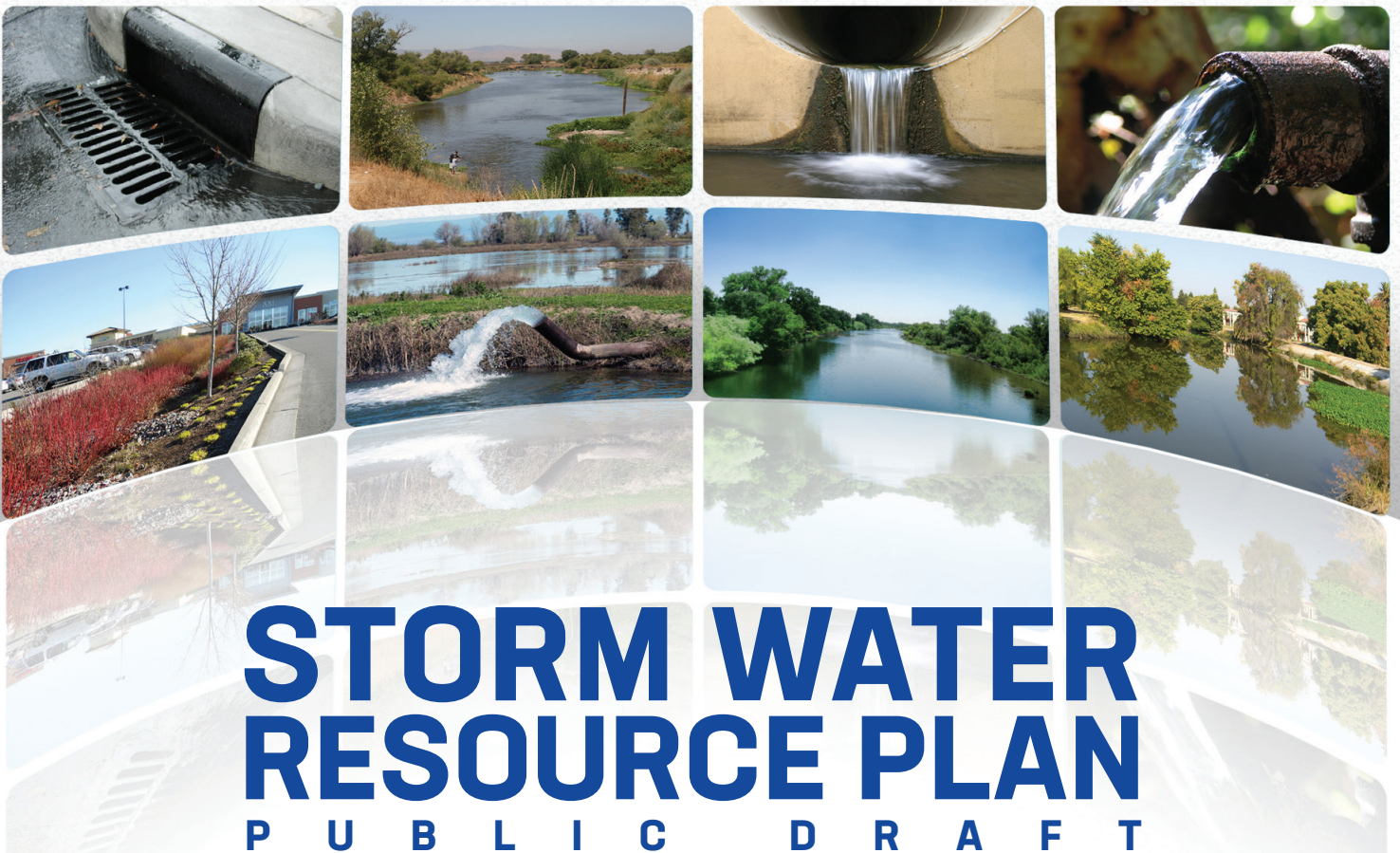




Stanislaus Multi-Agency Regional

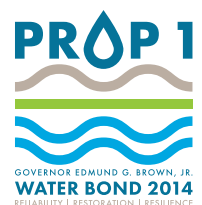


STORM WATER RESOURCE PLAN

P U B L I C D R A F T

April 2019

Prepared by:





STANISLAUS COUNTY DEPARTMENT OF PUBLIC WORKS

Stanislaus Multi-Agency Regional Storm Water Resource Plan

Public Draft

April 2019

Prepared by:



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The development of the Stanislaus Multi-Agency Regional Storm Water Resource Plan was led by Stanislaus County. The Project Partners (Stanislaus County, City of Modesto, City of Oakdale, City of Patterson, City of Waterford, and the Eastside Water District) contributed financially to the Plan.

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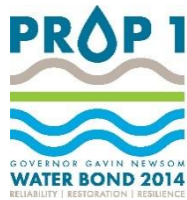


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List of Acronyms

ACS	American Community Survey
AF	Acre-feet
AFY	Acre-feet per year
ASBS	Areas of Special Biological Significance
AWMP	Agricultural Water Management Plan
Bay-Delta Plan	Water Quality Plan for the San Francisco Bay-Sacramento/San Joaquin Delta Estuary
BMP	Best Management Practice
CASQA	California Stormwater Quality Association
CEQA	California Environmental Quality Act
CGP	Construction General Permit
CSD	Community Services District
CVRWQCB	Central Valley Regional Water Quality Control Board
CVHS	Central Valley Hydrology Study
CWA	Clean Water Act
DAC	Disadvantaged community
Delta	Sacramento–San Joaquin Delta
DSC	Delta Stewardship Council
DWR	California Department of Water Resources
DWSC	Deep Water Shipping Channel
EDA	Economically Distressed Area
GHG	Greenhouse gas
GIS	Geographic Information System
GSA	Groundwater Sustainability Agency
GSP	Groundwater Sustainability Plan
HEC-RAS	Hydrologic Engineering Center's River Analysis System
ID	Irrigation District
IGP	Industrial General Permit
ILRP	Irrigated Lands Regulatory Program
IRWM	Integrated Regional Water Management
IRWMP	Integrated Regional Water Management Plan
kWh	Kilowatt-hours
LID	Low-Impact Development

LSJR	Lower San Joaquin River
MAD	Mosquito Abatement District
Mgd	Million gallons per day
Mg/L	Milligrams per liter
MID	Modesto Irrigation District
MOU	Memorandum of Understanding
MPN	Most Probable Number
MS4	Municipal Separate Storm Sewer Systems
µmhos/cm	Microsiemens per centimeter
NDPES	National Pollutant Discharge Elimination System
NEPA	National Environmental Policy Act
NOA	Notice of Applicability
OID	Oakdale Irrigation District
O&M	Operation and maintenance
PID	Patterson Irrigation District
PSLR	Panoche-San Luis Reservoir
QA/QC	Quality Assurance/Quality Control
RCD	Resource Conservation Districts
RTP	Ready-To-Proceed
RWMG	Regional Water Management Group
SB	Senate Bill
SDWIS	Safe Drinking Water Information System
SED	Substitute Environmental Document
SGMA	Sustainable Groundwater Management Act
SJRECWA	San Joaquin River Exchange Contractors Water Authority
SJRNWR	San Joaquin River National Wildlife Refuge
SLDMWA	San Luis & Delta-Mendota Water Authority
STRGBA	Stanislaus and Tuolumne Rivers Groundwater Basin Association
SWAMP	Surface Water Ambient Monitoring Program
SWMP	Storm Water Management Program
SWPPP	Storm Water Pollution Prevention Plans
SWRCB	State Water Resources Control Board
SWRP	Storm Water Resource Plan

TAC	Technical Advisory Committee
TDS	Total Dissolved Solids
TGBA	Turlock Groundwater Basin Association
TID	Turlock Irrigation District
TMDL	Total Maximum Daily Load
TSS	Total Suspended Solids
U.S.	United States
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
WD	Water District
WDR	Waste Discharge Requirements
WLAs	Waste Load Allocations
WSID	West Stanislaus Irrigation District
WSJ	Westside-San Joaquin

Executive Summary

The Stanislaus Multi-Agency Regional Storm Water Resource Plan (SWRP) is a regional watershed-based stormwater and dry weather runoff planning document that integrates water resource management strategies and priorities in Stanislaus County. Led by Stanislaus County, the SWRP was developed in collaboration with the Cities of Modesto, Turlock, Oakdale, Patterson, Ceres, and Waterford, Eastside Water District, as well as the nonprofit organizations River Partners and the Tuolumne River Trust. The primary purpose of the SWRP is to provide watershed-based planning throughout the Stanislaus County SWRP planning area. The SWRP aims to address challenges and opportunities for managing stormwater and dry weather runoff and to identify and assess multi-benefit stormwater projects, prioritizing those projects that can best address the identified water resource management goals.

In 2017, Stanislaus County was awarded a planning grant through the Proposition 1 Storm Water Grant Program to develop the Stanislaus Multi-Agency Regional SWRP. Matching funds and staff support to develop the plan were provided by Stanislaus County, Eastside Water District, and the Cities of Modesto, Oakdale, and Patterson. The SWRP was developed to be consistent with the Storm Water Resource Plan Guidelines (SWRCB, 2015) and the requirements of the Stormwater Resource Planning Act, Water Code Sections 10560 *et seq.* A checklist documenting compliance with the Water Code and SWRP Guidelines is provided as Appendix A.

ES-1 Planning Area Overview

The Stanislaus Multi-Agency Regional SWRP planning area (Figure ES-1) aligns with the Stanislaus County boundaries, which encompasses 1,515 square miles in California's San Joaquin Valley. The planning area is bordered in the west by the Coast Range, southwest of the San Francisco Bay, and extends east to the Sierra Nevada foothills. This planning area was chosen to facilitate regional stormwater management based on the significant overlap with the County boundaries and the East Stanislaus and Westside-San Joaquin Integrated Regional Water Management Plan (IRWMP) areas, as well as the Modesto, Turlock and Delta-Mendota groundwater subbasin management planning areas. The cities of Modesto, Turlock, Hughson, Ceres, Oakdale, Newman, Waterford, Riverbank and Patterson, 10 water and irrigation districts, and a number of Community Service Districts are contained within the planning area.

The SWRP planning area is entirely within the San Joaquin River Hydrologic Region and includes the bulk of two major watersheds, the Middle San Joaquin-Lower Merced-Lower Stanislaus and the Panoche-San Luis Reservoir watersheds, as shown in Figure ES-2. The Middle San Joaquin-Lower Merced-Lower Stanislaus Watershed covers most of the planning area. Three major rivers, the Stanislaus, Tuolumne, and San Joaquin Rivers, run through the Middle San Joaquin-Lower Merced-Lower Stanislaus Watershed. The watershed also contains several reservoirs used for water supply, flood control, and hydroelectric power production. The Panoche-San Luis Reservoir Watershed covers the westernmost portion of the County and includes the eastern portion of the Coast Range, the highest point in the County (approximately 3,800 feet above sea level). Water quality concerns in the planning area include organophosphate pesticides (diazinon and chlorpyrifos) and organic carbon (which contributes to low downstream dissolved oxygen levels), total suspended solids (TSS), pyrethroids, mercury, and bacteria which may impair water bodies and limit beneficial uses. Improving water quality and protecting and enhancing impaired water bodies is a priority for the planning area.

Stanislaus County overlies the San Joaquin Valley Groundwater Basin and four individual groundwater subbasins: the Eastern San Joaquin, Modesto, Turlock, and Delta-Mendota Subbasins. Consideration of groundwater supply and quality is crucial in the planning area due to the high reliance on groundwater for both domestic and agricultural uses.

Water quality and stormwater management priorities for the planning area were identified as part of the SWRP planning process. Nine priority pollutants were selected based on 303(d) list impairments to local waterbodies and TMDLs applicable to Stanislaus County. These water quality priorities include: TSS, mercury, diazinon, chlorpyrifos, selenium, diuron bacteria, pyrethroids, and total nitrogen. Other stormwater management priorities identified in the SWRP include identification of conjunctive use strategies to maximize the use of both surface water and groundwater. This strategy would include groundwater recharge and the protection of groundwater quality. Issues beyond groundwater contamination from within the County include salinity, land subsidence, and overdraft. Additional water quality priorities may include goals such as maintaining favorable wildlife habitat and aesthetic value to the community.

Figure ES-1. Planning Area

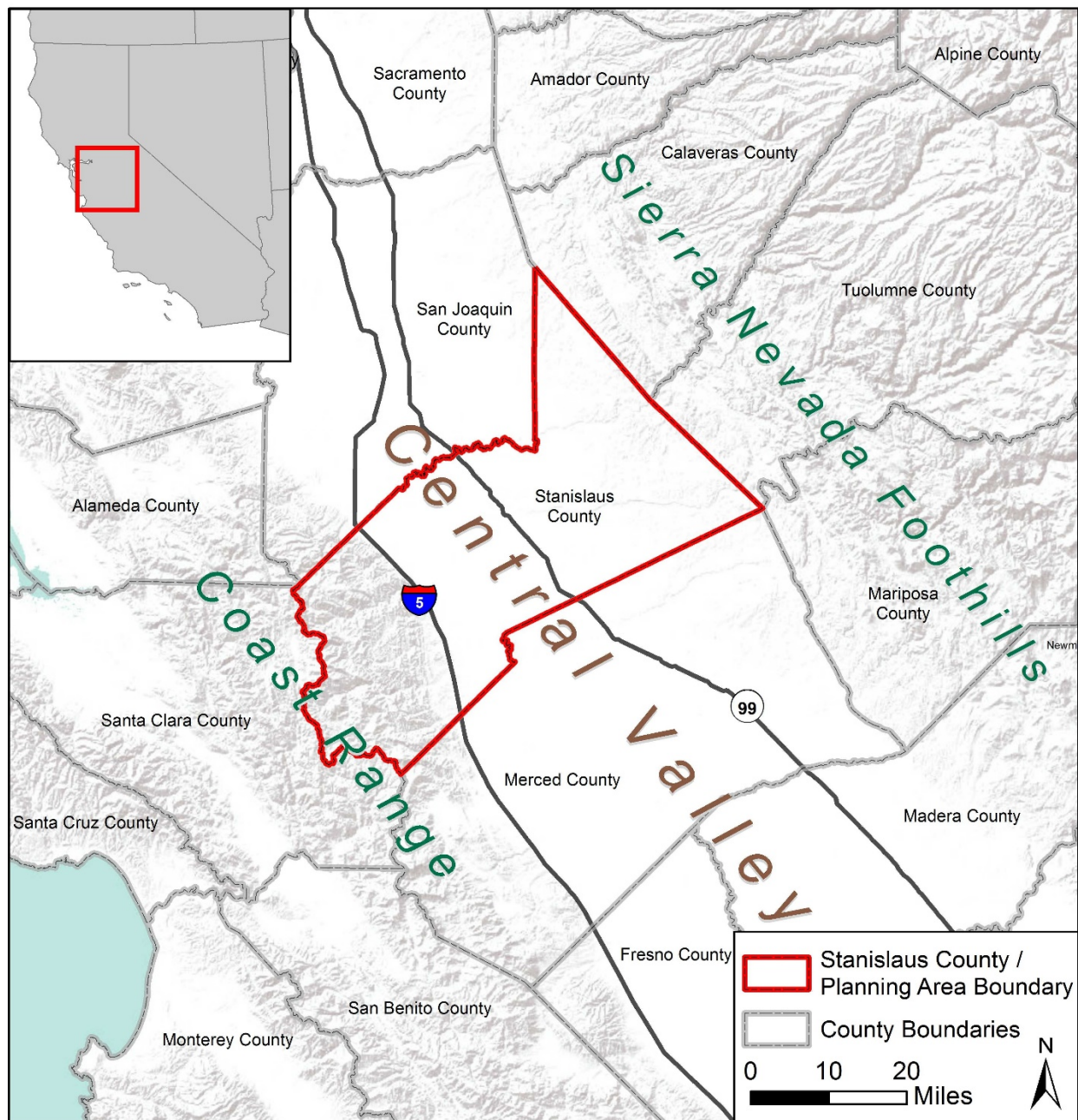
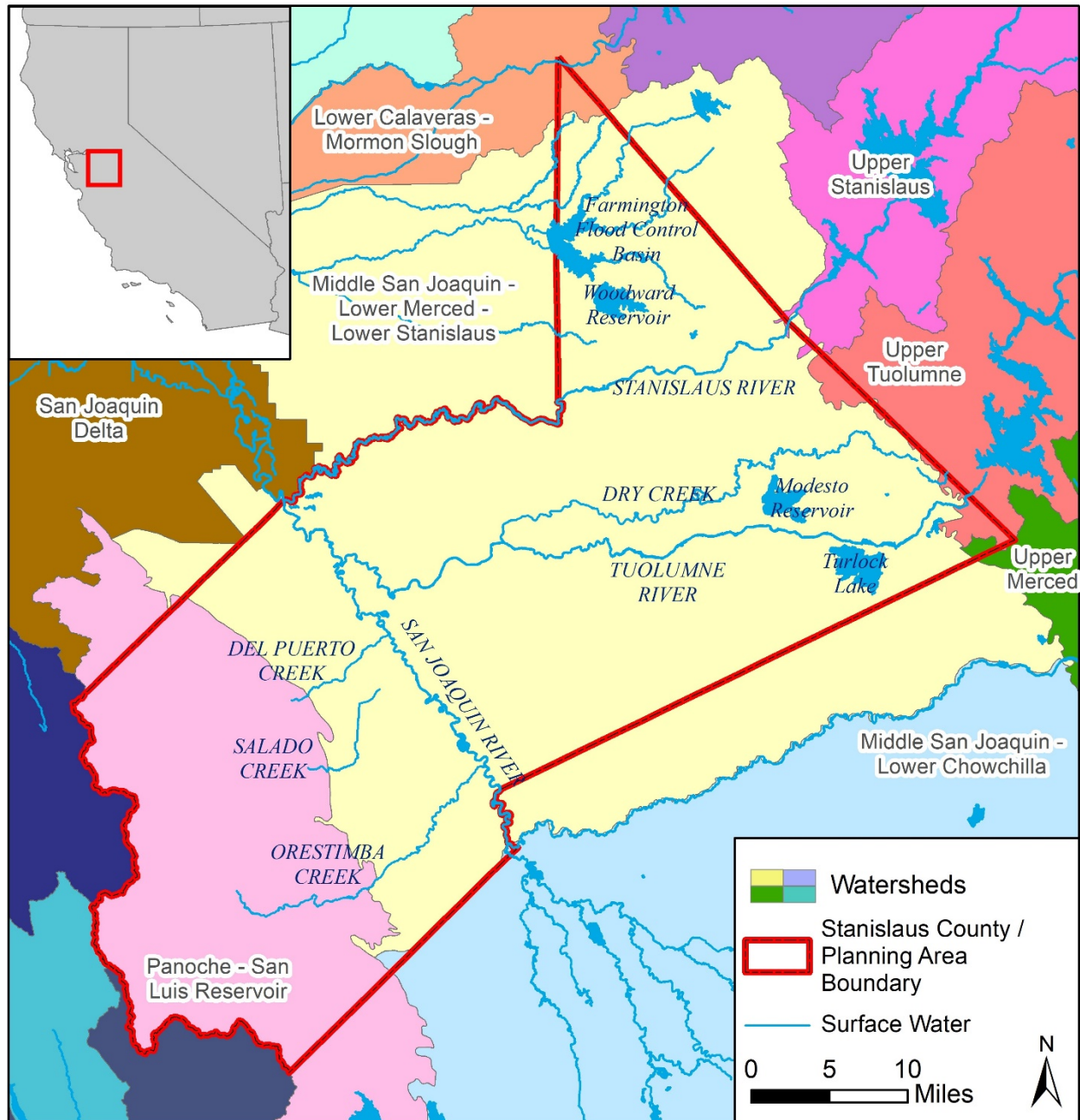


Figure ES-2. Watersheds



ES-2 Watershed Collaboration, Coordination, and Outreach

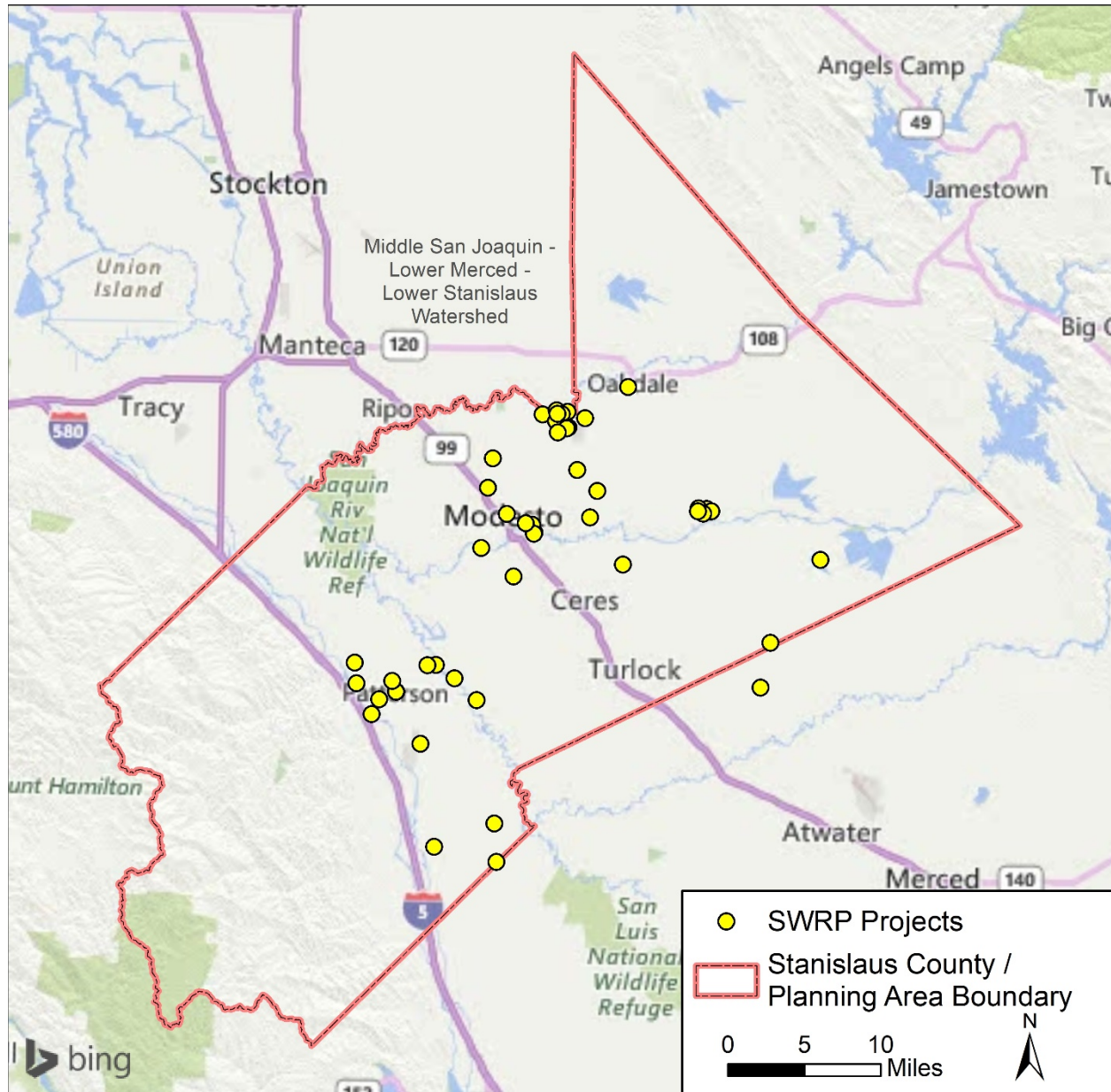
The SWRP was developed as a collaborative effort between Stanislaus County, local planning organizations that contributed both time and funds to development of the plan, and other key stakeholders identified and contacted through the SWRP planning effort. A Technical Advisory Committee (TAC), composed of agency and nonprofit representatives, was developed to provide input on planning components and support review of the plan. TAC meetings and public outreach meetings were held throughout the SWRP development to coordinate and collaborate with agencies, organizations, and nonprofit organizations. A number of disadvantaged community (DAC) representatives were identified at meetings and coordinated with directly to bolster DAC involvement in the plan development. Additional outreach occurred through development and use of the SWRP stakeholder contact list and the SWRP website.

The SWRP incorporates past management and research efforts, existing plans, as well as stormwater quality and groundwater recharge technical studies performed as part of and alongside development of this SWRP. Concurrent collaboration and planning efforts of the East Stanislaus IRWMP and Westside-San Joaquin IRWMP updates were leveraged, with the integration of stakeholders, resources and projects when applicable. Relevant information and projects resulting from the Groundwater Sustainability Plans (GSPs) to be developed for the Modesto, Turlock, Eastern San Joaquin, and Delta-Mendota groundwater subbasins will be assessed and integrated into future SWRP efforts and projects, where feasible.

ES-3 Integrated Metrics-Based Benefits Analysis

A metrics-based analysis helps illustrate how the multi-benefit projects included in the SWRP will collectively address the water resource management goals of the planning area. Projects with quantified benefits were aggregated across the planning area to estimate total SWRP benefits and assess progress toward reaching water resource management goals. The quantified benefits discussed in the SWRP are based on information provided by the project proponents to date. Quantitative information was not provided for every project, which may result in underestimation of the aggregated benefits of all SWRP projects. The locations of the projects are shown in Figure ES-3.

Figure ES-3. SWRP Projects



Stormwater benefits are evaluated within five different categories: water quality, water supply, flood management, environmental, and community benefits. Within each category, specific main and additional benefits have been identified. These categories and benefits align with those presented in the SWRP Guidelines (SWRCB, 2015) and are listed in Table ES-1.

Table ES-1. SWRP Main and Additional Benefits

Benefit Category		Benefit
Main Benefits	Water Quality Benefits	Increased filtration and/or treatment of runoff
	Water Supply Benefits	Water supply reliability
		Conjunctive use
	Flood Management Benefits	Decreased flood risk by reducing runoff rate and/or volume
	Environmental Benefits	Environmental habitat protection and improvement, including wetland enhancement/creation, riparian enhancement, and/or instream flow improvement
		Increased urban green space
	Community Benefits	Employment opportunities provided
		Public education
Additional Benefits	Water Quality Benefits	Nonpoint source pollution control
		Reestablished natural water drainage and treatment
	Water Supply Benefits	Water conservation
	Flood Management Benefits	Reduced sanitary sewer overflows
	Environmental Benefits	Reduced energy use, greenhouse gas emissions, or provides a carbon sink
		Reestablishment of natural hydrograph
		Water temperature improvements
	Community Benefits	Community involvement
		Enhance and/or create recreational and public use areas

The SWRP water quality priorities for the planning area prioritize reducing pollutant loading to 303(d)-listed water bodies and supporting existing TDMLs. Water quality benefits provided by stormwater and dry weather runoff projects in the planning area include increased filtration and/or treatment of runoff, nonpoint source pollution control, and reestablished natural water drainage and treatment. The majority of water quality projects included in the SWRP increase infiltration of stormwater to reduce specific pollutants of concern in Stanislaus County. It is estimated that by implementing all SWRP projects with water quality benefits (both conceptual and ready to proceed), there could be a reduction in TSS loading of approximately 205,000 lbs/yr and approximately 5,200 lbs/yr of trash removed from entering waterways throughout the County.

Stormwater capture for groundwater basin recharge to augment water supply was identified as a regional watershed priority during the preparation of the SWRP. SWRP projects providing supply benefits through stormwater capture and use were aggregated across the planning area to analyze how collectively the stormwater capture projects and programs could provide water supply benefits of approximately 167,000 AFY of direct recharge, direct use, and/or in-lieu recharge/conjunctive use.

Flood management projects in the planning area can also provide water augmentation benefits by diverting flood flows to increase recharge. The SWRP projects providing flood management benefits through a reduction in potential flood volume can capture almost 28,000 AFY.

Environmental and community benefits could also be quantified as part of the SWRP. Projects providing energy reduction benefits could reduce energy consumed by over 1,500,000 kWh/year when analyzed collectively. Projects may also protect or improve over 3,500 acres of habitat. Community benefits resulting from the combined project include over 30,000 estimated visits per year to parks or other recreational areas developed or improved by the projects.

ES-4 Project Identification and Prioritization Process

The primary purpose of the SWRP is to identify and assess multiple-benefit stormwater projects, prioritizing those projects that can best address the water resource management goals in the SWRP planning area of Stanislaus County. The project identification and quantitative assessment process for the plan included: project solicitation, project submission, eligibility screening, and the metrics-based project assessment and prioritization.

Project solicitation was the process by which public agencies, nonprofits, and members of the public submitted projects to the SWRP. The project submission process for the SWRP was built on the strategy developed during the East Stanislaus IRWMP using a web-based project submittal and data management system called Opti. The Opti system allows project information to be submitted, reviewed, organized, and regularly updated electronically by project proponents. Project summaries are also available for review to all interested parties at <http://irwm.rmewater.com/es>.

Submitted projects were screened for four eligibility characteristics in order to qualify for inclusion in the SWRP. The eligibility requirements ensure that (1) projects would be submitted by applicants eligible to receive funding, (2) the project is of the appropriate type, and the project provides multiple benefits as required by the SWRP Guidelines, (3) providing at least two or more categories of Main Benefits and (4) providing at least one category of Additional Benefits. Main and Additional Benefit categories are listed in Table ES-1.

A project prioritization process was developed to prioritize individual projects and programs for implementation based on an integration of measurable factors to assure the greatest water quality, water supply, conservation, and community needs are addressed. The prioritization process was based on watershed and planning area-level water resource management priorities identified during SWRP development and was created to be a simple, objective, metrics-based tool for assessing projects. Projects were prioritized based on a system of points, allocated to reflect those priorities.

The SWRP scoring system follows guidance provided in the SWRP Guidelines, which encourage projects to be prioritized based on factors such as providing multiple benefits, ability to secure ongoing funding, use of a metrics-driven approach, location on public lands, augmentation of local water supplies, and habitat restoration.

During the 2017 solicitation period, 58 projects were submitted, of which 41 were Conceptual projects and 17 were Ready-to-Proceed (RTP) projects. A detailed list of the submitted project and project prioritization is provided in Appendix F including information about project sponsors, project descriptions, prioritization results, and benefits provided. Table ES-2 summarizes the prioritization scoring system based on the SWRP

main and SWRP additional benefits provided by the project. Additional points were awarded if a quantitative metric was provided for either a main or additional benefit.

Table ES-2. Project Prioritization Scoring System

Providing SWRP Main Benefits and Additional Benefits	Points
Providing SWRP Main Benefits	
Points per benefit provided	4
Additional points if a quantitative metric can be provided for that benefit	2
Providing SWRP Additional Benefits	
Points per benefit provided	2
Additional points if a quantitative metric can be provided for that benefit	1
Addressing Regional Watershed Priorities	Points
Implements water quality improvements to help achieve the goals of an existing TMDL?	4
Reduces pollutant discharges into a 303(d)-listed Impaired Water Body?	2
Augments water supply by capturing stormwater or dry weather runoff for recharge into a groundwater basin?	4
Does the project provide a SWRP Main or Additional Benefit to a disadvantaged community or an economically distressed area?	4
Progress Towards Project Implementation	Points
Is the project supported by entities that have created permanent, local or regional funding?	4
Is the project located on public land? If not, is there an existing easement or right of way agreement with a local land owner?	4
Readiness of project to proceed (award points for each one completed):	
Planning Study or Feasibility Study	1
Environmental Assessment/EIR	1
Preliminary Project Design	2
Acquisition of all required environmental permits	2

ES-5 Plan and Project Implementation

Implementation of the SWRP will be completed through cooperation between Stanislaus County, the TAC, the project proponents, and stakeholders. For the SWRP to be successful, projects included in the SWRP must continue to move from conceptual and planning phases toward construction and implementation. The SWRP relies on individual projects and programs to collectively achieve the water supply, water quality, flood management, environmental, and community benefits identified in the plan.

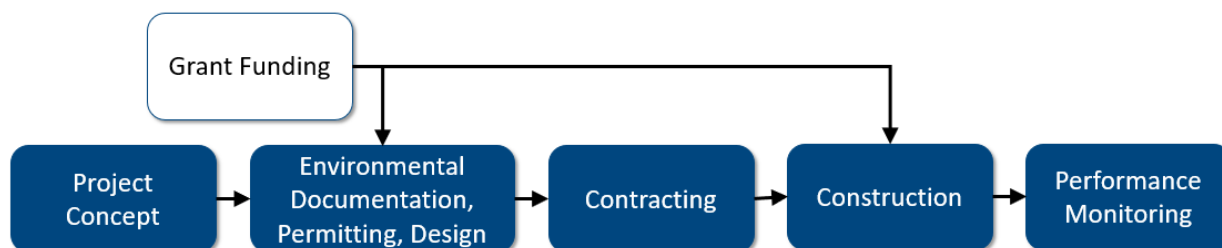
Implementing the SWRP consists of three main elements:

- Completing the design, permitting and implementation of projects included in the SWRP
- Monitoring the benefits produced by the projects included in the SWRP to ensure that project goals are being met and that SWRP objectives are being advanced
- Evaluating the SWRP at regular intervals to assess cumulative progress toward meeting the SWRP objectives and adapting the plan as necessary to ensure that objectives continue to be met

The projects included in the SWRP range from conceptual projects (which will require additional planning and design work prior to construction) to RTP projects (which may be ready for construction as soon as funding is secured). While inclusion in the SWRP does not obligate project proponents to implement projects as submitted, it is the intent of the SWRP that projects will be implemented to meet stormwater

objectives in the planning area. Project proponents are responsible for securing their own project funding and developing and implementing individual projects. A typical project lifespan is shown in Figure ES-4.

Figure ES-4. Example Project Progression



The SWRP is intended to be a living document and implemented as an ongoing, adaptive program. The plan identifies water resource management priorities and recommends projects based on current knowledge, as well as lays the framework for incorporating forthcoming information and future projects resulting from continued plan implementation.

Opti is publicly accessible and will serve as both a data repository and distribution mechanism. The use of Opti allows project proponents to update project information as details are solidified and benefits are further quantified. Eligible projects can be added at any time. Project performance data may also be uploaded to Opti where it can be viewed by stakeholders and members of the public. Project performance will be evaluated based on how well the targets established in the monitoring plan are met. This project information can be collectively managed in Opti and fed back into the plan's management structure to adapt the plan and projects to better meet overall objectives. Feedback obtained from community participation and public perception of individual project benefits is also expected to be an integral part of the adaptive management process for project proponents and plan partners.

This SWRP will be evaluated at regular intervals to assess cumulative progress toward meeting the SWRP objectives and the plan adapted, as necessary, to ensure that stormwater management objectives continue to be relevant and addressed.