



STANISLAUS COUNTY
DEPARTMENT OF PUBLIC WORKS

Stanislaus Multi-Agency Regional Storm Water Resource Plan

Deliverable 5.5. Project Prioritization Results

Prepared for:
State Water Resources Control Board
Grant Agreement No. D1612618

Submitted by:
Stanislaus County, Department of Public Works

January 2018

Prepared by:



Project Submission Summary

During the Stanislaus County Multi-Agency Regional Storm Water Resource Plan (SWRP) call for projects, conducted from October 23, 2017 through December 8, 2017, a total of 70 projects were submitted. In order to be eligible for inclusion in the SWRP, projects were required to meet all of the following four criteria:

- Project is sponsored by an eligible applicant
- Project is a storm water or dry weather runoff project
- Project provides two or more SWRP Main Benefits
- Project provides at least one SWRP Additional Benefit

When projects did not meet these requirements, individual follow-up was conducted with project proponents via email and phone in order to alert them to the specific changes needed for their project to be included in the SWRP. Many, but not all, project proponents responded to this follow-up and completed necessary edits to make their projects eligible for the SWRP. Of the projects submitted, 58 were eligible for inclusion in the SWRP.

A summary of eligible SWRP projects is included in Appendix A. This summary includes the project name, project description, score, project readiness to proceed, and benefit types provided.

Project Prioritization

Projects were prioritized in the project database (OPTI) using the methodology outlined in the Quantitative Methods Technical Memorandum (TM), submitted on January 31, 2018 under Task 5.4 of Stanislaus County's grant agreement. Project scores were assigned using the prioritization methodology summarized in Table 1. The detailed scoring results for each project are provided in Appendix B.

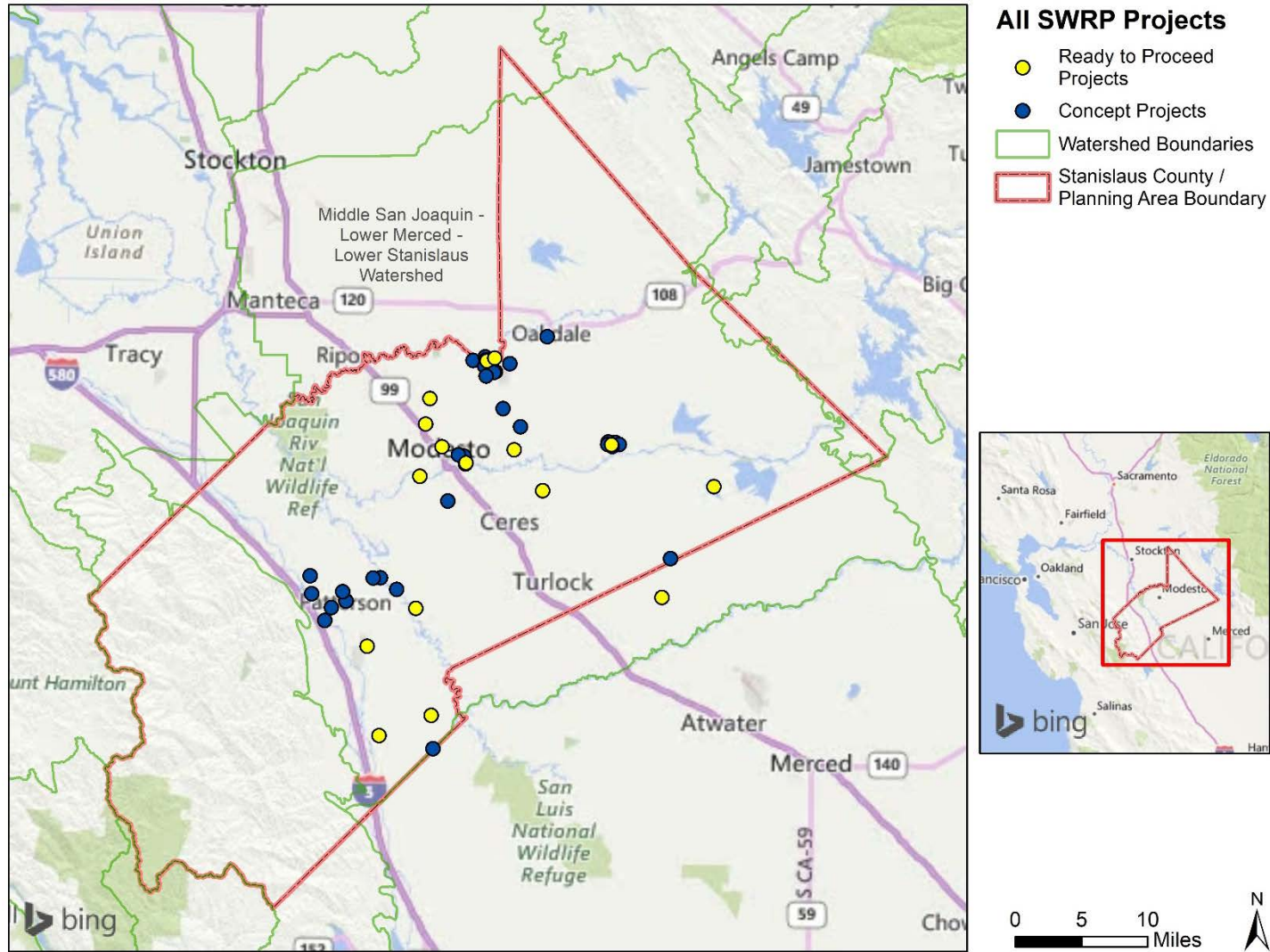
Table 1. Prioritization Methodology

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 storm water 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

Benefits Quantification

As discussed in the Quantitative Methods TM, the overall project benefits were compiled and summarized. Appendix C provides a summary of the total benefits provided as well as the breakdown of benefits by project status (conceptual or ready to proceed). As shown in Figure 1, all submitted projects are located within the Middle San Joaquin-Lower Merced-Lower Stanislaus watershed. Therefore, project benefits were not broken down by watershed. One project is located outside the County boundaries but is located at the Turlock Airport within the jurisdiction of the City of Turlock. The project also benefits the Turlock Subbasin, which underlies the planning area; therefore, the project was included in the SWRP.

Figure 1. Submitted Projects and Project Status



Cost Information

In support of SWRP implementation, project cost information was gathered during the submission process. Table 2 provides an overview of project cost information for ready-to-proceed projects. The total cost for all ready-to-proceed projects is approximately \$290 million, with \$26 million of this funded by existing grants. Costs for individual projects range from under \$200,000 to just over \$100 million.

Table 2. Project Cost Overview

Project Cost Overview	
Number of projects submitted	58
Number of ready-to-proceed projects	17
Number of ready-to-proceed projects submitting cost information	16
Total capital cost submitted by proponents (2017 dollars)	\$292,357,516
Total funding provided by existing grants	\$26,574,460
Cost range for ready-to-proceed projects	\$185,300 – \$102,577,000

Appendices

Appendix A: Project Description and Scoring Summary Sheet

Appendix B: Detailed Scoring Summary

Appendix C: Benefits Quantification Summary Sheet

Appendix A - Project Description and Scoring Summary Sheet



Stanislaus County Multi-Agency Regional Storm Water Resource Plan
Project Description and Scoring Summary Sheet

Project Name	Project Proponent	Project Description	Score	Project Type	Benefit Categories Met
<i>Ready to Proceed and Preliminary Design Complete Projects</i>					
Tuolumne River Regional Park	Tuolumne River Regional Park JPA	Continued development of the undeveloped areas of the Tuolumne River Regional Park including the Gateway Parcel. http://www.midsjrfloodplan.org/projects/tuolumne-river-regional-park	64	Ready to Proceed	Water Quality, Water Supply, Flood Management, Environmental, Community
Modesto Area 2 Stormwater to Sanitary Sewer Cross-Connection Removal Project	City of Modesto	<p>The proposed multi-benefit project captures, treats, and infiltrates stormwater. The project uses LID Techniques including bio-retention planters, infiltration trenches, and a underground retention basin under Roosevelt Park. The project recharges the groundwater aquifer, reduces stormwater flows to the wastewater treatment plant, the number of Sanitary Sewer Overflows, and improve water quality for Dry Creek, and the Lower Tuolumne River (303d water bodies).</p> <p>Located in the fully developed northwest portion of Modesto which has no positive storm drainage system, the project is a cost effective and LID Alternative to constructing detention basins in undeveloped portions of the city and constructing miles of storm drains. Fourteen failed dry wells and six sanitary sewer cross connections will be removed. The project will reduce localized flooding on Granger Avenue a heavily traveled local street.</p>	60	Ready to Proceed	Water Quality, Water Supply, Flood Management, Environmental, Community
Mustang Creek MAR Project	Eastside Water District	The Mustang Creek MAR Project will divert Mustang Creek flows during extreme flood events at an existing Bifurcation Structure located downstream of the flood control Detention Basin. The Bifurcation Structure presently diverts flood flows into a 95-acre-foot off-channel impoundment basin covering 74 acres for flood protection. The Bifurcation Structure is estimated to allow up to 210 cfs to be diverted into the existing impoundment basin. The Mustang Creek MAR Project will include ripping the 74-acre basin site to encourage percolation, similar to an agricultural practice used prior to planting an almond orchard. coordinated. Operation of the Bifurcation Structure with and the upstream Mustang Creek Detention Basin will be coordinated to divert storm surges and maximize the potential diversion for groundwater recharge at the Mustang Creek MAR Project. The Project will enhance the primary function of the Detention Basin; flood control.	52	Ready to Proceed	Water Supply, Flood Management, Community
Rouse Lake Managed Aquifer Recharge (MAR) Project	Eastside Water District	This Rouse Lake MAR Project consists of the following three (3) components: 1) Four (4) or more floating lake intakes with a pumping capacity of each at about 1,500 gallons per minute; designed with screens and pumping schemes to comply with all BMPs for similar type facilities; 2) Pipelines to deliver Rouse Lake water to existing developed lands for irrigation purposes; varying from 8-inch to 30-inch in diameter; 3) Up to 20 vertical drains (dry-wells) within the receded Rouse Lake lakebed to accomplish direct groundwater recharge. This is an environmentally sensitive water supply project that achieves new yield from the conjunctive management of surface and groundwater sources; direct GW recharge via vertical drains; in-direct GW recharge via irrigation; and additional GW recharge via use of Rouse Lake as a regulatory reservoir. Benefits to supply are matched by benefits to DACs, SDACs, EDAs, and the local ecology.	52	Ready to Proceed	Water Supply, Flood Management, Community
Little Salado Creek Groundwater Recharge and Flood Control Basin	Stanislaus County	Construction of a stormwater detention basin to partially divert, retain and percolate up to 270 cubic feet per second (cfs) of flow from Little Salado Creek.	50	Ready to Proceed	Water Quality, Water Supply, Flood Management, Environmental, Community



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Project Description and Scoring Summary Sheet

Project Name	Project Proponent	Project Description	Score	Project Type	Benefit Categories Met
West Stanislaus Irrigation District Fish Screen Project	West Stanislaus Irrigation District	The Proposed Project/Action consists of the following elements which are described in more detail below: (1) cone screens located at the mouth of the existing intake canal; (2) a low-lift pump station at the same location; (3) approximately 2,100 feet of underground pipeline from the proposed pump station to the intake canal; (4) sediment removal and management along the length of the intake canal; (5) upgrading of existing roads along the intake canal; (6) two wildlife crossings of the intake canal, one of which would also allow flood conveyance; (7) facilities for providing late fall-water deliveries to the Refuge; and (8) a flood connectivity structure to support the USFWS' management of the Refuge for floodplain reconnection; WSID will not operate the spillway structure as part of this project. The project footprint measures approximately 26.7 acres, with an additional approximately 57.8 acres within areas designated operations and access routes.	49	Ready to Proceed	Water Quality, Water Supply, Flood Management
TRRP - Carpenter Road/West Modesto Flood Management and Park Development	TRRP JPA	Help reduce flood damages in West Modesto neighborhoods while developing the adjacent Tuolumne River Regional Park. http://www.midsjrfloodplan.org/projects/tuolumne-river-regional-park-%E2%80%93-carpenter-roadwest-modesto-flood-management-and-park	47	Ready to Proceed	Water Quality, Water Supply, Flood Management, Environmental, Community
Orestimba Creek Recharge and Recovery Project (OCRRP)	Del Puerto Water District	The Orestimba Creek Recharge and Recovery Project (OCRRP) will construct a 20 acre recharge facility near Orestimba Creek and the Delta-Mendota Canal (DMC) that would allow recharge of 500 acre feet per year (afy) to the local groundwater basin. Existing connections to the DMC would deliver up to 500 afy of excess winter flows and recaptured storm water flows. The banked water would be available for recovery during dry periods through the construction of an extraction well at the site. The recharge water source would vary from year to year, but could include excess winter flows from CCID and storm water flows from the Kings River, San Joaquin River, and Orestimba Creek.	41	Ready to Proceed	Water Supply, Flood Management
Catherine Everett Park Cross Connection Elimination	City of Modesto	The City is removing cross connections (storm water is discharged to the sanitary sewer system) to capture, treat, and infiltrate approx. 5.5 ac-ft of storm water runoff to augment groundwater supplies, reduce flood-related damage, improve the quality of storm water runoff percolating to the underlying groundwater basin, and reduce sanitary sewer overflows, and peak wet weather flow in the sanitary sewer collection system. Catharine Everett Park has been identified in the Area 2 SD Cross Connection Removal Report - Phase 1 (www.modestogov.com). Retention is recommended based on open area and percolation tests. This project would also provide improvements to an existing park to enhance the functionality and/or improve quality of usability.	41	Ready to Proceed	Water Quality, Water Supply, Flood Management, Community
JM Pike Park Cross Connection Elimination	City of Modesto	JM Pike Park has been identified in the Area 2 SD Cross Connection Removal Report (www.modestogov.com). The PDR notes that detention (12 ac-ft of storm runoff) was estimated to have significantly lower capital costs than retention (24 ac-ft of storm runoff). Due to SGMA, opportunities for groundwater recharge have priority, therefore this project should be re-evaluated to consider cost-effective retention. Excavation will be required at the park site (detention or retention), reconstruction of facilities are expected to include ADA-compliant access, surface improvements, baseball infield, large play area. New facilities are expected to include ADA-compliant access.	41	Ready to Proceed	Water Quality, Water Supply, Flood Management, Community



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Project Name	Project Proponent	Project Description	Score	Project Type	Benefit Categories Met
Empire Community Storm Drainage Plan	Stanislaus County	Design and construct the Empire Community Storm Drainage Infrastructure Improvement Project located in the unincorporated town of Empire in Stanislaus County. This project facilitates storm water recharge into the underlying groundwater basin by the re-grading of public roadways and construction of curbless roadside swales, which will collect, treat and percolate storm water runoff from the public right-of-way. Sidewalks will be constructed throughout the community of Empire, for two purposes: (1) to prevent stormwater runoff from flowing off of private property into the public roadside swales; and (2) to increase pedestrian safety and enhance livability in this Disadvantaged Community (DAC). The project is located adjacent to approximately 340 parcels.	40	Ready to Proceed	Water Quality, Water Supply, Community
First Street Basin Rehabilitation	City of Riverbank	Rehabilitate the basin by adding ground water recharge, habitat enhancement and public access.	37	Ready to Proceed	Water Quality, Flood Management, Community
F St Storm Pond	City of Waterford	Create a new storm retention pond that is an open space for public access to use as a park. This storm pond will redirect runoff from the river to a retention basin. This retention basin will be a source of groundwater recharge in times of rain and also improve water quality to surface waters by allow the earth to cleanse the water naturally.	34	Ready to Proceed	Water Quality, Water Supply, Flood Management, Environmental, Community
Orestimba Creek Flood Management Project	City of Newman	The chevron levee will be constructed parallel to the east bank of the CCID Main Canal. Starting at the Newman Wasteway, the levee would continue north to a location near Lundy Road, at which point the levee alignment would angle diagonally away from the canal toward the northeast for another 0.7 miles to tie in to the CNRR embankment near an existing culvert. This existing culvert would function to reduce the frequency and duration of floodwater ponding on the north side of the levee. The levee would also extend an additional 35 feet east of the CNRR embankment to ensure that floodwaters do not flank the proposed levee. Construction of a 4.7-mile chevron levee along east bank of CCID Main Canal and a 1-mile cross levee to reduce flood risk to Newman and adjacent agricultural areas, providing a 200-year level of protection. The chevron levee would include 3 feet of freeboard above the mean 200-year water surface elevation.	31	Ready to Proceed	Water Quality, Water Supply, Flood Management
North Valley Regional Recycled Water Project	City of Turlock on behalf of NVRWP Partners	The North Valley Regional Recycled Water Project (NVRWP) will deliver up to ~60,000 AFY of recycled water produced by the Cities of Modesto and Turlock to the Del Puerto Water District (DPWD) via the Delta Mendota Canal (DMC). DPWD is a California Special District located along the west side of the San Joaquin Valley in Stanislaus, San Joaquin, and Merced Counties. DPWD's sole source of water supply is Central Valley Project (CVP) water under contract with the U.S. Bureau of Reclamation. Under its long-term contract, it receives up to 140,210 AFY of water to provide to approximately 45,000 acres of highly productive farmland with a production value of over \$100 million gross farm dollars annually. In recent years, DPWD has experienced reduced allocations under its contract. In 2014, it received 0% of its full contractual amount which will be devastating to the agricultural growers, the disadvantaged communities in the service area, and the Region as a whole.	31	Ready to Proceed	Water Quality, Water Supply, Community
7th Street Low Impact Development (LID) Storm Drainage Improvements	City of Hughson	Construct Low Impact Development storm water facility on existing street with inadequate drainage facilities and no outlet to detention/retention basin. Project will avoid the need for a basin, thereby avoiding conversion of farmland for that purpose.	30	Ready to Proceed	Water Quality, Water Supply, Flood Management
7th Street Outfall Rehabilitation	City of Riverbank	Project will replace failed outfall, piping and construct a trash filter.	25	Ready to Proceed	Water Quality, Community



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Project Name	Project Proponent	Project Description	Score	Project Type	Benefit Categories Met
<i>Conceptual Projects</i>					
Stormwater Infrastructure and Dual Use Basins for County Islands (DUCs)	Stanislaus County	There are various older urban Disadvantaged Communities (DACs) in unincorporated Stanislaus County that lack a storm drainage system. This project utilizes existing Mono Park, Mancini Park, Tuolumne Regional River Park and other County parks and public right of way as groundwater recharge locations to collect and percolate storm water runoff locally. Curb, gutter and sidewalks will be installed to enhance the community's use of walking paths, streets and private property by preventing localized flooding. Storm drain systems will be installed to capture runoff and direct it through a series of storm drainage pipes and a filtration system prior to it entering a subsurface retention system which will store and percolate the runoff. Dual-use basins will be installed in some areas to provide aboveground storage, groundwater recharge and recreational opportunities for the surrounding neighborhoods.	69	Concept	Water Quality, Water Supply, Flood Management, Environmental, Community
Airport Neighborhood Stormwater Retention System and Dual Basin/Low Impact Strategies Stormwater Runoff	Tuolumne River Trust	The Airport Neighborhood is hampered by several factors including its geographic location (bordered by an industrial area, the Modesto Airport, and Highway 132); jurisdiction (half the neighborhood is within Modesto City limits, the other half is county); extreme socioeconomic challenges; its limited recreational activities and infrastructure. Many streets have no sidewalks making walking and bicycling dangerous. One of the priorities is to identify safe routes to walk/bicycle in the Neighborhood. As such, Airport families are actively participating in the Walking School Bus, Airport Bicycle Club and the Airport Walking Club. Using existing neighborhood parks like Mono, Oregon, George Rogers or the TRRP can be used as a recharge location for the neighborhood to facilitate a storm drain project. By adding curb gutter sidewalks as part of storm drain project, this enhances the community's use of walking/cycling paths, and streets by preventing localized flooding.	63	Concept	Water Quality, Water Supply, Flood Management, Environmental, Community
Dry Creek Watershed Detention Reconnaissance Study	Stanislaus County	Complete a reconnaissance study of potential options for reducing flood risks by detaining flood flows in the Dry Creek watershed, upstream of the City of Modesto. Evaluate opportunities for groundwater recharge in the detention areas. Conduct a Flood Hazard Assessment in an Integrated Development Planning Study. Stanislaus County will lead the effort, through the collection and review of generally available resource information, including reviewing the 1998 USACE reconnaissance study. The team will review available topographic, hydrologic and vegetation mapping as well as aerial and satellite imagery. This data will then describe the need for a flood hazard assessment. http://www.midsjrfloodplan.org/projects/dry-creek-watershed-detention-reconnaissance-study .	58	Concept	Water Quality, Water Supply, Flood Management, Environmental, Community
Stormwater Outfall Capture and Storage Project	City of Modesto	The City has 64 river outfalls and 26 canal outfalls, these sources of runoff will be evaluated, for the feasibility to capture and reuse the runoff. Project concept needs to be developed, each outfall needs to be evaluated and prioritized; proceed with developed project as funding allows	54	Concept	Water Quality, Water Supply, Flood Management, Environmental, Community
Modesto Urban Stormwater Basin Recharge Enhancement Program	City of Modesto	The purpose of this program is to optimize groundwater recharge opportunities through use of the existing stormwater basins. This project will analyze Modesto's stormwater retention and detention storage basins, identify missing data needs, determine basin capacities where unknown, establish percolation rates, review operational parameters and constraints and rank basins and their associated stormwater runoff areas as to greatest need and potential for increasing stormwater basin recharge opportunities. Potential solutions could include changing operational criteria and installation of infrastructure to maximize percolation instead of pumping stormwater to irrigation facilities and discharges to Tuolumne River. These efforts could also allow areas that currently have inadequate flood mitigation facilities (aka inefficient storm basins) to increase their stormwater management capabilities to provide reduced flooding potential.	52	Concept	Water Quality, Water Supply, Flood Management, Environmental, Community



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Tuolumne River Flood Management Feasibility Study	Tuolumne River Regional Park JPA	Complete a USACE Feasibility Study, or a study similar in scope, that evaluates how the management of the Tuolumne River could be revised to improve flood control, enhance aquatic habitat, and improve water quality. http://www.midsjrfloodplan.org/projects/tuolumne-river-flood-management-feasibility-study	47	Concept	Water Supply, Flood Management, Environmental, Community
Eastside Regional Storm Recharge Basin	City of Riverbank	This will be a combined storm water basin and ground water recharge facility coordinated with Oakdale Irrigation District and Stanislaus County.	46	Concept	Water Quality, Water Supply, Flood Management, Environmental, Community
Northeast Storm Drainage Interceptor Project	City of Modesto	This project would construct a series of four large storm water detention basins and an interceptor pipe east of the AT&SF Rail line to an existing outfall at Dry Creek for the purpose of eliminating the overland 100-year flood event risk to northeast Modesto from roughly 2,335 acres of northeast watershed area. This project could also utilize collected runoff from more frequent storm runoff events for the purpose of promoting groundwater recharge strategies in areas that have high potential to provide good recharge instead of discharging to Tuolumne River via proposed interceptor channel.	46	Concept	Water Quality, Water Supply, Flood Management, Environmental, Community
Install Storm Drainage Capture and Recharge Systems in Flood-prone Areas	City of Modesto	Priority Recommendations in SDMP have been updated due to new direction with SGMA, storm drain systems will be moving away from installing new detention systems and going towards installing new retentions systems for recharge and groundwater sustainability. Construct pipelines and retention systems in Hot Zones (areas served by rockwells that have historically experienced flooding, which require City operations and maintenance to pump the surface storm water into the sanitary sewer system periodically after storms). A couple areas have already been mitigated utilizing existing storm drainage system extensions and underground capture and recharge.	44	Concept	Water Quality, Water Supply, Flood Management, Environmental, Community
Newman LID Water Quality and Conservation Project	City of Newman	The City of Newman has acquired and is proposing to develop 103 acres, located near E. Inyo and Canal School Road, for treating urban water runoff such as nuisance water from parks and landscaped areas through a Low Impact Development (LID). The City plans to develop 78 acres for water treatment, implementing LID applications such as vegetated swales, constructed wetlands, and bio retention basins. The project will include a trail system with educational signs for LID application. The remaining 25 acres will be used for the storage of the treated water, which can be used for irrigation of city land, maximizing groundwater recharge and water conservation by reusing the treated water. The project, through implementation of Best Management Practices, will reduce discharge of sediment/pollutants; improve the quality of urban water runoff; re-use treated water for irrigation; and provide an attractive recreational area for use by bicyclists and pedestrians.	41	Concept	Water Supply, Environmental, Community
Borax Ct Storm Basin	City of Waterford	Borax storm basin successfully collects storm water but is not constructed for infiltration. The concept would be to reconstruct the basin for infiltration and possible a green space.	36	Concept	Water Quality, Water Supply, Environmental, Community
Dry Well Rehabilitation, Rejuvenation, Reconstruction	City of Waterford	Conduct project research to identify best approach to rehabilitate and rejuvenate a series of dry wells on Tim Bell Rd from Bentley to Bonnie Brea or outline the project to be a complete overhaul and include a conveyance system to captured storm water and dry weather runoff and direct to a storm water basin to infiltrate and recharge groundwater.	36	Concept	Water Quality, Water Supply, Environmental, Community
Forrestal Storm Basin	City of Waterford	Forrestal Storm basin successfully collects storm water but is not constructed for infiltration. The concept would be to reconstruct the basin for infiltration and possible a green space for DAC community.	36	Concept	Water Quality, Water Supply, Environmental, Community
Gst and Church Storm Basin	City of Waterford	The storm basin is due for upgrades and storm water infiltration rejuvenation. Potential site for green space as well for a DAC community.	36	Concept	Water Quality, Water Supply, Environmental, Community



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Project Name	Project Proponent	Project Description	Score	Project Type	Benefit Categories Met
Old Downtown Green Street Improvements	City of Patterson	The proposed project consists of green street improvements on various streets located in the city's historic downtown. The project will consist of removing existing sidewalk and installing pervious interlocking joint pavers to treat stormwater as well as recharge groundwater. Tree wells, vegetated swales and curb extension would be installed at intersections and mid-block which would maximize street parking as well as provide additional capture capacity. This project would improve water quality, promote stormwater LID improvements, mitigate flooding that has been on-going issue, increase esthetics and property values, along with other benefits.	36	Concept	Water Quality, Water Supply, Environmental, Community
Patterson Green Street Improvement Project	City of Patterson	The proposed project consists of green street improvements on various streets located in the city's historic downtown. The project consists of removing existing sidewalks and installing pervious interlocking joint pavers to treat stormwater as well as recharge groundwater. Tree wells, vegetated swales, and curb extensions would also be installed at intersections and mid-block which would maximize street parking as well as provide additional capture capacity. This project would improve water quality, introduce stormwater LID improvements, mitigate flooding that has been on-going issue, increase esthetics & property values among other benefits.	36	Concept	Water Quality, Water Supply, Flood Management, Environmental, Community
Percolation Ponds for Stormwater Capture and Recharge	City of Patterson	PP-1 Construct percolation ponds to capture and infiltrate storm water from Del Puerto Creek. The ponds should cover roughly 14 acres. Sizing of the percolation ponds was based on existing infiltration rate data and will be updated when field investigations are complete. The percolation pond project can be phased so that the ponds are constructed over a few years, allowing for the increase of aquifer recharge capacity.	36	Concept	Water Quality, Water Supply, Flood Management, Environmental, Community
Stein Basin	City of Waterford	Reconstruct basin for storm water to infiltration for groundwater recharge and potentially turn into a green space in a DAC community.	36	Concept	Water Quality, Water Supply, Environmental, Community
Candlewood Storm Drainage System Upgrade	City of Riverbank	Construct new storm outfall in Candlewood system to reduce flooding and to filter water.	35	Concept	Water Quality, Flood Management, Community
Various Storm Water Pipeline Rehabilitation projects	City of Riverbank	Repair, upsize and/or construct new storm drain lines to reduce existing flood areas.	35	Concept	Water Quality, Flood Management
Airport Neighborhood Urban Greening Project	Stanislaus County	Stanislaus County received a grant from the Strategic Growth Council to develop the Airport Neighborhood Urban Greening Plan. The objective of the Plan is to reduce the carbon footprint by creating a plan for native plantings, storm drain study, and non-vehicular paths and trails with low-impact development (LID). The Plan is currently under development. This Project consists of implementing the projects identified in the Plan which could include, but are not limited to: improvement of roadways and pedestrian pathways including stormwater management technology, such as bioretention swales, permeable concrete and LID methods.	34	Concept	Water Quality, Water Supply, Environmental, Community
San Joaquin Riverfront Park Project	City of Patterson	Creation of a riverfront park, recreational trail and enhanced habitat along the western bank of the San Joaquin River between Old Las Palmas Avenue and Eucalyptus Avenue.	34	Concept	Flood Management, Environmental, Community
Various Storm Water Basin and Outfall Projects	City of Riverbank	Rehabilitate, filter and provide ground water recharge at various storm water basins and outfalls.	34	Concept	Water Quality, Water Supply, Flood Management
Storm Filter Installation Projects	City of Riverbank	Add storm drainage filters to existing drain inlets, provide regional storm water filtering prior to discharge.	32	Concept	Water Quality, Flood Management, Community
Patterson Green Alley Retrofit Project	City of Patterson	The proposed project consists of retrofitting 55 existing public alleyways (approximately 530,200 square feet) located in the city's historic downtown. The alleys would be converted to green alleys to provide multiple benefits that include stormwater LID, flood mitigation, water quality, increasing esthetic & property values and many other benefits.	32	Concept	Water Quality, Water Supply, Flood Management, Community



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Salado Creek Landscape and Pedestrian Path Project	City of Patterson	Salado Creek Landscape and Pedestrian Path Project	32	Concept	Water Supply, Flood Management, Environmental, Community
Safreno Park Storm Drainage System Upgrades	City of Riverbank	Provide ground water recharge, filter water and connect to MID canal.	31	Concept	Water Quality, Flood Management, Community
Castleberg Storm Drainage System Upgrades	City of Riverbank	Increase storage capacity, install parallel pipe system ,provide ground water recharge and filter water prior to river discharge.	28	Concept	Water Quality, Flood Management
EWD Diffused Surface Water Project Merced County Dry Creek Project	Eastside Water District	Control local diffused water supply to direct and in-lieu groundwater recharge facilities using existing and enhanced infrastructure. Turlock Irrigation District (TID) and Eastside Water District (EWD) plan to agree on terms for EWD to use TID conveyance facilities to deliver diffused surface water to recharge facilities currently being designed by EWD. The EWD Board of Directors expects between 15,000 and 30,000 AFA of diffused surface water to become available as early as during the 2017-18 rainy season. TID has 49 inlets to its canals that are opened to allow runoff into the canals and protect the canal levees from damage. These locations and many others will be investigated to design groundwater recharge facilities at location where the groundwater Basin can benefit most from this diffused surface water supply. EWD projects include Rouse Lake, Sand Creek, and Mustang Creek, described in the ES IRWM, and the Merced County's Dry Creek Project focused on herein.	28	Concept	Water Supply
Gangi Cannery Site MS4 Compliance	City of Riverbank	Eliminate the cross connection of the cannery site storm drainage system with the sanitary sewer system.	28	Concept	Water Quality, Flood Management
Townsend Avenue storm drainage improvements to reduce repeated flood events.	City of Riverbank	Improve the Townsend Avenue storm drainage system piping, drainage basin and filter water.	28	Concept	Water Quality, Flood Management
City of Riverbank/OID Roselle Avenue Basin Improvements	City of Riverbank	Rehabilitate basin and provide ground water recharge, filter water and transfer ownership from Oakdale Irrigation District to City of Riverbank.	27	Concept	Water Quality, Water Supply, Flood Management
City of Patterson Storm Treatment Compliance Program	City of Patterson	In order to comply with the Trash Amendments, the city of Patterson has chosen Track 1 of the statewide Trash Provisions. Planning efforts will include identifying work that needs to be completed, funded and scheduled. Work is currently expected to include outfall identification, prioritization, BMP selection, preliminary cost estimates and reporting.	26	Concept	Water Quality, Flood Management, Community
Non-Potable Pipeline Connection to WQCF	City of Patterson	Construction of new non-potable pipeline to connect WQCF to the non-potable system to incorporate tertiary treated water. Installation of 7,910 linear feet of new 12 inch pipeline	23	Concept	Water Supply, Community
City of Patterson Zone 3 Storage Tank	City of Patterson	New 1.0 MG storage to meet peak day demands and fire flow for zone 3.	22	Concept	Water Supply, Community
New Tertiary Filtration System at WQCF	City of Patterson	Construct a new tertiary filtration system at the WQCF to produce Title 222 compliant recycled water. This train will divert a portion of the total WQCF flow (roughly 1.5 MGD) for additional treatment and distribution through the city's non-potable system.	22	Concept	Water Quality, Water Supply
Patterson Wellhead Treatment	City of Patterson	Although the MCL has since been rescinded, it is anticipated the SWRCB will approve a new MCL for Chromium 6. If this occurs, all seven of the city's potable wells would be out of compliance. This project would provide wellhead treatment for all of the system's seven (7) wells with either RCF, SBA or WBA technology. A feasibility study was conducted as part of the city's Corrective Action Plan (CAV).	22	Concept	Water Quality, Water Supply, Community



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 Project Description and Scoring Summary Sheet

Project Name	Project Proponent	Project Description	Score	Project Type	Benefit Categories Met
Hydraulic and Channel Migration Studies	Stanislaus County	Two regional studies (mainstream San Joaquin River flood hydraulics and channel migration) and three focused hydraulic studies are needed to better inform flood management in the Mid SJR Region. http://www.midsjrfloodplan.org/projects/hydraulic-and-channel-migration-studies	18	Concept	Flood Management, Environmental
Storm Drainage Enhancements along Salado Creek	City of Patterson	Installation of reinforced concrete pipelines under the California Northern Railroad wooden bridge to improve storm drainage along Salado Creek.	18	Concept	Flood Management, Community
Salado Creek Flood Management and Repair Project	City of Patterson	Widening of Salado Creek from the Delta Mendota Canal to the city limits and repair creek from damaged obtained during flood in February 2017.	16	Concept	Water Quality, Flood Management
F Street / Bryan Groundwater Recharge	City of Oakdale	Install French Drain system at this low point that currently floods during large storms, to help alleviate the flooding and recharge the groundwater.	15	Concept	Water Quality, Water Supply, Flood Management

Appendix B - Detailed Scoring Summary



Stanislaus County Multi-Agency Regional Storm Water Resource Plan
Detailed Scoring Summary

Project Name	Project Proponent	Benefits				Priorities				Implementation			Score (pts)
		Main Benefits (pts)	Main Benefits Quantified (pts)	Additional Benefits (pts)	Additional Benefits Quantified (pts)	Achieves the goals of an existing TMDL (pts)	Reduces pollutant discharges into an Impaired Water Body (pts)	Augments water supply via recharge into a groundwater basin (pts)	Provides a SWRP Main or Additional Benefit to a DAC or an EDA (pts)	Permanent local or regional funding (pts)	Location (public land or existing easement) (pts)	Readiness to proceed (pts)	
Tuolumne River Regional Park	Tuolumne River Regional Park JPA	24	0	16	0	4	2	4	4	4	4	2	64
Modesto Area 2 Stormwater to Sanitary Sewer Cross-Connection Removal Project	City of Modesto	16	8	12	4	0	2	4	4	4	4	2	60
Mustang Creek MAR Project	Eastside Water District	16	8	4	2	0	0	4	4	4	4	6	52
Rouse Lake Managed Aquifer Recharge (MAR) Project	Eastside Water District	20	10	4	2	0	0	4	4	4	4	0	52
Little Salado Creek Groundwater Recharge and Flood Control Basin	Stanislaus County	24	2	10	0	0	2	4	4	0	4	0	50
West Stanislaus Irrigation District Fish Screen Project	West Stanislaus Irrigation District	20	10	0	0	0	0	4	4	4	4	3	49
TRRP - Carpenter Road/West Modesto Flood Management and Park Development	TRRP JPA	24	0	6	0	0	0	4	4	4	4	1	47
Orestimba Creek Recharge and Recovery Project (OCRPP)	Del Puerto Water District	16	6	2	1	0	0	4	0	4	4	4	41
Catherine Everett Park Cross Connection Elimination	City of Modesto	16	0	8	0	0	0	4	4	4	4	1	41
JM Pike Park Cross Connection Elimination	City of Modesto	16	0	8	0	0	0	4	4	4	4	1	41
Empire Community Storm Drainage Plan	Stanislaus County	12	0	4	0	0	2	4	4	4	4	6	40
First Street Basin Rehabilitation	City of Riverbank	12	6	4	1	0	2	4	0	4	4	0	37
F St Storm Pond	City of Waterford	20	0	2	0	0	0	4	4	4	0	0	34
Orestimba Creek Flood Management Project	City of Newman	16	0	2	0	0	0	0	4	4	4	1	31
North Valley Regional Recycled Water Project	City of Turlock on behalf of NVRWP Partners	12	0	2	0	4	2	0	0	4	4	3	31
7th Street Low Impact Development (LID) Storm Drainage Improvements	City of Hughson	8	0	6	0	0	0	4	4	4	4	0	30
7th Street Outfall Rehabilitation	City of Riverbank	8	4	2	1	0	2	0	0	4	4	0	25



Stanislaus County Multi-Agency Regional Storm Water Resource Plan
Detailed Scoring Summary

Project Name	Project Proponent	Benefits				Priorities				Implementation			Score (pts)
		Main Benefits (pts)	Main Benefits Quantified (pts)	Additional Benefits (pts)	Additional Benefits Quantified (pts)	Achieves the goals of an existing TMDL (pts)	Reduces pollutant discharges into an Impaired Water Body (pts)	Augments water supply via recharge into a groundwater basin (pts)	Provides a SWRP Main or Additional Benefit to a DAC or an EDA (pts)	Permanent local or regional funding (pts)	Location (public land or existing easement) (pts)	Readiness to proceed (pts)	
Stormwater Infrastructure and Dual Use Basins for County Islands (DUCs)	Stanislaus County	28	6	12	1	4	2	4	4	4	4	0	69
Airport Neighborhood Stormwater Retention System and Dual Basin/Low Impact Strategies Stormwater Runoff	Tuolumne River Trust	28	0	12	1	4	2	4	4	4	4	0	63
Dry Creek Watershed Detention Reconnaissance Study	Stanislaus County	28	0	8	0	4	2	4	4	4	4	0	58
Stormwater Outfall Capture and Storage Project	City of Modesto	28	0	4	0	4	2	4	4	4	4	0	54
Modesto Urban Stormwater Basin Recharge Enhancement Program	City of Modesto	28	0	2	0	4	2	4	4	4	4	0	52
Tuolumne River Flood Management Feasibility Study	Tuolumne River Regional Park JPA	24	0	6	0	0	0	4	4	4	4	1	47
Eastside Regional Storm Recharge Basin	City of Riverbank	24	0	8	0	0	2	4	0	4	4	0	46
Northeast Storm Drainage Interceptor Project	City of Modesto	24	0	4	0	4	2	4	4	4	0	0	46
Install Storm Drainage Capture and Recharge Systems in Flood-prone Areas	City of Modesto	24	0	4	0	0	0	4	4	4	4	0	44
Newman LID Water Quality and Conservation Project	City of Newman	16	0	8	0	0	0	4	4	4	4	1	41
Borax Ct Storm Basin	City of Waterford	16	0	4	0	0	0	4	4	4	4	0	36
Dry Well Rehabilitation, Rejuvenation, Reconstruction	City of Waterford	16	0	4	0	0	0	4	4	4	4	0	36
Forrestal Storm Basin	City of Waterford	16	0	4	0	0	0	4	4	4	4	0	36
Gst and Church Storm Basin	City of Waterford	16	0	4	0	0	0	4	4	4	4	0	36
Old Downtown Green Street Improvements	City of Patterson	16	0	6	0	0	2	4	0	4	4	0	36
Patterson Green Street Improvement Project	City of Patterson	16	0	6	0	0	2	4	0	4	4	0	36
Percolation Ponds for Stormwater Capture and Recharge	City of Patterson	20	2	6	0	0	0	4	0	4	0	0	36
Stein Basin	City of Waterford	16	0	4	0	0	0	4	4	4	4	0	36



Stanislaus County Multi-Agency Regional Storm Water Resource Plan
Detailed Scoring Summary

Project Name	Project Proponent	Benefits				Priorities				Implementation			Score (pts)
		Main Benefits (pts)	Main Benefits Quantified (pts)	Additional Benefits (pts)	Additional Benefits Quantified (pts)	Achieves the goals of an existing TMDL (pts)	Reduces pollutant discharges into an Impaired Water Body (pts)	Augments water supply via recharge into a groundwater basin (pts)	Provides a SWRP Main or Additional Benefit to a DAC or an EDA (pts)	Permanent local or regional funding (pts)	Location (public land or existing easement) (pts)	Readiness to proceed (pts)	
Candlewood Storm Drainage System Upgrade	City of Riverbank	12	6	6	1	0	2	0	0	4	4	0	35
Various Storm Water Pipeline Rehabilitation projects	City of Riverbank	12	4	4	1	0	2	4	0	4	4	0	35
Airport Neighborhood Urban Greening Project	Stanislaus County	16	0	10	0	0	0	0	4	0	4	0	34
San Joaquin Riverfront Park Project	City of Patterson	20	0	6	0	0	0	0	0	4	4	0	34
Various Storm Water Basin and Outfall Projects	City of Riverbank	12	4	4	0	0	2	4	0	4	4	0	34
Storm Filter Installation Projects	City of Riverbank	12	4	4	2	0	2	0	0	4	4	0	32
Patterson Green Alley Retrofit Project	City of Patterson	16	0	4	0	0	0	4	0	4	4	0	32
Salado Creek Landscape and Pedestrian Path Project	City of Patterson	12	0	6	0	0	2	4	0	4	4	0	32
Safreno Park Storm Drainage System Upgrades	City of Riverbank	8	4	4	1	0	2	4	0	4	4	0	31
Castleberg Storm Drainage System Upgrades	City of Riverbank	8	4	2	0	0	2	4	0	4	4	0	28
EWD Diffused Surface Water Project Merced County Dry Creek Project	Eastside Water District	8	4	2	1	0	0	4	4	4	0	1	28
Gangi Cannery Site MS4 Compliance	City of Riverbank	8	0	6	0	0	2	4	0	4	4	0	28
Townsend Avenue storm drainage improvements to reduce repeated flood events.	City of Riverbank	8	4	2	0	0	2	4	0	4	4	0	28
City of Riverbank/OID Roselle Avenue Basin Improvements	City of Riverbank	12	6	2	1	0	2	4	0	0	0	0	27
City of Patterson Storm Treatment Compliance Program	City of Patterson	12	0	4	0	0	2	0	0	4	4	0	26
Non-Potable Pipeline Connection to WQCF	City of Patterson	12	0	2	0	0	0	0	0	4	4	1	23
City of Patterson Zone 3 Storage Tank	City of Patterson	12	0	2	0	0	0	0	0	4	4	0	22



Stanislaus County Multi-Agency Regional Storm Water Resource Plan
Detailed Scoring Summary

Project Name	Project Proponent	Benefits				Priorities				Implementation			Score (pts)
		Main Benefits (pts)	Main Benefits Quantified (pts)	Additional Benefits (pts)	Additional Benefits Quantified (pts)	Achieves the goals of an existing TMDL (pts)	Reduces pollutant discharges into an Impaired Water Body (pts)	Augments water supply via recharge into a groundwater basin (pts)	Provides a SWRP Main or Additional Benefit to a DAC or an EDA (pts)	Permanent local or regional funding (pts)	Location (public land or existing easement) (pts)	Readiness to proceed (pts)	
New Tertiary Filtration System at WQCF	City of Patterson	12	0	2	0	0	0	0	0	4	4	0	22
Patterson Wellhead Treatment	City of Patterson	12	0	2	0	0	0	0	0	4	4	0	22
Hydraulic and Channel Migration Studies	Stanislaus County	8	0	2	0	0	0	0	4	0	4	0	18
Storm Drainage Enhancements along Salado Creek	City of Patterson	8	0	2	0	0	0	0	0	4	4	0	18
Salado Creek Flood Management and Repair Project	City of Patterson	8	0	4	0	0	0	0	0	0	4	0	16
F Street / Bryan Groundwater Recharge	City of Oakdale	12	0	2	0	0	0	0	0	0	0	1	15

Appendix C - Benefits Quantification Summary Sheet



Stanislaus County Multi-Agency Regional Storm Water Resource Plan
Benefits Quantification Summary Sheet

		Project Stage		
		Conceptual	Ready to Proceed	Total
Water Quality Benefits				
Quantified benefits	Reduction in TSS loading (lbs/yr)	204,100	750	204,850
	Trash removed (lbs/yr)	5,100	100	5,200
	Volume of water treated (mgd)	510	10	520
	Volume of runoff infiltrated (AFY)	2,582	3,042	5,624
Project counts	<i>Number of projects providing increased filtration and/or treatment of runoff</i>	29	13	42
	<i>Number of projects providing water treatment</i>	2	1	3
	<i>Number of projects providing runoff infiltration</i>	2	2	4
	<i>Number of projects providing nonpoint source pollution control</i>	13	5	18
	<i>Number of projects reestablishing natural water drainage and treatment</i>	9	3	12
Water Supply Benefits				
Quantified benefits	Increase in water supply through direct groundwater recharge (AFY)	19,332	19,542	38,874
	Increase in water supply through direct use (AFY)	2,572	101,000	103,572
	Increase in water supply through in lieu recharge/conjunctive use (AFY)	15,000	10,000	25,000
	Reduction in water use (AFY)	-	240	240
Project counts	<i>Number of projects improving water supply reliability</i>	28	14	42
	<i>Number of projects providing conjunctive use</i>	8	5	13
	<i>Number of projects providing water conservation</i>	9	4	13
Flood Management Benefits				
Quantified benefits	Reduction in peak flow discharge (cfs)	145	2,685	2,830
	Reduction in volume of potential flood water (AFY)	2,662	25,052	27,714
	Reduction in sewer overflow volumes (AFY)	7	-	7
Project counts	<i>Number of projects that decrease flood risk by reducing runoff rate and/or volume</i>	27	11	38
	<i>Number of projects reducing sanitary sewer overflows</i>	15	7	22
Environmental Benefits				
Quantified benefits	Habitat protected or improved (acres)	50	3,513	3,563
	Instream flow rate improvement (cfs)	65	15	80
	Energy consumption reduced (KWH/year)	525,000	997,500	1,522,500
	GHG emissions reduced (tons/year)	391	743	1,134
Project counts	<i>Number of projects providing environmental habitat protection and improvement</i>	14	9	23
	<i>Number of projects increasing urban green space</i>	20	3	23
	<i>Number of projects providing reduced energy use</i>	7	6	13
	<i>Number of projects contributing to reestablishment of natural hydrograph</i>	3	3	6
	<i>Number of projects providing water temperature improvements</i>	1	1	2



Stanislaus County Multi-Agency Regional Storm Water Resource Plan
Benefits Quantification Summary Sheet

		<i>Project Stage</i>		Total
		Conceptual	Ready to Proceed	
Community Benefits				
Quantified benefits	Number of employment opportunities provided	-	4	4
	Participants per year	62	200	262
	Number of outreach materials provided or events conducted	-	27	27
	Estimated visits per year	20,250	10,200	30,450
Project counts	<i>Number of projects providing employment opportunities</i>	13	6	19
	<i>Number of projects providing public education</i>	22	10	32
	<i>Number of projects providing community involvement</i>	16	8	24
	<i>Number of projects that enhance and/or create recreational and public use areas</i>	22	10	32