects
- An integrated plan focusing on regional watershed-based storm water priorities and developing multiple benefit projects

SWRP Must Consider Benefits in Five Categories

IRWMP vs. SWRP

- IRWMP
  - DWR Program
  - Broad water management focus
  - Generally qualitative
- SWRP
  - SWRCB Program
  - Specific stormwater focus
  - More quantitative

Both plans include project solicitation and prioritization processes.

Major SWRP Requirements

- Watershed/Planning Area Identification
- Water Quality Compliance
- Organization, Coordination, Collaboration
- Quantitative Methods
- Identification and Prioritization of Projects
- Implementation Strategy and Schedule
- Education, Outreach, Public Participation

Prop 1 SWRP Funding Availability

- Prop 1 allocated $200 million to Storm Water Grant Program
- Planning Grants: ~$10 million awarded
- Round 1 Implementation Grants: ~$80 million awarded
- Round 2 Implementation Grants: ~$90 million available (est. summer 2019)

OVERVIEW OF STORMWATER RESOURCES PLAN

SWRP CHAPTER 2: WATERSHED DESCRIPTION

Watershed Identification Chapter Content

- Significant Overlap with IRWMP Region Description Chapter
  - Regional boundary
  - Surface and groundwater resources
  - Water supplies and suppliers
  - Water quality
- Additional detail on watersheds
- Additional detail on water quality priorities from Storm Water Management Program (MS4 Permit)

SWRP CHAPTER 3: WATER QUALITY COMPLIANCE

Water Quality Compliance Chapter Content

- Discussion of:
  - Applicable permits and plans (e.g., Basin Plan, General Permits, Storm Water Management Plan)
  - Relevant TMDLs (e.g., Central Valley Pesticide TMDL)
  - 303(d) listed water bodies (including Merced River, Black Rascal Creek, and others)
  - MIRWMP Objectives supported by the SWRP
  - Pollutant-generating activities (e.g., agriculture, resource extraction, urban sources)
  - Water quality monitoring (under NPDES permit)

303(d)-Listed Impaired Water Bodies

SWRP CHAPTER 4: ORGANIZATION, COORDINATION, COLLABORATION

Organization, Coordination, Collaboration Chapter Contents

- Overlaps with IRWMP Stakeholder Involvement and Coordination Chapters
- Discussion of governance (MIRWMA and RAC)
- Summarize coordination with other agencies
- Summarize opportunities for community participation
- Describe relationship of SWRP to other planning documents
- Describe coordination with and role of state/federal agencies

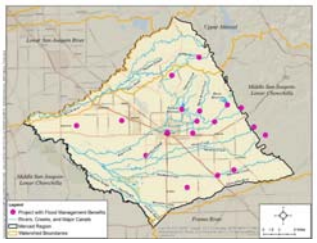
SWRP CHAPTER 5: QUANTITATIVE METHODS

Quantitative Methods Chapter Contents

- The chapter must contain an "integrated metrics-based analysis" – that is, the benefits provided by the SWRP should be quantified as much as possible
- Benefits are described in five categories: Water Supply, Water Quality, Flood Management, Environment, and Community

Project Summaries

- Projects are summarized by benefit category in maps and tables
- Analysis notes which projects are "ready-to-proceed" and which are conceptual



SWRP CHAPTER 6: IDENTIFICATION AND PRIORITIZATION OF PROJECTS

Identification and Prioritization of Projects

- As with the MIRWMP, projects in the SWRP must be prioritized
- Each project must contribute to at least two or more SWRP Main Benefits and to SWRP Additional Benefits

Identification and Prioritization of Projects

- Chapter also identifies opportunities to:
  - Augment water supply though groundwater recharge
  - Provide source control for pollution carried by stormwater and dry weather runoff
  - Reestablish natural water drainage and treatment
  - Enhance habitat and open space

SWRP CHAPTER 7: IMPLEMENTATION STRATEGY AND SCHEDULE

SWRP Implementation Strategy & Schedule

- Chapter includes description of:
  - Specific actions by which Plan will be implemented
  - Entities responsible for project implementation
  - Community participation strategy
  - Procedures to track status of each project and to review SWRP
  - Permitting strategy and timeline

SWRP CHAPTER 8: EDUCATION, OUTREACH, AND PUBLIC PARTICIPATION

Education, Outreach, and Public Participation Chapter Content

- Overlaps with IRWMP Stakeholder Involvement Chapter
- Describes outreach (stakeholder contact list, public workshops, Public Draft SWRP)
- Summarizes public meetings
- Describes community engagement in project design and implementation
- Describes outreach to DACs and climate vulnerable communities

SWRP Next Steps

- Provide Comments on Public Draft SWRP
  - Public Comment Period closes on 2/22/2019
  - Draft can be accessed on Merced IRWMP website: www.mercedirwmp.org
- Comments can be submitted via email to Hicham Eltal at heltal@mercedid.org
- Final SWRP will be submitted to SWRCB for review and adopted (early 2019)
- Prepare for funding opportunities (Storm Water Grant Program Prop 1 Implementation, mid-2019)

Reminder - How to Participate

- Attend meetings:
  - Public workshops, Merced Integrated Regional Water Management Authority meetings, Regional Advisory Council meetings
- Add projects to the IRWMP and/or SWRP
- Provide comments on Public Draft IRWMP and SWRP (to be made available online)
- Sign up to receive email announcements

QUESTIONS?

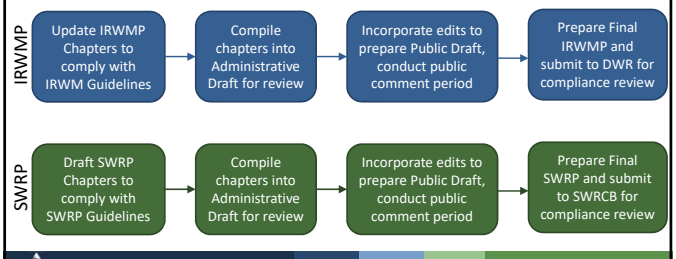
Project Team

Leslie Dumas, P.E., D.WRE
Senior Water Resources Engineer, Woodard & Curran
Phone: (916) 999-8778
e-mail: ldumas@woodardcurran.com

Lindsey Wilcox, P.E.
Project Engineer, Woodard & Curran
Phone: (914) 513-2212
e-mail: lwilcox@woodardcurran.com

Jen Kidson
Water Resources Planner, Woodard & Curran
Phone: (408) 831-4817
e-mail: jkidson@woodardcurran.com

IRWMP Update/SWRP Preparation Process



IRWM IMPLEMENTATION FUNDING

Prop 1 IRWM Funding Availability

- $510 million available statewide
- $31 million available in San Joaquin River Funding Area over multiple rounds of funding
- 10% allocated to disadvantaged community projects

Grant Eligibility

- Project Proponent Eligibility Requirements
  - Must be a public agency, non-profit, public utility, mutual water company , or State- or federally-recognized Indian Tribe
  - Must comply with Section II.B of IRWM Guidelines (adopt IRWMP, comply with SGMA, AWMP/UWMP, water meter requirements, etc.)

Grant Eligibility

- Project Eligibility Requirements
  - Must be in an IRWM Plan
  - Have benefits within the IRWM Region
  - Provide multiple benefits

Inter-regional projects are allowed

Eligible Project Types

- Water reuse and recycling (non-potable, IPR and DPR)
- Efficiency and conservation measures
- Surface and underground water storage
- Regional water conveyance facilities
- Watershed protection, restoration, and management
- Stormwater resource management
- Conjunctive use
- Desalination
- Water quality improvements
- Decision support tools to evaluate regional supply and demand

Past IRWM Funding Awards in the Region

- Prop 84, Round 2 – awarded $3,190,335
  - Merced County Black Rascal Flood Control Project
  - Planada CAS Water Conservation Project
  - Merced ID El Nido Area Recharge
  - UC Merced/EMRCD/Merced ID Merced River Education and Enhancement Program
- Prop 84, Round 3 – awarded $2,900,252
  - Merced ID Highlands Groundwater Conservation Project
  - Merced ID Cressey Recharge Basin Enlargement Project
  - Le Grant Water Meter Conservation Project

Prop 1 IRWM Implementation Grant Schedule

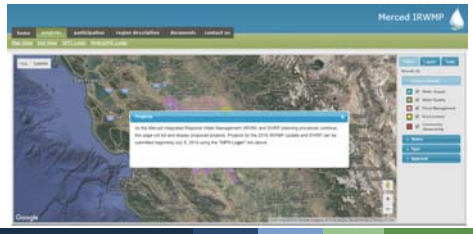
- Final PSP – Early 2019
- Pre-application workshops – February-July 2019
- Applications due – ~12 weeks after pre-application workshop (beginning in April 2019)

How to Get Your Project in the IRWMP

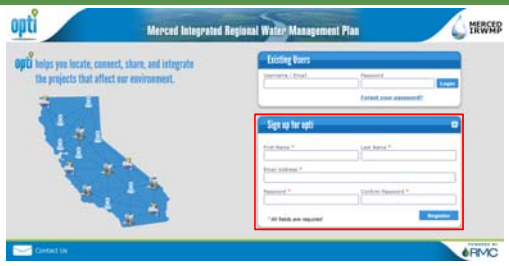
- Call for Projects - Formal period for submitting projects for inclusion in the IRWMP and SWRP
- July 9, 2018 – August 31, 2018
- Projects may be submitted at any time via online project database

How Do I Submit a Project?

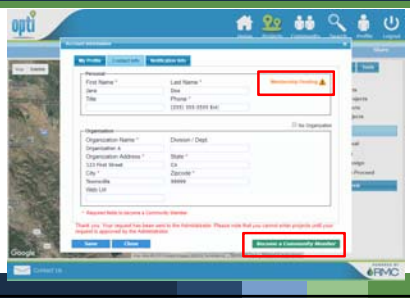
- Via online database, Opti. Accessible at www.mercedirwmp.org.



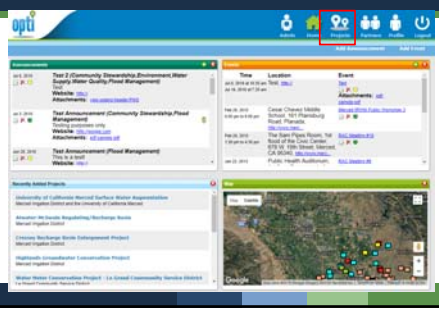
Creating an Opti Account



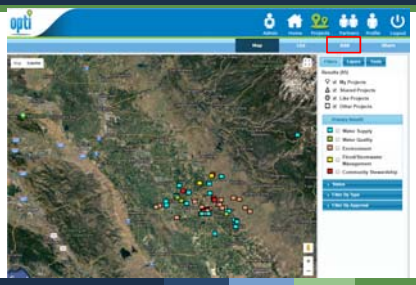
Creating an Opti Account



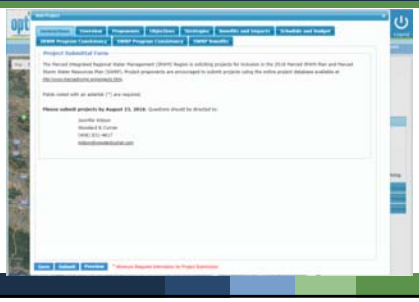
Adding a Project



Adding a Project



Entering a Project – Instructions Tab



Sign-in Sheet: Merced IRWMP Update/SWRP Public Workshop #2 (January 23, 2019)

Name	Agency	Email
Jen Kidson	Woodard & Curran	jkidson@woodardcurran.com
Leslie Dumas	Woodard & Curran	ldumas@woodardcurran.com
Dena Traina	Provost & Provost	dtraina@ppeng.com
HICHAM ELTAL	MERCED ID	heltal@mercedid.org
Bob Kelley		

MERCED SUN-STAR | LOS BANOS ENTERPRISE
CHOWCHILLA NEWS | Chronicle | Atwater Signal | Vida

AFFIDAVIT OF PUBLICATION

Account #	Ad Number	Identification	PO	Cols	Lines
709654	0004018555	PUBLIC DRAFTS IRWM JENNIFER KIDSON	JB DRAFTS IRWM JENNIFER KII	1	59

Attention:

WOODARD & CURRAN
100 WEST SAN FERNANDO ST., SUITE 320
SAN JOSE, CA 95113

NOTICE OF PUBLIC DRAFTS 2018 MERCED INTEGRATED REGIONAL WATER MANAGEMENT PLAN, MERCED STORMWATER RESOURCES PLAN, AND PUBLIC MEETING MERCED INTEGRATED REGIONAL WATER MANAGEMENT AUTHORITY

NOTICE IS HEREBY GIVEN that the public drafts of the 2018 Merced Integrated Regional Water Management (IRWM) Plan and Merced Stormwater Resources Plan (SWRP) are available for review. A copy of the Merced IRWM Plan and Merced SWRP can be obtained on the Region's website at http://mercedirwmp.org/documents.html on or after January 14, 2019. To request a hard copy of the Plan or if you have any questions, please call Hicham Eltal at Merced Irrigation District at (209) 354-2854 any weekday from 8:00 a.m. to 5:00 p.m.

All interested persons are invited to attend a public workshop scheduled for 3:00 pm on January 23, 2019, at City of Merced Council Chambers, 678 W 18th Street, Merced, for the purposes of notifying and informing the public about the release of the Public Draft of the 2018 Merced IRWM Plan and Draft Merced SWRP. All interested persons are invited to attend the public meeting to learn about and participate in the review of the 2018 Draft Merced IRWM Plan and Draft Merced SWRP. This meeting is an opportunity for residents to learn about the State's IRWM Program, to see a presentation summarizing the Draft IRWM Plan and Draft SWRP, and to discuss future implementation of these plans to address immediate and long-term water, wastewater, and stormwater needs by both local residents and the environment. Comments on the IRWM Plan and SWRP are requested by February 13, 2019 via email to heltal@mercedid.org or mailed to Hicham Eltal, 744 W. 20th Street, Merced, CA.
MER- 4018555 1/9, 16

Declaration of Publication
2015.5 C.C.P.

STATE OF CALIFORNIA)
) ss.
County of Merced)

I am a citizen of the United States; I am over the age of eighteen years, and not a party to or interested in the above entitled matter. I am the principal clerk of the printer of the Merced Sun-Star, a newspaper of general circulation, printed and published in the city of Merced, County of Merced, and which newspaper has been adjudged a newspaper of general circulation by the Superior Court of the County of Merced, State of California, under the date of July 14, 1964 Case Number 33224 that the notice, of which the annexed is a printed copy, has been published in each regular and entire issue of said newspaper and not in any supplement thereof on the following dates, to wit:

January 09, 2019, January 16, 2019

I certify (or declare) under penalty of perjury that the foregoing is true and correct and that this declaration was executed at Merced, California on:

Date: 16th, day of January, 2019

Cynthia A. McNamara

Signature

*****

esident López ppeals for calm hortages

ico.
t of fuel from pipe-
ost México some
llion last year, the
ment says.
amount of fuel
on Tuesday was
ent to just 27 tank-
ks, AMLO said,
that nearly 1,000
trucks of fuel per
re being stolen
he took office on

dded that a leak in
ne that runs from
tral state of Hidal-
léxico City – where
of service stations
osed last Wednes-
ad caused a drop in
in the capital.
ıe said that duct
be repaired on
ay.
is part, the head of
's Business Coor-
g Council, Juan
Castañon, said
sday that business
support efforts to
uel theft but that
ernment must
ı emergency plan
for coping with
shortages.
g period of scarcity
ead to a crisis if no
rategy is in place,
in an interview
llenio Television.
ñon noted that the
es not only were
g people commut-
ork but also the
ive sector and the
tive industry in
ar.

PIDE APOYO A CIÓN PARA ICIAR A QUIENES GASOLINA

sidente de México, Manuel López r, pidió el apoyo a ción para denun- uienes roban gasoli-na tras la crisis generada por los problemas en el abastecimiento de combustibles en varios estados del país.

Los problemas de abastecimiento prosiguen hoy con diferente incidencia ante el retraso en la llegada de camiones cisternas a las gasolineras, después de que el gobierno decidiera cortar el trasvase de gasolina por los ductos donde se produce la mayor cantidad de robos.

IVÁN VILLANUEVA Agencia EFE

Scores of containers wait outside a gas station in Morelia, Michoacán. / *Cientos de bidones esperan una carga de gasolina en una gasolinera de Morelia, Michoacán.*

AVISO DE BORRADORES PÚBLICOS
PLAN INTEGRAL DEL AGUA REGIONAL DE MERCED DEL 2018, PLAN DE RECURSOS DE AGUAS PLUVIALES DE MERCED, Y TALLER PÚBLICO
AUTORIDAD REGIONAL DE GESTIÓN INTEGRADA DE AGUA DE MERCED (MERCED INTEGRATED REGIONAL WATER MANAGEMENT AUTHORITY)

SE LE INFORMA A LA COMUNIDAD que los borradores públicos del Plan Integrado del Agua Regional (IRWM, por sus siglas en inglés) de Merced del 2018 y el Plan de Recursos de Aguas Pluviales (SWRP, por sus siglas en inglés) de Merced están disponibles para su revisión. Se pueden obtener copias del Plan IRWM de Merced y del SWRP de Merced en la página web de la Región en http://mercedirwmp.org/documents.html a partir del 14 de enero del 2019. Para solicitar una copia impresa de los planes o si tiene alguna pregunta, favor de comunicarse con Hicham Eltal del Distrito de Irrigación de Merced (Merced Irrigation District) al (209) 354-2854 entre semana de 8:00 a.m. a 5:00 p.m.

Todas las personas interesadas están invitadas a asistir a un taller público a las 3:00 de la tarde del 23 de enero del 2019 en las Cámaras del Consejo de la Ciudad de Merced, 678 W 18th Street, Merced, con el propósito de notificar e informar al público sobre la publicación del borrador público del Plan IRWM de Merced del 2018 y del borrador del SWRP de Merced. Todas las personas interesadas están invitadas a asistir al taller público para aprender sobre y participar en la revisión de los borradores del Plan IRWM y del SWRP de Merced. Esta reunión es una oportunidad para que los residentes aprendan sobre el programa estatal de IRWM, asistan a una presentación que resume el borrador del Plan IRWM y el borrador del SWRP, y discutan la implementación futura de estos planes para abordar tanto las necesidades inmediatas como las de largo plazo en cuanto a la gestión de agua, aguas residuales, y aguas pluviales de los residentes locales y del medio ambiente. Los comentarios sobre el Plan IRWM y el SWRP de Merced deben enviarse antes del 13 de febrero del 2019 por correo electrónico a heltal@mercedid.org o por correo a Hicham Eltal, 744 W. 20th Street, Merced, CA.

Ad#4023358

MER0004023358-01

CIUDAD DE FRESNO
REVISIÓN PÚBLICA DE LA ENMIENDA SUSTANCIAL NÚM. 2018-01
A PLAN DE ACCIÓN ANUAL 2018-2019

La Ciudad de Fresno es el recipiente anual de fondos federales de Community Development Block Grant (CDBG, por sus siglas en inglés) proporcionados por el Departamento de Vivienda y Desarrollo Urbano de los Estados Unidos (HUD, por sus siglas en ingles). La Ciudad adoptó un Plan de Acción Anual 2018-2019 el 24 de mayo de 2018, que detalla las actividades financiadas con el programa CDBG. Desde entonces, ha sido necesario enmendar el Plan de Acción para incluir una reprogramación de $2,259,784.43 fondos del programa CDBG.

Una audiencia pública para recibir comentarios sobre la enmienda sustancial y el use propuesto de los fondos reprogramados se llevará a cabo en la reunión de la Comisión de Vivienda y Desarrollo Comunitario el **miércoles 13 de febrero de 2019,** a las 5 p.m. en Fresno City Hall, 2600 Fresno Street, sala de conferencias "A", segundo piso. Se llevará a cabo una audiencia pública y acción en el Concejo Municipal el **jueves 14 de febrero de 2019.** Si lo solicita, la Ciudad proporcionará intérpretes y hará adaptaciones especiales para las personas con discapacidades. Las personas que necesiten estos servicios deben comunicarse con la División de Vivienda al (559) 621-8300 o por TTY (559) 621-8721, a lo menos cinco días antes de la fecha de la reunión.

La enmienda sustancial está disponible para revisión por 30 días a partir del **27 de diciembre de 2018.** La enmienda se puede ver en el Ayuntamiento en la Oficina del Secretario de la Ciudad, Sala 2133 en la División de Vivienda y Desarrollo Comunitario, Sala 3076. El informe también se puede encontrar en la Biblioteca del Condado de Fresno y en el sitio web de la Ciudad en www.fresno.gov.

Comentarios por escrito se pueden enviar a City of Fresno, Housing and Community Development Division, 2600 Fresno Street, Room 3076, Fresno, California 93721, o por correo electrónico a HCDD@fresno.gov.

0004033707-01

Jennifer Kidson

From: Jennifer Kidson
Sent: Tuesday, January 22, 2019 12:07 PM
Subject: Merced IRWMP Public Draft Announcement

Dear Stakeholder,

Announcing the Public Draft of the 2018 Merced IRWMP Update

On behalf of the Merced Region: The Public Draft of the 2018 Merced Integrated Regional Water Management Plan (IRWMP) is now available for review and comment. The Public Draft of the Merced Stormwater Resources Plan (SWRP) is forthcoming and will be announced when available. A public workshop to discuss the IRWM Program, Public Draft Merced IRWMP, and SWRP will be held at 3:00 pm January 23, 2019, at the City of Merced Council Chambers at 678 West 18th Street in Merced.

How to Comment

An electronic copy of the IRWMP can be accessed at the Merced IRWMP website, http://mercedirwmp.org/documents.html. Comments on the Public Draft may be submitted via email to Hicham Eltal at Merced Irrigation District at heltal@mercedid.org. The comment period will remain open through 5:00 pm on Friday, February 22, 2019.

What are the IRWMP and SWRP?

The Merced Integrated Regional Water Management (IRWM) program is a collaborative effort to identify water management issues, needs, objectives, actions, and priorities to meet the long-term water needs of the Merced Region— the area of Merced County east of the San Joaquin River. The Region's IRWMP is currently being updated in order to comply with updated State guidelines for IRWMPs, which were released in 2016. Once the Plan update is complete, the Merced Region will be eligible to compete for additional state grants through Proposition 1 to support local and regional projects. The planning process underway now will identify projects and programs to address regional water needs, including surface water, groundwater, water quality, wastewater management, flood management, recreation, and natural resources. Similar to an IRWMP, a SWRP is an integrated plan. SWRPs focus on regional watershed-based stormwater priorities. SWRPs are intended to develop multiple benefit projects for upcoming funding opportunities. Stormwater capture and dry weather runoff capture projects must be included in a SWRP in order to qualify for state bond funding. SWRP projects can include improved storm drainage, reducing impervious surfaces, flood protection, etc.

Where can I learn more?

Please visit the Merced IRWMP website for more detail on the update of the Merced IRWMP and SWRP: http://mercedirwmp.org/.

Thank you,

Jennifer Kidson
Water Resources Planner
Woodard & Curran
100 West San Fernando St., Suite 320 | San Jose, CA 95113
408.831.4800 | Direct: 408.831.4817 | www.woodardcurran.com