Volume II - Appendices

Westside Sacramento
Integrated Regional Water Management Plan Update

WESTSIDE
SAC IRWM

PHOTOS COURTESY OF NAPA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT, SOLANO COUNTY WATER AGENCY, US BUREAU OF RECLAMATION

Kennedy/Jenks Consultants

January 2019

Volume II

List of Appendices

Appendix A

Core Documents

Appendix A.1

Memorandum of Understanding

MEMORANDUM OF UNDERSTANDING
INTEGRATED REGIONAL WATER MANAGEMENT PLAN FOR THE WESTSIDE SUBREGION OF THE PROPOSITION 84 SACRAMENTO RIVER FUNDING AREA

1. PURPOSE

The purpose of this Memorandum of Understanding (MOU) is to document the mutual understanding of the Lake County Watershed Protection District, Napa County Flood Control and Water Conservation District, Colusa County Resource Conservation District, Solano County Water Agency and Water Resources Association of Yolo County (herein after referred to collectively as "Regional Public Agencies") which collectively make up the Westside Subregion of the Proposition 84 Sacramento River Funding Area (Subregion), with respect to their joint efforts towards developing an Integrated Regional Water Management Plan (IRWMP) that will increase regional coordination, collaboration, communication and assist in obtaining funding for IRWMP development, flood management and water related projects. The basis of the designation of Westside Subregion is generally the Putah and Cache Creek watersheds.

2. GOALS

To foster coordination, collaboration and communication between Regional Public Agencies and other Subregion agencies responsible for water-related issues and interested stakeholders to achieve greater efficiencies, to provide for integration of projects, enhance public services and build public support for vital projects.

To assist in the development of a comprehensive plan to facilitate regional cooperation in providing but not limited to water supply reliability, water recycling, water conservation, water quality improvement, storm water capture and management, flood management, wetlands enhancement and creation, and environmental and habitat protection and improvements.

To prepare a planning grant application for the development of a Subregion IRWMP.

3. DEFINITIONS

Agency: A public entity, be it a special district, city, county or other governmental entity, responsible for providing one or more services in the areas of water supply, water quality, wastewater, recycled water, water conservation, storm water/flood control, watershed planning and aquatic habitat protection and restoration.

Integrated Regional Water Management Plan (IRWMP): A plan prepared pursuant to California Water Code Section 10530 et sec. that integrates the projects and management plans of all water-related agencies and stakeholders in a region, in this case the Subregion, in order to foster coordination, collaboration, and communication among those entities and to assist decision-makers in awarding grants and other funding. The IRWMP will address but not be limited to water supply reliability, water recycling, water conservation, water quality improvement, storm water capture and management, flood management, recreation, wetlands enhancement and creation, and environmental and habitat protection and improvements.

Integration: Assembling into one document the water-related management strategies, projects and management plans in the Subregion. Projects and management plans would be categorized and opportunities identified to determine regional benefits of linkages between multiple water management strategies among projects and management plans of separate service functions and to see where projects and management plans of separate service functions may further interrelate, e.g. wastewater treatment and water recycling with habitat restoration.

Management Plan: An agency's or organization's plan, based in part on the land-use plans within the entity's jurisdiction, that addresses how that entity will provide service in the future in one or more of the following service functions: water supply, water quality, wastewater, recycled water, water conservation, storm water/flood control, watershed planning or aquatic habitat protection and restoration.

Projects: A comprehensive list of projects, programs, or polices that address: critical water quality needs of disadvantaged communities within the region, integration with land use planning, water supply reliability, drought preparedness, efficiency of water use and reuse, climate change response, environmental stewardship, recreation, integrated flood management, storm water capture and management, surface water and groundwater management and quality protection, improvement of tribal water and natural resources, and equitable distribution of benefits.

Proposition 84 Lead Applicant/Fiscal Agent: Designated role of entity to serve the purpose of the lead applicant and fiscal agent for the purposes of securing grant funding to develop the IRWMP on behalf of the Westside Subregion.

Stakeholders: Other entities, such as business and organizations, non profit groups, tribes and Public Utility Commission regulated entities interested in ensuring long term water supply, water quality and natural resources.

IRWMP Coordinating Committee: A committee comprised of representatives designated by the signatories of this MOU to work with other Subregions in the Proposition 84 Sacramento River Funding Area and the state to apply for funding for a planning grant and to manage development of an IRWMP for the Westside Subregion.

4. IRWMP DEVELOPMENT PARTICIPANTS

Regional Public Agencies: These are the agencies (Lake County Watershed Protection District, Napa County Flood Control and Water Conservation District, Colusa County Resource Conservation District, Solano County Water Agency and Water Resources Association of Yolo County) that are developing management plans and projects, are responsible to their respective electorates, and are devoting staff to the process, and shall take the lead as described in the "Governance Section" below. These agencies are signatories to this MOU.

Other Public Agencies: Other Public Agencies, which are not Regional Public Agencies (e.g. cities) are invited to participate in the development of the Westside Subregion IRWMP.

Contributing Entities: Stakeholders are considered valuable contributors and shall be invited and encouraged to participate.

Regulatory Agencies: These agencies, such as but not limited to the Central Regional Water Quality Control Board and the Department of Fish and Game, will be invited to participate. If they cannot participate in work meetings, representatives of the committee will keep them advised of planning efforts and project progress and seek guidance as needed.

5. EXISTING IRWMP EFFORTS

Some of the Regional Public Agencies have adopted IRWMPs or equivalent documents that will be used as a foundation for a Subregional IRWMP. They are:

Solano Agencies Integrated Regional Water Management Plan and Strategic Plan (http://www.scwa2.com/UWMP_IRWMP.aspx)

Yolo County Integrated Regional Water Management Plan (http://www.yolowra.org/irwmp_documents.html)

6. MUTUAL UNDERSTANDINGS

Need for a Subregion IRWMP

To foster increased coordination, collaboration and communication between water-related agencies and interested stakeholders that may result in more effectively managed resources, cost efficiencies and better service to the public.

A qualified IRWMP is required by state law for receiving IRWMP implementation grants from Proposition 84 funds and will likely be required for any future state funding programs.

Subject Matter Scope of the IRWMP

An IRWMP needs to include, but may not be necessarily be limited to, water supply, water quality, wastewater, recycled water, water conservation, storm water/flood control, watershed planning, climate change and aquatic habitat protection and restoration. It is acknowledged that the management plans of each individual public agency are based, in part, on the land-use plans within an agency's jurisdiction. Therefore, when developed, the IRWMP will be designed to have incorporated the land-use plans and assumptions intrinsic to the respective water-related service function.

Geographical Scope of the IRWMP

The boundaries of the Westside Subregion of the Proposition 84 Sacramento River Funding Area are shown in the attached map included in Exhibit A.

Governance

The Governing Bodies of the Regional Public Agencies will appoint representatives to an IRWMP Coordinating Committee, hereafter referred to as Coordinating Committee (CC), which will be comprised of one staff representative and an alternate from each of the Regional Public Agencies. The CC will apply on behalf of the Subregion for Proposition 84 grant funding to develop the IRWMP. The CC serves as the governing and decision-making body for the Westside IRWMP Funding Subregion during development of the Plan. The Final IRWMP will be approved by the Governing Bodies of the Regional Public Agencies. Other Public Agencies will also be asked to adopt the Final IRWMP. The completed IRWMP may recommend a different Governance structure for Plan Implementation.

The Yolo County Flood Control and Water Conservation District (YCFCWCD) shall act as the Proposition 84 Lead Applicant/Fiscal Agent during development of the Plan addressing fiscal and contract responsibilities of the Westside Subregion within the purview of this MOU. YCFCWCD has been elected to serve this role by consensus of the CC. The Planning Grant application shall be completed reflecting this relationship and upon grant approval the grant shall be managed reflecting this arrangement.

The CC is responsible for making decisions and taking actions during the development of the Plan including, but not limited to, identifying Plan goals and objectives, prioritizing projects, hiring and managing consultants, and managing funding agreements. Any decisions made by the CC within the Westside Funding Subregion Boundary will be by consensus of all the CC members. Any decisions by the CC shall not cause an increase in expenditures beyond amounts authorized by the Governing Bodies of the Regional Public Agencies in the "Cost Share" provision of this MOU.

The CC will have a Chair and Vice Chair. The Vice Chair assumes duties of the Chair when the Chair is unavailable. In the event the Chair and Vice Chair are unavailable, the two will jointly designate an acting Chair.

Term

This MOU shall take effect upon signature or counter signature of the parties. This MOU shall expire on December 31, 2013 or upon its replacement by a subsequent MOU, Agreement, Joint Powers Authority Agreement, or other instrument. It is expected that the Final IRWMP shall recommend a long-term Westside Subregion governance structure.

Cost Share

The Regional Public Agencies have committed to funding a Proposition 84 Planning Grant application for the purposes of developing a Westside IRWMP.

The Regional Public Agencies agree to a formula for cost share should the Planning Grant application be successful. Based largely on their relative geographic area and population within the Westside Funding Subregion, the local cost share for the development of the IRWMP shall not exceed 28.58% each for Lake County Watershed Protection District, Solano County Water Agency, and Water Resources Association of Yolo County, and shall not exceed 14.29% for Napa County Flood Control and Water Conservation District. The cumulative local cost share shall not exceed $334,000 without amendment to this MOU by the Governing Bodies of the Regional Public Agencies. The $334,000 is the minimum required local cost share of 25% of the IRWMP planning grant of $1,000,000 (total project cost of $1,334,000). Local cost share may include direct funds and in-kind services. The cost share is expected to be expended over three fiscal years (FY 2010-2011 through FY 2012-2013).

Non-binding nature

This document and participation in the development of an IRWMP effort are nonbinding, and in no way suggest that any agency may not continue its own planning and implementation of projects.

Personnel

It is expected that Regional Public Agencies contribute staff time necessary to meet the goals of this MOU.

Reports and communications

Members of the CC will regularly report on the development and status of the Westside Subregion IRWMP to their respective Regional Public Agencies and stakeholders.

Execution

This MOU may be executed in counterparts and the signed counterparts shall constitute a single instrument. The signatories to this MOU represent that they have the authority to bind their respective agency to this MOU.

7. SIGNATORIES TO THE MEMORANDUM OF MUTUAL UNDERSTANDINGS.

We the undersigned representatives of our respective agencies, acknowledge the above as our understanding of the development of an Integrated Regional Water Management Plan for the Westside Subregion of the Sacramento River Funding Area.

____

Mike Reagan, Chairman Solano County Water Agency

____

Bill Marble, Chairman Water Resources Association of Yolo County

____

Bill Dodd, Chairman Napa County Flood Control and Water Conservation District

____

Anthony Farrington, Chairman Lake County Watershed Protection District

____

Jay Dee Garr, Board President Colusa County Resource Conservation District

EXHIBIT A

Map of the Westside Sub-Region of the Sacramento River Funding Area

Appendix A.2

Coordinating Committee Charter

Westside Sacramento Integrated Regional Water Management Plan
Coordinating Committee Charter

This Coordinating Committee Charter is made and entered into as of this 1st day of March, 2012 by the members of the Integrated Regional Water Management Plan Coordinating Committee (CC) representing the Colusa County Resource Conservation District, Lake County Watershed Protection District, Napa County Flood Control and Water Conservation District, Solano County Water Agency, and Water Resources Association of Yolo County:

RECITALS

A. The agencies and association listed above entered into a Memorandum of Understanding (MOU) to develop an Integrated Regional Water Management Plan for the Westside Subregion of the Proposition 84 Sacramento River Funding Area (Westside Subregion)in September 2010. The agencies and association participating in the MOU are referred to collectively as "Regional Public Agencies" within the MOU.

B. The MOU established a Coordinating Committee (CC) to lead the development of an Integrated Regional Water Management Plan for the Westside Subregion.

C. The CC desires to use grant or other funding to supplement the costs of developing the IRWM Plan. As such, the Yolo County Flood Control and Water Conservation District (YCFCWCD), a member of the Water Resources Association of Yolo County, entered into an agreement in October 2011 on behalf of the Regional Public Agencies with the California Department of Water Resources (DWR) for preparation of an Integrated Regional Water Management Plan (IRWM Plan) for the Westside Subregion.

D. After entering into the agreement with DWR the YCFCWCD entered into a consulting services agreement on behalf of the Regional Public Agencies with the Kennedy/Jenks Consultants (Kennedy/Jenks) Consultant Team (Consultant Team) for preparation of the IRWM Plan.

E. The Coordinating Committee desires to engage a broad group of stakeholders from the region in the IRWM Plan development process.

NOW, THEREFORE, the Coordinating Committee members agree as follows:

1. This Coordinating Committee Charter further clarifies the agreements made in the MOU.

2. The Regional Public Agencies shall also be referred to as the Westside Regional Water Management Group (RWMG).

3. The Westside IRWM Plan will be developed by a Project Team with public input. The Project Team includes the technical, public outreach, and facilitation consultants (collectively referred to as the Consultant Team lead by Kennedy/Jenks Consultants) as well as the Coordinating Committee.

4. Representatives of other agencies, nonprofit groups, nongovernmental organizations, government organizations, and the public will be invited to participate as equals during Stakeholder Input Meetings to inform the content of the IRWM Plan. This group of participants will be referred to as the Stakeholder Group. The Project Team will attempt to reach broad agreement with the Stakeholder Group on the final IRWM Plan content. The Project Team will share draft information as it is developed with the Stakeholder Group in public meetings and provide draft documents for review, comment, and discussion. If for some reason broad agreement cannot be reached between the Project Team and the Stakeholder Group related to specific items with a reasonable amount of time and effort, the Consultant Team will request that the Coordinating Committee discuss the item(s) where broad agreement cannot be reached and then vote to direct the Consultant Team on how to proceed. The CC must reach unanimous agreement on decisions brought to a vote.

5. Entities that are not members of the CC are encouraged to participate in the IRWM Plan development process either through the Stakeholder Input Meetings or through review and comment on draft documents. Entities may also choose to contribute funding and/or in-kind services to support the activities of the CC without becoming signatories to the MOU.

6. The CC foresees that it may convene meetings in addition to the regularly scheduled meetings in order to discuss financial or consultant team matters. If the CC convenes without the Consultant Team, the CC Project Manager (Chris Lee) will be responsible for facilitating the meeting and taking notes.

7. Questions, general concerns, or other issues that may arise among the CC during the IRWM Plan development process shall be directed to Chris Lee. Questions or concerns regarding funding and grant administration shall be directed to Max Stevenson.

8. The CC likely will issue a "stop work" notice to the Consultant Team if payment is not received within sixty (60) calendar days of submitting an invoice to DWR. The Consultant Team will be asked to discontinue all work on the development of the IRWM Plan until Notice to Proceed is reissued by the CC.

9. Representatives of the CC shall do the following:

    a. In order to ensure consistent messages are shared regarding the status of the IRWM Planning Process, the CC shall coordinate key messages and timing of updates to be provided to elected officials and boards.

b. The CC members shall each designate a representative to participate with the Consultant Team in preparatory meetings to establish regional and subregional stakeholder meeting agenda's, review preliminary documents, and coordinate on other matters. CC members are not required to attend the preparatory meetings.

c. The CC (as part of the Project Team) shall participate in meetings open to anyone who is interested in participating to discuss draft content prepared by the Project Team, share ideas, and discuss actions taken by the Project Team to develop the IRWM Plan. These meetings will be referred to as Stakeholder Input Meetings and people who attend these meetings will be referred to as the Stakeholder Group. All interested participants will be encouraged to participate in Stakeholder Input Meetings, discuss draft content of the IRWM Plan, and disseminate information from the Stakeholder Input Meetings to the general public. In order to maintain effective meetings, the Stakeholder Group will be asked to follow a Code of Conduct at the Stakeholder Input Meetings to:

   i. Be Willing – I choose to participate fully.

   ii. Be Kind – I choose to treat others with dignity and respect.

   iii. Be Open – I choose to consider new ideas and perspectives,

   iv. Be Truthful – I choose to share accurate facts about my situation.

d. Gather, manage, and compile data as needed during the IRWM Process.

e. Promote regional cooperation among its members to implement the IRWM Plan.

f. Each CC member shall provide and share with other members, all necessary and relevant information, data, studies, and/or documentation in its possession as necessary to further the purposes of this Charter and the MOU.

g. Each CC member agrees to review and comment on draft and final versions of IRWM plan sections and other supporting technical documents within fourteen (14) calendar days from receipt of the draft documents.

h. Each CC member agrees to consider for adoption final versions of the IRWM Plan within sixty (60) calendar days from the date of receipt of the document.

10. The Consultant Team shall manage public information requests and coordinate with the CC members to develop appropriate responses.

11. Changes to this charter can be made from time to time based on mutual agreement.

Patti Turner

Colusa County Resource Conservation District

Lake County Watershed Protection District

Napa County Flood Control and Water Conservation District

Solano County Water Agency

Water Resources Association of Yolo County

Appendix B

Outreach Material

Appendix B.1

Participating Individuals and Organizations

Appendix B.1 Participating Individuals and Organizations

ORGANIZATION, NAME

- Berryessa Trails and Conservation, Carol Kunze
- Big Valley Band of Pomo, Sarah Ryan
- Brown & Caldwell, Gary Lin
- Buckingham Park Water District, Ellen Pearson
- CA Dept. of Water Resources, Julie Haas
- CA Dept. of Water Resources, Kristin Honeycutt
- CA Dept. of Water Resources, Kimberly Johnston-Dodde
- CA DWR/FESSRO, Stefan Lorenzato
- Cache Creek Conservancy, Lynnel Pollock
- City of Clearlake, Joan Phillipe
- City of Davis, Jacques De Bra
- City of Lakeport, Mark Brannigan
- City of Vacaville Public Works, Royce Cunningham
- City of West Sacramento, Dave Shpak
- City of Winters, Cecilia Aguilar-Curry
- City of Winters, Kurt Balasek
- City of Winters, Carol Scianna
- City of Woodland, Bill Marble
- City of Woodland, Greg Meyer
- City of Woodland City Council Member, Skip Davies
- City of Woodland, Public Works Utilites, Mark Cocke
- Clearlake, Doug Herron
- Clearlake Chamber of Commerce, Lisa Wilson
- Clearlake Oaks County Water District, Larry Swift
- Colusa County Agriculture Department, Ben Reische
- Colusa County Agriculture Department, Julie Smith
- Colusa County RCD, Patti Turner
- Cortina Board of Wintun, Brett Matzke
- County of Colusa, Mary Anne Azevedo
- Crescent Bay Improvement Company, Mary Benson
- CVRWQCB, Holly Grover
- Dixon Resource Conservaton District, John Currey
- Dunnigan Water District, Donita Hendrix
- Dunnigan Water District, Gary Schaad
- Eastlake & Westlake Resource Conservation District, Greg Dills
- ESA, Sara Cortez
- ESA Group, Robert Morrow
- floodSAFE Yolo, Fran Borcalli
- Floyd Communications, Kim Floyd
- Golden State Water Company, Keith Ahart
- Habematolel Pomo of Upper Lake, Paula Britton
- Kennedy Modeste Communications, Sarah Modeste
- Kennedy/Jenks Consultants, Sachi Itagaki
- Kennedy/Jenks Consultants, Sarah Laybourne

- Kennedy/Jenks Consultants, Sean Maguire
- Kennedy/Jenks Consultants, Tim Williams
- Kirby Consulting Group, Inc., Ken Kirby
- KPFZ Radio, Jane Taylor
- Lake County, Scott DeLeon
- Lake County Farm Bureau, Claudia Street
- Lake County Water Resources, Gary Hansen
- Lake County Water Resources, Tom Smythe
- League of Women Voters of Woodland, Pat Murray
- Lundorff & Scalmanini Consulting Engineers, Vicki Kretsinger
- McCord Enviornmental, Inc., Stephen McCord
- Napa County, Phil Miller
- Napa County Fld. Dist, Eng. Aid, Leif Bryant
- NHC West Sacramento, Toby Hanes
- NHC West Sacramento, Robert MacAurthur
- Putah Creek Council, Libby Earthman
- Putah Creek Streamkeeper, Rich Marovich
- Reclamation District 2068, Mike Hardesty
- Robinson Rancheria , Dean Rogers
- Rural Community Assistance Corporation (RCAC), John Hamner
- Rural Community Assistance Corporation (RCAC), Karen McBride
- Rural Community Assistance Corporation (RCAC), Sheri Miller
- Scotts Valley Band of Pomo Indians, Irenia Quitiquit
- Scotts Valley Band of Pomo Indians, Lawrence Ray
- Sierra Club - Lake Group, Victoria Brandon
- Solano County Water Agency, Chris Lee
- Solano County Water Agency, David Okita
- Solano irrigation District, Paul Lum
- Solano Land Trust, Ben Waller
- Solano Resource Conservation District, Chris Rose
- Suscol International Council, Charlie Toledo
- Tuleyome, Inc., Bob Schneider
- USFS - Mendocino National Forest, Lee Johnson
- Water Resources Association of Yolo Co., Donna Gentile
- Watershed Information Center & Conservancy of Napa County, Jeff Sharp
- West Yost Associates, Monique Day
- YDWN, Betsy Marchand
- Yocha Dehe Wintan Nation, Emily Reeves
- Yolo County, Jenni King
- Yolo County, Elisa Sabatini
- Yolo County Board of Supervisors, Duane Chamberlain
- Yolo County Flood Control & WCD, Ann Brice
- Yolo County Flood Control & WCD, Tim O'Halloran
- Yolo County Flood Control & WCD, Max Stevenson
- Yolo County Parks & Resources, Cindy Tuttle
- Yolo County Resource Conservation District, Jeanette Wrysinski
- Jo Bennett
- Adam Borchard

- Jim Borchard
- Janet (Betsy) Cawn
- Mark Choce
- Conrad Colbrandt
- Lolita Dunlap
- Mike Dunlap
- Annelle Durham
- Marty Englander
- Marc Fawns
- Harry Lyons
- Joan McKean
- Steve Osgood
- Dave Pratt
- Fran Ransley
- Alice Reece
- Larry Rollins
- Justin Smith
- Maurice Taylor
- Roberto Valdez
- Matt Williams

Appendix B.2

Water or Resource Management Organizations

Appendix B.2: Water or Resource Management Organizations

Table B.2-1 lists identified organizations with water management related responsibilities. An asterisk before the organization name indicates active participation in the IRWM Plan process.

Table B.2-1 Organizations with Water Management Related Responsibilities

Agency Name	Water Supply	Wastewater Management	Flood Control	Other Water Resource Coordination
Colusa County				
*Colusa County Resource Conservation District				X
Lake County				
*Lake County Watershed Protection District			X	X
Callayomi County Water District	X			
Hidden Valley Lake Community Services District	X			
Nice Mutual Water Company	X			
California Water Service Company (Lucerne)	X			
Clearlake Oaks County Water District	X			
*Golden State Water Company	X			
Highlands Water Company	X			
Konocti County Water District	X			
Crescent Bay Improvement Company	X			
Westwind Mobile Home Park	X			
Mt. Konocti Mutual Water Company	X			
Richmond Park Resort	X			
Clearwater Mutual Water Company	X			
Konocti Harbor Resort & Spa	X			
Riviera West Mutual Water Company	X			
Buckingham Park Water District	X			
City of Lakeport	X			
County Service Area 13 - Kono Tayee	X			
Upper Lake CWD	X			
Scotts Valley WCD	X			
County of Lake (North Lakeport)	X			
Lower Lake County Water District	X			
Lake County Special Districts				
County Service Area #2 - Spring Valley	X			
County Service Area #7 - Bonanza Springs	X			
County Service Area #18 – Stairview	X			
County Service Area #22 - Mt Hannah	X			

Agency Name	Water Supply	Wastewater Management	Flood Control	Other Water Resource Coordination
Kelseyville County Waterworks District #3	X			
County Service Area #20 - Soda Bay	X			
County Service Area #16 - Paradise Valley	X			
County Service Area #6 – Finley	X			
County Service Area #20 - State Park	X	X		
Kono Tayee Heights Assessment District 3-3	X	X		
Lands End/Reeves Pt Assessment District 9-1	X	X		
County Service Area #21 - North Lakeport	X			
South Lakeport Assessment District 7-1	X	X		
Nice Assessment District 3-1		X		
Lucerne Assessment District 3-2		X		
Clearlake/Lower Lake Assessment District 1-1 through 1-7		X		
Middleton Assessment District 2-2		X		
South Lakeport Assessment District 9-3		X		
Corinthian Assessment District 9-2		X		
Upper Lake Assessment District 3-4		X		
*East and West Lake Resource Conservation District				X
Napa County				
*Napa County Flood Control and Water Conservation District	X	X		X
*Watershed Information Center & Conservancy of Napa County				X
Spanish Flat Water District	X	X		
Solano County				
*Solano County Water Agency	X		X	X
*City of Vacaville	X	X		
Solano Irrigation District	X			
City of Dixon		X		
California Water Service Company (City of Dixon)				
Dixon-Solano Municipal Water Service				
City of Rio Vista		X		
Maine Prairie Water District				
*Reclamation District 2068				
CA State Prison – Solano				
North Delta Water Agency				X
*Dixon Resource Conservation District				X
*Solano Resource Conservation District				X

Agency Name	Water Supply	Wastewater Management	Flood Control	Other Water Resource Coordination
Yolo County				
*Water Resources Association of Yolo County				X
*City of Davis	X	X		
City of West Sacramento	X	X		
City of Winters	X	X		
*City of Woodland	X	X		
UC Davis	X	X		
Cacheville Community Services District	X			
Esparto Community Services District	X		X	
Knights Landing Community Services District	X			
Madison Community Services District	X			
El Macero County Service Area	X			
North Davis Meadows County Service Area	X			
Wildwing County Service Area	X			
Willowbank County Service Area	X			
*Yolo County Flood Control &Water Conservation District	X		X	X
Colusa Drain Mutual Water Company	X			
Reclamation District 108	X			
Reclamation District 150	X			
Reclamation District 787 (River Garden Farms)	X			
Reclamation District 999	X			
Reclamation District 2035 (Conaway Conservancy)	X			
* Reclamation District 2068	X			
*Dunnigan Water District	X			
Yolo-Zamora Water District	X			
Colusa County Water District	X			
Rumsey Water Users' Association	X			
*Yolo County Resource Conservation District				X
Snowball CSA			X	
Reclamation District 307			X	
Reclamation District 537			X	
Reclamation District 730			X	
Reclamation District 765			X	
Reclamation District 785			X	
Reclamation District 811			X	
Reclamation District 827			X	
Reclamation District 900			X	

Agency Name	Water Supply	Wastewater Management	Flood Control	Other Water Resource Coordination
Reclamation District 1600			X	
Reclamation District 2093			X	
Reclamation District 2120			X	
North Delta Water Agency				X
Capay Water Users' Association				X

* Indicates active participants.

Appendix B.3

Topics for Engagement

Appendix B.3: Topics for Engagement

Topic 1: Team Charter

We believe that one of the most important factors for success of this project throughout the planning process has been to establish and maintain effective working relationships among members of the Coordinating Committee and the Kennedy/Jenks IRWM Planning Team.

Therefore, early in the Plan development process, a charter with the Coordinating Committee that defines how the CC and Kennedy/Jenks IRWM Planning Team will work together throughout the life of the project was developed and signed by the CC. This process included draft goals intended to be accomplished during the planning process (these differ from the IRWM Plan objectives that will set the target for Plan performance, developed later in the process). This charter is located in Appendix A.

Topic 2: Plan Development Process

This topic was intended to:

- Identify the goals of the planning process
- Describe our intended process to develop the IRWM Plan
- Highlight planned engagement venues and target audiences
- Invite participation in the Plan development, including disadvantaged communities (DACs) and California Native American Tribes
- Assess the level of interest in participating in various parts of the Plan development process
- Solicit feedback regarding our intended approach from potentially interested stakeholders
- Refine intended approach as needed based on feedback received

Topic 3: Plan Scope

This topic was intended to:

- Describe the intended content of the IRWM Plan
- Adopt a planning horizon (minimum of 20 years)
- Develop initial IRWM Plan objectives (and discuss whether we intend to prioritize Plan objectives)
- Discuss intent or need for AB 3030 and other relevant compliance

Topic 4: Current Conditions

This topic was intended to:

- Refine Area definition

- Inventory existing Plans and studies that may be useful to inform the current conditions description
- Describe current conditions in terms of demographics, agency boundaries and roles, land use, water supply, water quality, habitat, flood management, invasive species management, etc.
- Develop a current water balance for each Area and the Region as a whole for average and dry years
- Develop other helpful interaction diagrams for Areas for topics such as flood threats, habitat connectivity, potential invasive species migration, etc.
- Identify the topics, locations, and agencies where integration and collaboration appear to be most useful

Topic 5: Future Conditions

This topic was intended to:

- Identify how to characterize potential effects of climate change
- Inventory existing Plans and studies that may be useful to inform the development of the future conditions description
- Describe future conditions (according to the adopted planning horizon) in terms of demographics, agency boundaries and roles, land use, water supply, water quality, habitat, flood management, invasive species management, etc.
- Develop a future water balance for each Area and the Region as a whole for average and dry years
- Develop other helpful interaction diagrams for Areas for topics such as flood threats, habitat connectivity, potential invasive species migration, etc.
- Identify the topics, locations, and agencies where integration and collaboration appear to be most useful

Topic 6: Challenges and Opportunities

This topic was intended to identify challenges and opportunities throughout the Region that fit within the intended scope of the IRWM Plan. We plan to explore these challenges and opportunities from various perspectives including:

- Current
- Future
- Area
- Disadvantaged Communities
- California Native American Tribes
- Delta-specific

Topic 7: Potential Projects

This topic was intended to:

- Develop a template for required project information
- Issue a call for projects that could meet one or more IRWM Plan objectives
- Develop a potential project summary list

Topic 8: Integration

This topic was intended to:

- Characterize potential projects as they relate to DWR's resource management strategies
- Evaluate whether the potential projects address all of the IRWM Plan objectives
- Conduct brainstorming sessions to identify potential new projects or ways to further integrate previously identified potential projects

Topic 9: Benefits and Impacts

This topic was intended to:

- Define the key performance metrics to be used for project evaluation
- Characterize potential benefits according to IRWM Plan objectives (using best available information)
- Characterize potential negative impacts (using best available information) and identify strategies to avoid or mitigate them

Topic 10: Project Selection and Priority

This topic was intended to:

- Establish a process to screen and prioritize projects for inclusion in the IRWM Plan
- Screen and prioritize projects for inclusion in the IRWM Plan

Topic 11: Plan Recommendations

This topic was intended to develop recommendations for action to occur upon adoption of the IRWM Plan. This will include recommended actions related to the prioritized projects and other related actions such as data gathering, further analysis, etc.

Topic 12: Governance

This topic was intended to:

- Describe current governance that was used to guide Plan development
- Develop a method for updating project list and prioritization after the IRWM Plan is adopted
- Make recommendations (as needed) for adjusting governance to manage Plan implementation and updating

Topic 13: Financing

This topic was intended to:

- Estimate required funding to implement the recommended actions
- Identify potential funding sources to implement the recommended actions
- Make recommendations for securing additional funding as needed

Topic 14: Plan Performance and Monitoring

This topic was intended to:

- Identify specific measures of success for the IRWM Plan
- Establish roles and responsibilities for monitoring of progress based on Plan actions
- Discuss approach for long-term data management
- Define a strategy for periodic reporting on Plan performance

Appendix B.4

Stakeholder Meeting Summaries

Kickoff Meeting Summary
Westside Sacramento IRWM Plan
January 25 2012 – Vacaville * February 1 2012– Woodland * February 6 2012 – Clearlake

This meeting summary for the Westside Sacramento IRWM Plan kickoff meetings provides a high level summary of the intent, content covered, and the discussions that occurred during three meetings to start the public engagement process for the development of the Westside Sacramento Integrated Regional Water Management (IRWM) Plan.

Background

The Westside Sacramento Regional Water Management Group (RWMG) was formed by Colusa County Resource Conservation District, Lake County Watershed Protection District, Napa County Flood Control and Water Conservation District, Solano County Water Agency, Water Resources Association of Yolo County with the intent of developing, maintaining, and implementing an IRWM Plan for the Westside Sacramento region.

Each member organization has designated a lead and alternate representative to the Coordinating Committee (CC) to guide the plan development process. The RWMG applied for and was awarded a $1 million planning grant by the Department of Water Resources using Proposition 84 funds to support the development of the Westside Sacramento IRWM Plan. The RWMG retained a consultant team led by Kennedy/Jenks Consultants to assist in engaging the public and preparing the IRWM Plan.

Integrated regional water management is an approach that encourages the consideration and implementation of strategies for the management of water resources across disciplines and jurisdictional boundaries. Integrated regional water management addresses the long-term water management objectives for a region including: the delivery of safe drinking water, protection of water quality, reducing the negative consequences of flooding and supporting a healthy ecosystem.

Meeting Logistics and Intent

The RWMG hosted and the consultant team led three public meetings to engage stakeholders, introduce the proposed IRWM plan development process, outline the expected scope of the IRWM Plan, and invite public input regarding challenges and opportunities to be covered in the IRWM Plan.

The meetings were held as follows:

- Vacaville – 5-7 p.m., January 25, 2012

Kickoff Meeting Summary
Westside Sacramento IRWM Plan
January 25 2012 – Vacaville * February 1 2012– Woodland
*** February 6 2012 – Clearlake**

- Woodland – 5-7 p.m., February 1, 2012
- Clearlake – 5-7 p.m., February 6, 2012

The number of people in attendance at each meeting varied by location and collectively totaled approximately 70 stakeholders (not including the consultant team and members of the RWMG Coordinating Committee). The attendees and their respective affiliations are summarized for each meeting in Appendix A.

Meeting Content
Meeting facilitator Ken Kirby opened the meetings by asking attendees to introduce themselves. Mr. Kirby then provided a general overview of integrated regional water management and planning process, the motivation and context for developing the IRWM Plan, the Westside Sacramento IRWM Plan development approach, and the projected timeline for completion. (See Appendix B for copies of the handouts provided during the meetings and the PowerPoint presentation.)

Mr. Kirby explained that when completed, the IRWM Plan would describe the Westside Region water resources challenges and opportunities. The plan will also describe an approach to addressing those challenges and opportunities. The Plan will support efforts to obtain state and federal grant funding to implement priority projects. State funding sources, including Proposition 84 and 1E, may be awarded as grants to help fund the implementation of projects, programs, and actions that improve water supply reliability and quality; improve flood management practices; and improve environmental conditions and habitat areas.

An important component of the plan development process is the engagement and participation of interested stakeholders, and incorporation of stakeholder input and feedback gathered through the public outreach and engagement process. The consultant team, with guidance from the RWMG Coordinating Committee , will complete an in-depth review of existing water management-related documents, information completed by water agencies, non-governmental organizations, state and federal agencies, cities, and counties within the region.

The information gathered through the document review and public engagement will be synthesized into a compelling plan that meets Proposition 84 guidelines.

Kickoff Meeting Summary
Westside Sacramento IRWM Plan
January 25 2012 – Vacaville * February 1 2012– Woodland * February 6 2012 – Clearlake

The plan will address the following topics:

- Topic 1: Team Charter
- Topic 2: Plan Development Process
- Topic 3: Plan Scope
- Topic 4: Current Conditions
- Topic 5: Future Conditions
- Topic 6: Challenges and Opportunities
- Topic 7: Potential Projects
- Topic 8: Integration
- Topic 9: Benefits and Impacts
- Topic 10: Project Selection and Priority
- Topic 11: Plan Recommendations
- Topic 12: Governance
- Topic 13: Finance
- Topic 14: Plan Performance and Monitoring

Information related to each of these topics will be presented and discussed through an interactive process conducted during a series of stakeholder meetings. Draft plan content will be prepared based on the research and discussion of each topic and then provided for public discussion, review and comment. The draft content will be revised, as needed, based on comments offered and then made available again for review and comment until the content is broadly acceptable. At the end of the planning process, the agreed upon content will be combined into the IRWM Plan for final public review and potential RWMG member agency adoption.

Stakeholder Involvement

During the meeting, attendees were invited to describe water-related challenges and opportunities that they felt should be included in the IRWM Plan. Mr. Kirby explained that these challenges and opportunities would be used to prepare draft Plan Objectives based on the SMART methodology (Specific, Measurable, Attainable, Relevant, and Time-based). (Please see Appendix C for the suggestions received during the kickoff meetings).

Many of the questions asked and discussed during the meetings related to the proposed Plan development process, including timing, how to be involved, and how participant-generated information would be integrated into the Plan. Additionally, many attendees recommended referencing existing documents for the Plan development.

Website
The Westside Sacramento IRWM Plan website (www.WestsideIRWM.com) was launched in advance of the kickoff meetings to provide introductory information and serves as the central repository for all IRWM Plan meeting and public outreach information, plan development content, and key references.

As the Plan development progresses, the website will continue to evolve to include the following:

- Meeting announcements and summaries
- Technical documents and maps
- Hyperlinks to additional outside information
- Plan topics for review and commenting

Notifications
Electronic communication is a cost-effective and timely way to share information and encourage participation among stakeholders.

To date, two notices have been distributed via email. The first announced the process and invited participation in the kickoff meetings. The second announced that the kickoff meeting materials were posted to the project website and that the period for public comment had been extended for one week.

Appendices

A. **Kickoff Meeting Attendees**
B. **Kickoff Meeting Presentation & Handouts**
C. **Stakeholder Suggestions Received Regarding Challenges and Opportunities**

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Westside Kick-off Meeting Attendee List

No.	LAST NAME	FIRST NAME	ORGANIZATION
		Vacaville: 1-25-2012	
1	Cunningham	Royce	City of Vacaville Public Works
2	Aguiar-Curry	Cecilia	City of Winters
3	Balasek	Kurt	City of Winters
4	Currey	John	Dixon Resource Conservation District
5	Itagaki	Sachi	Kennedy/Jenks Consultants
6	Maguire	Sean	Kennedy/Jenks Consultants
7	Williams	Tim	Kennedy/Jenks Consultants
8	Floyd	Kim	Kim Floyd Communications
9	Modeste	Sarah	Kim Floyd Communications
10	Kirby	Ken	Kirby Consulting Group, Inc.
11	McCord	Stephen	McCord Environmental, Inc.
12	Bryant	Leif	Napa County Flood Control & WCD
13	Hanes	Toby	Northwest Hydraulic Consultants
14	MacArthur	Robert	Northwest Hydraulic Consultants
15	Earthman	Libby	Putah Creek Council
16	Lee	Chris	Solano County Water Agency
17	Rose	Chris	Solano Resource Conservation District
		Woodland: 2-1-2012	
18	Lin	Gary	Brown & Caldwell
19	Pollock	Lynnel	Cache Creek Conservancy
20	Haas	Julie	California Department of Water Resources
21	Lorenzato	Stefan	California Department of Water Resources/FESSRO
22	DeBra	Jacques	City of Davis
23	Davies	Skip	City of Woodland
24	Marble	William	City of Woodland
25	Cocke	Mark	City of Woodland Public Works
26	Azevedo	Mary Anne	Colusa County Agriculture Department
27	Reische	Ben	Colusa County Agriculture Department
28	Smith	Julie	Colusa County Agriculture Department
29	Borcalli	Fran	FloodSAFE Yolo
30	Itagaki	Sachi	Kennedy/Jenks Consultants
31	Laybourne	Sarah	Kennedy/Jenks Consultants
32	Maguire	Sean	Kennedy/Jenks Consultants
33	Roy	Emmalynne	Kennedy/Jenks Consultants
34	Williams	Tim	Kennedy/Jenks Consultants
35	Floyd	Kim	Kim Floyd Communications
36	Modeste	Sarah	Kim Floyd Communications
37	Kirby	Ken	Kirby Consulting Group, Inc.
38	Murray	Pat	League of Women Voters of Woodland
39	Kretsinger	Vicki	Lundorff & Scalmanini Consulting Engineers
40	Schneider	Bob	Tuleyome, Inc.
41	Gentile	Donna	Water Resources Association of Yolo County
42	Sharp	Jeff	Watershed Information Center & Conservancy of Napa County
43	Day	Monique	West Yost Associates
44	Chamberlain	Duane	Yolo County
45	King	Jenni	Yolo County
46	Brice	Ann	Yolo County Flood Control & WCD
47	O'Halloran	Tim	Yolo County Flood Control & WCD

Westside Kick-off Meeting Attendee List

No.	LAST NAME	FIRST NAME	ORGANIZATION
48	Stevenson	Max	Yolo County Flood Control & WCD
49	Wrysinski	Jeanette	Yolo County RCD
50	Borchard	Adam	
51	Borchard	Jim	
52	Fawns	Marc	
53	Pratt	Dave	
54	Rollins	Larry	
Clearlake: 2-6-2012			
55	O'Halloran	Tim	Yolo County Flood Control & WCD
56	Ryan	Sarah	Big Valley Band of Pomo
57	Phillipe	Joan	City of Clearlake
58	Dills	Greg	Eastlake & Westlake Resource Conservation District
59	Itigaki	Sachi	Kennedy/Jenks Consultants
60	Maguire	Sean	Kennedy/Jenks Consultants
61	Roy	Emmalynne	Kennedy/Jenks Consultants
62	Modeste	Sarah	Kim Floyd Communications
63	Kirby	Ken	Kirby Consulting Group, Inc.
64	De Leon	Scott	Lake County
65	Hansen	Gary	Lake County
66	Smythe	Tom	Lake County Water Resources
67	Cawn	Janet (Betsy)	Private Citizen
68	Brandon	Victoria	Sierra Club - Lake Group
69	Stevenson	Max	Yolo County Flood Control & WCD
70	Bennett	Jo	
71	Colbrandt	Conrad	
72	Dunlap	Mike	
73	Dunlap	Lolita	
74	Durham	Annelle	
75	Englander	Marty	
76	Lyons	Harry	
77	Osgood	Steve	
78	Overton	Joyce	
79	Ransley	Fran	
80	Reece	Alice	
81	Smith	Justin	
82	Taylor	Maurice	

January 25, 2012– Ulatis Community Center, Vacaville
February 1, 2012 – Heidrick Ag Center, Woodland
February 6, 2012 – Clearlake City Council Chambers, Clearlake
All Meetings from 5 – 7 pm

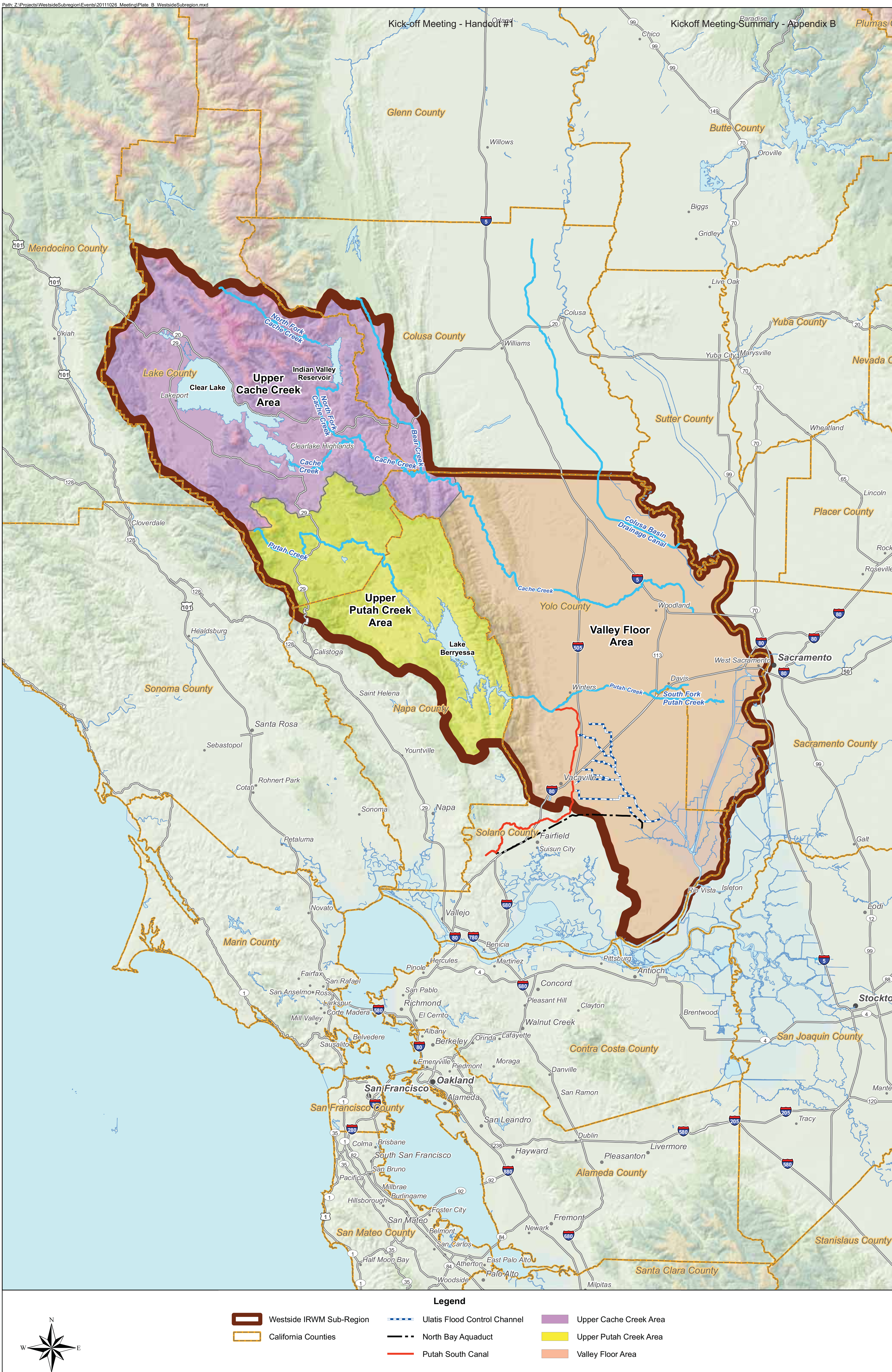
Regional Kick-off Meeting Agenda

1. Welcome and Introductions
2. Why Are We Doing This? (This Meeting and This Plan)
    a. What Are The Problems and Opportunities We Want to Address?
    b. Why Now?
3. Introduction to Integrated Regional Water Management (IRWM)
    a. History of the California IRWM Program
    b. Our IRWM Region and Areas (See Handout #1)
    c. Opportunities to Receive Funding
4. Westside IRWM Planning Process
    a. Meet Sponsors of Planning Process (Coordinating Committee)
    b. Meet Consultant Team
    c. Introduce Proposed Goals for the Process (See Handout #2)
5. Opportunities for You to Participate (See Handout #3)
    a. How We Will Conduct Meetings (Including This One)
    b. Ways to Interact and Provide Input
6. Plan Preparation
    a. Approach for Developing the Plan (See Handout #4)
    b. Schedule (See Handout #5)
    c. Plan Content (See Handout #6)
7. Discuss Goals for the Planning Process (See Handout #2)
8. Brainstorm IRWM Plan Objectives
9. Wrap Up / Action Items
    a. Any Questions?
    b. Please Consider How You Would Like to Be Involved
    c. Thank You!

List of Handouts

1. Region Maps
2. Proposed IRWM Planning Process Goals
3. Opportunities for Involvement
4. Plan Meeting Sequence
5. Schedule
6. IRWM Plan Content (Topics of Engagement)

Westside Sacramento IRWM Sub-Region



Westside Sacramento IRWM Sub-Region

Kick-off Meeting – Handout # 2

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Proposed IRWM Process Planning Goals

1. The plan will help foster a better understanding of the region's water resource challenges, needs, and opportunities through careful consideration of relevant watershed issues.

2. The plan development process will foster collaboration among agencies and stakeholders, and lead to development of effective strategies to address challenges, take advantage of opportunities, and strengthen relationships between affected parties.

3. The plan will provide a useful foundation for ongoing regional water resources efforts and support meaningful integration with and enhancement of County-based IRWMs and other sub-regional planning efforts.

4. The plan will comply with applicable state requirements (Proposition 84) and the legislative intent of the California Water Code. Additionally, the plan will be consistent with the statewide California Water Plan.

5. The plan will be maintained as a living document under a governance structure that supports periodic updates in response to changing conditions. Plan updates will be completed as needed to benefit the region and better position and prepare for implementation grant funding opportunities.

6. The plan will be prepared so as to provide compelling information that supports future efforts to secure available grant funding.

7. The plan will be written and formatted to be engaging, clear, informative, and compelling.

8. Existing data from County-based IRWMs will be used where appropriate to develop the plan.

9. The plan will be developed in a manner that encourages public participation and broad support of the development process and the final plan content.

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Integrated Regional Water Management Plan

Be Involved

in the Westside IRWM Plan!

- Participate in meetings
- Review and comment on draft documents
- Visit Westsideirwm.com
- Register for eNews
- Contact Us!

530-661-8115
info@westsideirwm.com

Kick-off Meeting – Handout # 4

Approach for Developing the Plan - Meeting Sequence

Considering the potential stakeholders and our proposed topics, we have outlined a series of meetings in a recommended sequence that will be key to IRWM Plan development. The description of potential meetings identifies the number of expected meetings, highlights the topics of primary focus in each meeting, the scale of the meeting (Regional or Area), and any special considerations for particular stakeholders.

We intend that Regional meetings will be rotated to different locations within the Region and hosted by various Committee Members, possibly even in partnership with another local agency. Each meeting will be open to all interested stakeholders. At select meetings, we will provide draft sections of the IRWM Plan that include content from the appropriate topics for discussion and review.

Meeting 1: Project Chartering – one meeting with the Coordinating Committee covering Topic 1: Team Charter. (Completed)

Meeting 2: Plan Scoping – one meeting with the Coordinating Committee covering Topic 2: Plan Development Process and Topic 3: Plan Scope. (Completed)

Meeting 3: Project Kick-off – one meeting in three different locations inviting all potentially interested stakeholders covering Topic 2: Plan Development Process and Topic 3: Plan Scope

Meeting 4: Describing Region, Define Challenges and Opportunities, and Refine Plan Objectives – one meeting in three different locations covering Topic 4: Current Conditions, Topic 5: Future Conditions, and Topic 6: Challenges and Opportunities. We will also conduct several additional meetings with interested California Native American Tribes and representatives of disadvantaged communities (DACs).

Meeting 5: Review Region Description, Refine Plan Objectives, and Call for Projects – one Regional meeting (including entire Coordinating Committee) to review draft Region description and challenges and opportunities (Topics 4, 5, and 6), refine Plan objectives (Topic 3), and discuss Topic 7: Potential Projects.

Meeting 6: Discuss Integration and Approach for Project Screening and Prioritization – one Regional meeting (including entire Coordinating Committee) to present a summary list of potential projects (Topic 7), cover Topic 8: Integration, define key performance metrics for project evaluation (Topic 9), and draft a process to screen and prioritize projects (Topic 10).

Meeting 7: Evaluate, Screen, and Prioritize Integrated Projects – one meeting in three different locations to present evaluation results for potential integrated projects (Topics 7, 8, and 9) and begin screening and prioritization of projects (Topic 10). Include specific meetings with Tribes and DAC representatives as needed.

Meeting 8: Refine Projects, Develop Recommendations, and Revisit Governance – one Regional meeting (including entire Coordinating Committee) to refine project screening and prioritization, draft Plan recommendations (Topic 11), and discuss long-term governance (Topic 12).

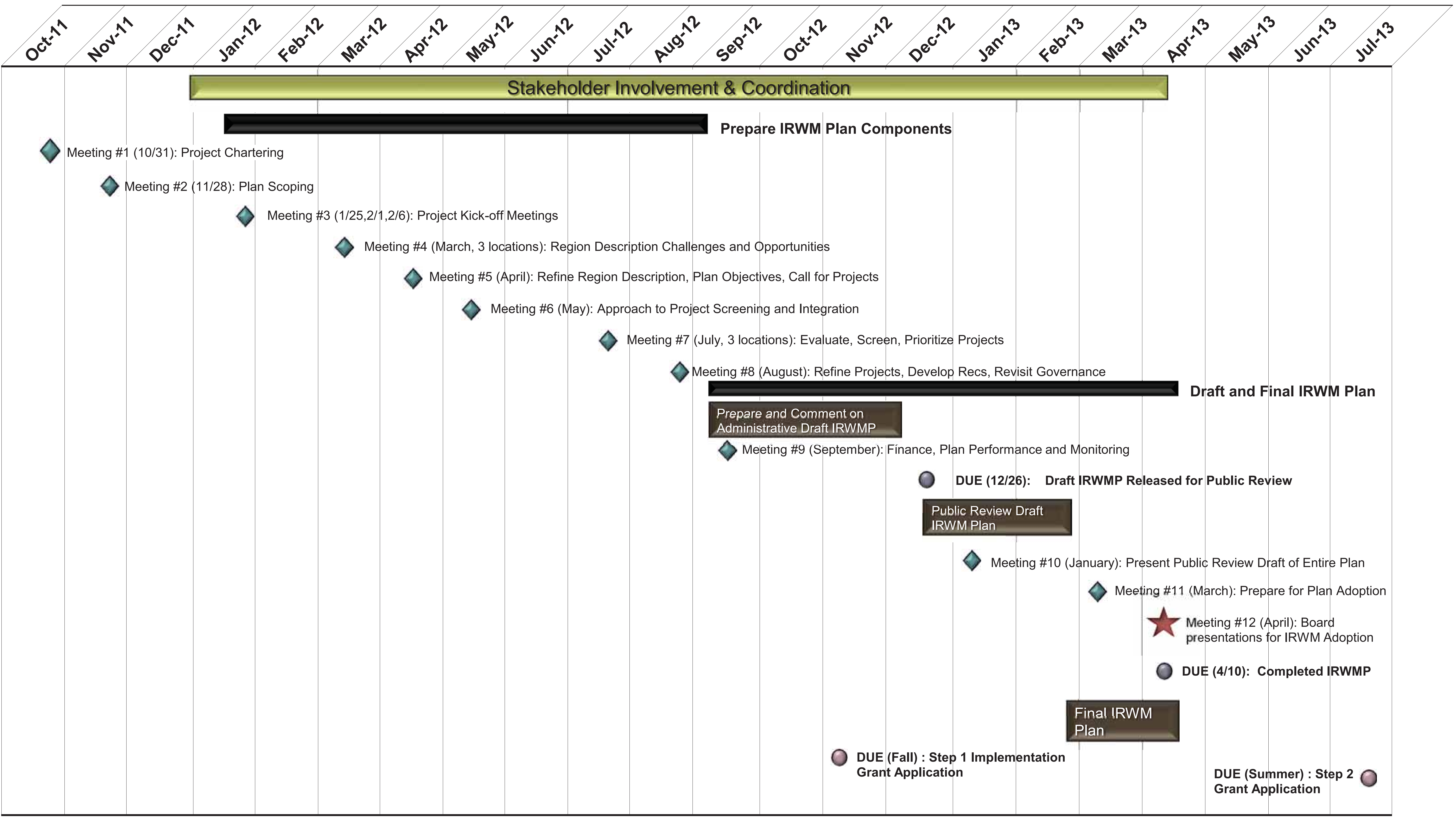
Meeting 9: Finance and Plan Performance and Monitoring – one Regional meeting (including entire Coordinating Committee) to refine items from Topic 12: Governance and cover Topic 13: Finance and Topic 14: Plan Performance and Monitoring.

Meeting 10: Present Public Review Draft of Entire Plan – one Regional meeting (including entire Coordinating Committee) to present a fully assembled draft of IRWM Plan. Highlight new material added beyond previous draft sections that had been previously reviewed.

Meeting 11: Prepare Plan for Adoption – one Regional meeting (including entire Coordinating Committee) for final review and consideration of comments before submitting Plan for adoption.

Meeting 12: Presentations to Governing Boards or Councils for IRWM Plan Adoption –meetings conducted by the agency Coordinating Committee member in each County to present the final IRWM Plan for adoption. (To be done by the Coordinating Committee members.)

Kick-off Meeting - Handout # 5
IRWM Plan Development Schedule



Kick-off Meeting – Handout # 6

IRWM Plan Content (Topics for Engagement)

In order to keep the Plan development process focused and productive, we have identified a set of "topics" to focus on and interact around through the planning process.

These topics include items related to the Plan development process and also include content items defined in DWR's published standards for IRWM Plans (see Proposition 84 & Proposition 1E Integrated Regional Water Management Grant Program Guidelines; August 2010). Table 2 in the DWR Guidelines Document lists 16 standards that must be covered in the IRWM Plan to qualify as an acceptable Plan.

The Topics for Engagement include related items to be covered in one or more stakeholder meetings. Draft Plan content will be prepared based on the discussion of each topic and then provided for review and comment. The draft content will be revised and resubmitted for review and comment until broadly acceptable. The list of topics includes (each of the topics is described in more detail below):

- Topic 1: Team Charter
- Topic 2: Plan Development Process
- Topic 3: Plan Scope
- Topic 4: Current Conditions
- Topic 5: Future Conditions
- Topic 6: Challenges and Opportunities
- Topic 7: Potential Projects
- Topic 8: Integration
- Topic 9: Benefits and Impacts
- Topic 10: Project Selection and Priority
- Topic 11: Plan Recommendations
- Topic 12: Governance
- Topic 13: Finance
- Topic 14: Plan Performance and Monitoring

Topic 1: Team Charter

We believe that one of the most important factors for success of this project will be to establish and maintain effective working relationships among members of the Coordinating Committee and the Kennedy/Jenks IRWM Planning Team.

Kick-off Meeting – Handout # 6

WESTSIDE SAC IRWM

Therefore, early in the Plan development process, we propose to develop and adopt a charter with the Coordinating Committee that defines how we will work together during the life of the project. As part of the chartering process, we will draft goals intended to be accomplished during the planning process (these differ from the IRWM Plan objectives that will set the target for Plan performance to be developed later in the process). We also intend to refine our proposed project approach, if needed.

Topic 2: Plan Development Process

While engaging on this topic we intend to:

- Identify the goals of the planning process
- Describe our intended process to develop the IRWM Plan
- Highlight planned engagement venues and target audiences
- Invite participation in the Plan development, including disadvantaged communities (DACs) and California Native American Tribes
- Assess the level of interest in participating in various parts of the Plan development process
- Solicit feedback regarding our intended approach from potentially interested stakeholders
- Refine intended approach as needed based on feedback received

Topic 3: Plan Scope

While engaging on this topic we intend to:

- Describe the intended content of the IRWM Plan
- Adopt a planning horizon (minimum of 20 years)
- Develop initial IRWM Plan objectives (and discuss whether we intend to prioritize Plan objectives)
- Discuss intent or need for AB 3030 and other relevant compliance

Topic 4: Current Conditions

While engaging on this topic we intend to:

- Refine Area definition
- Inventory existing Plans and studies that may be useful to inform the current conditions description
- Describe current conditions in terms of demographics, agency boundaries and roles, land use, water supply, water quality, habitat, flood management, invasive species management, etc.

- Develop a current water balance for each Area and the Region as a whole for average and dry years
- Develop other helpful interaction diagrams for Areas for topics such as flood threats, habitat connectivity, potential invasive species migration, etc.
- Identify the topics, locations, and agencies where integration and collaboration appear to be most useful

Topic 5: Future Conditions

While engaging on this topic we intend to:

- Identify how to characterize potential effects of climate change
- Inventory existing Plans and studies that may be useful to inform the development of the future conditions description
- Describe future conditions (according to the adopted planning horizon) in terms of demographics, agency boundaries and roles, land use, water supply, water quality, habitat, flood management, invasive species management, etc.
- Develop a future water balance for each Area and the Region as a whole for average and dry years
- Develop other helpful interaction diagrams for Areas for topics such as flood threats, habitat connectivity, potential invasive species migration, etc.
- Identify the topics, locations, and agencies where integration and collaboration appear to be most useful

Topic 6: Challenges and Opportunities

While engaging on this topic we intend to identify challenges and opportunities throughout the Region that fit within the intended scope of the IRWM Plan. We plan to explore these challenges and opportunities from various perspectives including:

- Current
- Future
- Area
- Disadvantaged Communities
- California Native American Tribes
- Delta-specific

We will refine IRWM Plan objectives as part of this topic.

Kick-off Meeting – Handout # 6

Topic 7: Potential Projects

While engaging on this topic we intend to:
- Develop a template for required project information
- Issue a call for projects that could meet one or more IRWM Plan objectives
- Develop a potential project summary list

Topic 8: Integration

While engaging on this topic we intend to:
- Characterize potential projects as they relate to DWR's resource management strategies
- Evaluate whether the potential projects address all of the IRWM Plan objectives
- Conduct brainstorming sessions to identify potential new projects or ways to further integrate previously identified potential projects

Topic 9: Benefits and Impacts

While engaging on this topic we intend to:
- Define the key performance metrics to be used for project evaluation
- Characterize potential benefits according to IRWM Plan objectives (using best available information)
- Characterize potential negative impacts (using best available information) and identify strategies to avoid or mitigate them

Topic 10: Project Selection and Priority

While engaging on this topic we intend to:
- Establish a process to screen and prioritize projects for inclusion in the IRWM Plan
- Screen and prioritize projects for inclusion in the IRWM Plan

Topic 11: Plan Recommendations

While engaging on this topic we plan to develop recommendations for action to occur upon adoption of the IRWM Plan. This will include recommended actions related to the prioritized projects and other related actions such as data gathering, further analysis, etc.

Topic 12: Governance

While engaging on this topic we intend to:
- Describe current governance that was used to guide Plan development

Kick-off Meeting – Handout # 6

- Develop a method for updating project list and prioritization after the IRWM Plan is adopted

- Make recommendations (as needed) for adjusting governance to manage Plan implementation and updating

Topic 13: Financing

While engaging on this topic we intend to:

- Estimate required funding to implement the recommended actions
- Identify potential funding sources to implement the recommended actions
- Make recommendations for securing additional funding as needed

Topic 14: Plan Performance and Monitoring

While engaging on this topic we intend to:

- Identify specific measures of success for the IRWM Plan
- Establish roles and responsibilities for monitoring of progress based on Plan actions
- Discuss approach for long-term data management
- Define a strategy for periodic reporting on Plan performance

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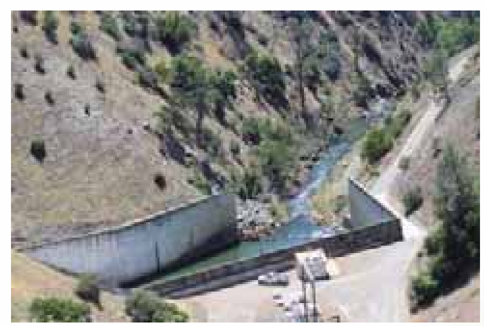
Integrated Regional Water Management Plan

Kick-off Meeting

25 January 2012 – Vacaville
1 February 2012 - Woodland
6 February 2012 - Clearlake



Welcome and Introductions

Why?

Goals of Integrated Regional Water Management (IRWM)

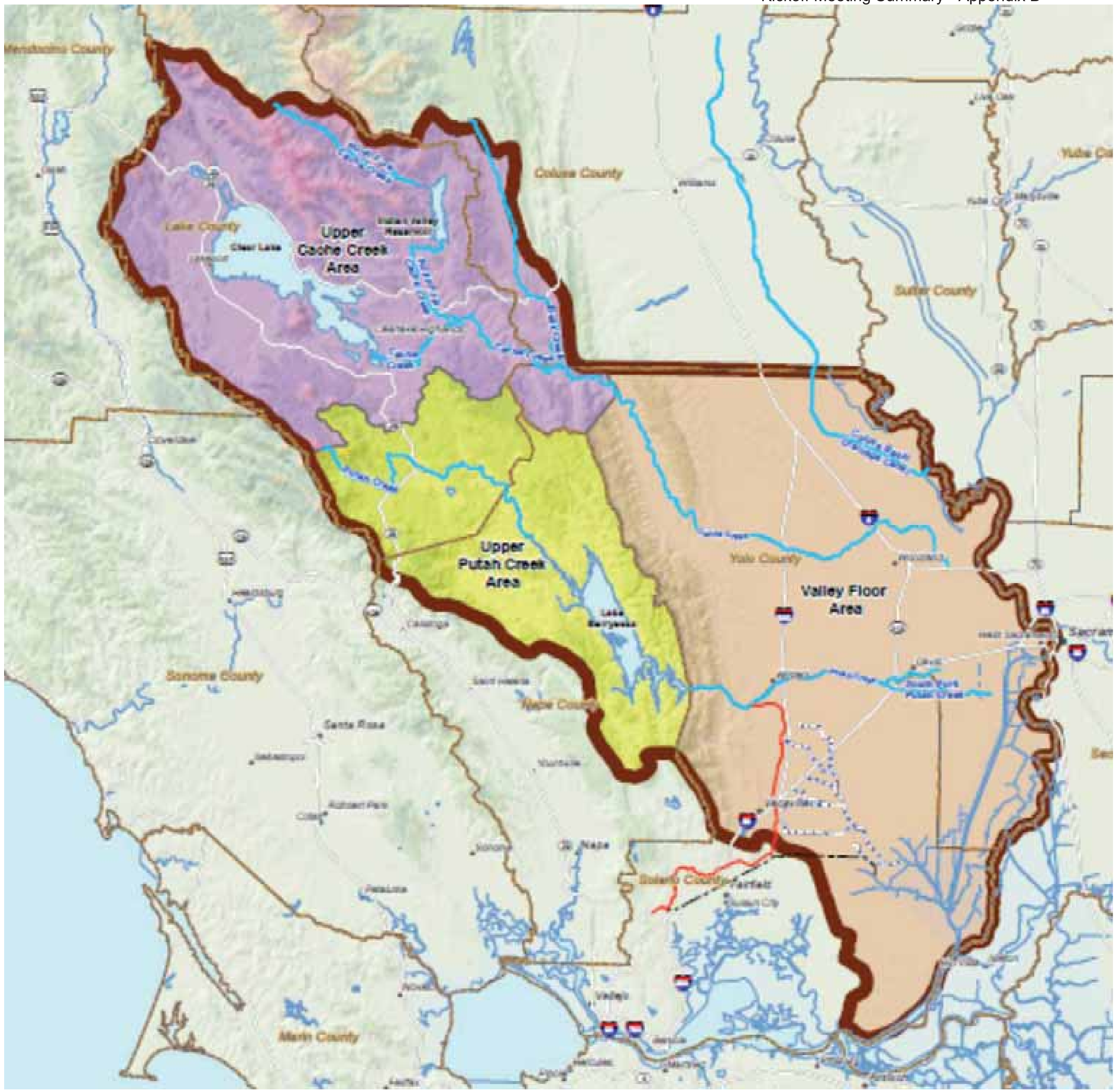
- To encourage integrated regional strategies for management of water resources
- To meet the long term water needs including the delivery of safe drinking water, protection of water quality, reducing the negative consequences of flooding and supporting a healthy ecosystem

History of the IRWM Program

- Prop 13
- Prop 50
- Prop 84
  - Funding areas
- California Water Plan

Westside Region

IRWM Areas


Upper Cache Creek Area
Clear Lake
Lake County
Colusa County
Sutter County
Upper Putah Creek Area
Lake Berryessa
Yolo County
Valley Floor Area
Sonoma County
Napa County
Santa Rosa
Napa
Solano County
Fairfield
Vallejo
Marin County

Westside Sacramento Neighboring IRWM Sub-Regions

Funding Opportunities

- Prop 84 IRWM planning and implementation funds:
  - $1 billion total with $73 million for Sacramento River funding area and $100 million interregional

- Proposition 1E – stormwater flood management
  - $300 million
- Funding match required

Planning Process

Coordinating Committee

Sponsors

- Solano County Water Agency – Chris Lee/David Okita
- Water Resources Association of Yolo County – Jacques Debra/Tim O'Halloran
- Napa County Flood Control and Water Conservation District – Phil Miller/Jeff Sharp
- Lake County Watershed Protection District – Scott DeLeon/Gary Hansen
- Colusa County Resource Conservation District – Patti Turner/Mary Anne Azevedo (Colusa Co Dept of Agriculture)

Consultant Team

Key Planning Team

- Kennedy/Jenks Consultants: Project Management and IRWM Plan Preparation
- Kirby Consulting Group: Facilitator / Strategist
- Kim Floyd Consulting Group: Public Outreach
- Brown & Caldwell: QA/QC

Technical Resource Team

- Summers Engineering: Groundwater / Agricultural Water
- ESA: Environmental Conservation and Restoration
- Northwest Hydraulic Consultants: Flood Management
- Brown & Caldwell: IRWM / Water Resources Management

Proposed Goals for Process

- What we want to accomplish by the time the Plan is complete
- Representative participation and broad support

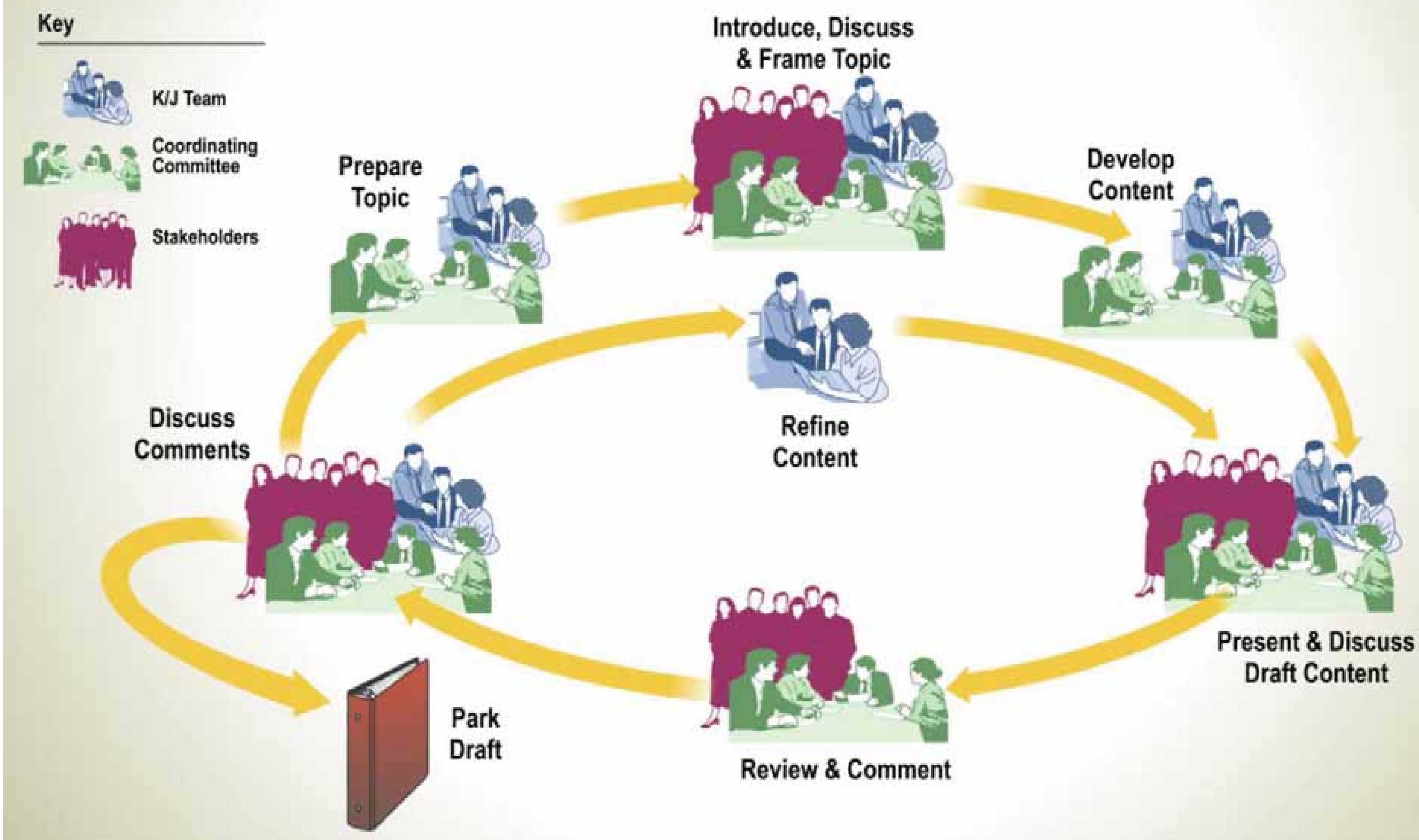
Opportunities to Participate

- How we will conduct meetings
- Ways to interact and provide input

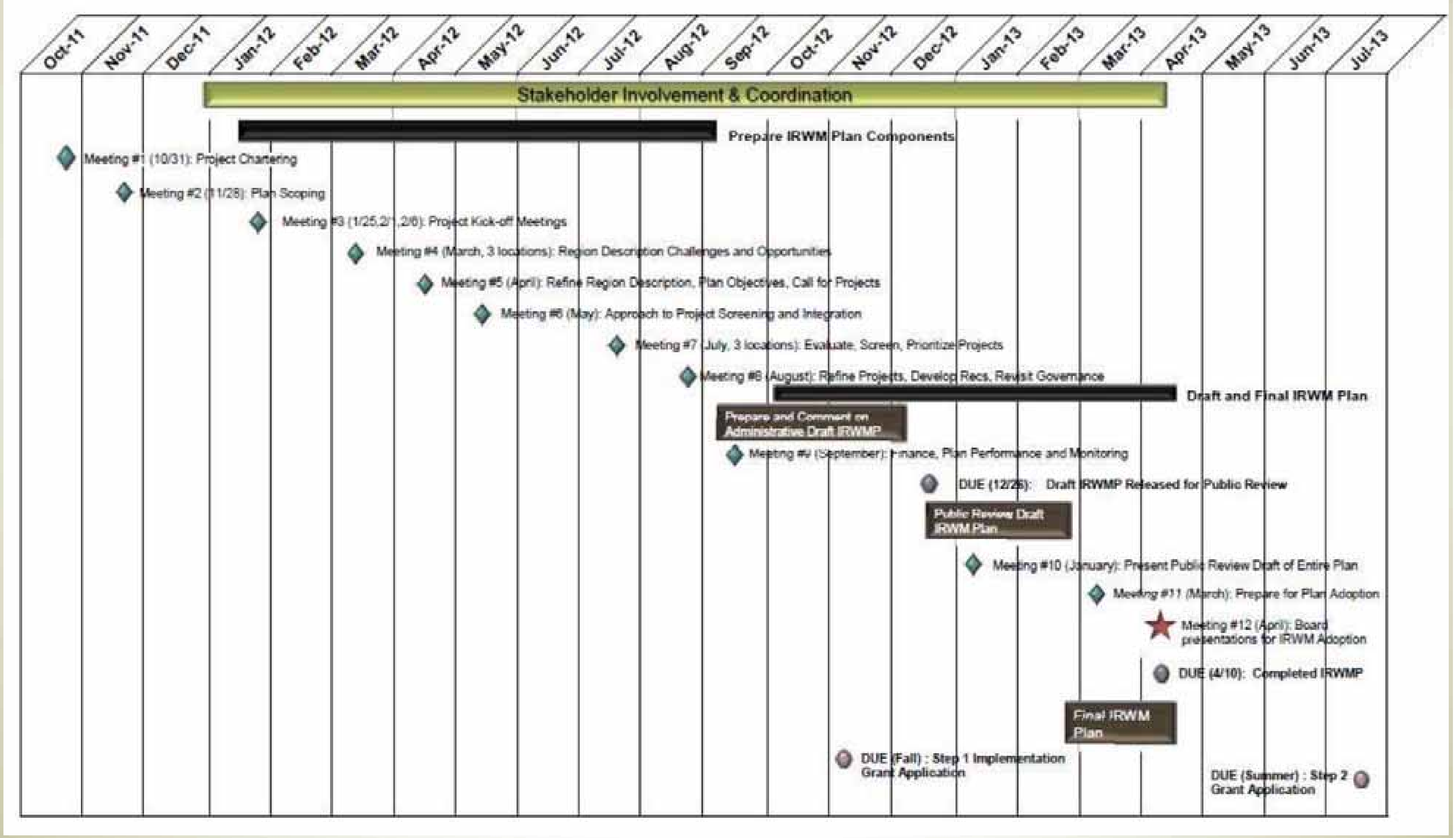
Approach to Develop Our Plan

- Iterative process
- Meetings organized around plan topics
- Simplify complex information to improve understanding
- Write the plan as we go

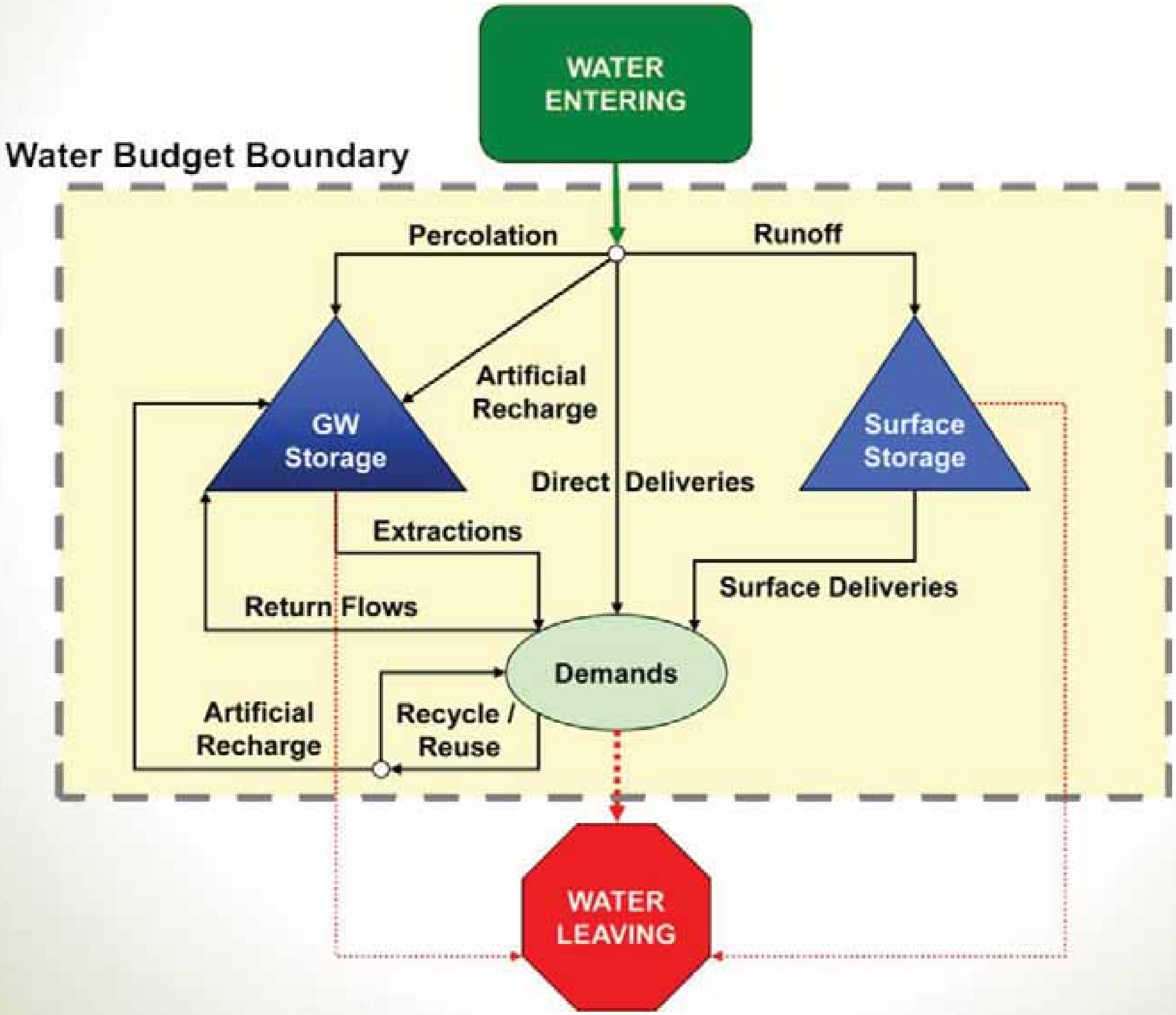
Approach


Key
K/J Team
Coordinating Committee
Stakeholders
Introduce, Discuss & Frame Topic
Prepare Topic
Develop Content
Refine Content
Discuss Comments
Present & Discuss Draft Content
Park Draft
Review & Comment

Plan Preparation Schedule



Data for Understanding



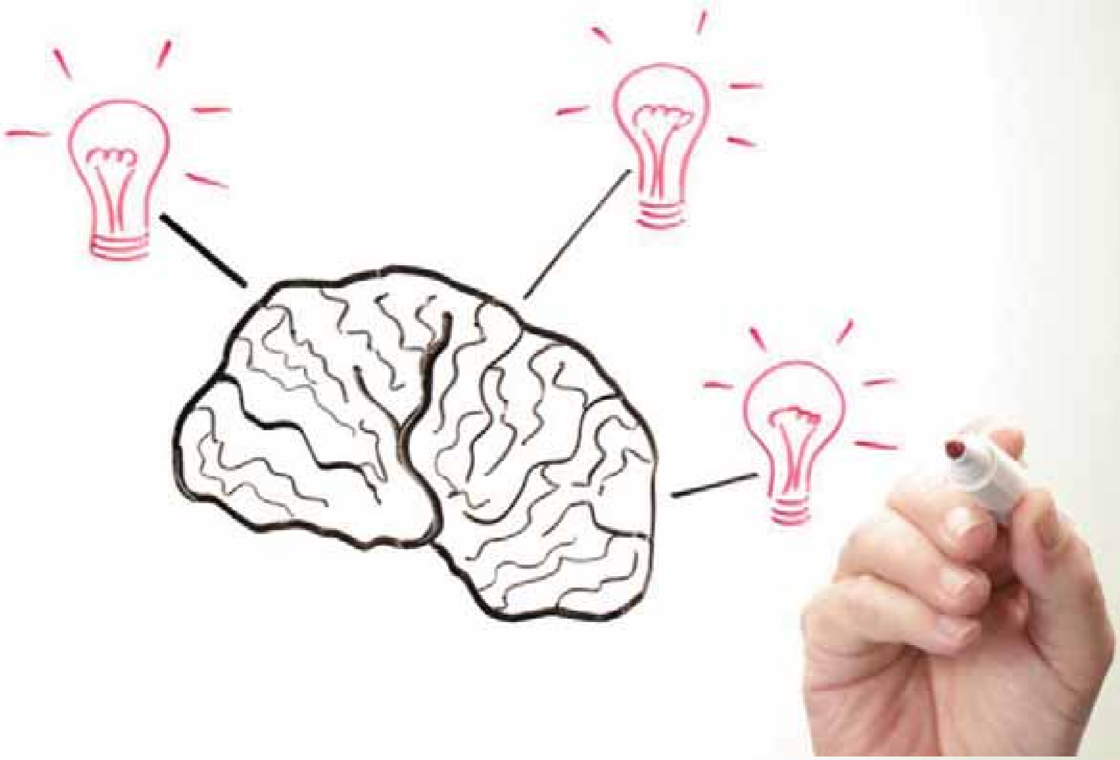
Plan Content

- Planning horizon is to 2030 (20 years)
- Topics covered

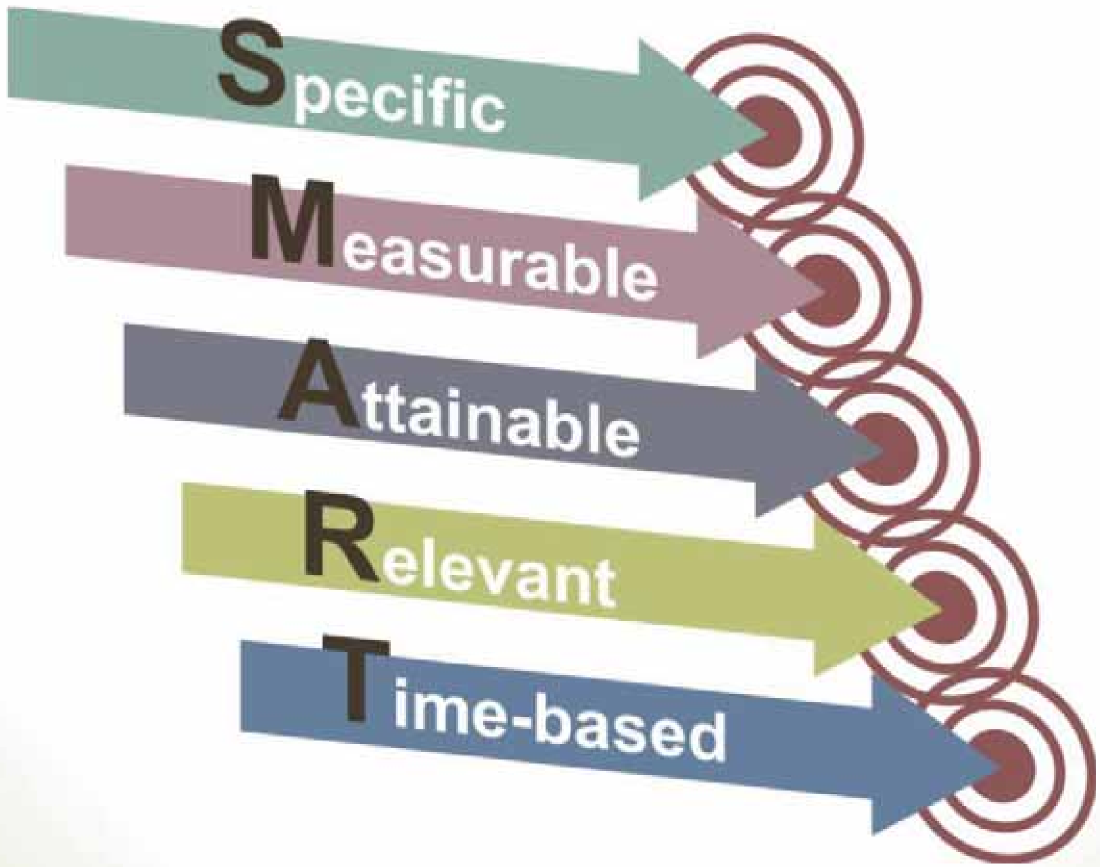
Discuss Goals for Process

Exercise

- Collect ideas about challenges and opportunities



SMART Objectives



Challenges and Opportunities

- Describe items you believe should be addressed in this IRWM Plan
- Write one item (either a challenge or an opportunity) per sticky note
- You can write as many as you want
- Be as specific as possible

Examples

- Meet current and future federal drinking water regulations in all drinking water delivery systems within the region
- Reduce the geographic extent of Tamarisk by X acres
- Reduce the expected annual damages caused by flooding within the region to $X million

What's Next?

- We invite you to stay involved
- Let us know how you plan to participate
- Invite or tell us of others who may want to participate
- Next meeting
  - Describe region
  - Define challenges and opportunities of the region

Questions


THANK
YOU

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Westside Sacramento IRWM Plan

DRAFT Challenges and Opportunities
Collected at Vacaville (1/25) Woodland (2/1) and Clearlake (2/6) Kick-off Meetings

Climate Change
- Explore low-head hydroelectric power opportunities
- Create/modify a groundwater model to be used for future climate change scenarios
- Address climate change's effect on storm runoff
- Increase ability to handle impacts on water supply and flooding due to climate change

Ecosystems
- Improve riparian habitat
  - Attain measureable increase in riparian vegetation
  - X% of un-vegetated stream reaches to be re-vegetated by 20XX
- Incorporate wetland restoration/protection projects
  - Restore Middle Creek Marsh
- Promote conservation
- Attain X% public lands covered by native vegetation
- Address ecological impacts of reservoir management
- Attain measurable increases in Clear Lake Hitch population
- Improve fish survival in the Delta

Invasive Species
- Prevent Quagga/Zebra Mussels from colonizing Clear Lake and improve understanding of water chemistry relating to their over colonization
- Investigate pathways leading to the colonization of invasive species, such as boating access points
- Reduce extent of Ravenna grass by XX acres

Surface Water Quality
- Develop a regional program to reduce sediment in rivers/streams
  - Require XX% of farmed parcels to have a sediment trap
- Algae in Clear Lake
  - Address issue of *cyano* bacteria presence in Clear Lake
  - Eliminate algal blooms in Clear Lake
- Address the affect of dam management on water quality in Clear Lake
- Address water quality impact of grass pollution from illegal marijuana growers within the Region
- Mercury
  - Reduce watershed degradation from abandoned mines
  - Address current mercury clean-up sites contributing to high mercury levels within the Region (including a superfund site)
  - Coordinate with Bay Area for Cache Creek Mercury TMDL
  - Measure methyl mercury levels within Cache Creek
- Address 303(d) Improvement Requirements within the Region
- Reduce introduction of pesticides and herbicides to surface water within the Region
- Address illegal dumping

Groundwater Quality
- Better understand the abundance of anthropogenic vs. naturally occurring Mercury in groundwater within the Region
- Address salt and nitrate in groundwater
- Address Boron in groundwater
- Better understand overall groundwater quality throughout the Region

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Westside Sacramento IRWM Plan

DRAFT Challenges and Opportunities

Collected at Vacaville (1/25) Woodland (2/1) and Clearlake (2/6) Kick-off Meetings

- Better understand sources of salt loading and their correlation with land use throughout the Region
- Evaluate salinity concentration due to reuse throughout the watershed
- Implement a program that address salt and nutrient management planning, coordinated with the CV-Salts program

Drinking Water Quality

- Address issue of attaining secondary MCL for groundwater potable use throughout the Region
- Improve drinking water quality throughout the Region
- Municipal drinking water and rural groundwater needs to meet federal, state, and local drinking water standards.
- Extend specific regulations to provide Safe Drinking Water

Surface Water Supply Management

- Identify a water budget that ensures appropriate water levels to promote beneficial use
- Ensure sufficient water supply within Clear Lake for aquatic species such as the Clear Lake Hitch
- Explore change of Cache Creek Dam management to benefit Lake and Yolo County water supply
- Assure a water supply that is sufficient to supply all beneficial uses within the Region
- Increase water storage capacity to ensure preparedness for extended drought
- Obtain a water supply that meets all state and federal standards for Woodland and Davis
  - Complete intake on the Sacramento River by 2016
  - Address the Sacramento River water supply reliability for the City of Woodland
- Provide water for fisheries, improved salmon runs, and reduced groundwater subsidence through demand management or increased supply.

Groundwater Supply Management and Conjunctive Use

- Identify groundwater budget for each sub basin
- Better understand and identify opportunities for groundwater recharge
- Improve understanding and better utilize groundwater monitoring data
- Develop a groundwater management plan to monitor and control ground subsidence
- Investigate potential conjunctive use
- Establish public disclosure framework for current and future conjunctive use
- Improve understanding of surface water/groundwater interaction

Water/Wastewater Infrastructure

- Maintain and improve infrastructure of water delivery systems within the Region
- Ensure wastewater treatment capacity for rural communities to prevent illicit discharges
- Require update/replacement of septic systems within XX feet of a lake/river/stream
- Develop recycled water programs
- Municipal drinking water and rural groundwater shall meet federal, state, and local drinking water standards

Flood Management

- Develop flood control solutions for specific areas within the Region such as Clear Lake, Woodland, and Cache Creek
- Remove Woodland from 200 year flood plain
- Obtain 200 year flood protection for all urban areas
- Obtain 100 year level of flood protection for Knights Landing, Clarksburg, Yolo, and

Winters
- Improve storm sewer system capacity
- Improve agricultural infrastructure such as installing stock ponds, planting native perennial grass systems, improved culverts, etc.to help with flood control
- Determine/confirm need for the Cache Creek settling Basin
- Start work on the alteration of the settling basin off Highway 5

Delta
- Support area of origin water rights upstream of the Delta
- Establish a public disclosure process in transfers of surface and groundwater supplies outside of the Region (i.e. south of the Delta)
- Provide input to larger processes especially BDCP and State Flood Plan
- Coordinate projects with other key plans and programs such as the CVFPP, BDCP, Natural Heritage Program, and Stream Corridor Plans

Land Management and Use
- Protect agricultural use of the Yolo Bypass
- Protect farmland/working landscapes
- Prioritization of use of urban vs. rural land use
- Support agricultural compliance with agricultural waiver program as requested by SWRCB
- Incorporate federal land management participation for watershed restoration and water quality improvements

Water Dependent Recreation
- Encourage water resource recreation opportunities

Public Education
- Foster greater access to well-written technical and planning information by members of the press, so they can better inform the public
- Encourage more water education throughout the Region
- Improve education for water literacy.

Data Management
- Coordinate foundational actions (e.g. groundwater monitoring) in the Region to improve data quality and share costs
- Make data on a county-based spectrum readily available to allow for input/concerns during the planning process from the general public
- Be aware/mitigate lack of existing data and diversity of data throughout the Region
- Data sharing and tracking of project implementation is a key consideration.

Local Planning/Existing Plans
- Update Clear Lake Basin-Watershed Management Plan to include lower arm of Clear Lake and all sub watersheds
- Assist local agencies with increasing water use fees to support local infrastructure, data collection and optimization
- Implement foundational actions from Yolo IRWMP, 2007
- Use the existing information in the current IRWMPs to the fullest extent possible

Implementation Projects
- Prioritize projects for inclusion in the Proposition 84 implementation grant funding applications

- Develop project implementation and financing plans for actions involving several entities
- Emphasize projects with multiple benefits

IRWMP Organization/Layout

- All program documents created by the planning team should provide data of origin, revision, and revision number on every page
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Westside Sacramento IRWM Plan

DRAFT Challenges and Opportunities

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Meeting #4 Summary
Westside Sacramento IRWM Plan
April 23, 2012 – Woodland * April 24, 2012 – Clearlake

This meeting summary for the Westside Sacramento Integrated Regional Water Management (IRWM) Plan Meeting #4 provides a high level overview of the intent, content covered, and the discussions that occurred during the two meetings.

Meeting #4 Highlights

- Reviewed the current IRWM Plan development schedule
- Described upcoming IRWM-related funding opportunities
- Reviewed the IRWM Plan development process
- Discussed revisions to IRWM Planning Process Goals
- Continued discussion of water-related challenges and opportunities
- Presented information gathered to date regarding the current and future conditions of the region
- Introduced the water balance concept and invited participation in a subcommittee
- Introduced and began developing IRWM Plan Goals and Objectives

Meeting Logistics & Intent

The RWMG hosted public meetings from 1-5 p.m. in Woodland on April 23, and in Clearlake on April 24. The meeting objectives included: review the plan development process, share updates to planning process goals, continue the discussion about challenges and opportunities, introduce draft current and future regional conditions, introduce plan goals and objectives and discuss next steps.

The number of people in attendance at each meeting varied by location and collectively totaled approximately 25 stakeholders (not including the consultant team). The attendees and their respective affiliations are summarized in Appendix A.

Meeting Content

Meeting facilitator Ken Kirby opened by asking attendees to introduce themselves. He then confirmed with attendees that the Kickoff Meeting Summary provided an appropriate level of detail. Attendees from the Woodland and Clearlake meetings confirmed their agreement. The Kickoff Meeting Summary can be viewed at www.WestsideIRWM.com/meetings.

Mr. Kirby added that the planning horizon had been changed from 2031, as presented at the kickoff meetings, to 2035 to meet the 20-year IRWM planning horizon as well as to align with other water planning documents such as Urban Water Management Plans.

Mr. Kirby then provided a review of how content would be presented and discussed during the public engagement meetings. The information gathered during the document review and public engagement process will be synthesized into a compelling plan that meets Proposition 84 guidelines. Draft content will be revised, as needed, based on comments offered and then made available again for review and comment until the content is broadly accepted. At the end of the planning process, the agreed upon content will be combined into the IRWM Plan for final public review and potential RWMG member agency adoption.

The group discussed the timeline for completion of the Plan, which is scheduled for April 2013. One participant questioned about the amount of flexibility in the schedule, and Mr. Kirby responded that completion of the Plan in April 2013 remained the goal in order to complete in time for the next round of possible funding opportunities. Meetings 5, 6 and 7 will be held in June, July and September, respectively. Once meeting dates, locations and times are confirmed, they will be posted to the website and announced via our eNews.

Stakeholder Involvement
The following summarizes the Woodland and Clearlake participant feedback and is organized by handout. Visit www.WestsideIRWM.com/Meetings for copies of the handouts and meeting presentation.

Updates to Planning Process Goals – Handout #2
Participant Comments & Questions:

- *Inserting these extra, more specific statements made the goals somewhat unclear. In goal 2, the original statement covers the objective enough. It's a pretty long sentence now, and it makes it more complicated. Maybe it can be reworded. Goal 3 is good, but it is not necessary to repeat some of the content of other goals in goal 9.*
- *I like goal 3. Everyone has individual water projects and goals. I believe there are approximately 150 water-related entities in our region and goal 3 helps me understand what we are trying to accomplish. Our goal is to work collaboratively.*
- *How does goal 6 fit into the process goals?*
- *Goal 9 should read: Existing data from county-based IRWM Plans and other information relevant to the region will be used where appropriate to develop the Plan.*
- *Suggest including consideration of consistency with statewide planning efforts. For example, there are three statewide documents on invasive species that should be considered.*

Consultant Team Responses:
Mr. Kirby confirmed that the group did not have concerns with the content of the goals, and that they wanted the draft goals to be edited for clarity.

Consultant Team Action Items:

- Review Planning Process Goal 2 to make it more clear.
- Review Planning Process Goal 6 and determine if it is better suited in the Plan goals.
- Update Planning Process Goal 9 as per recommendation.

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Challenges & Opportunities – Handout #3

The challenges and opportunity statements were developed using the more than 100 ideas and comments provided by the kickoff meeting participants. Challenges and opportunities provided in existing county-based IRWM Plans were also included. The consultant team's goal was to narrow the focus without leaving out major themes; many of the comments provided as input were project focused.

One participant asked for clarification about how some of the items appear to be goals for projects, while others appear to be goals in terms of what should be included in the IRWM Plan content. To clarify, this is essentially a list of problems that the Plan will potentially address, or challenges and opportunities. One person's opportunity might be another's challenge.

Another participant asked how the list of challenges and opportunities would be used. The challenges and opportunities, once updated with additional information from participants, will be used within the actual IRWM text to create a compelling regional narrative and to support the development of IRWM Plan objectives.

Participant Comments & Questions:

- *TMDL challenges should include Clear Lake, not just Cache Creek.*
- *Mercury contamination should be included for the entire region, including Lake Berryessa and Putah Creek.*
- *The Valley Floor Planning Area should include mercury TMDL for the Bay Delta.*
- *There are other TMDLs that should be included in addition to mercury, such as nutrients.*
- *Should also look at contamination issues for entire region, not specific to TMDLs*
- *Potential water quality and thermal impacts for Upper Putah and Cache Creek should be included.*
- *Don't see anything referencing the conflict of usage between Lake and Yolo Counties. YCFCWCD has management responsibility; use of water is driven by Yolo County needs not Lake County or Clear Lake ecology needs.*
- *The third bullet under Upper Cache Creek regarding ultramafic soils should also be listed under Upper Putah Creek.*
- *Should include regulatory framework for context and background – and how this has historically inhibited action.*
- *Stormwater quality management and contaminants are not specifically identified and could be included under surface water.*
- *It was difficult to find the handouts on the website.*
- *The list is difficult to talk about without bullet numbers or letters.*
- *On the Lower Valley Floor list, salinity is specially listed, instead it should state*

"constituent of concern" to include all water quality concerns.
- *Groundwater storage/conjunctive use should be listed.*
- *DWR guidelines specifically cite that "conflicts in the region" should be addressed in IRWM plans, so the plan text that describes the challenges and opportunities should also address specific conflicts that occur within the region.*

Consultant Team Responses & Action Items:
- Review documents to identify if it lists TMDLs specific to Upper Putah Creek, or that is not already listed under the entire region.
- Update website to better highlight hyperlinks to information and handouts.
- Review all participant comments to determine inclusion.
- Organize the lists for future meetings with letters or numbers that allow for easier reference, but do not imply prioritization.
- Statements related to TMDLs will be modified and address the entire region.

<u>Plan Outline – Handout #4</u>
The Plan outline describes content that will be included and must comply with Proposition 84 and 1E guidelines.

Participant Comments & Questions:
- *Recreation needs to be added*
- *Agricultural interests should be listed under stakeholders*
- *Add the regulatory context*
- *Check order in which groundwater basins*

Consultant Team Responses & Action Items:
- The team will review and include all recommendations.

<u>Current & Future Conditions of the Region – Handout #5</u>
Handout #5 is the first draft of the current and future conditions information sheets, as they will appear in the Plan. The information is based on a series of maps and corresponding text that discusses a series of topics. During the meetings, participants were led through a discussion of the maps and asked to identify missing or erroneous components. Written comments were also encouraged following the meeting after detailed review.

Population Density – Participant Comments & Questions:
- No comments specifically offered for this item.

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Disadvantaged Communities – Participant Comments & Questions:
- No comments specifically offered for this item.

Land Use – Participant Comments & Questions:
- *What is the definition for rural? The map shows Upper Lake as urban, but that does not appear to be correct. The accuracy of the definition is very important.*
- *Add Lakeport and City of Clearlake general plans on the list of Land Use Plans*
- *Change Clearlake Highland label to Clearlake.*
- *The color of Clear Lake is difficult to see, it would be helpful to change the color*

Land Use – Consultant Team Responses & Action Items:
- Review California Department of Water Resources definition of rural land use and compare to documents to ensure accuracy; make changes as necessary and provide definition with region description.
- Review and add missing general plans to Land Use Plans list
- Make all other changes, as proposed.

Land Management Agencies – Participant Comments & Questions:
- *The City of Woodland, City of Clearlake, and City of Lakeport are incorporated and have general plans; those plans should be added to the list.*
- *The maps and graphics are very well done.*

Land Management Agencies – Consultant Team Responses & Action Items:
- The General Plans for the aforementioned cities will be reviewed and added.

Estimated Applied Water (Average Year) – Participant Comments & Questions:
- *It appears that this is based on earlier population projections, which have been recently reduced due to economic conditions.*
- *As long as the sources are documented, this approach is okay.*
- *The environmental use is not listed, it should be.*
- *The graphic does a good job of showing the low percentage of use in municipal areas as compared to agricultural uses.*

Estimated Applied Water (Average Year) – Consultant Team Responses & Action Items:
- The population projections are based on the most recent SACOG/ABAG and Lake County

estimates, but will be reevaluated to ensure accuracy.

- Most of the environmental water use in the region would not be considered "applied water," (where applied water typically applies to water that is diverted and applied for consumptive uses) so it is not included in this figure. However, it is acknowledged that environmental water use is an important use of water in the region and will be described appropriately.
- The consultant team recognizes that there are a lot of uncertainties in the estimated applied water data, so participation in the water balance subcommittee will be important to help describe the current and expected future conditions. Understanding these elements of the region will be important to evaluate and select projects and provide factual information about why local entities and the State should invest in priority projects for the region.

Estimated Applied Water (Dry Year) – Participant Comments & Questions:

- No comments specifically offered for this item.

Estimated Applied Water (Dry Year) – Consultant Team Responses & Action Items:

- Total acre-feet will be added to the region description table and graphs.

Westside Region Watersheds – Participant Comments & Questions:

- *Remove "Upper" from Cache Creek and Putah Creek labels.*

Westside Region Watersheds – Consultant Team Responses & Action Items:

- Will adjust the maps per the recommendation.

Water Agency Boundaries – Participant Comments & Questions:

- *It appears that Cache Creek may not be shown to connect with the Sacramento River, which happens during wet periods. During dry years, it terminates in Cache Creek Settling Basin. It is hard to tell because there may be another line covering it.*
- *Add Golden State Water Company to the Lake County water agencies; it was previously California Cities, so that can be deleted.*
- *Add three water treatment plants in Lake County – Highlands Water Company, Konacti County Water District, Golden State Water Company (in the City of Clearlake)*
- *Rename map from Water Agency Boundaries to Water Purveyors as a more generic term to include mutual water companies, etc.*
- *Add the diversion structure at Knights Landing.*

- *Solano County Water Agency's boundary includes the entire county, but it currently only delivers water to certain areas within the boundaries.*
- *Yolo County has three water treatment plants along Cache Creek that need to be added.*
- *Reclamation District 108 should be added.*
- *One page 6 of 14, Upper Cache Creek flood infrastructure should be listed.*

Water Agency Boundaries – Consultant Team Responses & Action Items:

- Review map layers to determine how Cache Creek is portrayed in relation to the Yolo Bypass, and how the Bypass is portrayed in relation to the Sacramento River.
- Contact Reclamation District 108 for information regarding the diversion structure at Knights Landing; add to map.
- The Solano County Water Agency boundary will be added to the map.
- Review and implement other suggestions, as appropriate.

Water Supply – Participant Comments & Questions:

- *It would be helpful if a mix of groundwater and surface water use around borders of Clear Lake were shown.*
- *Near Indian Valley Reservoir, the town of Spring Valley uses surface water.*
- *Approximately 80 percent of Yolo County Flood Control & Water Conservation District (YCFCWCD) has a mix of surface and ground water.*
- *The Tehama-Colusa Canal needs to be added.*
- *There are a few discrepancies in Solano County where surface water, not groundwater, is used. This should be corrected.*

Water Supply – Consultant Team Responses & Action Items:

- Contact YCFCWCD regarding locations of surface and groundwater use.
- Review and implement other suggestions, as appropriate.

Water Source – Participant Comments & Questions:

- *Upper Lake watershed should include Rodman Slough.*
- *Where did you find this information?*
- *Who is getting CVP in our region?*

Water Source – Consultant Team Responses & Action Items:

- The information is compiled from the DWR Land Use Surveys (which include available water sources) and other plans prepared in the Westside Region.
- The City of West Sacramento receives CVP.

- Review and implement other suggestions, as appropriate.

Groundwater Basins – Participant Comments & Questions:
- No comments specifically offered for this item.

Surface Water Quality – Participant Comments & Questions:
- *Don't see source reference materials.*
- *Nutrients as a drinking water impairment is listed for Upper Cache Creek, but isn't it also environmental? This is important because recreational water is not treated.*
- *Control of algae toxins from blue-green algae is not included, but should be.*
- *Selenium is not noted as a 303d listed constituent, but the City of Woodland has a wastewater discharge limit for that constituent. Selenium levels in the groundwater do not exceed the drinking water standards. Drinking water standards and wastewater discharge limits are set based on different criteria.*

Surface Water Quality – Consultant Team Responses & Action Items:
- The consultant team will review the alignment of the checked boxes and constituents with Basin Plan Beneficial uses. The consultant team will communicate with Lake County Water Resources for information about the blue-green algae.

Groundwater Quality – Participant Comments & Questions:
- No comments specifically offered for this item.

Westside Region Flooding – Participant Comments & Questions:
- *What are the magenta lines near Vacaville?*
- *It is difficult to see the 100-year flood zones (green) against the agriculture.*
- *Why don't all areas have a 500-year flood event?*

Westside Region Flooding – Consultant Team Responses & Action Items:
- The magenta lines indicate the Ulatis Flood Control Project.
- Research whether 500-year floodplains have been computed throughout the region and whether they are shown properly on the map.
- Review and implement other suggestions, as appropriate.

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Ecosystems – Participant Comments & Questions:

- *Fisheries and waterfowl seem to be missing; can they be added?*
- *How do you identify the waterfowl habitat? How does that fit in, the Pacific flyway? Yolo Basin Foundation and Ducks Unlimited will be really interested in that.*
- *Ducks Unlimited is an excellent GIS resource.*
- *Many creeks and sloughs have riparian habitat benefits. Is that part of the data and not displayed?*

Ecosystems – Consultant Responses & Action Items:

- The riparian habitat is included, but difficult to see on top of the habitats. That will be adjusted.
- Review and implement other suggestions, as appropriate.

Special Status Species – Participant Comments & Questions:

- No comments specifically offered for this item.

Aquatic/Riparian Invasive Species – Participant Comments & Questions:

- *Fisheries and migratory waterfowl need to be added*
- *Blue green algae that release cyanotoxins are not specifically an invasive species but should be listed as an environmental health risk*

Aquatic/Riparian Invasive Species – Consultant Team Responses & Action Items:

- Review and implement suggestions, as appropriate.
- Add discussion re cyanotoxins, despite blue green algae not being an invasive species.

<u>Water Balance – Handout #6</u>

A water balance helps to tell a story of how water is used in the region. It shows how and where water moves throughout the region (and how precisely we can describe that) and can help us quantify challenges and opportunities. It also assists in project formulation and quantification of benefits and impacts. The consultant team invited interested meeting participants to join the water balance subcommittee. The subcommittee will meet via conference call and online meetings four to six times for approximately two hours per meeting.

One participant asked if climate change impacts had been considered. Mr. Kirby responded that the consultant team is working with California Department of Water Resources to determine what is known and understood for the region. The consultant team will include relevant information about climate change in the plan that is as specific as the information available.

Six participants volunteered to serve on the water balance subcommittee.

Draft IRWM Plan Goals & Objectives – Handout #7

Mr. Kirby explained that Handout #7 included draft Plan goals and objectives. One participant asked for clarification on the desired level of detail for the draft Plan goals. Mr. Kirby responded and asked for specific detail as the more specific it is, the more likely it can be implemented.

Goals

The group reviewed the draft goals and provided the following comments:

Goals 1, 2, 7, 8, 9, 10

- There were no comments on these goals, and the groups agreed that they were acceptable as currently written.

Goal 3 – Support more efficient use of water supplies.

- *"Efficient use" is a difficult term as one's efficient use may be viewed as wasteful by someone else. How will we qualify that term?*
- *The Regional Water Quality Control Board's Water Use Dictionary would be a good starting point to determine the definition for "efficient use."*
- *Wouldn't it be helpful to harmonize with the CWP and the goals within?*

The consultant team responded by stating that a definition for "efficient use" will be included in the Plan glossary, and added that the language is consistent with the CWP. Ultimately, the group suggested that the goal could be something like: "Support more efficient use of consumptive water supply." The group agreed that it will need to be revisited.

Goal 4 – Preserve and manage water quality to meet intended uses.

a. **Support consistent and cost effective compliance with all relevant water quality regulations and permits.**

- *Prefer that the goal is stated as: Preserve, improve and manage water quality…*

The group determined that the goal could be: "Preserve, improve and manage water quality to meet intended uses."

Goal 5 – Reduce flood risk (where risk = chance x consequences) in the region.

- *A lot of environmental damage has been done to reduce flooding over the years, should that be considered?*

Mr. Kirby responded that the comment highlights the dilemma of water management, since individual goals can cause negative impacts on one another. That is why the IRWM Plan looks at the goals collectively.

Goal 6 – Protect and enhance biological diversity of native aquatic and riparian species.
   a. Reduce invasive species.

- *Waterfowl and terrestrial species should be included in this statement.*

The consultant team responded by asking if the group wanted to limit species to terrestrial, and the group responded that it did not. Instead the goal will read:
Protect and enhance biological diversity by preserving, enhancing and protecting both native aquatic and upland species and migratory waterfowl.
   a. Prevent, reduce and manage invasive species.

After reviewing and providing feedback on the draft goals, the group suggested additional goals. During this session, the group discussed the difference between goals and objectives. Goals are good things that the IRWM Plan will address, but goals are never completely finished. Objectives can be identified and completed. The group identified the following themes for potential goals:

- Recreation
- Fishing access points
- Increase the number of miles of levees used for hiking and biking

Objectives
The objectives are organized into groups including: Entire Region, Upper Cache Creek Planning Area, Upper Putah Creek Planning Area, and Valley Floor Planning Area. If an objective is listed in the Entire Region list, it is not also included in each of the Planning Areas, and if an objective is listed in a Planning Area then it is specific only to that area.

The group reviewed the draft objectives and provided the following comments:

Objective 1 (Entire Region) – Balance the expected urban supply and demand throughout planning period.

- *Who will determine the "expected"*
- *Can we use a per capita use?*

Mr. Kirby stated that the water balance subcommittee will assist in determining the "expected" amount. The balance is over the long term and in the context of this planning horizon. It is important to be able to point to how we can supply demand, and if we cannot, then how identified projects can meet that demand. Mr. Kirby added that per capita use measurement could be used, but it may not be a reliable indicator for whether balance is achieved. For example, even if urban per capita water use is reduced throughout the region, that does not ensure that overall urban consumption in the region will be reduced. That is because an increase in total water use due to urban population growth could outpace the water savings realized from per capita reductions over the same time period.

Objective 2 (Entire Region) - Reduce urban per capita water use to [fill in details] by 2020 to meet the 20 by 2020 requirements as reported in Urban Water Management Plans.

- *It would be helpful to remove the jargon and use percentages instead of the 20 by 2020 reference.*
- *Many customers are already well below per capita goals set by the State, and reducing water will actually drive up rates to account for fixed costs.*
- *Reducing water in Laverne also needs to address utility of water (i.e. for firefighting and public safety)*

Mr. Kirby stated that the objective would be reworked to remove any jargon and that the 20 percent reduction in water use statewide by the year 2020 are not requirements and the objective will be revised to reflect that they are targets if the stakeholders decide they would like to include and objective of this type.

At the Clearlake meeting, participants developed another objective: Manage Clear Lake to always meet recreational health and safety standards. Examples of this include meeting cyanobacteria and aquatic weed reductions.

At the close of the meeting, Mr. Kirby asked meeting participants to provide any additional comments on the plan goals and to develop additional proposed objectives and email it to the project team at info@WestsideIRWM.com by May 2, 2012 to be included for consideration at the next meeting. Comments received after that date will also be considered for future versions of the IRWM Plan.

What Comes Next?
The IRWM planning process will continue through the summer with three public meetings. The following is a sample of the information that will be presented at the upcoming meetings:

- Water Balance Subcommittee meetings
- Meeting #5 – Vacaville, June 2012
    - Review Draft Region Description
    - Review Revised IRWM Plan Goals and Objectives
    - Present Status Update on development of the Water Balance
    - Issue Call for Projects

- Meeting #6 – Woodland, July 2012
- Meeting #7 – Vacaville & Clearlake, September 2012

Meeting materials will be posted to www.WestsideIRWM.com approximately one week prior to each meeting. Stakeholders are encouraged to review and consider the materials prior to the stakeholder meeting to help facilitate a productive dialogue. Questions can be submitted to info@westsideirwm.com or by calling the project hotline at 530-661-8115.

To view all Westside Sacramento Integrated Regional Water Management planning information, including information from the Kickoff Meeting and Meeting #4, please visit: www.WestsideIRWM.com.

Appendices

A. Meeting #4 Attendees

B. Meeting #4 Presentation & Handouts – due to the size and number of the documents, please visit www.WestsideIRWM.com/meetings

Meeting #4 Summary
Westside Sacramento IRWM Plan
April 23, 2012 – Woodland * April 24, 2012 – Clearlake

Appendix A

No.	LAST NAME	FIRST NAME	ORGANIZATION
Woodland: April 23, 2012			
1	Marchand	Betsy	Yocha Dehe Wintun Nation
2	Hendrix	Doneta	Dunnigan WD
3	Okita	David	Solano County Water Agency
4	Lee	Chris	Solano County Water Agency
5	Rollins	Larry	Community Member
6	Bryant	Leif	Napa Flood Control
7	Turner	Patti	Colusa County Resource Conservation District
8	Reiche	Ben	Colusa County Resource Conservation District
9	Stevenson	Max	Yolo County Flood Control & Water Conservation District
10	Cocke	Mark	City of Woodland
11	Gentile	Donna	Water Resources Association of Yolo County
12	Pratt	Dave	Community Member
13	DeBra	Jacques	City of Davis
14	Floyd	Kim	Kim Floyd Communications
15	Modeste	Sarah	Kim Floyd Communications
16	Kirby	Ken	Kirby Consulting Group, Inc.
17	Itagaki	Sachi	Kennedy/Jenks Consultants
18	Maguire	Sean	Kennedy/Jenks Consultants
19	Cortez	Sara	Environmental Science Associates (ESA)
Clearlake: April 24, 2012			
20	Ahart	Keith	Golden State Water Company
21	Haas	Julie	California Department of Water Resources
22	O'Halloran	Tim	Yolo County Flood Control
23	Hansen	Gary	Lake County Water Resources
24	Cawn	Betsy	
25	Grover	Holly	Central Valley Regional Water Quality Control Board
26	Dills	Greg	Eastlake & Westlake Resource Conservation District
27	Brandon	Victoria	Sierra Club/City Council/Tuleyome
28	Ray	Larry	Upper Putah Creek Stewardship/Scotts Valley Band of Pomo
29	Smythe	Tom	Lake County Water Resources
30	Taylor	Jane	KPFZ Radio

Meeting #4 Summary
Westside Sacramento IRWM Plan
April 23, 2012 – Woodland * April 24, 2012 – Clearlake

No.	LAST NAME	FIRST NAME	ORGANIZATION
31	Taylor	Maurice	Community Member
32	Floyd	Kim	Kim Floyd Communications
33	Modeste	Sarah	Kim Floyd Communications
34	Kirby	Ken	Kirby Consulting Group, Inc.
35	Itagaki	Sachi	Kennedy/Jenks Consultants
36	Maguire	Sean	Kennedy/Jenks Consultants
37	Cortez	Sara	Environmental Science Associates (ESA)

Handout #1 for Meeting #6
Summary of Meeting #5 on June 4, 2012 – Vacaville * Live Video Streaming

This meeting summary for the Westside Sacramento Integrated Regional Water Management (IRWM) Plan Meeting #5 provides a high level overview of the intent, content covered, and the discussions that occurred during the meeting.

Meeting #5 Highlights

- Reviewed Meeting #4 topics and comments received
- Reviewed the current IRWM Plan development schedule
- Provided update from May 23, 2012 Tribal Meeting
- Announced the call for projects
- Reviewed first draft of region description (Section 2)
- Refined Westside IRWM Plan Goals and Objectives

Meeting Logistics & Intent

The RWMG hosted a public meeting from 2-5 p.m. at the Vacaville Public Library – Town Square on June 4, 2012. The meeting was also live webcast for online viewing; following the meeting the meeting video was posted to www.WestsideIRWM.com/meetings for future viewing. The meeting objectives included: review the draft region description (Section 2 of the Plan), review and refine IRWM Plan goals and objectives, present status update on the development of the Plan Water Balance, and initiate the call for projects process.

Approximately 18 people attended the meeting in person and 22 people viewed the meeting live online. Numerous people have also watched the meeting video online following the Vacaville meeting. The attendees and their respective affiliations are summarized in Appendix A.

Meeting Content

Meeting facilitator Ken Kirby opened by asking attendees to introduce themselves. He then stated that 7 individuals provided more than 160 comments on Meeting #4 documents; many of the comments are being addressed within Plan sections. Comments received and the Meeting #4 Summary can be viewed at www.WestsideIRWM.com/meetings.

Mr. Kirby provided an overview of the IRWM Plan schedule and indicated that the plan is scheduled for completion in April 2013.

Following the discussion about the Meeting #4 Summary, Sachi Itagaki provided a recap of a meeting held with eight tribal representatives from six tribes in Lakeport on May 23, 2012. The tribal meeting summary will be posted to the website at www.WestsideIRWM.com/meetings.

Handout #1 for Meeting #6
Summary of Meeting #5 on June 4, 2012 – Vacaville * Live Video Streaming

Call for Projects
Mr. Kirby introduced the call for projects process and reviewed the associated handouts. Projects submitted for inclusion in the Plan should help meet the Plan goals and objectives. At the July 9, 2012 meeting, participants will assist in determining how the submitted projects should be screened and evaluated based on the final Plan goals and objectives. The consultant team is developing an editable form for project submittal, and it will be posted to the website. All forms must be submitted by August 1, 2012 for inclusion.

Several questions were asked relating to the update, or future inclusion, of projects. Mr. Kirby responded that the Plan will include a governance structure to identify how the Plan will be updated; the governance structure will address the project updates, etc. Mr. Kirby also addressed questions relating to future grant applications. He stated that the intent is that the IRWM would submit applications to DWR, and be implemented and managed by individual entities. Additionally, the fiscal agent does not have to be one of the RWMG members. Instead, the fiscal agent can be determined at the time of submission.

The group also discussed the importance of including disadvantaged communities (DACs) and tribes. Mr. Kirby confirmed that the same project submittal form should be used. The Department of Water Resources (DWR) has different cost sharing guidelines for DACs and it would be fiscally beneficial to include a DAC component, if possible.

Currently, DWR has $10.5 million for the Sacramento River Funding Area (which includes the Westside IRWM group as well as the North Sacramento Valley Four County IRWM, Upper Sacramento -McCloud IRWM, American River Basin IRWM, Yuba County IRWM, Upper Feather River IRWM, Upper Pit River IRWM and the Cosumnes, American, Bear, and Yuba IRWM). Additional funding through Proposition 1E is also available for stormwater projects. However, Proposition 1E applications are due in December 2012, which is prior to the completion of the Westside IRWM.

Region Description –Draft Plan Section 2
Sean Maguire led a discussion of the region description, which is the text that will be included in the second section of the Plan. He stated that it was important for the region description to be representative of the region while being compelling and direct.

During the discussion, a participant inquired about the date of the data used to determine crop location information. Mr. Maguire responded that the most recent information accessible was used; the Yolo County information was based on 2008 DWR data. Mr. Kirby also confirmed that the topic headings will satisfy DWR's guidelines, and that any future edits to the region description will be completed using the track changes feature in Word enabling interested parties to quickly review the new information.

Handout #1 for Meeting #6
Summary of Meeting #5 on June 4, 2012 – Vacaville * Live Video Streaming

One participant noted that the region description does not include any information on regulatory guidelines. Mr. Kirby responded that the information will be included in the challenges and opportunities section of the Plan, and that the consultant team will ensure that information is included. The participant also asked if regulatory guidelines would be considered in the prioritization process for the submitted projects. Mr. Kirby responded that it is important that the information is included and will be considered. He added that the screening criteria will be discussed at Meeting #6 on July 9, 2012. Ultimately, participants will decide how much weight is put into each component of the screening criteria.

Refine Plan Objectives

Mr. Kirby reviewed the plan objectives and stated that objectives must be carefully defined to help focus the creation and implementation of the Plan. He stated that objectives tie to goals, which tie to resource management strategies, which eventually tie to projects. He stated that the Plan would likely include approximately 20 objectives.

Mr. Kirby stated that the comments received on the Plan goals and objectives were organized into the following sections: goals, objectives, and project ideas to link the original participant comments with how the comments could apply to these topics. He stated that the majority of comments received to date were more related to project ideas, and not necessarily Plan goals or objectives.

Mr. Kirby asked participants to review the objectives and propose potential qualitative or quantitative measures for the objectives, as DWR requires a measurement for each.

Following Mr. Kirby's review of the Plan objectives, participants broke into small working groups to make suggestions and add additional information to the objectives. Then, the group discussed its recommendations and Mr. Kirby collected the feedback for use in updating the goals and objectives.

At the close of the meeting, Mr. Kirby asked meeting participants to provide any additional comments on the plan goals and to develop additional proposed objectives and email it to the project team at info@WestsideIRWM.com by June 12, 2012 to be included for consideration at the next meeting. Comments received after that date will also be considered for future versions of the IRWM Plan.

What Comes Next?

The IRWM planning process will continue through the summer with three public meetings. The following is a sample of the information that will be presented at the upcoming meetings:

Handout #1 for Meeting #6
Summary of Meeting #5 on June 4, 2012 – Vacaville * Live Video Streaming

- Water Balance Subcommittee meetings
- Meeting #6 – 2-5 p.m. - July 9, 2012 – Woodland Community & Senior Center and Webcast
  - Review and finalize Plan objectives
  - Discuss approach for project screening and integration
- Meeting #7 – 2-5 p.m. - September 17, 2012 - Vacaville Public Library – Town Square
- Meeting #7 – 2-5 p.m. - September 18, 2012 - City of Clearlake Council Chamber

Meeting materials will be posted to www.WestsideIRWM.com approximately one week prior to each meeting. Stakeholders are encouraged to review and consider the materials prior to the stakeholder meeting to help facilitate a productive dialogue. Questions can be submitted to info@westsideirwm.com or by calling the project hotline at 530-661-8115.

To view all Westside Sacramento Integrated Regional Water Management planning information, including information from Meeting #5, please visit: www.WestsideIRWM.com.

Appendices

A. Meeting #5 Attendees

B. Meeting #5 Presentation & Handouts – due to the size and number of the documents, please visit www.WestsideIRWM.com/meetings

WESTSIDE SAC IRWM

Integrated Regional Water Management Plan

Handout #1 for Meeting #6

Summary of Meeting #5 on June 4, 2012 – Vacaville * Live Video Streaming

Appendix A

No.	LAST NAME	FIRST NAME	ORGANIZATION
Vacaville: June 4, 2012			
1	Marchand	Betsy	Yocha Dehe Wintun Nation
2	Hardesty	Mike	RD 2068
3	Okita	David	Solano County Water Agency
4	Lee	Chris	Solano County Water Agency
5	McCord	Stephen	McCord Environmental
6	Smythe	Tom	Lake County Water Resources Department
7	Turner	Patti	Colusa County Resource Conservation District
8	Lorenzato	Stefan	Community Member
9	Stevenson	Max	Yolo County Flood Control & Water Conservation District
10	Sharp	Jeff	Napa County
11	Hansen	Gary	Lake County Water Resources Department
12	Pratt	Dave	Community Member
13	Miller	Sheri	Rural Community Assistance Corp (RCAC)
14	Wrysinski	Jeanette	Yolo County Resource Conservation District
15	Rose	Chris	Solano RCD
16	Ray	Larry	Scotts Valley Band of Pomo
17	Waller	Ben	Solano Land Trust
18	Cunningham	Royce	City of Vacaville
19	Currey	John	Dixon RCD
14	Floyd	Kim	Kim Floyd Communications
15	Modeste	Sarah	Kim Floyd Communications
16	Kirby	Ken	Kirby Consulting Group, Inc.
17	Itagaki	Sachi	Kennedy/Jenks Consultants
18	Maguire	Sean	Kennedy/Jenks Consultants

In addition to the 18 people that attended the meeting in Vacaville, an additional 22 people viewed the meeting live online. The meeting can now be viewed any time at www.WestsideIRWM.com/meetings.

Handout 1
Meeting #6 Summary from
Westside Sacramento IRWM Plan Meeting
July 9, 2012 – Woodland * Video Posted Online

This meeting summary for the Westside Sacramento Integrated Regional Water Management (IRWM) Plan Meeting #6 provides a high level overview of the intent, content covered, and the discussions that occurred during the meeting.

Meeting Logistics & Intent

The RWMG hosted a public meeting from 2-5 p.m. at the Woodland Community & Senior Center on July 9, 2012. The meeting was scheduled for live webcasting, but due to technical difficulties the meeting video was instead posted to www.WestsideIRWM.com/meetings for viewing following the meeting. The meeting objectives included: funding and progress updates, discussion of comments received since Meeting #5, introduction of project screening and prioritization criteria, refine Plan goals and objectives, presentation of draft IRWM Plan sections, discussion of next steps.

Approximately 29 people attended the meeting in person and numerous people viewed the meeting online. The attendees and their respective affiliations are summarized in Appendix A.

Meeting Content

Meeting facilitator Ken Kirby opened by asking attendees to introduce themselves. Mr. Kirby stated that the consultant team received numerous comments on the Meeting #5 document, and the majority related to the Plan goals and objectives. The consultant team has integrated the majority of comments. Comments received and the Meeting #5 Summary can be viewed at www.WestsideIRWM.com/meetings.

Mr. Kirby provided an overview of the IRWM Plan schedule and indicated that the plan is scheduled for completion in April 2013.

Following the discussion about the Meeting #5 Summary, Sachi Itagaki provided an update on funding opportunities; she is monitoring the Central Valley Flood System Conservation Framework draft Proposal Solicitation Packages (PSP), Draft 2012 Proposition 84 and 1E IRWM Guidelines, and Proposition 84 IRWM Round 2 Implementation Proposal Solicitation Packages, and the Proposition 1E Draft Proposal Solicitation Packages for Stormwater Flood Management. She described that the Central Valley Flood System Conservation Framework is an opportunity for funding in addition to the IRWM funding. Grant details can be viewed in the presentation for Meeting #5 at www.WestsideIRWM.com/meetings.

Handout 3 – Project Screening & Prioritization

Mr. Kirby reviewed Handout 3 – Project Screening, Evaluation & Prioritization Criteria document, and guided a discussion of the criteria. A summary of the discussion is as follows:

Handout 1
Meeting #6 Summary from
Westside Sacramento IRWM Plan Meeting
July 9, 2012 – Woodland * Video Posted Online

How will projects and programs be distinguished from one another? The consultant team is considering projects, although that does not mean that it must be a structural project. Instead, the team is looking for discrete types of work, not an ongoing program that may extend over time, or does not include a timeline.

How will projects that are evaluated over time be included? For example, activities that access past work to measure progress. Projects that can be described to meet one of the Plan objectives can be included; all projects will need to have evaluation standards. It is important to submit any project that is important to your organization, even if it is currently at the conceptual level.

Our organization needs a map of all potential mercury sites. How could this critical project be included? This is a perfect example of a project that needs to be implemented and could be highly ranked in the Plan, especially since this is a critical path item. A project that sets the stage for future work would be a good example.

How could DACs complete the necessary work to qualify a project if the organization does not have the ability to do so on its own? Who should drive their project? The consultant team is working on more focused outreach efforts to DACs and tribes to meet those needs. Regional groups have also been asked to reach out to DACs and tribes and offer help, as possible. It is most beneficial for everyone to work together. This regional planning effort is important so organizations can partner to better help the DACs and tribes. If a partner organization is not available, perhaps a funding arrangement could be identified in order to hire someone to facilitate the process.

Who will complete the project rankings? Everyone that participates in the Westside IRWM meeting will participate in the project ranking process. The consultant team will rank the projects initially according to the information provided, but the project prioritization will be done during the stakeholder meetings.

How will projects be prioritized in the Plan to obtain funding? Projects will not be prioritized from 1-10, but instead in groups of high, medium, and low. DWR does not require that all projects included in the Plan group be ranked as a high priority, instead DWR would like to see that the group worked through the prioritization and screening process.

Will DWR allow indirect costs? DWR prefers to see 5% or less for grant administration.

How much money is available? How much of the money is available to the Westside group? In the next cycle, the State has identified $10.6 million for the Sacramento Valley, which includes up to nine different IRWM Plan groups. During the final round, approximately $37 million will be available. Funding specific to the Westside area has not been identified as all regions will compete for the same DWR funding. DWR is intending to distribute a certain amount of money for DACs and tribal groups.

Handout 4 – Call for Projects

The Call for Projects form is available online: www.westsideirwm.com/documents; completed forms are due on Wednesday, August 1 and can be emailed to info@westsideirwm.com. Applicants are asked to fill out as much of the form as possible, and contact the consultant team with any questions.

How will the Westside group determine how to add future projects? Governance will be discussed at the next meeting (September, 2012); during the discussion, the group will discuss priority, and how to add and remove projects. The determined governance structure will be included in the Plan before it is adopted.

Handout 5a & 5b – Goals & Objectives

The consultant team sorted and organized the comments received to date via email and at Meeting #5 into Handout 5. Meeting participants were provided an updated list of Plan goals, organized alphabetically so not to imply priority, as well as the "track changes" goals to show recent edits. The group reviewed Handout 5a together, then discussed Handout 5b – Proposed Plan Objectives.

The group reviewed the Objectives chart, including summary descriptions,, and provided the following comments:

Objective 1: Provide educational curricula

- *A qualitative measurement could be determined by the number of people receiving the education*
- *The Center for Land Based Learning has excellent curriculum that could be utilized.*
- *This item should not be limited to K-12, but instead should include the general public.*
- *Sign-in sheets to show attendance could be used as a quantitative measurement; can track continued attendance.*
- *Why is the timeline through 2022?*
    - Mr. Kirby responded that he chose the date, but all dates should not be listed as the end of the Plan timeline because it will not likely be completed over the next 30 years if shorter timelines are not included.

Objective 2: Restore 15 acres of native vegetation

- *Will there be consideration for acreages for those purchasing environmental credits?*
    - That can be determined by the group.
- *Yolo County HCP should be referenced, or HCPs specific to each county, instead of general*

references to credits.

- *It would be helpful if the HCP credit could count for Westside (given that they have more funding) and not have Westside credit the HCP.*
- *If projects are completed by those outside the area, the mitigation should be counted.*
- *This should be tied to the other groups that are developing plans within the Westside counties. Restoration should not be completed unless it is complemented and coordinated with the other Plans.*
- *It would be helpful to have clarification on why 15 acres was used. The acreages used should be attainable and a real number.*

Meeting participants were generally supportive of this draft objective, but not the specific details.

Objective 3: Restore access to and improve spawning habitat

- *Is 25% realistic?*
- *Use "native threatened, endangered or imperiled"*
    - o There was broad agreement of this suggestion.
- *I am not sure that there is an access baseline – this would need to be defined before it could be measured.*
- *Could be reworded to include "remove the access barriers" as it is about viable and accessible spawning beds.*
- *Is this for fisherman? Should we say instead "fish access?"*
- *The timeline is too far in the future, it should have intermediate goals as a way to track progress.*

Objective 4: Prevent colonization of any regional water body of Quagga/Zebra Mussels/NZ Mud snails

- *This item may be too specific, what if another species shows up later? We should include those, or have the ability to when they become a problem.*
- *Do we know how to prevent? There seems to be a small amount of funding available, so I think there should be a more focused effort.*
    - o There are a lot of different ideas of how to prevent these species, however the objectives are important for the entire region regardless of what projects are submitted for future funding.
- *Invasive species is a very large problem, and we need to look at the big picture so we can achieve our goals.*
    - o If you have more specific ideas, please submit them to info@westsideirwm.com so they can be included in future updates.
- *SB 2443 is in Senate Committee today, which is a license fee for boat stickers. This should be tracked and included, if applicable.*

Handout 1
Meeting #6 Summary from
Westside Sacramento IRWM Plan Meeting
July 9, 2012 – Woodland * Video Posted Online

Objective 5: Reduce geographic extent of invasive plant species
- *Perhaps this item should be combined with Objective 6.*
- *Typically an annual weed management program is in canals – the goal is basically the same in Objective 5 and Objective 6.*
- *Prevention is critical – this is the biggest difference between terrestrial and aquatics.*
- *This objective is too general to be implemented. Each species requires it's own approach, and not all invasive plants are equal. Different situations throughout the region warrant different approaches. It would make more sense to develop a strategy or plan for invasive plant management for the region and then have the objective relate to the plan.*

Objective 6: Prevent spread of aquatic/terrestrial exotic weeds
- *This does not support Willow Slough Watershed. It should apply to the entire region.*

Objective 7: Sustain and Modernize existing infrastructure
- *Suggest adding "Develop", sustain and modernize water supply*
  - Several participants did not agree that "develop" should be added.
  - Some believed that this item looked more like a goal than an objective.
  - Concerns that this objective is too broad and could lead to misunderstanding.

Objective 8: Increase adoption of locally cost-effective water conservation measures for municipal and industrial users
- *The State's 20x2020 target should be used, and indicate "as set in the urban water management plan."*
- *Would prefer not to cite urban water management plans, but set according to the State targets.*
- *We do have areas that are not included in the urban water management plan requirements.*

The group determined that 20% water conservation targets to be achieved by the year 2020 would be referenced in this objective.

Objective 9: Increase adoption of locally cost-effective agricultural best management practices
- *BMPs are not met through workshops.*
- *The workshops suggestion is a qualitative way to measure progress on this objective.*
- *How do ag waivers fit into this item?*

The consultant team requested additional information from participants so Objective 9 could be updated and expanded.

Objective 10: Increase water-related recreational opportunities
- *What is the baseline? Is anyone currently measuring?*
- *Should add "maintain current areas" or "maintain and increase water-related…"*
- *I am supportive of this item, but I am not sure how to measure it.*

Objective 11: Provide adequate flood protection for all developd areas

- *I am concerned that this objective is not tied into the Central Valley Flood Protection Plan, but it will not be the only thing that will be addressed.*
- *There is a benefit to flooding in habitats, and that should also be addressed.*

Objective 12: Manage upland fuel loading

- *This item needs more work.*
- *Concerns about negative environmental effects.*

Objective 14: Monitor conditions and improve understanding of groundwater

- *Perhaps voluntary monitoring should be added so the Plan is adopted and supported by the public.*
  - The consultant team stated that groundwater level monitoring is now a requirement for State funding
  - Other participants disagreed that voluntary monitoring should be added.
- *Not all aquifers are monitored, so how will they be monitored for the measurement? This item does not go far enough to address this concern.*

Objective 17: Reduce methyl mercury concentrations

- *Would like someone to verify if 20 percent is reasonable.*
- *Discussion of whether elemental mercury should be included*

Objective 19: Eliminate accidental spillage/discharges of wastewater

- *Split qualitative measurement to "public & private" – from a maintenance standpoint, there are a number of spills. Private spills are increasing, while public spills are decreasing. Appropriate emphasis should be placed on this.*

Attendees were asked to review the remainder of the proposed Plan objectives that we did not have time to discuss during the meeting and submit comments in writing.

Handout 6, 7a & 7b

The consultant team prepared Draft Section 1 & Draft Section 2 of the Westside Sacramento Integrated Regional Water Management Plan. The documents were posted to: www.westsideirwm.com/meetings prior to the public meeting in order to provide participants with an opportunity to review and comment.

Sean Maguire of Kennedy/Jenks provided an overview of the Section 1 & 2. Mr. Maguire stated that Section 2 focuses on the region description; most of the comments received to date have been incorporated into the text.

Handout 1
Meeting #6 Summary from
Westside Sacramento IRWM Plan Meeting
July 9, 2012 – Woodland * Video Posted Online

What Comes Next?
The IRWM planning process will continue through the fall with several public meetings. The following is the confirmed schedule (different than the dates announced during Meeting 6):

- Meeting #7 – 2-5 p.m. - September 18, 2012 - Vacaville Public Library – Town Square
- Meeting #7 – 2-5 p.m. - September 20, 2012 - City of Clearlake Council Chamber

Meeting materials will be posted to www.WestsideIRWM.com approximately one week prior to each meeting. Stakeholders are encouraged to review and consider the materials prior to the stakeholder meeting to help contribute to a productive dialogue. Questions can be submitted to info@westsideirwm.com or by calling the project hotline at 530-661-8115.

To view all Westside Sacramento Integrated Regional Water Management planning information, including information from Meeting #5, please visit: www.WestsideIRWM.com.

Appendices

A. Meeting #6 Attendees

B. Meeting #6 Presentation & Handouts – due to the size and number of the documents, please visit www.WestsideIRWM.com/meetings

Handout 1
Meeting #6 Summary from
Westside Sacramento IRWM Plan Meeting
July 9, 2012 – Woodland * Video Posted Online

Appendix A

No.	LAST NAME	FIRST NAME	ORGANIZATION
Vacaville: June 4, 2012			
1	Marchand	Betsy	Yocha Dehe Wintun Nation
2	Britton	Paula	Pomo of Upper Lake
3	Okita	David	Solano County Water Agency
4	Lee	Chris	Solano County Water Agency
5	Balasek	Kurt	City of Winters, Solano RCD
6	Murrow	Robert	ESA Group
7	Turner	Patti	Colusa County Resource Conservation District
8	Lorenzato	Stefan	Community Member
9	Stevenson	Max	Yolo County Flood Control & Water Conservation District
10	Honeycutt	Kristin	DWR
11	Gentile	Donna	Yolo WRA
12	Pratt	Dave	Community Member
13	Meyer	Greg	City of Woodland
14	Wrysinski	Jeanette	Yolo County Resource Conservation District
15	Marble	Bill	City of Woodland
16	Ray	Larry	Scotts Valley Band of Pomo
17	Debra	Jacques	City of Davis
18	Aguiar-Curry	Cecilia	City of Winters
19	Currey	John	Dixon RCD
20	Schneider	Bob	Tuleyome
21	Hammer	John	RCAC
22	Matke	Brett	Cortina Band of Wintun Indians
23	Haas	Julie	DWR
24	Tuttle	Cindy	Yolo County
25	Schaad	Gary	Dunnigan Water District
26	Modeste	Sarah	Kennedy Modeste Communications
27	Kirby	Ken	Kirby Consulting Group, Inc.
28	Itagaki	Sachi	Kennedy/Jenks Consultants
29	Maguire	Sean	Kennedy/Jenks Consultants

In addition to the 29 people that attended the meeting in Woodland, the meeting video was posted online following the meeting for viewing anytime: www.WestsideIRWM.com/meetings.

Meeting #7 Summary
Westside Sacramento IRWM Plan Meeting
September 18, 2012 in Vacaville & September 20, 2012 in Clearlake

This meeting summary for the Westside Sacramento Integrated Regional Water Management (IRWM) Plan Meeting #7 provides a high level overview of the intent, content covered, and the discussions that occurred during the meeting.

Meeting Logistics & Intent

The RWMG hosted public meetings from 2-5 p.m. on September 18, 2012 at the Vacaville Public Library – Town Square and on September 20, 2012 at the Clearlake City Council Chambers. The topics covered included: funding and progress updates, discussion of comments received since Meeting #6, discussion of initial project screening, refine Plan goals and objectives, presentation of draft IRWM plan sections, and discussion of next steps.

Approximately 36 people attended the meetings in person. The attendees and their respective affiliations are summarized in Appendix A.

Meeting Content

Meeting facilitator Ken Kirby opened by asking attendees to introduce themselves. Mr. Kirby stated that the consultant team received Meeting #6 comments from six people, and the majority of the comments related to the Plan objectives, the draft Plan Introduction and Region Description. More than 130 Project Information Forms were received from 26 different agencies and organizations. The consultant team has integrated many of the comments offered for the draft Plan Introduction and Region Description, which can be viewed at www.WestsideIRWM.com/draftplansections.

Mr. Kirby provided an overview of a recently revised IRWM Plan schedule and stated that the consultant team is considering hosting a project integration workshop to provide an opportunity for organizations and agencies to interact and discuss possible project partnerships and project refinements. Several people from the Vacaville and Clearlake meetings were interested in participating in a workshop; the consultant team will research possible dates and locations. The proposed revisions to the Plan development schedule may change the project completion date from April 2013 to June 2013, which will not impact possible funding opportunities.

Following the discussion about the schedule and Meeting #6 Summary, Sachi Itagaki provided an update on funding opportunities; she described the Prop 50 Agricultural Water Use Efficiency (WUE) by DWR, the Central Valley Flood System Conservation Framework Proposal Solicitation Package, Draft 2012 Proposition 84 and 1E IRWM Guidelines, Prop 84 IRWM Round 2 Implementation Proposal Solicitation Package, and Prop 1E Draft Proposal Solicitation Package for Stormwater Flood Management. She confirmed that the Central Valley Flood System Conservation Framework is an opportunity for funding in addition to the IRWM funding. More details can be viewed in the presentation for Meeting #7 at www.WestsideIRWM.com/meetings.

Meeting #7 Summary
Westside Sacramento IRWM Plan Meeting
September 18, 2012 in Vacaville & September 20, 2012 in Clearlake

Is Prop 84 funding the only opportunity for project funding from DWR?
No. DWR and the State Water Resources Control Board (SWRCB) occasionally release grant opportunities, such as those above, that are not part of the Prop 84 process. There are no automatic submittals of projects for funding, and opportunities to receive grants typically require detailed applications be completed.

Handout 3a, 3b, 3c1, 3c2, 3c3 –
Draft Screening Methodology, Project Map, Sorted Project Lists
Mr. Kirby reviewed Handout 3a – Draft Screening Methodology, and discussed the proposed screening criteria developed by the consultant team. Mr. Kirby emphasized that the criteria is based on Proposition 84 guidelines and does not exclude projects from inclusion into the Plan, instead the criteria serves as a way to organize and discuss the more than 130 submitted projects. Proposed screening criteria awards points for: readiness to proceed, regional support and integration, implementation feasibility, and impacts and benefits. The screening criteria are not prescriptive, and do not result in a project priority directly.

Mr. Kirby guided a discussion of the proposed screening criteria. A summary of the discussion is as follows:

Would we only be able to submit a project that is on the "high priority" list for future funding opportunities?
The Westside RWMG can determine what it would like to submit for grant funding from any project included in the Plan, it does not have to be a project from the high priority list.

Do the Prop 84 guidelines state that projects must be shovel ready? Will DWR fund feasibility studies or plans?
No, the Prop 84 guidelines related to grant applications do not state that projects must be shovel ready. But, for implementation grants, preference is given to projects with a high readiness to proceed. However, the guidelines for what is to be included in the IRWM Plan is different than the grant application. The RWMG can include any project it believes is consistent with the Goals and Objectives of the Westside IRWM Plan, whether or not that project would be eligible for Proposition 84 grants for implementation.

The consultant team asked DWR for clarification on projects that could be potentially eligible for implementation grants, and it is the consultant team's understanding that the planning and feasibility studies by themselves are not eligible for implementation grants. If a project proposal submitted for implementation grant funds includes a planning and feasibility component, DWR may elect to provide funding for the all phases of the project, but if planning and feasibility study is not complete at the time of proposal submittal, the project may not score well from a readiness to proceed perspective. The guidelines make an exception for planning and feasibility studies related to critical water supply or water quality projects for economically disadvantaged communities.

How were scores developed for phased projects?
Scores for all projects could only be determined based on the information provided on the submitted project information forms. Should the submitter have additional information, please provide it to the consultant team for future inclusion.

How will proposals that change from feasibility studies to projects over time be handled in the future?
The process for updating or including additional projects in the Plan after it has been adopted will be determined through the discussion about Plan governance. Future meetings will include governance discussions.

Who should we speak to in order to clarify details on the project submittal form Excel file?
Sean Maguire of Kennedy/Jenks.

Is there a process for obtaining disadvantaged community (DAC) status for a project that does not currently fall under DWR's DAC criteria, but should?
Yes. DWR has identified a process for demonstrating (through specific criteria) that a community is a DAC by preparation of a site-specific income survey using a specific protocol.

Can we list DACs on the project website?
The map – view the map: http://westsideirwm.com//meetings/Handout_3B_Projects_Map.pdf - shows DAC areas recognized by DWR highlighted in pink.

If additional project information forms are submitted, do the new forms need to be in alignment with already submitted forms?
No, they can be entirely new projects or combined or revised projects.

Following the discussion about the project screening criteria, Mr. Kirby reviewed a map showing all submitted projects. He stated that the submitted project forms included 81 projects with cost estimates and those estimated costs total more than $1.6 billion. Mr. Kirby highlighted that inter-regional concepts could also be pursued; the consultant team and members of the coordinating committee will be meeting with surrounding regional water management groups.

Project 122 is shown in the wrong location on the map, and should be moved to Cache Creek.

The consultant team will make the adjustment.

Mr. Kirby stated that during the review of the submitted project information forms, the consultant team noticed some areas in the region where a lot of integrated work is planned, but in other areas there does not appear to have been much consideration of integration. Mr. Kirby encouraged participants to review the submitted project forms on the project website: https://www.dropbox.com/sh/xp04dt13xmvod44/v1PO-4XNvV and begin thinking about which projects should be included in the Westside IRWM Plan, and how the projects should be ranked (high, medium, low). Mr. Kirby recommended including no more than 20 high priority projects in the Plan to maintain Plan focus.

I do not think that I have time to adequately review each project form.
That's okay. The consultant team is looking for feedback on any of the projects, but that does not mean that each stakeholder must review all projects. The consultant team is also determining if an online survey would be beneficial to help facilitate the review process.

Is there a place in the Plan for projects that don't qualify for Prop 84 funding, but we still want them included?
Yes. This Plan is first and foremost meant to support you to take action in your region. Furthermore, DWR guidelines specify that we cannot use potential eligibility for Prop 84 implementation grants as a criterion to decide whether to include specific projects in the Plan.

I would hate to see a future funding opportunity and a project that could qualify, but not have included it in our Plan. I don't want any projects to miss out on potential funding.
If it is a conceptual project that you think could move forward in the next few years, then a project information form should be submitted. But, the consultant team does not recommend including a long list of potential projects for the sake of potential future funding. Instead, the governance should include a process on how to include new projects into the Plan as they become more definitive over time.

Are projects on federal land precluded from state funding?
The consultant team has reached out to the Bureau of Land Management to include them in the IRWM process. The consultant team is also looking into the Prop 84 guidelines to determine if federal agencies could receive state funding. Federal agencies could be partners to match state funding. Federally recognized tribes are certainly able to receive funding.

Are project costs a requirement for Plan inclusion?
No, but not including project costs indicates that the project is more conceptual.

I am irritated to see projects submitted by Lake County on native fish without any collaboration

with the tribes. Tribes are already working on this issue and it would have been helpful to know Lake County's goals first.
Lake County submitted projects that were included in its Integrated Watershed Management Plan with an understanding that the consultant team was attempting to work with the Tribes in a parallel effort. The County is interested in discussion opportunities to integrate with others who have similar or related projects. The proposed Project Integration Workshop could provide an opportunity to explore the possibility for combining, integrating, or adding projects.

Handout 4 –Governance Considerations
Mr. Kirby emphasized the importance of strong governance language in the final Plan to ensure that the Plan will be used and continuously evolve. He described DWR's requirements for governance within the Prop 84 IRWM Guidelines (2010) and offered five additional considerations for the governance discussion as proposed by the consultant team. The following is a summary of the discussion relating to the Plan governance structure:

Who is the lead agency or individuals that will lead the group once the consultant contract is complete?
Determining the future organization and leadership for Plan implementation is a key component to the Plan governance section and must be discussed and broadly agreed to by meeting participants and the RWMG.

We need to determine who will have fiscal responsibility for future grant opportunities.
DWR does not require that the IRWM group serve as the fiscal agent for future grant funding, but a primary fiscal agent must be identified for each potential grant agreement.

Once the IRWM Plan grant is complete, how will the region sustain the group for future submittals?
According to the planning grant agreement, the RWMG must develop a governance approach that fulfills a list of required activities during Plan implementation as described in Handout 4. The RWMG has not yet determined how it will be organized and function during the Plan implementation.

We have constraints on how Lake County makes plans based upon existingwater rights held by Yolo County Flood Control and Water Conservation District (YCFCWCD). The state mandates that Lake County look at various tools to manage and conserve our resources. In theory, they are in a conflict with Yolo County. There is a rule in place that every drop of surface water runoff goes into the Lake, and Lake County is not allowed to restrain any amount of water.

- Cache Creek Basin is fully appropriated during the summer, but there appear to be opportunities for capturing some winter flows. <answer provided by Lake County staff>

- The water rights situation in the Cache Creek watershed is very similar to water right situations in other parts of California. In this case, it does not appear that there is a reason to preclude potential resource conservation practices in Lake County. If the proposed actions could negatively impact the water rights held by the YCFCWCD then that would need to be addressed in some way. Additionally, the YCFCWCD has historically been open to negotiate terms to provide additional water for use in Lake County and currently has contracts with several Lake County water purveyors to provide water from Clear Lake for municipal supply. Use of the additional water may require additional payment, as is the case in other fully appropriated basins throughout California.

On Monday, October 15, the coordinating committee will meet at 9 a.m. at the Solano County Water Agency to finalize the approach to project screening, selection, and prioritization, finalize Plan goals and objectives, and outline an approach to governance during Plan implementation. Any interested stakeholders are invited to attend.

Handout 5a & 5b – Final Draft Goals & Revised Draft Objectives
The consultant team sorted and organized the comments received to date via email and at Meeting #6 into Handout 2.

Meeting participants were provided an updated list (Handout 5a) of Plan goals, organized alphabetically so as not to imply priority. No comments on the Plan goals were received following Meeting #6, so the goals are "parked" and complete for inclusion in the Plan with the exception of one requested addition during Meeting 7 in Vacaville. A request was made to add a goal that reads"*Improve form and function of natural channels."* During Meeting 7 In Clearlake participants requested that the language be revised to "*Improve form and function of degraded natural channels*".

The group then reviewed Handout 5b – Proposed Plan Objectives, as there were several changes to the objectives based on feedback received. The objectives can be viewed in their updated format, or in track changes.

The group discussed the proposed changes for a number of the objectives.

Additional Discussion
With regard to currently available draft Plan sections, the following questions were raised:
Where did the consultant team find the watershed management plan information in Section 1?
The consultant team received refined information from the available documents including prior IRWM Plans and Integrated Watershed Management Plans and staff interviews, and attempted to describe the IRWM planning processes that have already occurred within the region prior to

the Westside IRWM planning process.

Is the watershed management plan all we have to work from?
The Lake County watershed management plan only includes the Clear Lake watershed, but the region also includes the Putah Creek watershed. The language in the draft Plan sections is meant to acknowledge that Lake County started an IRWM process, but that planning process had not led to an adopted IRWM Plan.

What Comes Next?
The IRWM planning process will continue through the winter with several public meetings. The following is the upcoming schedule:

- Coordinating Committee Meeting – 9 a.m.-Noon – October 15, 2012 – Solano County Water Agency - Refine Approach for Project Selection and Prioritization Considering Governance, and Finalize Plan Objectives
- Project Integration Workshop – TBD-Between October 18 & 25 – Clearlake
- Coordinating Committee Meeting - early November - Define Future RWMG Functions and Discuss Governance Alternatives
- Final Due Date for Project Submittals - mid November
- Meeting #8 - two locations in December - Select and Prioritize Projects for Inclusion in Plan, and Decide on Future Governance

Meeting materials will be posted to www.WestsideIRWM.com approximately one week prior to each meeting. Stakeholders are encouraged to review and consider the materials prior to the stakeholder meeting to help facilitate a productive dialogue. Questions can be submitted to info@westsideirwm.com or by calling the project hotline at 530-661-8115.

To view all Westside Sacramento Integrated Regional Water Management planning information, including information from Meeting #7, please visit: www.WestsideIRWM.com.

Appendices

- **A. Meeting #7 Attendees**
- **B. Meeting #7 Presentation & Handouts – due to the size and number of the documents, please visit www.WestsideIRWM.com/meetings**

Appendix A

No.	LAST NAME	FIRST NAME	ORGANIZATION
1	Brannigan	Mark	City of Lakeport

Meeting #7 Summary
Westside Sacramento IRWM Plan Meeting
September 18, 2012 in Vacaville & September 20, 2012 in Clearlake

No.	LAST NAME	FIRST NAME	ORGANIZATION
2	Cawn	Betsy	
3	Cocke	Mark	City of Woodland
4	Currey	John	Dixon RCD
5	Debra	Jacques	City of Davis
6	Grover	Holly	CVRWQCB
7	Hamner	John	RCAC
8	Hansen	Gary	Lake County Water Resources
9	Itagaki	Sachi	Kennedy/Jenks Consultants
10	Kirby	Ken	Kirby Consulting Group, Inc.
11	Lee	Chris	Solano County Water Agency
12	Lum	Paul	Solano Irrigation District
13	Maguire	Sean	Kennedy/Jenks Consultants
14	Marovich	Rich	LPCCC
15	McBride	Karen	RCAC
16	Modeste	Sarah	Kennedy Modeste Communications
17	O'Halloran	Tim	Yolo County Flood Control & Water Conservation District
18	Okita	David	Solano County Water Agency
19	Pollock	Lynnel	Cache Creek Conservancy
20	Pratt	Dave	Community Member
21	Ray	Larry	Scotts Valley Band of Pomo
22	Rose	Chris	Solano RCD
23	Sabatini	Elisa	Yolo County
24	Schneider	Bob	Tuleyome
25	Scianne	Carol	City of Winters
26	Sharp	Jeff	Napa County
27	Shpak	Dave	City of West Sacramento
28	Smythe	Tom	Lake County Water Resources
29	Stevenson	Max	Yolo County Flood Control & Water Conservation District
30	Street	Claudia	Lake County Farm Bureau
31	Taylor	Maurice	Clearlake Resident
32	Turner	Patti	Colusa County Resource Conservation District
33	Valdez	Roberto	Community Member
34	Williams	Matt	Community Member
35	Williams	Tim	Kennedy/Jenks Consultants
36	Wrysinski	Jeanette	Yolo County Resource Conservation District

Meeting #7 Summary
Westside Sacramento IRWM Plan Meeting
September 18, 2012 in Vacaville & September 20, 2012 in Clearlake

Meeting #8 Summary
Westside Sacramento IRWM Plan Meeting
December 13 & 18, 2012 – Woodland & Clearlake

This meeting summary for the Westside Sacramento Integrated Regional Water Management (IRWM) Plan Meeting #8 provides a high level overview of the intent, content covered, and the discussions that occurred during the meeting.

Meeting Logistics & Intent

The RWMG hosted public meetings from 1:30-4:30 p.m. at the Woodland Community & Senior Center on December 13, 2012 and from 1:30-4:30 p.m. at the City of Clearlake Council Chambers on December 18, 2012.

Approximately 27 people attended the meetings in person. The attendees and their respective affiliations are summarized in Appendix A.

Meeting Content

Meeting facilitator Ken Kirby opened by asking attendees to introduce themselves. Mr. Kirby provided an update on public outreach activities and a recap of Meeting #7. Documents from Meeting #7 can be viewed at www.WestsideIRWM.com/meetings.

Following the summary discussion about Meeting #7, Sachi Itagaki provided an update on funding opportunities. Ms. Itagaki stated that the Final Proposition 84 IRWM Round 2 Implementation Grant applications are due on March 29, 2013 to the Department of Water Resources. RWMG Coordinating Committee member Chris Lee from the Solano County Water Agency provided an overview of the grant application process at the Woodland meeting, and Lake County Department of Water Resources' Gary Hansen provided the overview at the Clearlake meeting.

The Solano County Water Agency is organizing the Coordinating Committee in review of possible projects for inclusion in the Westside IRWM grant application, assembling the grant on behalf of project proponents, and submitting it to DWR. The grant application process is very extensive and Proposition 84 requires a 25 percent match from the local agency and an economic analysis for the project area. Agencies interested in participating should contact Chris Lee to discuss their project and grant requirements.

What is the target amount for projects within the Westside region?
DWR stated that approximately $10.6 million is available for all regions, so the Westside group plans to be aggressive in order to obtain maximum funding.

Could DWR fund some projects within an application, but not others?
DWR will only accept or deny the entire application, not individual projects so it is important that the projects included in the grant application meeting many of the region objectives. If the application is not fully funded, the Westside Region project proponents will have to decide how

to adjust budgets to meet the funding that is offered.

Is Prop 84 grant funding only available for construction-ready projects?
Proposition 84 grants are only available for projects including the Westside IRWM Plan and funds cannot be used on planning projects except for Disadvantaged Community and flood/stormwater projects or for IRWM Plan implementation administration,.

Will more than one project be included in the application?
Yes. Likely more than one project will be included in the application.

Is it the responsibility of the coordinating committee to put together minimum qualifications for those that plan to apply for Prop 84 grants?
The State DWR is moving forward with the grant application process and has established its own minimum qualification standards. Solano County Water Agency has agreed to administer the grant and serve as the fiscal manager should project funding be awarded.

Handout 1 – Proposed Governance
At each of the meetings, members of the Regional Water Management Group (RWMG) presented the proposed governance for implementing the Westside IRWM Plan. The RWMG held three coordinating committee meetings in advance of meeting #8 to discuss and begin developing the governance structure; each meeting was open to the public.

Five agencies – Lake County Watershed Protection District, Napa County Flood Control & Water Conservation District, Solano County Water Agency, Water Resources Association of Yolo County, and the Colusa County Resource Conservation District – signed a memorandum of understanding establishing the RWMG. The RWMG selected a consultant team and established a coordinating committee (CC) with staff representatives from each of the MOU signatories. The RWMG/CC has day-to-day oversight of the consultant team's activities with respect to Westside IRWM Plan development. Each of the five agencies provided local funding and worked together to successfully obtain the DWR IRWM Planning grant.

Following the completion of the Westside IRWM Plan, the CC will continue to follow the blueprint established during the Plan development process. The ongoing IRWM work will continue to be transparent and encourage public participation. RWMG members will rotate leadership roles and plan to meet quarterly, at minimum. The RWMG will not implement projects; projects must be implemented by stakeholders. However, the RWMG will coordinate, seek funding, and bundle projects in order to obtain maximum available funding. The RWMG will also ensure that DWR requirements are met. The RWMG will not interfere with local agency obligations. Moving forward, the RWMG will determine if Westside IRWM specific staff or consultant support is necessary.

Does the coordinating committee (CC) have bylaws?
The committee currently has a charter that is followed. Mr. Kirby recommended that the CC not adopt bylaws, but instead encourages the group to continue to maintain the same processes it is currently following. He added that good planning happens through relationships, not rules. The CC would like flexibility in modifying processes as the group moves forward to make it most efficient, effective and open for public participation. The coordinating committee plans to continue maintaining the current website.

How will the committee be financially supported?
This is an issue that the region will need to determine, as there is not financial support from DWR for Plan implementation.

Could member agencies' staff time for this work be counted as matching grants with DWR?
It is not likely as DWR financially supports the development of the IRWM Plan, but not the implementation of the Plan.

The proposed governance is available for review in Handout 1 at www.WestsideIRWM.com/meetings. Written comments on the proposed governance will be accepted until December 28, 2012; comments should be emailed to info@westsideirwm.com.

Handout 2a & 2b – Final Draft Goals & Objectives
The goals and objectives presented during Meeting #8 are the final draft and slated for inclusion in the Plan as presented. The final draft goals include the modifications and recommendations suggested by stakeholders and discussed at previous meetings.

The Plan objectives are provided in summary in Handout 2b. The group suggested that the goals in which the objectives fulfill should be added to the summary sheet. The group also discussed minor updates to Objective 24 to add quantitative measurements.

The objectives are for the entire Westside region, correct?
Yes, that is correct.

Handouts 3a-3f – Review Submitted Projects
Mr. Kirby stated that about 140 projects were submitted for inclusion in the Westside IRWM Plan by 39 different agencies/organizations. Of the 140 submitted projects, 104 projects included estimated costs totaling more than $1.77 billion. It is possible that not all projects submitted will be included in the Plan, as projects must meet the Plan goals and objectives. One project submittal has already been excluded because it is located outside the Westside Region

boundaries.

Mr. Kirby reviewed the screening and criteria score methodology. The scores were not used to set the priorities, but instead used to organize the project submittals. Project priorities were established based on the relationship between the project and its primary objective, and the associated priority of the objective.

Projects will be included in the Plan so as other funding opportunities become available, the region has multiple opportunities for submission. A project does not need to be ranked as a high priority project for it to be submitted to a grant program, but it must meet the funding criteria.

Does DWR score projects submitted in the Prop 84 grants?
Yes. DWR has its own decision making process for the implementation grants, but IRWM regions were asked to develop their own screening and project scoring that meet the objectives for inclusion in the IRWM Plan. Interested organizations that would like to submit a project as part of the Prop 84 grant process are urged to closely review grant requirements to determine if all criteria could be met by the submitting organization.

Meeting attendees requested the project list be sorted by type of project, urgency, and importance and asked if the font could be increased on the project information forms. Although the numbers are used for organization only, the group also requested a list of projects sorted by number.

Could the projects be sorted by watershed?
Watershed information was not part of the project information form questions, so it is not readily available. The consultant team will review other options.

The project on Sort 3-E, Page 2, #63 – Lake County Watershed Management Program should be implemented immediately.
The rank was determined based on information submitted on the project information form. It is ranked with high importance, but it does not have all of the necessary steps in place for the "readiness to proceed" component.

Handout 4 – Summary of Requested Review/Comments/Input
The consultant team requested interested parties review the Plan sections, including:

- Section 1 – Introduction
- Section 2 – Region Description
- Section 3 – Water Management System
- Section 4 – Water & Land Use Planning

WESTSIDE SAC IRWM
Integrated Regional Water Management Plan

Meeting #8 Summary
Westside Sacramento IRWM Plan Meeting
December 13 & 18, 2012 – Woodland & Clearlake

- Section 5 – Challenges & Opportunities Summary
- Section 7 – Resource Management Strategies

Comments should be provided via email to info@WestsideIRWM.com by December 28, 2012.

What Comes Next?
The IRWM planning process will continue through the winter with several public meetings. Up next:

- Meeting #9 – TBA – February 2013

Meeting materials will be posted to www.WestsideIRWM.com approximately one week prior to each meeting. Stakeholders are encouraged to review and consider the materials prior to the stakeholder meeting to help facilitate a productive dialogue. Questions can be submitted to info@westsideirwm.com or by calling the project hotline at 530-661-8115.

To view all Westside Sacramento Integrated Regional Water Management planning information, including information from Meeting #8, please visit: www.WestsideIRWM.com.

Appendices
A. Meeting #8 Attendees
B. Meeting #8 Presentation & Handouts – due to the size and number of the documents, please visit www.WestsideIRWM.com/meetings

Meeting #8 Summary
Westside Sacramento IRWM Plan Meeting
December 13 & 18, 2012 – Woodland & Clearlake

Appendix A

No.	12/13 Woodland	12/18 Clearlake	LAST NAME	FIRST NAME	ORGANIZATION
1		X	Cawn	Betsy	Community Member
2	X		Currey	John	Dixon RCD
3	X		Debra	Jaques	City of Davis
4		X	Dunlap	Mike	Community Member
5	X		Gentile	Donna	Yolo WRA
6		X	Hamner	John	RCAC
7	X		Hansen	Gary	Lake County DWR
8		X	Herren	Doug	City of Clearlake
9	X		Holly	Grover	California RWQCB
10	X		Hunnicutt	Kristin	California DWR
11	X	X	Itagaki	Sachi	Kennedy/Jenks Consultants
12	X	X	Kirby	Ken	Kirby Consulting Group, Inc.
13	X		Kunze	Carol	Tuleyome
14	X		Lee	Chris	Solano County Water Agency
15	X		McKean	John	Community Member
16		X	Miller	Sheri	CA Dept. of Health
17	X	X	Modeste	Sarah	Kennedy Modeste Communications
18	X		Pollock	Lynnel	Cache Creek Conservancy
19	X		Pratt	Dave	Community Member
20		X	Ray	Larry	Scotts Valley Band of Pomo
21	X		Schneider	Bob	Tuleyome
22	X		Sharp	Jeff	Napa County
23		X	Stevenson	Max	Yolo County Flood Control & Water Conservation District
24		X	Taylor	Maurice	Community Member
25	X		Turner	Patti	Colusa County Resource Conservation District
26	X		Tuttle	Cindy	Yolo County
27	X		Wrysinski	Jeanette	Yolo County Resource Conservation District

Meeting #9 Summary
Westside Sacramento IRWM Plan Meeting
February 14, 2013 in Clearlake

This meeting summary for the Westside Sacramento Integrated Regional Water Management (IRWM) Plan Meeting #9 provides a high level overview of the intent, content covered, and the discussions that occurred during the meeting.

Meeting Logistics & Intent

The RWMG hosted public meetings from 1-4 p.m. on February 14, 2013 at the Best Western El Grande Inn in Clearlake, CA. The meeting was also live streamed online for those unable to attend in person. Following the meeting, the meeting video was posted to www.WestsideIRWM.com for viewing. The topics covered included: update on Proposition 84 Round 2 Implementation Grant, discussion of the refined proposed governance structure, draft Plan recommendations, draft Plan monitoring and reporting, and a discussion of the approach to financing and implementation.

Approximately 16 people attended the meetings in person. The attendees and their respective affiliations are summarized in Appendix A.

Meeting Content

Meeting facilitator Ken Kirby opened by asking attendees to introduce themselves, then provided an overview of the IRWM Plan schedule. Mr. Kirby stated that Meeting #9 was the last public meeting that would cover new content. The next meeting will be the roll out of the Draft Westside IRWM Plan.

Mr. Kirby introduced Chris Lee with the Solano County Water Agency. Mr. Lee provided an overview of the preparation for the Westside Prop 84 Grant Application process. The application is due to DWR on March 29. At the time of Meeting #9, 10 projects have been submitted for inclusion in the Westside Prop 84 grant application. Mr. Lee and the Solano County Water Agency are taking the lead for the grant submittal process.

Sachi Itagaki provided an update on funding opportunities; she clarified the Critical Water Supply/Quality Needs of DACs from the IRWM Guidelines, and also described the upcoming Disadvantaged Community Wastewater Grants, and explained the CFCC Funding Fair. More details can be viewed in the presentation for Meeting #9 at www.WestsideIRWM.com/meetings.

Ms. Itagaki provided an overview of the Westside IRWM Plan sections that have been provided to the public for review and commenting. All documents are housed at www.WestsideIRWM.com/draftplansections/. A public review draft of the Westside IRWM Plan is slated for release in early April 2013.

Meeting #9 Summary
Westside Sacramento IRWM Plan Meeting
February 14, 2013 in Clearlake

Additional Discussion
A question by a Lake County resident was raised regarding the Plans inclusion of debris removal from waterways and Clear Lake. Mr. Kirby responded by stating that the information was included in the Water Quality section, but the consultant team would review the Plan documents to ensure it is explicit.

Another meeting attendee requested that the regulatory process be outlined in the Plan documents. Mr. Kirby stated that while some information is included in the Plan, it does not go into great detail. However, they are included in the Plan objectives.

Mr. Kirby stated that an executive summary would be developed for the IRWM Plan.

At a previous meeting, Lake County attendees expressed interest in obtaining a third-party facilitator to begin to help the groups work together. Lake County has submitted a grant application to DWR for facilitation support for the Clearlake Integrated Watershed Master Plan. The County hopes to hear from DWR in March regarding the outcome of the grant application.

Lake County residents have expressed interest in a prevention program for quaga and zebra muscles as it directly relates to water quality. Mr. Kirby responded that a specific objective was developed to address this item. The objective was deemed to be the highest priority and the highest urgency.

Handout 1 – Refined Governance
Tom Smyth, a coordinating committee member, reviewed the proposed Westside Regional Water Management Group governance. Mr. Smyth stated that community and coordinating committee meetings would be held as needed quarterly or as needed, an annual budget would be developed, and the Regional Water Management Group could represent an agency or an organization.

The RMMG will also act as a fiscal agent on behalf of the region. Mr. Kirby added that under Proposition 84, each region can submit only one application and the RWMG, led by Solano County Water Agency, is currently preparing the application on behalf of the region.

Handout 2 – Proposed Plan Recommendations
Patti Turner, a coordinating committee member, reviewed the Proposed Plan Recommendations, which outlines how the coordinating committee will work together following IRWM Plan adoption. In fiscal year 2013-14, the coordinating committee will develop and execute a new memorandum of understanding concurrent with the IRWM Plan adoption and select a chair and vice chair. The CC will also set an annual operating budget, hold regular as-

needed meetings, make progress on the high importance/high urgency projects and near-term objectives and identify high importance/medium urgency projects for CC attention.

Handout 3, 3a, 3b – Plan Performance Monitoring
Ms. Itagaki outlined three areas included in DWR's Plan Performance and Monitoring Standards, including:

- The RWMG is efficiently making progress towards meeting the objectives in the IRWM Plan
- The RWMG is implementing projects listed in the IRWMP Plan
- Each project in the IRWM is monitored to comply with all applicable rules, laws, and permit requirements

Additionally, the RWMG must ensure the efficient use of available data, stakeholder access to data and to ensure the data generated by IRWM implementation activities can be integrated into existing State databases.

A participant requested that the funds expended on the IRWM Plan development and implementation should be tracked as part of the performance monitoring.

One participant asked why, given the data collection and sharing issues around Clear Lake and throughout Lake County, has a project not been included in the Plan to have the data analyzed. Mr. Kirby stated that a project could be included to address this issue. Mr. Kirby added that the consultant team is working through existing data in order to the help the RWMG meet Plan performance monitoring measures, as outlined by DWR.

In follow up, a participant asked how specific the data collection and management would be. For example, would the Plan dictate the standard operating procedures of all data collection groups within the region, or would the types and sources of information be identified? Mr. Kirby stated that the Plan does not intend to dictate to data collectors how to collect and organize data. However, the Plan will include who is already collecting data, what kind of data is being collected and who will be responsible for validating the data, etc.

A participant expressed her frustration with the lack of standards associated with data gathering and reporting. Mr. Kirby acknowledged that this was a difficult topic and that agreeing upon a statewide standard was unlikely. Mr. Kirby also stated that while the evaluation of data and the process to ensure DWR requirements are being met fall upon the Coordinating Committee, the CC members are not the only people who can preform the tasks. Volunteers will be called upon for assistance in this area.

Meeting #9 Summary
Westside Sacramento IRWM Plan Meeting
February 14, 2013 in Clearlake

Max Stevenson, coordinating committee member, provided some examples of how the Yolo County IRWM works together to achieve its goals and maintain its Plan and reviewed several of the items contained within the Draft IRWM document. The group discussed this information in detail.

Handout 4 – Financing Plan
Ms. Itagaki stated that the IRWM Plan must include a program-level description of the sources of funding, which will be utilized for the development and ongoing funding of the IRWM Plan and the potential funding sources for projects and programs that implement the IRWM Plan. Additionally, the IRWM Plan should contain a discussion of the potential sources of funding for project operations and maintenance.

Ms. Itagaki also reviewed the suggested Coordinating Committee activities that will be financed including the MOU update, evaluation of data and development of a monitoring plan, reporting on IRWM objectives and project implementation, and others.

Currently, the Westside IRWM Plan includes 140 projects from 39 agencies/organizations that total more than $1.77 billion.

Ms. Itagaki asked agencies/organizations to provide any information it can for potential project funding costs so it can be included in the Westside IRWM Plan.

Handout 6 – Requested Comments
The consultant team requested the public review of the refined governance strategy, Plan recommendations, Plan performance and monitoring information, and Plan financing information. Feedback should be emailed to info@westsideIRWM.com by February 25, 2013.

What Comes Next?
The IRWM planning process will continue through the spring and summer with several public meetings. The following is the upcoming schedule:

- IRWM Draft Plan Public Review Meeting – in-person meeting to be held in Vacaville on May 21, 2013 at 6:30 p.m. Additionally, the meeting can be viewed live online via www.WestsideIRWM.com

Meeting materials will be posted to www.WestsideIRWM.com approximately one week prior to each meeting. Stakeholders are encouraged to review and consider the materials prior to the stakeholder meeting to help facilitate a productive dialogue. Questions can be submitted to info@westsideirwm.com or by calling the project hotline at 530-661-8115.

Meeting #9 Summary
Westside Sacramento IRWM Plan Meeting
February 14, 2013 in Clearlake

To view all Westside Sacramento Integrated Regional Water Management planning information, including information from Meeting #9, please visit: www.WestsideIRWM.com.

Appendices

- **A. Meeting #9 Attendees**
- **B. Meeting #9 Presentation & Handouts – due to the size and number of the documents, please visit www.WestsideIRWM.com/meetings**

Appendix A

No.	LAST NAME	FIRST NAME	ORGANIZATION
1	Bennett	Jo	
2	Cawn	Betsy	
3	Dunlop	Mike	
4	Hamner	John	RCAC
5	Hansen	Gary	Lake County Water Resources
6	Itagaki	Sachi	Kennedy/Jenks Consultants
7	Kirby	Ken	Kirby Consulting Group, Inc.
8	Lee	Chris	Solano County Water Agency
9	Maguire	Sean	Kennedy/Jenks Consultants
10	Modeste	Sarah	Kennedy Modeste Communications
11	Ray	Larry	Scotts Valley Band of Pomo
12	Smythe	Tom	Lake County Water Resources
13	Stevenson	Max	Yolo County Flood Control & Water Conservation District
14	Taylor	Maurice	Clearlake Resident
15	Turner	Patti	Colusa County Resource Conservation District
16	Wrysinski	Jeanette	Yolo County Resource Conservation District

Meeting #10 Summary
Westside Sacramento IRWM Plan Meeting
May 21, 2013 in Vacaville

This meeting summary for the Westside Sacramento Integrated Regional Water Management Draft (IRWM) Plan Meeting Summary provides a high level overview of the intent, content covered, and the discussions that occurred during the meeting.

Meeting Logistics & Intent

The RWMG hosted public meetings from 6:30-8 p.m. on May 21, 2013 at the Solano County Water Agency in Vacaville, CA. The meeting was also live streamed online for those unable to attend in person. Additionally, a group met in Clearlake to watch the live streaming video. Following the meeting, the meeting video was posted to www.WestsideIRWM.com for viewing. The topics covered included: history of the Westside IRWM Plan Development process and an introduction to the IRWM Plan content.

Approximately 17 people attended the meetings in person, 4 people attended the live webcast in Clearlake and several watched the video live online. The attendees and their respective affiliations are summarized in Appendix A.

Meeting Content

Meeting facilitator Ken Kirby opened by asking attendees to introduce themselves, and then stated that the meeting was an opportunity to obtain an overview of the Plan and the Plan development process. He stated that once the Plan is adopted, it would be important for interested parties to continue to stay involved in order to implement the Plan.

Mr. Kirby provided a brief overview of the Westside IRWM, which formed approximately two years ago. At that time, the Westside Regional Water Management Group applied for a DWR grant and selected a consultant team to lead the IRWM Plan development process. In October 2011, the consultant team and the RWMG begin developing the Plan with input from interested individuals, community groups and government agencies.

Throughout the planning process, regional collaboration on strategies for management of water resources was encouraged. More than 700 people have been on the stakeholder database and have received email updates about the Plan process. Additionally, the RWMG has held 9 stakeholder meetings, 15 coordinating committee meetings and 3 tribal-specific meetings.

The Coordinating Committee and the consultant team employed an iterative approach and provided the public an opportunity to review the draft Plan sections as they were finished. Once the content was developed and posted to the Plan website, public meetings were held to review and discuss the content. Feedback was continuously reviewed and applied to the draft Plan sections.

Patti Turner, Coordinating Committee member, provided an overview of the Plan sections, including: Introduction, Region Description, Existing & Future Conditions, Water & Land Use Planning, Challenges & Opportunities, Resources Management Strategies, Project Review & Prioritization Process, Impacts & Benefits, Coordination, Plan Implementation Framework, and Glossary & Acronyms list.

Sean Maguire, with Kennedy/Jenks and a member of the consultant team, provided a brief overview of regional characteristics.

Participant Question: Are you coordinating with the Bay Delta Conservation Plan and HCP?
Answer: That is a very different process to bring local agencies together as the BDCP is focused on restoration of the Delta. However, the HCP has been referenced in the Plan and will be a focus going forward.

Participant Questions: The average water year has less use than during a dry water year. Why is that?
Answer: In a dry water year, there would be less participation, and a higher plant uptake therefore there would be greater use of aquifer water supplies and irrigation. Given the available information, it is likely how much water that would be used.

Chris Lee with the Solano County Water Agency and also a member of the Coordinating Committee reviewed the special status species, including 51 Federal/State/California Native Plant Society special status species.

Sachi Itagaki stated that the consultant team reviewed existing climate change information to synthesize it as it relates to the Westside region. The Plan must consider what might happen under future climate change scenarios. The Plan includes a chart that plots expected temperatures through 2100.

Ms. Itagaki continued in review of the Plan Goals and Objectives. Ms. Itagaki stated that a significant amount of time was spent on the Goals and Objectives portion of the Plan. The 24 measureable objectives have been prioritized based on importance and urgency. For example, the prevention of quaga/zebra mussels as well as meeting all drinking water and wastewater discharge standards within the region throughout the planning period were identified as high urgency and high importance.

Max Stevenson, Yolo County Flood Control/Water Conservation District and Coordinating Committee member, described the process for implementing the IRWM Plan. Mr. Stevenson stated that the region has already applied for $10 million in implementation funding for projects. Mr. Stevenson stated that the integration of the region is a first and it is important that everyone continue to work together. Four agencies – Lake County Watershed Protection District, Napa

County Flood Control & Water Conservation District, Solano County Water Agency and the Water Resources Association of Yolo County (representing 11 agencies) make up the Regional Water Management Group. The RWMG would like additional members to participate, and welcome those would like to become more involved. Currently, the four participating agencies have determined that the annual operating budget for the RWMG is approximately $75,000-$100,000.

Next, Jeff Sharp from the Napa County Flood Control & Water Conservation District and a member of the Coordinating Committee discussed the Plan Recommendations (the last paragraph of the executive summary). Mr. Sharp stated that it is important to use interested individuals to help meet Plan objectives through sub-groups focused on specific issues. The Plan Recommendations are organized in the Plan by short-term and long-term objectives. All activities will track progress of the implementation.

Handout 2 – Requested Comments

Mr. Kirby reviewed Handout 2, which outlines which areas the Coordinating Committee and the consultant team would like feedback. The handout helps to focus feedback. The comment period closes at close of business on Monday, June 10, 2013. At that time, the consultant team will review and implement comments into the final Plan document.

Participant Question: Has feedback from Native American Tribes been included in the Plan?
Answer: Yes, several meetings have been held with tribal contacts, and the consultant team has reached out to the tribal groups throughout the process. That information has been incorporated into the Plan.

Participant Question: There appears to be some inconsistency between the executive summary and the Plan body. Are they intended to be different?
Answer: The executive summary and the body of the document are intended to be consistent. Should you see any inconsistencies, please alert us so it can be reviewed and edited as needed.

Proposition 84 Grant Application

Mr. Lee stated that 9 projects were included in a regional application for Proposition 84 Grant funding. In total, the application requests funding of slightly less than $10 million. The nine submitted projects meet approximately half of the Plan objectives.

To view all Westside Sacramento Integrated Regional Water Management planning information, including information from the meeting, please visit: www.WestsideIRWM.com.

Appendices

A. **Meeting Attendees**
B. **Meeting Presentation & Handouts – due to the size and number of the documents,**

Meeting #10 Summary
Westside Sacramento IRWM Plan Meeting
May 21, 2013 in Vacaville

please visit www.WestsideIRWM.com/meetings

Appendix A

No.	LAST NAME	FIRST NAME	ORGANIZATION
1	(unable to read sign-in)	Roberto	
2	Cawn	Betsy	
3	DeBra	Jacques	City of Davis
4	Dolan	Danielle	UCD Student
5	Floyd	Kim	Kim Floyd Communications
6	Hansen	Gary	Lake County Water Resources
7	Honeycutt	Kristin	DWR
8	Itagaki	Sachi	Kennedy/Jenks Consultants
9	Kirby	Ken	Kirby Consulting Group, Inc.
10	Lee	Chris	Solano County Water Agency
11	Maguire	Sean	Kennedy/Jenks Consultants
12	Marovich	Rich	LPCCC
13	Modeste	Sarah	Kennedy Modeste Communications
14	Osgood	Steve	
15	Rose	Chris	Napa County
16	Schneider	Bob	Tuleyome
17	Sharp	Jeff	Napa County
18	Smythe	Tom	Lake County Water Resources
19	Stevenson	Max	Yolo County Flood Control & Water Conservation District
20	Taylor	Maurice	Clearlake Resident
21	Turner	Patti	Colusa County Resource Conservation District
22	Williams	Tim	Kennedy/Jenks

Appendix B.5

Notice of Intent

Colusa County Sun-Herald

249 5th Street
Colusa, CA 95932

Proof of Publication

STATE OF CALIFORNIA,
County of Colusa

Westside Regional Water Mgmt Group

Notice of Intent

I am not a party to or interested in the matter noticed. I am the principal clerk of the printer of the **Colusa Sun-Herald**, a newspaper of general circulation in the City of Colusa, County of Colusa, State of California, to which newspaper was adjudged by the Superior Court of the State of California in and for the County of Colusa under date of June 9, 1952, Case Number 10316.

The Notice, of which the annexed is a printed copy, appeared in said newspaper on the following dates:

May 23 & 30, 2012

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct.

Date: **June 1, 2012**

Kellie Smith

(Signature)

Notice of Intent of the Westside Regional Water Management Group to Prepare an Integrated Regional Water Management Plan

NOTICE IS HEREBY GIVEN that the Westside Regional Water Management Group (RWMG) intends to prepare an Integrated Regional Water Management (IRWM) Plan for the Westside Subregion of the Proposition 84 Sacramento River Funding Area. The RWMG is an organization formed by Lake County Watershed Protection District, Napa County Flood Control & Water Conservation District, Solano County Water Agency, Water Resources Association of Yolo County and Colusa County Resource Conservation District. The Plan is being developed to identify and address regional water resources opportunities and challenges for the areas within the Cache and Putah Creeks watersheds.

Public participation and input from residents and other stakeholders is encouraged throughout the IRWM planning process, which will be ongoing throughout 2012 and early 2013. Information related to development of the IRWM Plan and opportunities for public involvement is available at the Westside IRWM website: http://www.westsideirwm.org.

Questions? 530-661-8115 or info@westsideirwm.com

CS - May 23 & 30, 2012 Ad #00138183

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Lake County Record-Bee
2150 S. Main St., PO Box 849
Lakeport, CA 95453
(707) 263-5636
advertising@record-bee.com

Modeste, Sarah
974 Ashford Ln
Lincoln CA 95648

Affidavit of Publication
STATE OF CALIFORNIA
County of Lake

I, Timberlynne Graham, being first duly sworn, depose and say: That at and during all the dates and times herein mentioned I was, and now am the legal clerk of the Lake County Record-Bee, a newspaper published for the dissemination of local or telegraphic news and intelligence of a general character, having a bona fide subscription list of paying subscribers, and which is, and has been, established, printed and published at regular intervals, to-wit: Daily (except Sunday and Monday) in the City of Lakeport, County and State aforesaid, for more than one year preceding the date of the publication below mentioned, a newspaper of general circulation, as that term is defined by Section 6,000 et al, of the Government Code of the State of California, and is not and was not during any said times, a newspaper devoted to the interests or denomination, or for any members of such classes, professions, trades, callings, races or denominations.

That at, and during all of said dates and times herein mentioned, affiant had and now has knowledge and charge of all notes and advertisements appearing in said newspaper; that the notice of which the annexed is printed copy, was published each week in the regular and entire issue of one or more number of the said newspaper during the period and times of publication thereof, to-wit:

For 2 issues published therein on the following dates, viz: 5/19/2012, 5/26/2012;

that said notice was published in said newspaper proper and not in a supplement; that said notice, as so published, was set in type not smaller than nonpareil, and was preceded with words printed in black face type not smaller than nonpareil, describing and expressing in general terms the purport and character of said notice, as fully appears from the exact copy of said notice, which is hereto annexed as aforesaid.

Executed this 29th day of May, 2012 at Lakeport, California. I hereby declare under penalty of perjury that I have read the foregoing and that it is true and correct.

Timberlynne Graham, Legal Clerk

Legal No. **0004442861**

RB14039
Notice of Intent of the Westside Regional Water Management Group to Prepare an Integrated Regional Water Management Plan

NOTICE IS HEREBY GIVEN that the Westside Regional Water Management Group (RWMG) intends to prepare an Integrated Regional Water Management (IRWM) Plan for the Westside Subregion of the Proposition 84 Sacramento River Funding Area. The RWMG is an organization formed by Lake County Watershed Protection District, Napa County Flood Control & Water Conservation District, Solano County Water Agency, Water Resources Association of Yolo County and Colusa County Resource Conservation District. The Plan is being developed to identify and address regional water resources opportunities and challenges for the areas within the Cache and Putah Creeks watersheds.

Public participation and input from residents and other stakeholders is encouraged throughout the IRWM planning process, which will be ongoing throughout 2012 and early 2013. Information related to development of the IRWM Plan and opportunities for public involvement is available at the Westside IRWM website: http://www.westsideirwm.org.

Questions? 530-661-8115 or info@westsideirwm.com
Pub: 5/19, 5/26/2012

Legals

default, and your wages, money, and property may be taken without further warning from the court. There are other legal requirements. You may want to call an attorney right away. If you do not know an attorney, you may want to call an attorney referral service. If you cannot afford an attorney, you may be eligible for free legal services from a nonprofit legal services program. You can locate these nonprofit groups at the California Legal Services Web site (www.lawhelpcalifornia.org), the California Courts Ohnline Self-Help Center (www.courtinfo.ca.gov/selfhelp) or by contacting your local court or county bar association. **NOTE:** The court has a statutory lien for waived fees and costs on any settlement or arbitration award of $10,000 or more in a civil case. The court's lien must be paid before the court will dismiss the case. [AVISO] Lo han demandado. Si no responde dentro de 30 dias, la corte puede decidir en su contra sin escuchar su version. Lea la informacion a continuacion.

The name and address of the court is:

(El nombre y direccion de la corte es):

Lake County Superior Court, 255 N. Forbes Street, Lakeport, CA 95453 The name, address, and telephone number of plaintiff's attorney, or the plaintiff without an attorney, is: RICHARD SAX, 448 Sebastopol Ave., Santa Rosa, CA 95401 (707) 525-1824

s/October 31, 2011, Clerk Mary E. Smith/ Deputy Lori Berg.

M19-4TCIM

Notice of Intent of the Westside Regional Water Management Group to Prepare an Integrated Regional Water Management Plan

NOTICE IS HEREBY GIVEN that the Westside Regional Water Management Group (RWMG) intends to prepare an Integrated Regional Water Management (IRWM) Plan for the Westside Subregion of the Proposition 84 Sacramento River Funding Area. The RWMG is an organization formed by Lake County Watershed Protection District, Napa County Flood Control & Water Conservation District, Solano County Water Agency, Water Resources Association of Yolo County and Colusa County Resource Conservation District. The Plan is being developed to identify and address regional water resources opportunities and challenges for the areas within the Cache and Putah Creeks watersheds.

Public participation and input from residents and other stakeholders is encouraged throughout the IRWM planning process, which will be ongoing throughout 2012 and early 2013. Information related to development of the IRWM Plan and opportunities for public involvement is available at the Westside IRWM website: http://www.westsideirwm.org.

Questions? 530-661-8115 or info@westsideirwm.com

M21-2TCIM

NOTICE OF TRUSTEE'S SALE File No. 7042.24538 Title Order No. 6472733 MIN No. 1000157-0006116528-4 APN 050-671-080-000 YOU ARE IN DEFAULT UNDER A DEED OF TRUST, DATED 09/26/06. UNLESS YOU TAKE ACTION TO PROTECT YOUR PROPERTY, IT MAY BE SOLD AT A PUBLIC SALE. IF YOU NEED AN EXPLANATION OF THE NATURE OF THE PROCEEDING AGAINST YOU, YOU SHOULD CONTACT A LAWYER. A public auction sale to the highest bidder for cash, cashier's check drawn on a state or national bank, check drawn by state or federal credit union, or a check

Woodland Daily Democrat

711 Main Street
Woodland, CA 95695
530-406-6223
legals@dailydemocrat.com

Legal No. **0004443391**

Modeste, Sarah
3634531
974 Ashford Lane
Lincoln CA 95648

PROOF OF PUBLICATION
(2015.5 C.C.P.)

STATE OF CALIFORNIA
County of Yolo

The Daily Democrat

A newspaper of general circulation, printed and published daily in the City of Woodland, County of Yolo, and which newspaper has been adjudged a newspaper of general circulation as defined by the Superior Court of the County of Yolo, State of California, under the date of June 30, 1952, and in accordance with the provisions of Title 1, Division 7, of the government Code of the State of California; that the notice, of which the annexed is a printed copy (set in type not smaller than nonpareil), has been published in each regular and entire issue of said newspaper and not in any supplement thereof on the following dates, to-wit:

5/19/2012, 5/25/2012

I certify (or declare) under penalty of perjury that the foregoing is true and correct.

Dated at Woodland, California,
this 25th day of May 2012

Brenda Fernandez

Signature

This space is for the County Clerk's Filing Stamp

Notice of Intent of the Westside Regional Water Management Group to Prepare an Integrated Regional Water Management Plan

NOTICE IS HEREBY GIVEN that the Westside Regional Water Management Group (RWMG) intends to prepare an Integrated Regional Water Management (IRWM) Plan for the Westside Subregion of the Proposition 84 Sacramento River Funding Area. The RWMG is an organization formed by Lake County Watershed Protection District, Napa County Flood Control & Water Conservation District, Solano County Water Agency, Water Resources Association of Yolo County and Colusa County Resource Conservation District. The Plan is being developed to identify and address regional water resources opportunities and challenges for the areas within the Cache and Putah Creeks watersheds.

Public participation and input from residents and other stakeholders is encouraged throughout the IRWM planning process, which will be ongoing throughout 2012 and early 2013. Information related to development of the IRWM Plan and opportunities for public involvement is available at the Westside IRWM website: http://www.westsideirwm.org.

Questions? 530-661-8115 or info@westsideirwm.com

Appendix B.6

eNews

WESTSIDE SAC IRWM

Integrated Regional Water Management Plan

westsideirwm.com 530-661-8115

enews

Issue No. 1 - April 6, 2012

More than 70 attendees representing five counties participated in the Westside Sacramento IRWM Plan kick off meetings. Meeting materials and reports are now available online.

Projects prioritized in the Westside Sacramento IRWM Plan will be eligible for State Prop 84 and 1E Grant Funding.

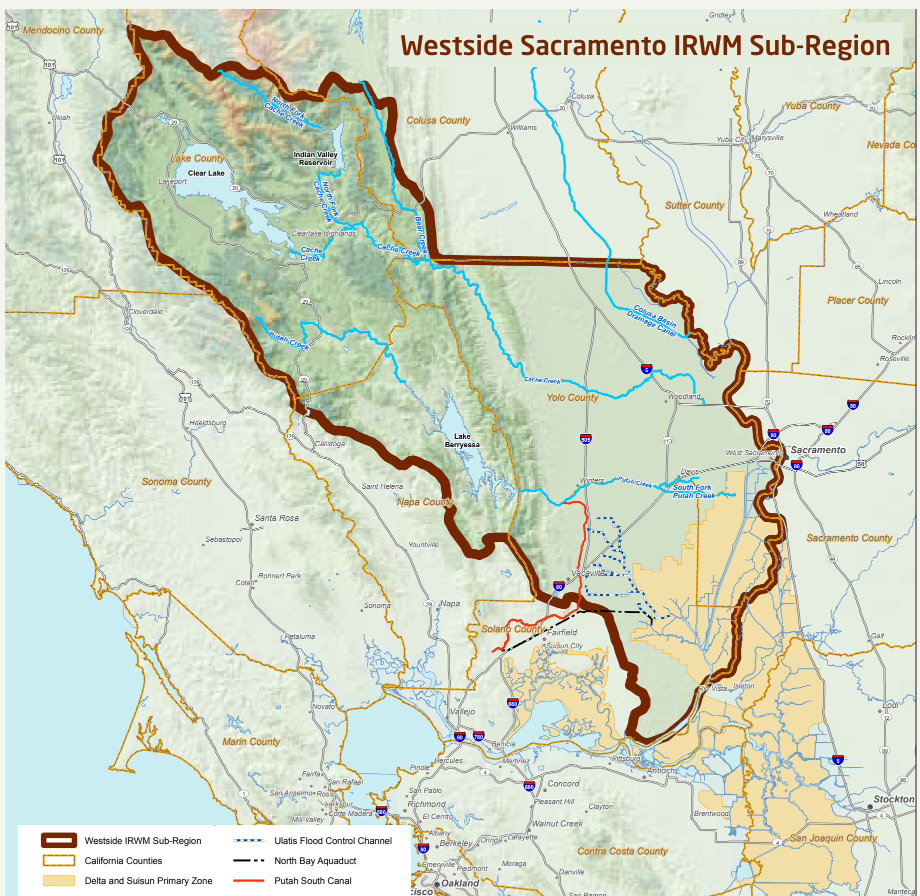
Public input is needed for the identification of local and regional challenges and opportunities in water supply reliability and quality, stormwater management, flood management, environment and habitat, and wetlands, among other areas.

Plan Kick Off Meetings a Success

Three community forums were held recently in Vacaville, Woodland, and Clearlake to initiate the Westside Sacramento Integrated Regional Water Management (IRWM) Plan development process. The Westside Sacramento Regional Water Management Group – represented by its consultant team – introduced the planning process and solicited preliminary input on water resources challenges and opportunities specific to the Cache and Putah Creek Watersheds. Details including meeting materials and participant input can be viewed online at www.westsideirwm.com/meetings.

Why the IRWM Plan is Important

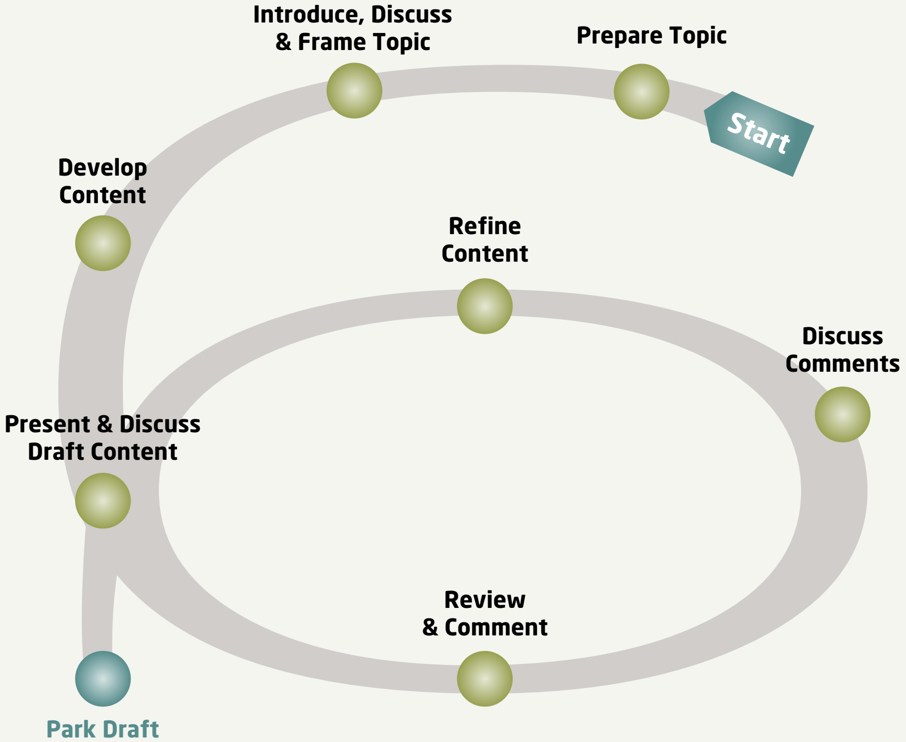
The Westside Sacramento IRWM Plan will be a living document that includes an analysis of current and future anticipated water resources challenges and opportunities, potential projects that benefit multiple areas (flood management and ecosystem restoration, for example), and recommendations for actions, among other things. Once completed, the IRWM Plan can be used to support improved water management across the region and requests for state and federal funding to implement priority projects. In fact, a current IRWM plan is required to be eligible for state grant funding (Proposition 84 and 1E) to pay for the implementation of projects, programs, and actions that improve water supply reliability and quality; improve flood management practices; and improve environmental conditions and habitat areas. Visit www.westsideirwm.com/about.



Public Involvement Key to Plan Development

Engaging stakeholders is a primary goal of the Westside Sacramento IRWM Plan development process. Public input will be given considerable weight during a process that will also include an in-depth review of existing water management-related documents, and input provided by water agencies, non-governmental organizations, state and federal agencies, cities, and counties within the region. Public and organizational input and document review will inform the final content of the IRWM Plan.

Information related to IRWM Plan topics – to include potential projects that address regional challenges – will be presented and discussed during interactive stakeholder meetings (see below for upcoming meeting schedule). Draft IRWM Plan sections will be prepared based on the research and discussion of each topic and then provided for public discussion, review and comment. The draft sections will be revised, as needed, and then made available again for review and comment until the content is broadly accepted, as depicted on the iterative Plan Development Process graphic provided below.



Upcoming Regional Meetings to Cover Current and Future Conditions

Stakeholders will be asked to help shape a summary of current and anticipated future conditions in the Cache and Putah Creek Watersheds during the next round of regional community meetings. The resulting input will help inform the IRWM Plan development process, especially as it relates to challenges and opportunities and the development of plan objectives. Discussion will include an overview of water in the region, how demands are met, water quality and reliability, existing plans and vision for the future, climate change, and future land use, population and water demands, among others.

Westside Sacramento Regional Water Management Group (RWMG)

The RWMG was formed by Colusa County Resource Conservation District, Lake County Watershed Protection District, Napa County Flood Control and Water Conservation District, Solano County Water Agency, and Water Resources Association of Yolo County with the intent of developing, maintaining, and implementing an IRWM Plan for the Westside Sacramento region. www.westsideirwm.com/who

Upcoming Meetings

1-5 p.m., Monday, April 23
Woodland Community & Senior Center
2001 East Street, Woodland

1-5 p.m., Tuesday, April 24
Clearlake Senior/Community Center
3245 Bowers Avenue, Clearlake

The Westside Sacramento IRWM is being funded by a Proposition 84 grant from the Department of Water Resources and a consortium of agencies representing a five-county region that includes the Cache and Putah Creek Watersheds.

CONTACT US

Questions or comments about the Westside Sacramento IRWM Plan development?

Please visit **www.westsideirwm.com**
e-mail **info@westsideirwm.com**
or call **(530) 661-8115**

WESTSIDE SAC IRWM
Integrated Regional Water Management Plan

westsideirwm.com 530-661-8115

enews
Issue No. 2 - July 2, 2012


Lake Solano

Plan Will Shape Region's Water Future

The Integrated Regional Water Management (IRWM) Plan will identify regional water resources challenges and opportunities and prioritize actions and projects to address them. The Westside Sacramento IRWM planning process is your chance to help shape your region's water future! The goal is to leverage the resources of five agencies spanning the counties of Colusa, Lake, Yolo, Napa and Solano (Westside Sacramento Regional Water Management Group), and pursue state and federal funding to implement projects identified through the planning process. Residents from within the planning area are strongly encouraged to participate in developing the plan and identifying projects, and can do so by attending community meetings (in person, or watch online), reading and commenting on documents, and bringing forward concerns and suggestions.

Why the IRWM Plan is Important

Once completed, the IRWM Plan will be used to guide improved water management across the region and support requests for state and federal funding to implement priority projects. In fact, a current IRWM plan is required to be eligible for state grant funding (Proposition 84 and 1E) to pay for the implementation of projects, programs, and actions that improve water supply reliability and quality; improve flood management practices; and improve environmental conditions and habitat areas. www.westsideirwm.com/about.

Meeting #6 Documents Ready for Review & Comment

Join us for Meeting #6 on July 9 to share your thoughts and/or email them to info@westsideirwm.com by July 16.

Mark Your Calendar for Meeting #6 - July 9

Meeting to Cover Project Evaluation and Prioritization

Provide your input on how potential projects should be evaluated and prioritized from 2-5 p.m., Monday, July 9, at the Woodland Community & Senior Center (2001 East Street, Woodland). This meeting will be live streamed online, and comments and questions may be submitted electronically during the meeting. www.westsideirwm.com

Missed a meeting? Details including meeting materials and participant input can be viewed online at www.westsideirwm.com/meetings

Submit your projects now! Projects prioritized in the Westside Sacramento IRWM Plan may be eligible for State Prop 84 and 1E Grant Funding.

Call for Projects! Project Information Forms due by August 1

Have an idea or proposal for a water resources project? A "project" doesn't have to be something that you build. It can also be a study, planning process, or other activity to support improved water management across the region. Project ideas may fall under any of the following broad categories:

- Water supply reliability
- Water conservation
- Water quality improvement
- Storm water management
- Flood management
- Invasive species abatement
- Mercury contamination cleanup
- Wetlands enhancements and protections
- Environmental and habitat improvements and protections

The revised Call for Projects Form is available at www.westsideirwm.com today (July 2). Submissions are due by August 1.

Input Needed on How Projects will be Evaluated and Prioritized

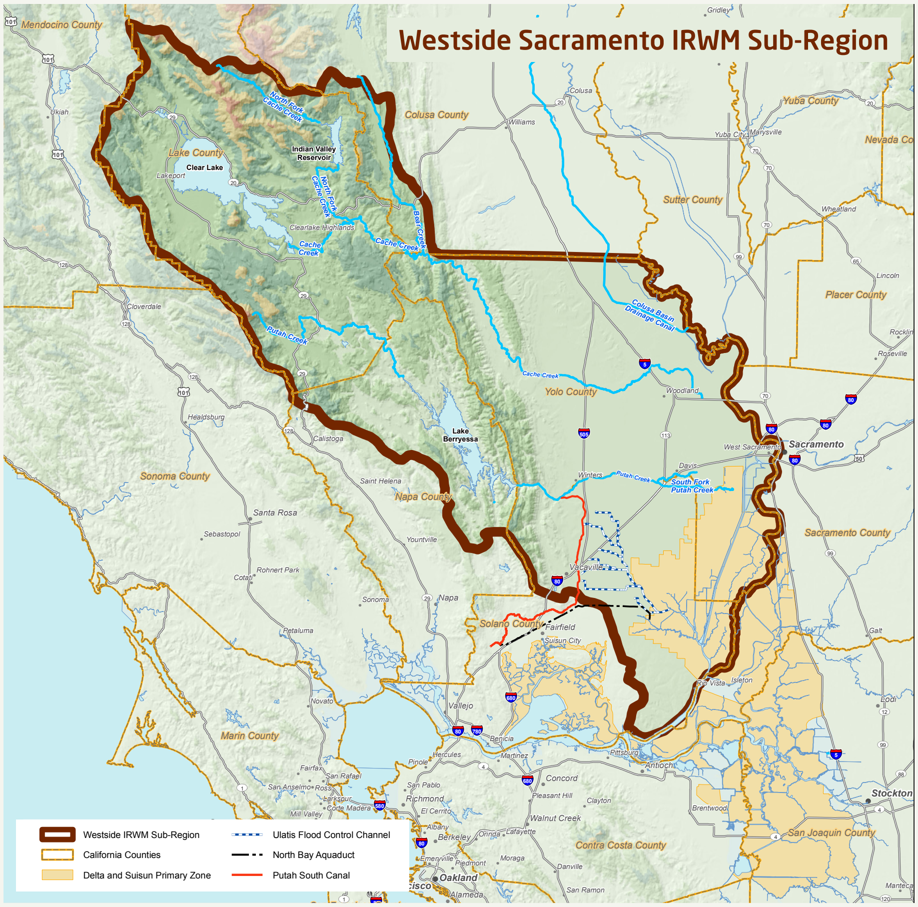
Once project forms have been collected, they will be evaluated and prioritized for possible inclusion in the IRWM Plan. The prioritization process will include at least the following components:

- Contribution to Westside IRWMP objectives
- Relationship to Resource Management Strategies
- Technical feasibility
- Costs, financing and economic feasibility
- Project status (i.e. conceptual, planning, feasibility, pre-design, environmental, final design, permitting, or construction bidding)
- Level of integration potential (including multi-benefit projects)
- Project sustainability
- Benefits to Disadvantaged Communities
- Benefits to Tribes
- Environmental justice considerations
- Climate change and GHG considerations

How these, and other, factors will be considered and weighted is to be determined as part of the planning process with considerable input from stakeholders.

Fast Facts on the Westside IRWM Planning Region

- Spans five counties: Lake, Colusa, Yolo, and parts of Solano and Napa
- Includes the Cache Creek and Putah Creek Watersheds
- Key water bodies include Clear Lake, Lake Berryessa, Indian Valley Reservoir, Putah Creek, and Cache Creek
- Includes 9 cities and more than 70 special service districts



Westside Sacramento Regional Water Management Group (RWMG)

The RWMG was formed by Colusa County Resource Conservation District, Lake County Watershed Protection District, Napa County Flood Control and Water Conservation District, Solano County Water Agency, and Water Resources Association of Yolo County with the intent of developing, maintaining, and implementing an IRWM Plan for the Westside Sacramento region. www.westsideirwm.com/who

Upcoming Meetings

Meeting #6: July 9, 2-5 p.m.

Woodland Community & Senior Center
2001 East Street, Woodland
(*this meeting will also be streamed live online)*

Save the Dates!

Meeting #7 will be held in two locations:
September 17 - 2 p.m.-5 p.m.
Vacaville Public Library - Town Square
1 Town Square Place

September 18 - 2 p.m.-5 p.m.
Clearlake City Council Chambers
14050 Olympic Drive

Content for both meetings will be identical.

Interested in attending Westside IRWM Meetings Online? Hear What Others Are Saying!

"...[Live streaming the meeting] is a GREAT venue! Saved me a lot of time and driving! And it is actually working! Thanks again for those of us with extremely limited resources!"
– Online Meeting Participant, Yolo County

The Westside Sacramento IRWM is being funded by a Proposition 84 grant from the Department of Water Resources and a consortium of agencies representing a five-county region that includes the Cache and Putah Creek Watersheds.

CONTACT US

Questions or comments about the Westside Sacramento IRWM Plan development?

Please visit **www.westsideirwm.com**
e-mail **info@westsideirwm.com**
or call **(530) 661-8115**

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Integrated Regional Water Management Plan

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westsideirwm.com 530-661-8115

Issue No. 3 - October 11, 2012

Upcoming Meetings

Coordinating Committee Meeting

Oct. 15, 9 a.m.-Noon
Solano County Water Agency
810 Vaca Valley Parkway, Vacaville

The Coordinating Committee will be finalizing Plan Goals and Objectives, agreeing upon the final project selection and prioritization process, and discussing potential governance approaches for Plan implementation.

Project Integration Workshop

Oct. 24, 10 a.m. - 3:30 p.m.
Best Western El Grande Inn
15135 Lakeshore Drive, Clearlake

Coordinating Committee Meeting

Nov. 7, 9 a.m. - Noon
Woodland Community & Senior Center
2001 East Street, Woodland

Meeting #8

Dec. 13, 1:30 - 4:30 p.m.
Woodland Community & Senior Center
2001 East Street, Woodland

Dec. 18, 1:30 - 4:30 p.m.
Clearlake City Council Chambers
14050 Olympic Drive, Clearlake

Missed a Meeting?

Presentations, handouts, meeting video and stakeholder feedback are available for past meetings at www.westsideirwm.com/meetings.

CONTACT US

Questions or comments about the Westside Sacramento IRWM Plan development?

Please visit **www.westsideirwm.com**
e-mail **info@westsideirwm.com**
or call **(530) 661-8115**

Project Integration Workshop

Oct. 24, 10 a.m. - 3:30 p.m.
Best Western El Grande Inn
15135 Lakeshore Drive, Clearlake

Join us for a Project Integration Workshop at 10 a.m. on Wednesday, October 24, 2012. The interactive working session will provide an opportunity for interested parties to discuss potential projects with one another and identify opportunities for collaboration and integration. The consultant team will be available to facilitate conversations and answer questions about project integration and the project submittal process. No new content will be presented.

If you are interested in discussing one or more particular projects, please contact the project proponents ahead of time and invite them to attend the workshop.

Participants will have a break for lunch between noon and 1:30 p.m. The consultant team will be present during the morning and afternoon sessions to assist as needed.

Help Evaluate & Prioritize Projects!

More than 135 Project Information Forms from 26 different organizations have been submitted to date for potential inclusion in the Westside Sacramento IRWM Plan. The projects, totaling $1.6 billion, must now be reviewed and ranked to determine which will be included in the Westside IRWM Plan.

Project Information Form - Deadline Extended

The deadline for submitting a Project Information Form has been extended to November 14, 2012. Projects within this region must be included in the Westside IRWM Plan to be eligible for future Prop 84 IRWM implementation grants. Email completed forms to info@westsideirw.com.

Projects will be categorized on the basis of three levels of priority: High, Medium and Low. Stakeholders are invited to participate in the project evaluation and prioritization process. Visit www.westsideirwm.com/documents to review the submitted forms, then email info@westsideirwm.com with feedback on the prioritization level for projects. Stakeholders will review feedback and determine which projects will be included in the Westside IRWM Plan during future public workshops.

The Westside Sacramento IRWM is being funded by a Proposition 84 grant from the Department of Water Resources and a consortium of agencies representing a five-county region that includes the Cache and Putah Creek Watersheds.

Westside Sacramento Regional Water Management Group (RWMG)

The RWMG was formed by Colusa County Resource Conservation District, Lake County Watershed Protection District, Napa County Flood Control & Water Conservation District, Solano County Water Agency, and Water Resources Association of Yolo County with the intent of developing, maintaining, and implementing an IRWM Plan for the Westside Sacramento region. www.westsideirwm.com/who

Appendix C

Technical Analysis

Appendix C: Technical Analysis

This appendix includes summaries of the technical data, analyses, and evaluations of the water resources information synthesized for the Westside IRWM Plan. There are vast volumes of information available in each of the topic areas highlighted in this appendix. Therefore, only a high level selection of important information is provided to assist with a better understanding of the content presented in the IRWM Plan. This appendix is divided into the following 5 subsections:

- **C.1: Population and Demographics:** population estimates and other demographic characteristics of the Region.
- **C.2: Water Quantity:** description of the approach and assumptions regarding the development of the water balance.
- **C.3: Water Quality:** summary of water quality constituents of concern, 303(d) listed water bodies, and water quality targets.
- **C.4: Environmental Resources:** listing of the special status species, regional habitat characteristics, and a description of invasive plants
- **C.5: Climate Change Vulnerability Checklist:** the completed DWR Climate Change Vulnerability checklist.
- **C.6: Land Use Planning and Water Management:** summary of local land use and water management planning documents considered in development of the Plan.

Appendix C.1

Population and Demographics

C.1 Population and Demographics

C.1.1 Population

Current population within the Region is shown in Table C.1-1, based on the 2010 U.S. Census Data.

Table C.1-1 - Population by Planning Area

	Communities/Cities	Rural	Total
Valley Floor	293,871	29,759	323,630
Upper Putah Creek	8,841	2,939	11,780
Upper Cache Creek	46,788	8,767	55,555
Westside Subregion	342,876	48,089	390,965

Source: U. S. Census Bureau, 2010 Population by Census Block

Historical growth within the region has been relatively constant over the past 40 years with an increase in population by roughly 250,000 people between 1970 and 2010. Future population projections were conducted based on Sacramento Area Council of Governments (SACOG), Association of Bay Area Governments (ABAG) and Lake County General Plan projected growth rates and the 2010 U.S. Census. Projected growth for the planning horizon (2035) is estimated to reach approximately 550,000 persons. Table C.1-2 details the projected population growth by place and Planning Area.

Table C.1-2 - Population Projections by Community and Planning Area

	2010	GR	2015	GR	2020	GR	2025	GR	2030	GR	2035
Dixon[(a)]	18,376	1.62%	19,916	1.21%	21,148	1.14%	22,380	0.81%	23,304	1.04%	24,536
Rio Vista[(a)]	7,346	2.59%	8,348	2.66%	9,516	2.34%	10,685	1.95%	11,770	1.65%	12,772
Vacaville[(a)]	92,344	0.58%	95,030	0.46%	97,253	0.43%	99,383	0.39%	101,328	0.31%	102,903
Solano County - Rural[(a)]	4,648	0.94%	4,870	0.57%	5,012	0.40%	5,113	0.39%	5,214	0.08%	5,234
Davis[(b)]	64,965	0.95%	68,117	0.95%	71,421	0.95%	74,886	0.95%	78,519	0.95%	82,328
West Sacramento[(b)]	48,744	2.54%	55,244	2.54%	62,611	2.54%	70,960	2.54%	80,422	2.54%	91,147
Winters	6,624	1.47%	7,125	1.47%	7,664	1.47%	8,243	1.47%	8,866	1.47%	9,537
Woodland[(b)]	55,472	0.96%	58,196	0.96%	61,053	0.96%	64,051	0.96%	67,196	0.96%	70,495
Yolo County - Rural[(b)]	25,111	1.23%	26,696	1.23%	28,380	1.23%	30,171	1.23%	32,075	1.23%	34,099
Valley Floor Planning Area	**323,630**		**343,541**		**364,058**		**385,871**		**408,694**		**433,050**
Lake County - Communities/Cities[(c)]	46,788	2.00%	51,658	2.00%	57,034	2.00%	62,970	2.00%	69,525	2.00%	76,761
Lake County – Rural[(c)]	8,687	0.75%	9,018	0.75%	9,361	0.75%	9,717	0.75%	10,087	0.75%	10,471
Colusa County – Rural[(d)]	30	0.75%	31	0.75%	32	0.75%	34	0.75%	35	0.75%	36
Yolo County - Rural[(b)]	50	1.23%	53	1.23%	57	1.23%	60	1.23%	64	1.23%	68
Upper Cache Creek Planning Area	**55,555**		**60,760**		**66,484**		**72,781**		**79,710**		**87,336**
Lake County -Communities[(c)]	8,841	2.00%	9,761	2.00%	10,777	2.00%	11,899	2.00%	13,137	2.00%	14,505
Lake County - Rural[(c)]	278	0.75%	289	0.75%	300	0.75%	311	0.75%	323	0.75%	335
Napa County - Rural[(a)]	2,661	0.94%	2,788	0.57%	2,869	0.40%	2,927	0.39%	2,985	0.08%	2,997
Upper Putah Creek Planning Area	**11,780**		**12,838**		**13,946**		**15,137**		**16,445**		**17,836**
Westside Subregion	**390,965**		**417,138**		**444,488**		**473,790**		**504,849**		**538,222**

Source: 2010 Population based on GIS calculation of U.S. Census Bureau 2010 U.S. Census by Census Block Data, except for Lake County communities/city population which is based on 2008 Lake County General Plan, Table 2-1, Community Profiles projected 2010 population ;(a) Growth rate based on ABAG 2009 Projections; (b) Growth rate based on SACOG Draft 2012 Regional Data (c) Growth rate based on 2008 Lake County General Plan, Table 2-1, Community Profiles; (d) Colusa County growth rate assumed to be the same as Lake County rural growth rate. Note: GR=Growth Rate

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C.1.2 Demographics

Economic conditions throughout the Westside Region are greatly varying. For example, the Valley Floor Planning Area, has large industries of agriculture, higher education through UC Davis, and large industrial and commercial areas located in West Sacramento and Vacaville. Upper Putah Creek and Upper Cache Creek; however, have very different economic conditions. Areas in Upper Putah Creek and Upper Cache Creek are largely rural and agricultural areas with scattered small communities. Demographic data by county was obtained from the U.S. Census Bureau's American Community Survey and is located in Table C.1-3. Economic disparity between the areas becomes apparent when comparing the median household income (MHI) of Lake County to Yolo and Solano Counties. Lake County has a MHI of roughly $18,000 and $29,000 dollars per year less than Yolo and Solano Counties, respectively.

Table C.1-3 - Demographics by County

	Upper Putah			Valley Floor	
		Upper Cache			
	Napa	**Lake**	**Colusa**	**Yolo**	**Solano**
Age by % [1]					
Total population	100.00%	100.00%	100.00%	100.00%	100.00%
Under 5 years	6.00%	5.60%	8.60%	6.30%	6.50%
5 to 9 years	6.30%	5.50%	8.10%	6.10%	6.60%
10 to 14 years	6.60%	6.00%	7.90%	6.30%	6.90%
15 to 19 years	6.90%	6.50%	8.30%	9.60%	7.40%
20 to 24 years	6.10%	5.20%	6.00%	13.50%	7.00%
25 to 29 years	6.20%	5.20%	6.70%	7.50%	6.90%
30 to 34 years	6.00%	5.00%	6.30%	6.50%	6.40%
35 to 39 years	6.20%	5.00%	6.20%	5.90%	6.40%
40 to 44 years	6.80%	5.90%	6.30%	6.00%	6.80%
45 to 49 years	7.30%	7.30%	6.30%	6.20%	7.70%
50 to 54 years	7.30%	8.60%	6.60%	6.10%	7.70%
55 to 59 years	6.90%	8.50%	6.10%	5.60%	6.80%
60 to 64 years	6.20%	8.00%	5.00%	4.50%	5.60%
65 to 69 years	4.50%	5.90%	3.80%	3.10%	3.60%
70 to 74 years	3.20%	4.30%	2.60%	2.20%	2.70%
75 to 79 years	2.70%	3.10%	2.00%	1.70%	2.10%
80 to 84 years	2.20%	2.30%	1.70%	1.40%	1.50%
85 years and over	2.60%	2.10%	1.60%	1.50%	1.50%
Income by % [2]					
Less than $10,000	3.80%	7.70%	5.40%	6.80%	4.30%
$10,000 to $14,999	4.60%	9.60%	6.40%	5.50%	4.00%
$15,000 to $24,999	8.10%	15.50%	11.40%	10.40%	7.20%
$25,000 to $34,999	7.90%	11.40%	13.00%	8.70%	7.60%
$35,000 to $49,999	12.50%	16.90%	15.30%	12.80%	12.10%
$50,000 to $74,999	17.60%	18.10%	20.30%	17.50%	19.90%
$75,000 to $99,999	13.10%	7.70%	11.80%	11.80%	15.20%

	Upper Putah			Valley Floor	
		Upper Cache			
	Napa	Lake	Colusa	Yolo	Solano
$100,000 to $149,999	16.90%	9.10%	10.70%	15.80%	17.80%
$150,000 to $199,999	7.40%	2.60%	3.10%	5.90%	7.30%
$200,000 or more	8.10%	1.30%	2.70%	4.70%	4.60%
Median household income (dollars)	67,389	39,491	48,016	57,077	68,409
Mean household income (dollars)	92,424	51,867	62,138	75,575	82,467
Language Spoken at Home by % 3					
English only	66.50%	86.80%	54.30%	65.80%	70.60%
Spanish	26.20%	10.50%	44.10%	20.20%	15.90%
Asian and Pacific Islander languages	4.20%	1.10%	0.90%	7.20%	9.80%
Other languages	0.20%	0.30%	0.10%	0.80%	0.60%
Occupation by % 4					
Management, business, science, and arts occupations	34.60%	29.20%	24.50%	43.70%	32.80%
Service occupations	18.60%	22.10%	18.50%	15.90%	18.60%
Sales and office occupations	22.30%	23.60%	19.40%	21.70%	26.70%
Natural resources, construction, and maintenance occupations	12.70%	15.30%	22.60%	9.90%	11.00%
Production, transportation, and material moving occupations	11.80%	9.80%	14.90%	8.80%	11.00%
Industry by % 4					
Agriculture, forestry, fishing and hunting, and mining	6.90%	4.30%	21.90%	3.40%	1.30%
Construction	7.00%	9.20%	6.70%	5.70%	7.70%
Manufacturing	12.70%	3.80%	6.90%	4.50%	9.20%
Wholesale trade	3.00%	2.40%	3.00%	2.60%	2.80%
Retail trade	9.10%	13.80%	11.20%	10.50%	12.00%
Transportation and warehousing, and utilities	4.20%	5.10%	5.90%	4.00%	6.20%
Information	1.70%	1.60%	0.60%	1.80%	2.30%
Finance and insurance, and real estate and rental and leasing	5.60%	5.40%	5.10%	5.10%	7.40%
Professional, scientific, and management, and administrative and waste management services	9.20%	7.50%	5.30%	10.50%	8.60%
Educational services, and health care and social assistance	21.30%	22.70%	13.50%	30.70%	21.80%
Arts, entertainment, and recreation, and accommodation and food services	11.20%	12.10%	9.50%	8.20%	8.40%
Other services, except public administration	4.40%	5.70%	4.80%	4.40%	4.70%
Public administration	3.90%	6.30%	5.60%	8.50%	7.60%

Source: (1) U.S. Census Bureau 2010 Demographic Profile Data; (2) American Community Survey 2006-2010; (2) American Community Survey 2006-2010, ages 5 and up; (3) American Community Survey 2006-2010, population 16 and older.

Appendix C.2

Water Quantity

C.2 Water Quantity

Movement of water through the Westside Region is a complex process, and the water balance tool was completed in order to illustrate the movement, storage, and use of water throughout the Region. An overview of the water balance prepared for the Westside Region is described in Section 3 of the IRWM Plan. The following provides supplemental information and technical analyses used to develop the conceptual order of magnitude scale water balance summary.

As noted in Section 3, the water balance is not complete. All the data necessary to complete the water balance is not available and the data included is of varying accuracy. The water balance was developed using an aggregation of existing, available hydrologic and water supply information and reports. This Appendix describes the approaches used to prepare the water balance as well as some of the inconsistencies and limitations of the data available for the Westside Region. This information could be used as a starting point for development of a complete water balance should the Regional stakeholders choose to conduct studies and/or data collection in the future to gain further insight into how water moves through the Region. Figure C.2-1 outlines the key processes that delineate how water moves through the Region.

The availability and movement of water through the Region is highly dependent on the hydrologic conditions for that year; therefore, two water year types were analyzed during this assessment:

- Average Water Year – Used to represent how water moves through the Region during an average hydrologic year. The average hydrologic data (including precipitation and measured flows) of the years 1980-2000 was considered representative of an average year.

- Dry Water Year – Used to represent how water moves through the Region during a dry hydrologic year. For hydrologic data, the year 1988 was used as a representative dry year.

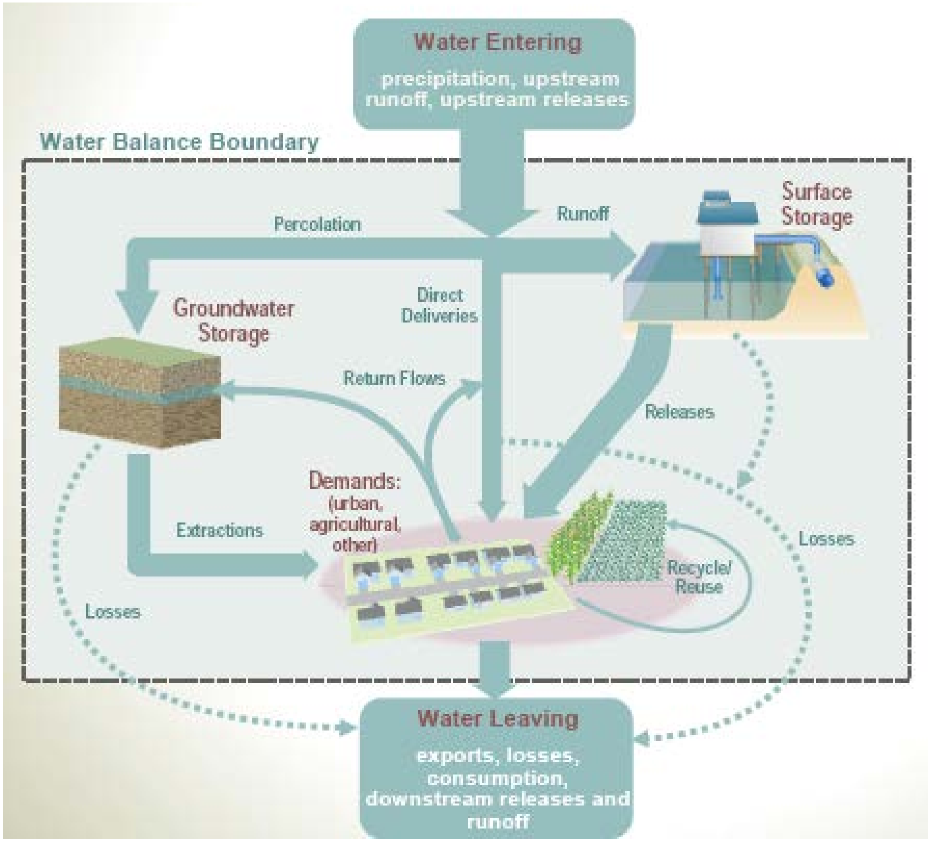

Figure C.2-1: Water Balance Schematic

C.2.1 Water Entering

Water enters each Planning Area of the Westside Region through multiple processes including precipitation, upstream runoff, upstream releases (regulated releases) and the import of water from outside the Region. Each of these is discussed in the following subsections.

C.2.2 Precipitation

Precipitation includes the water provided through rainfall or snow that falls on an area. Wherever possible, watershed level estimates of “unimpaired runoff” were used in the water balance as a surrogate for complex precipitation runoff analyses. Unimpaired runoff is a term referring to the full natural flow of a watershed that would have occurred prior to human influences, such as the construction of dams or diversions. Unimpaired runoff estimates were available for the Upper Cache Creek and Upper Putah Creek watersheds (Department of Water Resources, 2007).

Precipitation was not estimated for the Valley Floor due to a lack of published information that estimates annual rainfall for the entire Planning Area. Unimpaired runoff estimates prepared by the Department of Water Resources that include the Valley Floor PA include the entire Sacramento Valley watershed. The PA-specific data could not be readily extracted, therefore this information was not included.

C.2.3 Upstream Runoff

Upper Cache and Upper Putah Planning Areas are located at the upstream ends of each watershed, and therefore there is no upstream runoff into these Planning Areas. The Valley Floor PA upstream runoff was calculated as the sum of the measured flow from the Upper Putah and Upper Cache Creek watersheds minus the Upstream Releases (based on gage data).

C.2.4 Upstream Releases (Regulated Releases)

Upper Cache and Upper Putah Planning Areas have no upstream releases (regulated releases) because these watersheds are located at the top of the Region and there are no significant releases into the Planning Areas. Valley Floor upstream release inflows were calculated as the sum of the Solano Project direct deliveries, which includes releases from Lake Berryessa, and the Yolo County Flood Control & Water Conservation District (YCFCWCD) direct deliveries from Indian Valley Reservoir and Clear Lake.

C.2.5 Imported Water

Water supplies whose source water originated outside of the Westside Region boundary are categorized as imported surface water. Imported water supplies are used directly and not stored within the region. Upper Cache and Upper Putah Creek PAs do not receive any Imported Water. Valley Floor PA does use a significant amount of imported water. Many purveyors on the eastern side of Yolo County use riparian or appropriative water rights to divert water for agricultural and municipal uses from the Sacramento River, the state's largest river, or the Colusa Basin Drain. Some agencies within the Region also have contracts or agreements for deliveries from the Federal Central Valley Project (CVP) and California State Water Project (SWP) and their contractors.

Imported Water Infrastructure

Imported water infrastructure in the Region consists of many water intake facilities situated along the Sacramento River and in the Delta. In addition, the Tehama-Colusa Canal and Colusa Basin Drain are two prominent water canals that convey water into the Region across the Colusa/Yolo County Boundary.

a) North Bay Aqueduct

The North Bay Aqueduct (NBA) is a component of the SWP and provides water to several agencies in Solano County, including the City of Vacaville. The SWP supply originates in the Feather River watershed and is stored in Lake Oroville. Releases from Oroville flow into the Feather River until its confluence with the Sacramento River at the northeastern corner of the Region near Knight's Landing. The NBA was built by DWR in 1988 as part of the State Water Project to serve water users in Solano and Napa Counties. The NBA consists of an intake structure and pumping plant at Barker Slough in the Delta in the southeastern section of the Region. The 28 mile long NBA travels westerly through the region and terminates at the Cordelia Forebay, just outside the Westside Region. Water supply through the NBA is currently limited by pumping capacity and the water quality of Barker Slough. The North Bay Aqueduct has a design flow of 154 cfs; however pumping tests have shown that the maximum delivery is limited to 142 cfs. The SWP full contract amount that is to be served through the North Bay Aqueduct is 175 cfs. (SCWA, 2005)

b) Sacramento River Diversions,

There are several existing diversions along the Sacramento River that provide water for agricultural and M&I uses. One example of a diversion facility is the Reclamation District 2035 (RD 2035) diversion in eastern Yolo County. The Conaway Conservancy Group has appropriative rights on the Sacramento River, Willow Slough, and Cache Creek as well as CVP settlement water. RD 2035 currently diverts water from the Sacramento River via a large pumping plant near Vietnam Veterans Bridge on Interstate-5 (Water Resources Association of Yolo County, 2007) which is used to irrigate approximately 17,000 acres of agricultural lands, owned by the Conaway Conservancy Group.

c) Tehama-Colusa Canal

The Tehama-Colusa Canal is part of the United States Bureau of Reclamation CVP and serves users in Tehama, Glenn, Colusa and Yolo Counties. It begins north of the Region at the Red Bluff Diversion Dam and terminates in the northern portion of Yolo County. The Tehama-Colusa Canal provides agricultural water supplies for Colusa County Water District and Dunnigan Water District.

d) Colusa Basin Drain

The Colusa Basin Drain (Drain) runs southerly beginning in Glenn County and continues for 70 miles to Knights Landing in Yolo County, where there is a 7 mile extension of the drain that allows water to drain into the Yolo Bypass. The Drain consists of water from multiple sources including natural runoff, return flow from Sacramento River diversions, and other local sources. Water from the Drain is used for agricultural purposes by several Reclamation Districts.

e) Drinking Water Supplies

Drinking water supply is an important use of imported water; two of the three major surface water treatment plants in the Region (West Sacramento and Vacaville) treat water from imported sources, while the third draws water from Lake Berryessa (Vacaville). The City of West Sacramento's Bryte Bend Water Treatment Plant (WTP) treats Sacramento River water and has a design capacity of 58 million gallons per day (MGD). The permitted capacity of the Bryte Bend WTP is 40 mgd between November and March (City of West Sacramento 2010 UWMP). The North Bay Regional Water Treatment Plant (NBR WTP) is jointly owned by the Cities of Vacaville and Fairfield and treats water from both the Putah South Canal (Solano Project) as well as the North Bay Aqueduct (SWP). The NBR WTP has a capacity of 13.3 MGD designated for the City of Vacaville (Vacaville 2010 UWMP). The NBR WTP presents an example of interregional collaboration and the sharing of limited water resources to enhance supply reliability. The City of Vacaville also has a diatomaceous earth treatment plant that treats water from Lake Berryessa with a firm capacity of 10 MGD (Vacaville 2010 UWMP).

Reliability of Imported Supply

The amount of imported water available for a given application is highly variable and depends on hydrologic conditions in northern California, the season and timing of diversion, and a number of water rights and contractual factors specific to each water supply source. The actual amount of water diverted by each purveyor varies and depends on a number of conditions, such as applied water needs, climactic conditions, and mandated cutbacks. It is anticipated that the currently available water supply will continue to be available through the 2035 planning horizon under normal conditions, unless otherwise indicated.

a) Sacramento River Diversions

Most water diversions from the Sacramento River are appropriative or riparian water rights diversions approved through the State Water Resources Control Board (SWRCB) and are reliable sources under many conditions. Exceptions include potential Term 91 curtailments enacted by the SWRCB on appropriative water rights holders, which can require reductions in diversions starting with the most junior water rights holders on the river. For example, in 1991 and 1992, the City of West Sacramento was prohibited from diverting water from the Sacramento River using its appropriative water rights between the months of June and October (Carollo Engineers, 2011) Fortunately, the City of West Sacramento has access to multiple water rights sources and contracts, including pre-1914 water rights from the North Delta Water Agency (NDWA) and is therefore expected to be able to avoid supply shortages in most conditions.

b) State Water Project Supplies

State Water Project (SWP) supplies are shared by 29 water contractors throughout the State of California and therefore shortages affecting the SWP operations as a whole can also impact the North Bay Aqueduct diversions. Shortages experienced during dry years are proportional to their share of the overall contract with DWR. The City of Vacaville is also entitled to Settlement Water from DWR, which is made available in settlement of area-of origin water rights applications made by the cities of Fairfield, Benicia, and Vacaville. Settlement water is not considered SWP water (Nolte Associates, Inc., 2011).

The reliability of SWP deliveries is contingent upon a number of complex factors. The amount of SWP water supply delivered to contractors in a given year depends on the demand for the supply, amount of rainfall, snowpack, runoff, water in storage, Delta pumping capacity, and legal constraints on SWP operations. SWP delivery reliability depends on three general factors: 1) the availability of water at the source, 2) the ability to convey water from the source to the desired point of delivery and 3) the magnitude of demand for the water (Solano County Water Agency, 2011). Reliability projections are determined using DWR's State Water Project (SWP) Delivery Reliability Report, which was most recently updated in 2011.

c) Central Valley Project Supplies

The City of West Sacramento and Dunnigan Water District receive water from the USBR's Central Valley Project (CVP), which supplies water from the Sacramento River and storage in Lake Shasta. Water availability to CVP contractors is determined at the discretion of USBR, and is based on a combination of operational objectives, hydrologic conditions, reservoir storage conditions, and environmental needs. There is no limit on the shortage that USBR can impose on M&I or agricultural user's CVP water. In fact, USBR can reduce their CVP water delivery to zero. In 1992, the City of West Sacramento's CVP Diversions were reduced by 75 percent. Fortunately the City was able to use alternative water supplies to supplement these deficits. (Carollo Engineers, 2011)

d) Colusa Basin Drain

The Colusa Basin Drain (Drain) supply is dependent upon natural runoff and return flow from upstream Sacramento River diversions, therefore water is not assured or always available at the same time it is desired. Initially water users along the Drain had inadequate water rights to allow for the full use of water from the Drain so the 2047 Drain Water Users' Association was formed and negotiated a supplemental water supply contract with the U.S. Bureau of Reclamation. The contract became effective in 1988 and the Association became the Colusa Drain Mutual Water Company (MWC). The contract has a maximum project water quantity determined by the acreage irrigated on a year by year basis, which will not exceed 100,000 AFY (Water Resources Association of Yolo County, 2007). Much of the Colusa Drain MWC service area extends north of the Region along the Drain in Colusa County.

Summary of Imported Water

Table C.2-1 provides a summary of the imported water available in acre-feet per year (AFY) within the Region, categorized by supply source and purveyor. The table includes the current end uses of the supply diversions; whether it is for agriculture or municipal and industrial (M&I) purposes, as well as the average year and dry year supply projected in the water balance. The actual quantity of water diverted by each purveyor varies and depends on a number of conditions, such as applied water demands, contracts, climactic conditions, system operations, and regulations. It is anticipated that the currently available water supply will continue to be available through the 2035 planning horizon under normal conditions, unless otherwise stipulated.

Table C.2-1: Imported Surface Water Supplies

Imported Source/Purveyor	End Uses	Expected Available Supply[(a)] Average Year (AFY)	Potential Available Supply Dry Year (AFY)
Sacramento River [(c) (f)]			
Reclamation District 108	*Ag*	33,000	19,800
River Garden Farms	*Ag*	500	300
Colusa Basin Drain MWC	*Ag*	3,660	2,196
Conaway Conservancy Group	*Ag*	50,190	30,114
Reclamation District 108	*Ag*	199,000	119,400
Reclamation District 787 (River Garden Farms)	*Ag*	29,300	17,580
Woodland-Davis Clean Water Agency	*M&I*	45,000	27,000
City of West Sacramento[(d)]	*M&I*	28,600	18,350
Reclamation District 2068	*Ag*	75,000	45,000
Reclamation District 999	*Ag*	95,600	57,360
Subtotal – Sacramento River[(a)]		*549,600*	*329,760*
Colusa Basin Drain[(c) (f)]			
Colusa Basin Drain Mutual Water Company	*Ag*	Unknown	Unknown
Reclamation District 108	*Ag*	33,000	13,200
Reclamation District 787	*Ag*	1,090	436
Other	*Ag*	3,410	1,364
Subtotal – Colusa Basin Drain		*37,500*	*15,000*
Settlement Water (DWR)			
City of Vacaville[(d)]	*M&I*	9,320	9,320
State Water Project (SWP)[(d)]			
City of Vacaville	*M&I*	5,746	5,656
City of Dixon	*M&I*	960	945

Imported Source/Purveyor	End Uses	Expected Available Supply[(a)] Average Year (AFY)	Potential Available Supply Dry Year (AFY)
City of Rio Vista	*M&I*	960	945
Subtotal – State Water Project		*7,666*	*7,546*
Central Valley Project (CVP)[(c)]			
City of West Sacramento	M&I	(d)	(d)
River Garden Farms	*Ag*	500	500
Dunnigan Water District	*Ag*	19,000	4,750
Subtotal – Central Valley Project		*19,500*	*5,250*
Total Imported Supplies		***623,586***	***366,876***

(a) Available supply is the total reported water right, entitlement, or contract (may be reduced in dry years)
(b) TBD – to be determined
(c) WRA of Yolo County IRWMP – Appendix A
(d) City of Vacaville 2010 UWMP, City of West Sacramento 2010 UWMP. City of Vacaville DWR Settlement water includes Kern County Water Agency Settlement Agreement water. City of West Sacramento Sacramento River water supply includes CVP contracts and appropriative rights.
(e) All imported water sources are supplies within the Valley Floor PA water balance boundary.
(f) Dry Year assumes 60% reliability.

C.2.6 Water Within

The water within the balance boundary refers to movement and storage of water within each Planning Area. The available water versus the water demand within an area are estimated to highlight any deficiencies in water supply or highlight areas where improvements to conjunctive use or water conservation might be applied to improve water management within the Region. To describe this, the water within was simplified into two major categories: Water Supplies and Applied Water Demand.

C.2.6.1 Water Supplies

C.2.6.1.1 Direct Deliveries

Direct deliveries include upstream releases, imported water as well as water diverted under riparian and appropriative water rights and delivered to end users. Upper Putah and Cache Creek PAs do not have upstream releases or imported water, water supply is predominantly obtained from storage, and any appropriative or riparian water rights along streams were not quantified. Direct Deliveries to the Valley Floor PA are assumed equal to the sum of upstream releases from the Upper Cache and Putah Creek watersheds and imported water from outside the region. Water diverted from Cache and Putah Creek under riparian and appropriative water rights are unknown and therefore not quantified.

Cache Creek

Water from Cache Creek and Clear Lake is an important supply source and provides municipal and agricultural supply for users around Clear Lake in Lake County and agricultural supply in Yolo County. The Yolo County Flood Control and Water Conservation District (YCFCWCD) owns and operates the Cache Creek Dam consistent with the Gopcevic Decree, issued in 1920, which regulates how much water can be stored in Clear Lake during non-flood and flood conditions. YCFCWCD stores up to 150,000 AFY in Clear Lake for agricultural water use in Yolo County as allowed in the Solano Decree, which was approved in 1978. In 1975, YCFCWCD completed constructing the Indian Valley Reservoir, located on the North Fork of Cache Creek, to help meet agricultural water demands within Yolo County during dry years that could not be supplied by Clear Lake alone. Indian Valley Reservoir also provides 40,000 AF of reserve capacity for flood control out of its 300,600 AF total storage. (Water Resources Association of Yolo County, 2007)

Putah Creek

Runoff from the upper watershed of Putah Creek in Lake and Napa Counties is captured in Lake Berryessa. Lake Berryessa was created by the construction of Monticello Dam which provides a maximum storage capacity of 1,600,000 AF. Water stored in Lake Berryessa is part of the Solano Project, a federal project with the Bureau of Reclamation operated by Solano County Water Agency (SCWA) that supplies water to agencies in Solano County. Solano County agencies and USBR first conceived the project in the 1940s and 1950s to meet the increasing water demands of agriculture, municipalities and military facilities within Solano County.

The Solano Project provides water to agencies inside and outside the Westside Region. Solano Irrigation District, the City of Vacaville, UC Davis, and Main Prairie Water District all receive Solano Project water and are within the Westside Region; agencies outside the Region are the City of Vallejo, City of Fairfield, Suisun City, City of Benicia, and California State Prison – Solano. The contracted water supply (plus operational losses) for the Solano Project total 207,350 AFY, which is roughly consistent with USBR's estimation of "firm yield". Firm yield is the calculated amount of water supply available during the driest hydrologic period of record for the project. Approximately 154,873 AFY is allocated to water agencies within the Region, as summarized in Table C.2-2. (Solano County Water Agency, 2005)

Table C.2-2: Solano Project Water Supply Allocations within the Westside Region

Agency	Contract Amount
Maine Prairie Water District	15,000
California State Prison – Solano	1,200
Solano Irrigation District	141,000
City of Vacaville	5,750
UC Davis	4,000
Project Operating Losses[b]	(12,077)
Total – Solano Project (in Region)	***154,873***

(a) Source: Solano IRWMP, Appendix A, Page 12 – Table 2.
(b) Project operating losses are assumed at 15,000 AFY of total diversions and have been proportioned relative to the Solano county based contracts.

Other Local Supplies

Other surface water supplies in the Westside Region include riparian diversions from local streams and waterways. The Willow Slough and Willow Slough Bypass is located in between the Cache Creek and Putah Creek Watersheds and provides an intermittent water supply in Yolo County. Existing water rights diversions from the Willow Slough Bypass include 13,600 AFY by Conaway Ranch. Conaway Ranch water rights also include 10,000 AFY from Cache Creek.

C.2.6.2 Surface Water Storage

Surface water storage is a significant water resource for many users. Table C.2-3 summarizes the major reservoirs and dams in the Region, with their net usable capacity, as well as their average year and dry year estimated carryover storage. Carryover storage was estimated as the level in the reservoir as measured on October of the water year.

Table C.2-3: Major Lakes and Reservoirs

Reservoir	Planning Area	Dam	Net Usable Capacity (AF)	Average Year Carryover Storage (AF) [(a)]	Dry Year Carryover Storage (AF) [(b)]
Indian Valley Reservoir [(c)]	Upper Cache	Indian Valley Dam	300,600	153,600	50,600
Clear Lake [(d)]	Upper Cache	Cache Creek Dam	313,000	66,400	42,300
Lake Berryessa [(e)]	Upper Putah	Monticello Dam	1,602,000	1,103,000	965,300

(a) Average of water stored in October 1 of each water year between the period of 1980-2000.
(b) Water stored in October for water year 1988.
(c) (California Data Exchange Center, Sta. INV)
(d) (California Energy Commission, Sta. CLA)
(e) (California Data Exchange Center, Sta. BER)

Local Release Deliveries

Local release deliveries include deliveries within each PA that are directly released from water storage originating in that PA.

Local releases within the Cache Creek PA consists of releases from Clear Lake. YCFCWCD is contracted to provide up to approximately 23,700 AF of surface water to 16 purveyors around Clear Lake. Most of the water is used for municipal purposes. Users in Lake County reportedly have never used their full contractual amounts. About 7,950 AF of this amount is also allotted to the Geysers hydrothermal project outside the Region.

Local releases within the Upper Putah Creek PA consist of releases from Lake Beryessa; however, local release amounts are unknown and are therefore not quantified.

There are no large storage facilities in the Valley Floor PA, therefore local releases are shown as zero.

Reliability of Regional Surface Supplies

The reliability of water available from the Cache Creek, Putah Creek, and other local direct water supplies vary due to hydrologic conditions and various other constraints. As previously described, Cache Creek and Clear Lake diversions are dictated by the Solano Decree; for this reason the quantity of water available for diversion from this source can be as little as 0 AF under the driest of conditions. In most cases however, water is available to customers that depend on surface water supplies from the Cache Creek watershed. Similarly, the Solano Project supply from Lake Berryessa was determined based on the firm yield that the reservoir can provide which is up to several years' of storage, and is therefore expected to be highly reliable under most conditions (SCWA, 2011).

C.2.6.3 Groundwater Storage

Groundwater is also an essential water supply resource to the Region. The following descriptions of groundwater have been separated into Planning Area level discussions due to the unique aquifer characteristics in each area of the Westside Region. The groundwater basins are also briefly described and shown in Section 2.

Upper Cache Creek and Upper Putah Creek Planning Areas Groundwater Basins

Groundwater in the upper watersheds is extracted primarily from shallow alluvial deposits, the fractured sedimentary and metamorphic rock of the Franciscan Formation, and the Clear Lake volcanic deposits. Significant information is available for the major alluvial aquifers; however, there is very little information available for fractured bedrock and volcanic aquifers. The geologic and hydrologic characteristics of each groundwater basin differ with respect to many factors including the distribution of aquifer materials of varying permeability and material composition, sources of recharge, distribution over area and depth, and presence of boundaries or faults that limit groundwater flow.

Groundwater basins in the Upper Cache PA are the High Valley, Burns Valley, Lower Lake, Long Valley, Clear Lake Cache Formation, Middle Creek, Clear Lake Pleistocene, North Fork Cache Creek and Bear Valley. Limited information is available for these basins. It is known that groundwater levels in High Valley Basin has fluctuated significantly over the years; due to low recharge rates, groundwater levels are slow to recover following droughts. In the Upper Putah Creek Planning Area, the groundwater basins are composed primarily of alluvial deposits found in Coyote Valley, Collayomi Valley, Pope Valley and Berryessa Valley. The fractured metamorphic rock of the Clear Lake volcanic deposits which form the Clear Lake Pleistocene Basin are also found in the Planning Area.

Table C.2-4 provides a summary of the groundwater basins, formation type, approximate thickness, estimated storage capacity, and sustainable yield (if available).

Table C.2-4: Groundwater Basins in the Upper Cache Creek and Upper Putah Creek Planning Areas

Basin	Formation Type	Approximate Thickness (feet)	Usable Capacity (AF)[c]	Sustainable Yield
Upper Cache Creek Planning Area				
Upper Lake Valley Basin	Alluvium, terrace deposits, lake deposits	NKD[a]	5,000	NKD
Scotts Valley Basin	Alluvium, lake deposits, terrace deposits	40-105	4,500	NKD
Big Valley Basin	Alluvium, volcanic ash	30-430	60,000	NKD
High Valley Basin	Alluvium, volcanics	100	900	NKD
Burns Valley Basin	Alluvial, terrace depostis, lake deposits	250	1,400	NKD
Lower Lake Basin[b]	Alluvium, Lower Lake Formation	50-75	NKD	NKD
Long Valley	Alluvium	NKD	NKD	NKD
Clear Lake Cache Formation Basin	Cache Formation (alluvium and lake deposits)	13,000	NKD	NKD
Middle Creek Basin	Alluvium	NKD	NKD	NKD
Clear Lake Pleistocene Volcanics	Volcanics	1,600	NKD	NKD
North Fork Cache Creek Basin[c]	Alluvium	NKD	NKD	NKD
Bear Valley Basin	Alluvium	NKD	NKD	NKD
Upper Putah Creek Planning Area				

Basin	Formation Type	Approximate Thickness (feet)	Usable Capacity (AF)[c]	Sustainable Yield
Coyote Valley Basin	Alluvium, volcanics, Cache Formation	100-300	7,000	NKD
Collayomi Valley Basin	Alluvium	350-475	7,000	NKD
Pope Valley	Alluvium	25-30	7,000	NKD
Berryessa Valley	Alluvium	NKD	NKD	NKD

(a) NKD = No known data
(b) Thickness and storage capacity of the Lower Lake Formation are not included because the information is not known
(c) The North Fork Cache Creek Basin underlies Indian Valley Reservoir and is not used for water supply.
Sources: Lake County Groundwater Management Plan, DWR Bulletin 118

a) Percolation/Natural Recharge

Natural recharge can be variable and difficult to quantify for the multiple groundwater basins in the upper watersheds. The natural recharge is assumed to be equal to the estimated usable capacity developed for each of the groundwater basins. These values may be amended or updated in future iterations of the IRWM Plan as additional information becomes available.

b) Infrastructure

There are thousands of water supply wells in the Upper Cache and Putah Planning Areas. Many in Lake County rely on groundwater as a water source. Lake County has approximately 3,700 domestic/municipal wells, 800 irrigation wells and 800 other wells. Over 50 percent of domestic wells are shallow, less than 100 feet deep, and over 50 percent of irrigation wells are less than 125 feet deep (CDM, 2006c).

c) Reliability of Groundwater Supplies

Groundwater supply in the Upper Putah Creek Planning Area mainly comes from the Coyote Valley Basin and Collayomi Valley Basin. These basins rely on Putah Creek as their major groundwater recharge source. Historically the groundwater levels in these basins have remained fairly constant. Spring water levels in the Coyote Valley Basin are generally within 10 to 15 feet below ground surface; over the summer the water levels fluctuate between 5 to 10 in the eastern portion and 20 to 25 feet in the western portion of the basin. Spring water levels in the Collayomi Valley Basin are generally within 3 to 15 feet below ground surface and fluctuate between 5 and 20 feet through the summer. The Collayomi Valley Basin alluvium, which is the source of water for Middletown and nearby agricultural land, ranges from 350 to 475 feet.

The major groundwater supply basins in the upper watersheds are Big Valley, Scotts Valley, and Upper Lake Valley. Historically, the groundwater levels in these basins have remained fairly constant. The Big Valley Basin is composed of an alluvial portion in the north and volcanic ash in the south. In the northern portion, groundwater levels are typically shallow in the spring, within 5 feet of ground surface, and decrease from 10 to 50 feet through the summer. In the southern portion, spring groundwater levels begin around 70 to 90 feet below ground and drawdown 30 to 40 feet over the summer. Spring water levels in Scotts Valley Basin are generally within 10 feet of ground surface and fluctuate between 30 and 60 feet between spring and fall. Spring water levels in the Upper Lake Valley Basin are generally within 10 feet of the ground surface and fluctuates between 5 and 15 feet between spring and fall.

Groundwater levels appear to recover in most years in the primary groundwater basins, therefore it is assumed that groundwater supplies are reliable under most hydrologic conditions. There are some indications of temporary water level declines during drought periods, but the groundwater basins appear to recover fairly rapidly. There is no quantification that suggests placing a limit in groundwater pumping capacity that is more restrictive than the estimated sustainable yield for each basin.

In order to ensure a zero net change in groundwater levels, it is assumed that future extractions of groundwater will be limited to the available groundwater supplies (sum of the natural recharge and any artificial recharge).

Valley Floor Planning Area Groundwater Basins

The Valley Floor Planning Area is underlain by several subbasins of the Sacramento Valley Groundwater Basin, namely the Capay Valley Subbasin, Colusa Subbasin, Yolo Subbasin and Solano Subbasin. The water bearing formations of these basins are essentially contained within two stratigraphic units: (1) the older thick alluvial and river sediments of the Tehama formation, and (2) the younger sediments, floodplain deposits, and stream channel deposits that overlie the Tehama formation. Table C.2-5 provides a summary of the Valley Floor PA groundwater basins, formation type, approximate thickness, estimated storage capacity, and sustainable yield (if available).

Table C.2-5: Groundwater Basins in the Valley Floor PA

Basin	Formation Type	Approximate Thickness (feet)	Storage Capacity (AF)	Sustainable Yield
Colusa Subbasin	Alluvium, Tehama Formation	2,000	13,025,887	NKD[a]
Capay Valley Subbasin	Tehama Formation	1,000	99,800	NKD
Yolo Subbasin	Young alluvium, older alluvium, Tehama Formation	3,000	6,455,940	NKD
Solano Subbasin	Young alluvium, older alluvium, Tehama Formation	3,000	1,750,000	NKD

(a) NKD = No known data
Sources: Yolo County Integrated Regional Water Management Plan, DWR Bulletin 118

In Yolo County, studies of the groundwater subbasins have been divided into vertical zones of shallow, intermediate and deep. While there are no regionally continuous barriers to vertical flow, clay and silt layers act as impediments to vertical flow and the zone designations roughly correlate to geologic units and water well completion depths. The shallow zone, which extends to about 220 feet below ground surface, is the zone in which most domestic wells and many irrigation wells are located. The intermediate zone, which extends from 220 to 600 feet below ground surface, is the zone in which most public supply and irrigation wells exist. The deep zone, which extends from 600 to 1,500 feet below ground surface, contains relatively softer water and a few municipal wells for the City of Davis and UC Davis.

In Solano County, the Solano Subbasin can be divided smaller subareas. The Putah Creek Fan represents the most productive groundwater area. The Putah Creek Fan lies on the eastern edge of Solano County and consists of alluvium deposited by Putah Creek after the creek leaves the Vaca Mountains and enters the Valley Floor. The alluvial deposits range from 50 to 130 feet in depth. Beneath the young alluvium the Tehama Formation extends for roughly

3,000 feet. The Los Putos Foothills area lies between Vacaville and Lake Solano. This region is not a significant source of groundwater as it consists of disparate pockets of shallow alluvium and few gravel layers are found in the upper 1,000 feet of the Tehama Formation. The Southwest Putah Plain area lies to the south and west of the Putah Creek Fan. The alluvial deposits in this area are not as productive as the Putah Creek Fan as they consist of shallower clay deposits. The underlying Tehama Formation is the major water bearing unit in this area with wells for the City of Vacaville completed at depths up to 1,200 feet.

a) Percolation/Natural Recharge

The percolation is assumed to be equal to the estimated usable capacity developed for each of the groundwater basins. The Yolo County Integrated Groundwater/Surface Water Model was developed in 2006 and includes a full model of the hydrologic system in Yolo County. The natural recharge of the basins underlying Yolo County, and including a recharge buffer zone along Putah Creek which includes a portion of Solano County was estimated at 483,751 AFY (Water Resources & Information Management Engineering, Inc., 2006). The estimated natural recharge in Solano County is 40,000 AFY (Summers Engineering, Inc., 2003).

b) Artificial Recharge

Artificial recharge includes aquifer storage and recovery activities. Some agencies in the Westside Region, including YCFCWCD have explored and currently practice active groundwater recharge operations by maintaining flows in Cache Creek, which eventually percolates into and recharge the aquifer. YCFCWCD is able to accomplish this through operation of Indian Valley Reservoir and releases from Clear Lake. YCFCWCD is also exploring the potential for enhancing conjunctive use through percolation of water in their unlined canals during the non-growing season. (Water Resources & Information Management Engineering, Inc., 2006)

c) Groundwater Infrastructure

Groundwater infrastructure represents a significant investment of many water purveyors, farmers, and domestic self-suppliers in both Yolo and Solano Counties. There are more than 7,500 wells in Yolo County (Ludorff and Scalmanini, 2004). Many of the communities, including Woodland, Davis, Rio Vista, Winters, and Dixon rely wholly on groundwater to meet expected water demands. Some suppliers including Davis and UC Davis have begun to construct wells in the deeper portion of the Tehama formation in order to obtain improved water quality. Information on the number of wells specific to the portion of Solano County within the Region was not available.

C.2.6.4 Return Flows

Return flows include runoff from agricultural irrigation or outside landscape irrigation in developed areas that either reenter the surface water system, or percolate into the aquifers and are later recoverable. The term return flows refers to the part of applied water that is not consumed by evapotranspiration and that migrates to an aquifer or surface water body. For purposes of this IRWM Plan return flows were determined by the following equations:

Return Flows = Water applied – Water required

*Water required = Irrigation Efficiency (IE) * Water applied*

Substituting the second equation into the first,

Return Flows = Water applied – IE Water applied = (1- IE) * Water applied*

There are three types of return flows: agricultural, urban, and recycle/reuse. Actual return flows are a function of actual water applied within the study area. In certain year types, especially drier conditions there may not be enough water available to supply the total projected applied water need. Typically row and field crops in the Region have been fallowed, which would in turn reduce the total available return flows. Since the crop acreage that will be required to be fallowed in the future is not currently well understood, therefore return flows for agriculture were shown as constant for the dry and average year.

Agricultural Return Flows

Agricultural return flow rates were determined using the projected range of supply available for agricultural use and an irrigation efficiency of 75 percent. Assuming an irrigation efficiency of 75 percent and the equation above, agricultural return flows would be 25 percent (1-0.75 = 0.25) of the water applied to crops. The agricultural water applied was assumed to be equal to the water available for agricultural use and was estimated by applying the projected percentages of agricultural demand to the total projected water deliveries (sum of the surface deliveries, imported water deliveries, recycled water, natural and artificial recharge, and return flows). Basing the return flows on the available supply, as opposed to demand, allows for a better representation of future supplies. Estimates based on demand can overestimate supply since they include return flows on future demands which may not be met if there is not sufficient supply. Table C.2-6 provides the projected agricultural return flows.

Previous studies have indicated that there is some time-delay between when the water is applied to when it actually reaches the aquifer, however these estimates have varied from 1 to 2 years to as much as 10 years (USGS 2003). Time delays are extremely difficult to estimate and may vary by geographic location. However, for the purposes of this IRWM Plan, no time-delay is included since the water budget comparison is for long-term averages over the entire basin (or steady-state conditions), which absorb the variations from the time-delay.

Table C.2-6: Estimated Agricultural Return Flows, AF

Planning Area	Year Type	2010	2015	2020	2025	2030	2035
Valley Floor PA	Average	362,498	362,498	362,498	362,498	362,498	362,498
	Dry	388,654	388,654	388,654	388,654	388,654	388,654
Upper Cache PA	Average	7,680	7,680	7,680	7,680	7,680	7,680
	Dry	10,211	10,211	10,211	10,211	10,211	10,211
Upper Putah PA	Average	2,412	2,412	2,412	2,412	2,412	2,412
	Dry	2,796	2,796	2,796	2,796	2,796	2,796

a) Municipal and Industrial Return Flows

The ratio of indoor to outdoor water use for the Westside Region was used to estimate the return flows to the surface water system or deep groundwater percolation resulting from municipal and industrial water use. The statewide average for outdoor water use is approximately 50 percent of total residential demand. Summer water demand is then assumed to be equivalent to the total indoor and outdoor water use, while it is assumed that winter urban water use includes the indoor component only (as there is very little outdoor watering during this season). Thus, subtracting the winter M&I water use from the summer water demand would yield an estimate of outdoor water use for the Westside Region. The outdoor water use is then compared to the total water demand to get a percentage of outdoor water usage.

As with agricultural use, an irrigation efficiency of 75 percent is assumed, and thus M&I return flows are 25 percent of outdoor M&I applied water. Outdoor urban applied water was assumed to be 70 percent of total urban applied water. As with agricultural use, the total urban applied water was assumed to be the water available for urban use and was determined by applying the projected percentages of urban to the total projected water deliveries. Table C.2-7 provides a summary of anticipated urban return flows.

Table C.2-7: Municipal and Industrial Return Flow Estimates, AF

Planning Area	Year Type	2010	2015	2020	2025	2030	2035
Valley Floor PA	Average	10,416	11,938	12,208	13,182	14,160	15,389
	Dry	10,416	11,938	12,208	13,182	14,160	15,389
Upper Cache PA	Average	1,596	1,729	1,874	2,033	2,207	2,396
	Dry	1,596	1,729	1,874	2,033	2,207	2,396
Upper Putah PA	Average	276	314	359	412	475	549
	Dry	276	314	359	412	475	549

C.2.6.5 Recycled/Reused Water

b) Recycled Water Sources

Community wastewater collection, treatment, and disposal systems serve larger, more urbanized populations. The majority of domestic wastewater in the Westside Region is treated by community wastewater systems. Community wastewater systems influence how water moves within the Region and the availability of recycled water. Wastewater which is disposed of within the Region and is not currently consumptively used represents a source of water that could be captured for reuse. Table C.2-8 summarizes the current disposal methods for the Region’s wastewater treatment plants.

Table C.2-8: Wastewater Treatment Plants and Disposal Methods

Planning Area/Facility	Disposal Method
Upper Putah Creek Planning Area	
Hidden Valley Lake WWTP	Land application - golf course
Middletown WWTP	Geothermal injection
Upper Cache Creek Planning Area	
Lakeport WWTF	Land application – pasture
Kelseyville WWTP	Land application – vineyards
Northwest Regional WWTP	Geothermal injection
Southeast Regional WWTP	Geothermal injection
Clearlake Oaks WWTP	Geothermal injection
Valley Floor	
Davis WWTP	Willow Slough Bypass and Conaway Toe Drain (tributaries to or part of Yolo Bypass)
Easterly WWTP (Vacaville)	Alamo Creek (to Cache Slough)
Winters WWTF	Land application - native grasslands
UC Davis WWTP	Putah Creek
Dixon WWTP	Land application - percolation/evaporation basins

Planning Area/Facility	Disposal Method
Woodland WWTP	Unimproved channel to Tule Canal (Yolo Bypass)
Rio Vista - Beach Drive	Sacramento River
Rio Vista - Northwest	Sacramento River
West Sacramento WWTP	Export to Sacramento Regional County Sanitation District

Sources: Lake County Inventory & Analysis, City of Davis Urban Water Management Plan, City of Vacaville Urban Water Management Plan, Winters Municipal Service Review, UC Davis NPDES No. CA0077895, City of Woodland Urban Water Management Plan, City of Rio Vista Urban Water Management Plan, City of West Sacramento Urban Water Management Plan

Wastewater systems also serve an important function in protecting water bodies from degradation. Understanding the available capacity of wastewater treatment plants in the Lake County area could be beneficial in assessing opportunities to treat additional flows and reduce septic system impacts in the area; additional research on this topic is necessary.

Wastewater discharges from the nine wastewater treatment plants in the Valley Floor Planning Area provide multiple reuse and water recycling opportunities. Some of the wastewater is discharged to managed wetlands to provide habitat and aquifer recharge benefits (City of Davis), while other wastewater effluent is discharged into local creeks for later reclamation for agricultural use (City of Vacaville Easterly WWTP).

Most of the wastewater effluent in the Upper Cache PA is exported and reused at the Geysers project, which is located in Sonoma County to the west of the planning area boundary. A summary of the wastewater treatment facilities and discharge/reuse locations for the Upper Cache PA is provided in Table C.2-11.

a) Recycled Water Infrastructure

A summary of the wastewater treatment facilities, projected annual discharges (if available) and discharge/reuse locations for each PA is provided in Table C.2-9 through Table C.2-11.

Table C.2-9: Valley Floor Planning Area Projected Treated Wastewater Discharges

Wastewater Treatment Plant	Discharges to	Projected Annual Discharge (AFY)					
		2010	2015	2020	2025	2030	2035
City of Davis	Wetlands (to Conaway Toe Drain)	3,093	2,120	2,120	2,120	2,120	2,120
	Willow Slough Bypass	2,322	3,480	3,480	3,680	3,980	4,280
Easterly WWTP (Vacaville)	Recycled water for customers south of I-80	0	0	880	880	880	880
	Alamo Creek (to Cache Slough); Solano and Maine Prairie Irrig./const. firms for dust control	16,690	19,042	18,946	19,394	19,730	20,178
Winters WWTF	Native grasslands	672	1,243	1,814	1,814	1,814	1,814
UC Davis	UC Davis Arboretum (to Putah Creek)	1,709	1,796	1,888	1,984	2,086	2,192
Dixon	Percolation/evaporation basins (no discharge)	851	871	891	912	934	957
Woodland	Unimproved channel to Tule Canal (Yolo Bypass)	6,271	7,391	7,055	7,495	7,951	7,951
Rio Vista - Beach Drive	Sacramento River	722					
Rio Vista - Northwest	Sacramento River						
West Sacramento	N/A						

Table C.2-10: Upper Putah Creek Planning Area Projected Treated Wastewater Discharges

Wastewater Treatment Plant	Discharges to	2010	2015	2020	2025	2030	2035
Hidden Valley Lake WWTP	Golf Course	420	420	420	420	420	420
Middletown WWTP	Geysers	143	143	143	143	143	143

Table C.2-11: Upper Cache Creek Planning Area Projected Treated Wastewater Discharges

Wastewater Treatment Plant	Discharges to:	2010	2015	2020	2025	2030	2035
Lakeport WWTP	Pasture Irrigation	1,177	1,177	1,177	1,177	1,177	1,177
Kelseyville WWTP	Agricultural Land	291	291	291	291	291	291
Northwest Regional WWTP	Geysers	1,793	1,793	1,793	1,793	1,793	1,793
Southeast Regional WWTP	Geysers	2,130	2,130	2,130	2,130	2,130	2,130
Clearlake Oaks WWTP	Geysers						

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b) Reliability

Recycled water is assumed to be 100 percent reliable since it is based on a consistent water supply and is not expected to change for average, single-dry, or multi-dry year water conditions. Usefulness of recycled water as a supply is limited more by recycled water infrastructure and demand for recycled water than reliability of such water as a supply.

C.2.7 Applied Water (Demand)

The term “demand” is used in this Plan to represent the quantity of water various water users are willing to pay to use for one or more beneficial uses. While economists have demonstrated that demand for water can most accurately be described as a function that relates the quantity of water a user would purchase and the unit cost of water, there is not sufficient information for this Region to estimate those specific economic functions of demand. Instead, this Plan presents approximations of water demand using estimates of applied water quantities based on historic information in lieu of economic demand functions. Water is applied within the Westside Region to meet consumptive and nonconsumptive uses. Consumptive water uses within the Region are Municipal and Industrial (M&I) and agricultural applied water. Nonconsumptive water uses within the Region included hydropower, environmental and recreational flows.

Consumptive Applied Water Definitions

M&I Applied Water – includes residential, commercial, industrial, landscaping, as well as non-revenue water lost during distribution. This water is used primarily in urban areas such as Davis, Dixon, Woodland, West Sacramento, Vacaville, Rio Vista, Clearlake, and Lakeport; however, some of this water is used by rural populations throughout the region.

Agricultural Applied Water – Agriculture is the predominant use of applied water in the Westside Region. Yolo and Solano Counties in the Valley Floor PA are known for high quality agricultural lands where crops varying from orchards to alfalfa and rice are grown.

The Upper Putah Creek and Upper Cache Creek PA's also have considerable agricultural acreages, with primary crops consisting of vineyards, walnuts and pears.

Nonconsumptive Applied Water Definitions

Environmental Applied Water – Although this could have a variety of definitions, for the purposes of this plan, it is being defined as required environmental flows dictated under governing documents such as Federal Energy Regulatory Commission (FERC) hydropower licenses or a decree.

Recreational Applied Water – Recreational applied water within the Region includes flows discharged into Cache Creek during the summer months to support recreational activities such as river rafting and kayaking.

Hydropower Applied Water – There are three (3) existing hydropower plants within the Region, although the plant at Clearlake does not currently function. The other two plants are located at Indian Valley Reservoir and Monticello Dam. Flows are often released from these dams in order to optimize energy production at these plants, as well as to meet other applied water demands. These flows are not further detailed below.

Consumptive applied water estimates for the region were developed considering numerous factors including agricultural acreages, crop types, population, historical applied water data, and hydrologic conditions (water year type). Wherever possible, existing documents and studies documenting current and projected applied water were used. Applied water was calculated at the Planning Area, County, and Urban/Community levels where appropriate and grouped into classifications as the data allowed (residential, commercial, agricultural, etc.). Limited agricultural crop projection data were available for the Region, therefore agricultural applied water estimates were held constant through 2040.

Hydrologic variability is one of the key components in estimating applied water. The estimates were developed within the region by assuming representative dry and average water years to evaluate the variability in water demands from year to year. For example, a dry water year will require larger amounts of irrigation water for crops and M&I landscaping to make up for reduced precipitation and increased evapotranspiration. Although some variability will occur in M&I water use in a dry versus average year, the water estimates presented in this do not show this variation.

a) Environmental Applied Water

Maintaining minimum flows in streams is beneficial for fisheries and many other aquatic species. It is important to realize that environmental benefits to aquatic and riparian habitats occur from various other water source contributions throughout the Region, such as return flows from municipal and agricultural use, flow discharges above the required environmental flows, and recreational flows. Historical required environmental flows within the Region have not always been sufficient to support aquatic habitat, as was seen in Putah Creek prior to the Putah Creek Accord. Agencies and environmental organizations continue to study Putah and Cache Creeks to determine the flows and timing of releases that are most suitable to maintaining the diverse aquatic and riparian habitat throughout the Region, while supporting M&I and agricultural water demands.

Required flows in Cache Creek include releases from Indian Valley Reservoir, in Lake County, and at the Putah Creek Diversion Dam in Yolo County. Indian Valley Dam is owned and operated by YCFCWCD. Flows are used for power production and for agricultural demand within Solano County. The FERC license requires certain environmental flows, although greater flows than this are often released. These flows allow for increased flow in Cache Creek throughout the summer months for improved aquatic habitat for fish and recreational use within a naturally intermittent creek.

Putah Creek flow requirements at Monticello Dam are dictated by required instream flows for Lower Putah Creek established in the Putah Creek Accord (2000). The Putah Creek Accord established minimum releases and instream flows for Putah Creek downstream of the Putah Diversion Dam to maintain rearing and spawning flows and to provide supplemental flows for the protection of aquatic resources. The Putah Creek Accord equates to an environmental water demand in average years of roughly 22,000 AFY. In dry years the environmental demand increases with lower natural flows in the creek and the settlement does provide for reduced releases and instream requirements in years when total storage in Lake Berryessa is less than 750,000 AF. Instream flow requirements downstream of the diversion dam require increased releases from Monticello Dam to ensure sufficient water for diversion at the Putah Diversion Dam and flows in Lower Putah Creek.

b) M&I Applied Water

Urban and rural domestic (M&I) applied water in the Westside Region was estimated using recent, publically approved planning documents with water use projections through the planning horizon (2040). The methodology for each planning area required a slightly different approach due to the availability of planning documents.

Urban water suppliers (with more than 3,000 service connections or delivering more than 3,000 AFY) are required by DWR to prepare UWMP's and are now also required to develop gallon per capita day water use reduction targets in accordance with SBX7-7, the Water Conservation Act of 2009. Table C.2-12 below presents the baseline GPCD, 2015 Interim Target, and 2020 Compliance Targets that were included in the UWMP's. Please refer to each UWMP for a discussion of the data and calculation methods used to select each GPCD target. Water conservation necessary to meet these GPCD targets is key in the Region since these urban water suppliers represent a significant percentage of the overall M&I water demand.

Table C.2-12: UWMP Baseline GPCD Factors

Urban Water Supplier	Baseline (gpcd)	2015 Interim Target	2020 Compliance Target
Vacaville	188	176	164
Rio Vista	310	279	248
Davis	215	194	172
Dixon	170	165	161
West Sacramento	293	264	234
Woodland	290	261	232

Valley Floor Planning Area

The Municipal and Industrial (M&I) applied water rates for the Valley Floor PA are shown in Table C.2-13. These values were compiled using Urban Water Management Plans (UWMPs) and other local planning documents developed within the area in coordination with current population data from the U.S. Census Bureau and estimated gpcd for rural populations. The various assumptions and sources used in these calculations are described below.

M&I applied water for urban areas was estimated using the 2015 UWMP for Davis, Dixon, Rio Vista, Vacaville, West Sacramento and Woodland. The values presented in each UWMP were grouped to fit into the following applied water classifications: Residential Demand, Commercial and Industrial (CII) Demand, Landscape Demand, and Unaccounted for Water Loss/Other. The M&I projections in the UWMPs include projections for reduced water use through increased conservation measures and incorporate meeting the new gallons per capita day (gpcd) targets as required by SBX7-7. M&I applied water for UC Davis was determined by extrapolating projections presented in the "Evaluation of Hydrologic Effects of Regional Surface Water Supply Project & Cache Creek Groundwater Recharge and Recovery Project", 2011.

Water demand projections for rural areas were not provided in planning documents, therefore the demands had to be estimated. The rural M&I applied water for areas in Yolo County and Solano County were calculated using estimated rural populations and applying a rural gpcd factor. The City of Dixon's average water use (170 gpcd) was selected as a representative gpcd for rural populations in Yolo and Solano Counties.

Table C.2-13: M&I Projected Applied Water - Valley Floor

Applied Water Category	2015 (AFY)	2020 (AFY)	2025 (AFY)	2030 (AFY)	2035 (AFY)	2040 (AFY)
Residential	23,975	35,204	36,656	37,937	39,518	41249
CII	6,682	9,038	9,812	10,267	10,808	11374
Landscape	3,093	3,574	3,900	4,068	4,258	4457
Unaccounted for Water Loss/Other	2,502	3,858	4,039	4,121	4,251	4397
Total	**36,251**	**51,674**	**54,407**	**56,392**	**58,835**	**61,477**

Source: Vacaville 2015 UWMP Table 16, Davis 2015 UWMP Table 3-7 to 3-10 and 3-13 to 3-14, Dixon District 2015 UWMP, Table 3.3-2 to 3.3-6; 3.4-1, West Sacramento 2015 UWMP, Tables 9-15, Woodland 2015 UWMP, Tables 4-4 to 4-7, Rio Vista 2015 UWMP, Tables 4 to 11, Appendix E; Assumed 2040 had the same growth as 2025 to 2030; 2010 US Census by Census Blocks; DOF projections for Solano and Yolo Counties; YCFCWCD IGSM Study, 2011 4.3.2.

Upper Putah Creek Planning Area

M&I applied water projections for the Upper Putah Creek Planning Area is shown in Table C.2-14.Unlike the Valley Floor PA, there are no urban water suppliers in the Upper Putah Creek PA. Therefore, demands were estimated using the Lake County Water Demand Forecast (2006) in conjunction with current population data from the 2010 Census for areas in Lake County, and by a custom method for areas in Napa County as discussed in Section C.1. M&I applied water for urban and rural areas within Lake County was estimated using the Lake County Water Demand Forecast to determine current and projected residential, commercial/industrial/institutional (CII) and landscape water use. These estimates assumed a linear growth rate from 2000 to 2040. A rural applied water factor of 131 gpcd based on a weighted average of the rural gpcd factors assigned to other Upper Putah Creek rural communities in the Lake County Water Demand Forecast was applied to the estimated population projections.

Table C.2-14: M&I Projected Applied Water – Upper Putah Creek

Applied Water Category	2015 (AFY)	2020 (AFY)	2025 (AFY)	2030 (AFY)	2035 (AFY)	2040 (AFY)
Residential	1,947	2,236	2,578	2,984	3,465	3,777
CII	71	77	83	89	96	102
Landscape	75	81	87	94	101	107
Total	**2,094**	**2,394**	**2,748**	**3,167**	**3,663**	**3,986**

Source: Lake County Water Demand Forecast, assumed linear growth rate between 2000-2040; 2010 US Census by Census Blocks.
Note: Unaccounted for Water Loss included in Residential/CII/Landscape Demands

Upper Cache Creek Planning Area

The Municipal and Industrial (M&I) applied water for the Upper Cache Creek Planning Area is shown in Table C.2-15. These values were calculated using the Lake County Water Demand Forecast in coordination with current population estimates. The various assumptions and sources used in these calculations are described below. M&I applied water for urban and rural areas within Lake County was estimated using the Lake County Water Demand Forecast (2006) to determine current and projected residential, commercial/industrial/institutional (CII) and landscape water use. These estimates assumed a linear growth rate from 2000 to 2040.

The rural applied water for Colusa and Yolo Counties was calculated by applying an estimated rural applied water factor of 150 gpcd (based on a weighted average of the rural gpcd factors assigned to similar rural communities in the Lake County Water Demand Forecast) to the rural population projections for Colusa and Yolo Counties.

Table C.2-15: M&I Applied Water – Upper Cache Creek

	2015 (AFY)	2020 (AFY)	2025 (AFY)	2030 (AFY)	2035 (AFY)	2040 (AFY)
Residential Demand [(a)]	9,400	10,202	11,082	12,047	13,104	14,100
CII Demand [(a)]	1,415	1,525	1,644	1,772	1,910	2,041
Landscape Demand [(a)]	714	769	828	893	961	1,027
Total	**11,529**	**12,496**	**13,554**	**14,712**	**15,975**	**17,168**

(a) Lake County Water Demand Forecast, assumed linear growth rate between 2000-2040; 2010 US Census by Census Blocks.
Note: Unaccounted for Water Loss included in Residential/CII/Landscape Demands

Agricultural Applied Water

The same method was used for estimating agricultural applied water for each planning area; therefore, the discussion is not separated by planning area. Agricultural applied water calculations were developed using a number of sources and grouped according to planning area and county. The method used to calculate the agricultural water use included the following steps:

- Estimated irrigated acreages of each crop type for each county and planning area based on the most recently available Department of Water Resources (DWR) land use surveys.
- Selected applied water factors for each crop type based on DWR applied water factors for a dry and wet year. A representative dry and average year was selected for each county based on available DWR applied water factors, provided for the years 1998-2005.
- Compared results to agricultural applied water estimates from the Yolo IRWM Plan and Lake County Inventory Analysis and County Crop Reports.

The DWR land use surveys are a comprehensive accounting of the land uses by urban/agricultural land uses and crop types. The land use surveys are completed in an ongoing basis for each County with differing year of compilation. For this reason, there may have been changes in cropping patterns since the land use surveys were compiled that would not be reflected in the applied water estimates. These land use surveys were used to estimate the current acreage of irrigated and non-irrigated crop types within each planning area:

Colusa County 2003

Lake County 2006
Napa County 1999
Solano County 2003
Yolo County 2008

Applied water factors were selected based on the DWR applied water (AW) factors, which are available for the period of 1999-2005. Agricultural applied water incorporates multiple factors including (evapotranspiration, crop coefficient, and irrigation efficiency factors). A dry and average year were selected from this period by analyzing precipitation data for the period between 1999-2005. It was determined that the year 1999 was representative of a dry year and that the year 2000 was representative of an average year. If a crop type was not available, a similar crop was used as an approximation. Table C.2-16 through Table C.2-18 contain the major crop types by planning area, along with their irrigated acreages and applied water factors. If a particular county was not available for a specific crop type, the applied water factor from a neighboring county was used.

Table C.2-16: Irrigated Acreages and Applied Water Factors – Valley Floor PA

	Acres			Applied Water Factors Average Year (Acre-feet/Acre)		Applied Water Factors Dry Year (Acre-feet/Acre)	
Crop Type	**Yolo County**	**Solano County**	**Total**	**Yolo AW**	**Solano AW**	**Yolo AW**	**Solano AW**
Almonds	13,614	2,123	15,737	4.2	4.06	4.48	4.49
Walnuts	13,244	8,775	22,019	4.23	3.89	4.65	4.43
Safflower	12,166	6,639	18,805	0.56	0.71	0.71	0.77
Corn (field & sweet)	8,005	8,331	16,336	2.79	3.01	3.07	3.38
Sunflowers	11,866	2,511	14,377	2.36	2.52	2.62	2.79
Wheat		11,537	11,537	1.27	1.74	1.47	1.34
Alfalfa & alfalfa mixtures	51,406	35,027	86,433	5.27	5.47	5.61	5.81
Tomatoes	38,548	9,509	48,057	3.04	3.18	3.34	3.65
Vineyards	13,526	1,887	15,413	1.69	1.42	1.94	2.23
Other Grain and Hay Crops	54,744	20,331	75,075	1.27	1.28	1.47	1.34
Other Pasture	14,094	28,070	42,164	5.67	6.01	5.83	6.11
Rice	35,822	0	35,822	5.26	5.26	5.42	5.42
Other Crops	16,801	11,579	28,380	varies	varies	varies	varies
Subtotal	**283,836**	**146,319**	**430,155**				
Idle	11,136	1,521	12,657				
Semi agricultural	16,888	3,655	20,543				
Total	**311,859**	**151,495**	**463,354**				

Source: DWR Land Use Survey (Solano 2003; Yolo 2008); DWR Applied Water Use Factors 1999, 2000.

Table C.2-17: Irrigated Acreages and Applied Water Factors – Upper Putah Creek PA

	Acres			Average Year (Acre-feet/Acre)		Dry Year (Acre-feet/Acre)	
Crop Type	**Lake**	**Napa**	**Total**	**Lake AW**	**Napa AW**	**Lake AW**	**Napa AW**
Pasture	1,448	77	1,525	3.63	4.63	3.71	4.56
Vineyard	810	3,424	4,233	0.59	1.11	1.88	1.24
Other Crops	0	34	34	varies	varies	varies	varies
Subtotal	**2,258**	**3,534**	**5,792**				
Idle	0	617	617				
Semi agricultural	44	73	117				
Total	**2,302**	**4,225**	**6,527**				

Source: DWR Land Use Survey (Lake 2001; Napa 1999); DWR Applied Water Use Factors 1999, 2000.

Table C.2-18: Irrigated Acreages and Applied Water Factors – Upper Cache Creek PA

	Acres				Average Year (Acre-feet/Acre)	Dry Year (Acre-feet/Acre)
Crop Type	**Lake**	**Colusa**	**Yolo**	**Total**	**Lake AW**	**Lake AW**
Walnuts	869	0	47	916	2.82	2.95
Pears	2,729	0	0	2,729	2.82	2.95
Pasture	2,696	436	0	3,131	3.63	3.71
Vineyards	8,141	0	0	8,141	0.59	1.88
Other Crops	1,337	0	64	1,401	varies	varies
Subtotal	**15,772**	**436**	**111**	**16,319**		
Idle	1,557	293	35	1,885		
Semi agricultural	518	23	19	560		
Total	**17,847**	**752**	**164**	**18,763**		

Source: DWR Land Use Survey (Lake 2001; Colusa 2003; Yolo 2008); DWR Applied Water Use Factors 1999, 2000.

Groundwater Extractions

a) Upper Cache & Upper Putah

Groundwater for the Upper Cache and Upper Putah PAs is extracted from the multiple groundwater basins as described above. Historically, groundwater is the primary supply for agricultural users, domestic self-supplied residents, and municipalities that do not obtain supply from Clear Lake. Groundwater also provides supplemental capacity for many municipalities that primarily rely upon surface water.

It was estimated that approximately 80% of M&I applied water and 20% of agricultural applied water in the Upper Cache and Upper Putah PAs is groundwater based on water use estimates presented in the Lake County Water Demand Forecast.

b) Valley Floor

Groundwater provides about 40% of the total water supply in the Valley Floor PA on an average annual basis. However, because most agricultural pumping activities are not regularly measured, it is difficult to compile an accurate estimate of actual historical pumping rates. As a result, groundwater extraction volumes are typically estimated by taking the total estimated water demand less recorded surface water diversions; however, this analysis used somewhat different assumptions as described below due to a deficiency of complete surface water diversion data.

Approximately 65% of M&I water use is groundwater (based on UWMPs and assumption that rural populations are served by groundwater wells). It was assumed that 32% of agricultural applied water is supplied by groundwater in an average year and that 42% of agricultural applied water is supplied by groundwater in a dry year. These values were based on the distribution of groundwater to surface water applies presented in the Yolo IRWM Plan.

There have been historical overdraft conditions in the shallow and intermediate aquifers, but conjunctive use programs including the Solano Project (Lake Berryessa) and Indian Valley Reservoir have provided for significant recovery of groundwater elevations in the valley, which today remain high and stable in most conditions.

There are areas in the region that are still reliant upon groundwater as the only water supply source where ground subsidence due to groundwater pumping has been detected, including the northern Yolo-Zamora area of Yolo County between Zamora and Knights Landing, where subsidence is reported to be on the order of 5 feet and in the vicinity of Davis and Woodland, where subsidence is estimated at 2 to 3 feet.

C.2.8 Water Leaving

The Westside Region is an open watershed, interconnected with the overall Sacramento River watershed, and as a result water leaves the Region and the Planning Areas through multiple avenues. Methods for water leaving include losses to consumption, evaporation and transpiration, streamflow into the Sacramento River and Delta, wastewater discharges and to a lesser extent, subsurface conveyance through groundwater aquifers. In the process of developing a complete water balance for each planning area, these components must be fully understood and estimated. This initial water balance process does not intend to quantify each of these components, but rather identify opportunities for additional data collection activities to improve the understanding of these important factors.

Water leaves the Region through multiple courses including:

- Consumption of Applied Water – Consumption of applied water is the portion of water that is applied for agricultural or M&I uses, but does not return to the Planning Area. This may be through production of food, or other losses. Consumption of Applied Water was calculated as Applied water minus recycled water and return flows.

- Exports – Exported water is water that is exported outside of the Region. This includes the water exported to the geysers in Lake County and water leaving the Valley Floor through the Sacramento River, Willow Slough, Colusa Basin Drain, the Yolo Bypass, Sacramento Deep Water Ship Channel, and Sacramento-San Joaquin River Delta. Most of the water leaving the Region is not directly monitored at these locations and therefore exports for the Valley Floor PA are not fully understood.

- Downstream Releases– includes those flows that are released from Putah Creek and Cache Creek for M&I and agricultural purposes.

- Downstream Runoff – includes those flows that are released for environmental, recreational, or flooding purposes.

- Wastewater Discharges – includes wastewater flows that are discharged outside of the Planning Area or Region.

- Surface Evaporation – Surface evaporation is especially important in the Upper Cache and Upper Putah PAs due to the large lakes and reservoirs present in these areas. Surface evaporation from Clear Lake has been estimated at 135-158 TAFY (CDM, 2006b). This evaporation was not included in the exports for Upper Cache Creek PA because the unimpaired flow calculations used for the precipitation values used in the analysis included evaporation as a water loss already. The evaporation for Indian Valley Reservoir (IVR) and Lake Beryessa are shown in the exports for Upper Cache and Upper Putah Creek PAs. IVR and Lake Beryessa evaporation was estimating using a pan coefficient method.

- Subsurface Flow – Subsurface aquifer losses for the Upper Putah and Cache Creek aquifers have not been quantified and therefore a value of NQ was reported in the Water Balance. The Valley Floor aquifers groundwater flow is generally from west to east. The 2006 Yolo County Integrated Groundwater/Surface Water Model Report (2006 WRIME) discusses assumed groundwater boundary conditions at the eastern side of Yolo and Solano Counties. In development of the model, it was assumed there was interaction between the aquifer and the Sacramento River, but the nature and extent of this interaction is unknown. Therefore, the net subsurface outflow from the Valley Floor Planning Area is assumed to be zero and is represented as NQ, until these conditions are better understood.

C.2.9 Missing Information

There are a number of areas where the Region does not currently have sufficient data or sufficient compiled data to provide full understanding of how water moves through the Region. Providing this type of analysis was beyond the scope of this plan; however, Table C.2-19 describes the data gaps identified from the water balance analysis conducted for this Plan.

Table C.2-19: Water Balance Missing Information

Category	Valley Floor PA	Upper Putah Creek PA	Upper Cache Creek PA
Water Entering			
Precipitation	Estimate of annual rainfall/unimpaired runoff for Planning Area		
Upstream Runoff (upper watershed)			
Upstream Flow (regulated releases)			
Imported Water (outside watershed)	(1) Direct Deliveries for Colusa Basin Drain MWC & West Sacramento CVP Diversions.		
Water Balance Boundary			
Direct Deliveries	(1) data for the Direct Deliveries for Colusa Basin Drain MWC (3) Water diverted from Cache and Putah Creek under riparian and appropriative water rights have not been quantified. Unclear if sufficient data exists to quantify.	(1) Water diverted from Putah Creek under riparian and appropriative water rights have not been quantified. Unclear if sufficient data exists to quantify.	(1) Water diverted from Cache Creek under riparian and appropriative water rights have not been quantified. Unclear if sufficient data exists to quantify.
Surface Water Storage			
Surface Storage			
Local Release Deliveries		data for direct deliveries	
Downstream Releases (see Water Leaving)			
Groundwater Storage			
Groundwater Percolation (Recharge)	No data for the Sustainable Yield or existing groundwater storage is available	Using Usable Capacity in place of GW Percolation Data. No data for sustainable yield or existing groundwater storage.	Using Usable Capacity in place of GW Percolation Data. No data for sustainable yield or existing groundwater storage.

Category	Valley Floor PA	Upper Putah Creek PA	Upper Cache Creek PA
Water Entering			
Return Flows	Broad estimate of RFs in all categories (ag, urban, and wastewater).	Broad estimate of RFs in all categories (ag, urban, and wastewater).	Broad estimate of RFs in all categories (ag, urban, and wastewater).
Recycle/Reuse			
Applied Water Demand			
Applied Surface Water Demand			
M&I	Dry year estimate of use.		
Agricultural	(1) Crop forecasting for this area. (2) Analysis of change in groundwater vs. surface water use in dry vs. average year.	(1) Crop forecasting for this area.	(1) Crop forecasting for this area.
Applied Groundwater Extractions			
M&I	Dry year estimate of use.		
Agricultural	(1) Crop forecasting for this area. (2) Understanding in change in groundwater vs. surface water use in dry vs. average year. (3) total groundwater pumping capacity and measured groundwater extractions.	(1) Crop forecasting not available for this area that allowed for consistent analysis throughout the region. (2) total groundwater pumping capacity and measured groundwater extractions.	(1) Crop forecasting not available for this area that allowed for consistent analysis throughout the region. (2) total groundwater pumping capacity and measured groundwater extractions.
Water Leaving			
Consumption of Applied Water			
Exports			
Downstream Releases			
Downstream Runoff	flow data for water leaving the Planning Area.		

Category	Valley Floor PA	Upper Putah Creek PA	Upper Cache Creek PA
Water Entering			
Wastewater Discharges	Some missing information for WWTP flows.		Some missing information for WWTP flows.
Losses			
Surface Evaporation/Seepage	Assumed to be negligible, as no calculated data available for losses in conveyance to evaporation or groundwater percolation etc. throughout the region.	(1) Estimated surface evaporation of Lake Berryessa; however, no dry vs. average year available. (2) No seepage estimates available.	(1) Estimated surface evaporation for Indian Valley Reservoir; however, no dry vs. average year available. (2) No seepage estimates available.
Subsurface Aquifer	No data available.	No data available.	No data available.
Other Unrecoverable Losses	No data available.	No data available.	No data available.

Appendix C.3

Water Quality

C.3 Water Quality

C.3.1 Surface Water Quality

The majority of the surface water quality concerns in the region relate to environmental end uses, but surface water also supports drinking water, irrigation and recreation uses throughout the region. Table C.3-1 summarizes water quality constituents of concern that are affecting these four end uses. It includes constituents that are under regulation by the Regional Water Quality Control Board as part of the 303(d) listing of impaired water bodies indicated as an “x” as well as constituents that local stakeholders have noted as affecting end uses as indicated by an “*”.

Table C.3-1: Surface Water Quality Constituents of Concern by Use – check the X and * with Basin Plan beneficial uses

	End use			
Constituent	**Drinking Water**	**Irrigation**	**Environmental**	**Recreation**
Upper Cache Creek Planning Area				
Boron		X		
Mercury			X	
Nutrients	X		*	*
Pesticides			*	
Sediment			*	
Cyanotoxins	*		*	*
Upper Putah Creek Planning Area				
Boron		X		
Mercury			X	
Nickel			X	
Valley Floor Planning Area				
Azinphos-methyl (Guthion)			X	
Boron		X		
Carbofuran			X	
Chlordane			X	
DDT			X	
Diazinon			X	
Dieldrin			X	
E. coli				X
Electrical Conductivity		X		
Fecal Coliform				X
Low Dissolved Oxygen			X	
Malathion			X	
Mercury			X	
Organic Carbon	*			

	End use			
Constituent	**Drinking Water**	**Irrigation**	**Environmental**	**Recreation**
Pesticides (Group A)			X	
PCBs			X	
Salinity (Total Dissolved Solids, Electrical Conductivity)	X			
Sediment			*	
Selenium			*	
Turbidity	*			

X = Constituent on 303(d) list water quality regulations

* = Constituent identified by local stakeholders as source of impairment

303(d) listing refers to Section 303(d) of the Clean Water Act, which requires that water bodies that do not meet water quality standards for a beneficial use be identified/listed. The 303(d) list identifies the impaired water body as well as the pollutant causing the impairment. The Clean Water Act also requires that a Total Maximum Daily Load (TMDL) be developed for each listing; the TMDL is designed to control the amount of the pollutant entering the water body.

A number of waterways in the Westside Region are identified as impaired water bodies and have been placed on the 303(d) list. Table C.3-2 provides the details of the water body and sources of impairment. As indicated in the Table C.3-2, mercury is a common source of water quality impairment throughout the Westside Region.

Table C.3-2: 303(d) Listed Water Bodies

WATER BODY NAME	ESTIMATED SIZE AFFECTED	UNIT	Azinphos-methyl	Boron	Carbofuran	Chlordane	Chlorpyrifos	DDT	Diazinon	Dieldrin	E. coli	Electrical Conductivity	Fecal Coliform	Group A Pesticides	Invasive Species	Malathion	Mercury	Nickel	Nutrients	Oxygen, Dissolved	PCBs	Salinity	Unknown Toxicity
Upper Cache Creek Planning Area																							
Clear Lake	40070	Acres															X		X				
Cache Creek, Lower (Clear Lake Dam to Cache Creek Settling Basin near Yolo Bypass)	96	Miles		X													X						
Indian Valley Reservoir (Lake County)	3469	Acres															X						
Cache Creek, North Fork (below Indian Valley Reservoir, Lake County)	14	Miles															X						
Harley Gulch	6	Miles															X						
Davis Creek (upstream from Davis Creek Reservoir, Yolo County)	5	Miles															X						
Davis Creek Reservoir	163	Acres															X						
Davis Creek (downstream from Davis Creek Reservoir, Yolo County)	6	Miles															X						
Sulfur Creek (Colusa County)	14	Miles															X						
Bear Creek (Colusa County)	15	Miles															X						
Upper Putah Creek Planning Area																							
James Creek	6	Miles															X	X					
Berryessa, Lake	19083	Acres															X						
Putah Creek (Solano Lake to Putah Creek Sinks; partly in Delta Waterways, northwestern portion)	27	Miles		X													X						

WATER BODY NAME	ESTIMATED SIZE AFFECTED	UNIT	Azinphos-methyl	Boron	Carbofuran	Chlordane	Chlorpyrifos	DDT	Diazinon	Dieldrin	E. coli	Electrical Conductivity	Fecal Coliform	Group A Pesticides	Invasive Species	Malathion	Mercury	Nickel	Nutrients	Oxygen, Dissolved	PCBs	Salinity	Unknown Toxicity
Valley Floor Planning Area																							
Cache Creek, Lower (Clear Lake Dam to Cache Creek Settling Basin near Yolo Bypass)	96	Miles		X													X						
Winters Canal (Yolo County)	15	Miles							X														
Gordon Slough (from headwaters and Goodnow Slough to Adams Canal, Yolo County)	8	Miles																		X			
Colusa Basin Drain	49	Miles	X		X			X	X	X	X			X		X	X			X			X
Sycamore Slough (Yolo County)	17	Miles																		X			
Willow Slough (Yolo County)	10	Miles		X																			
Willow Slough Bypass (Yolo County)	6	Miles		X							X		X										
Tule Canal (Yolo County)	11	Miles		X							X		X									X	
Solano, Lake	15	Acres															X						
Putah Creek (Solano Lake to Putah Creek Sinks; partly in Delta Waterways, northwestern portion)	27	Miles		X													X						
Ulatis Creek (Solano County)	17	Miles					X		X														
Delta Waterways (northern portion)	6795	Acres				X	X	X	X	X				X	X		X				X		X
Delta Waterways (northwestern portion)	2587	Acres					X	X	X			X		X	X		X						X
Duck Slough (in Delta Waterways, northern portion)	3	Miles					X																

C.3.2 Groundwater Quality

Groundwater quality concerns in the region relate to drinking water and irrigation uses. Table C.3-3 identifies constituents of concern with respect to these end uses that have been identified by local stakeholders through previous planning efforts.

Table C.3-3: Groundwater Quality Constituents of Concern by Use

Constituent	End use	
	Drinking Water	Irrigation
Upper Cache Creek Planning Area		
Arsenic	X	
Boron		X
Iron	X	
Magnesium	X	
Nitrate	X	
Total Dissolved Solids	X	X
Upper Putah Creek Planning Area		
None identified		
Valley Floor Planning Area		
Arsenic	X	
Boron		X
Chromium	X	
Electrical Conductivity (salinity)	X	X
Flame Retardant Chemicals	X	
Iron	X	X
Manganese	X	X
Nitrate	X	
Selenium		X
Total Dissolved Solids	X	X

Impairment of groundwater can be assessed by comparing concentrations of constituents of concern in the groundwater against drinking water maximum contaminant levels (MCLs) and agricultural water quality standards. MCLs consist of primary and secondary MCLs. Primary MCLs are assigned to constituents for which a health-based risk is associated with consumption of water that exceeds a particular concentration. Secondary MCLs are assigned to constituents for which there is no health risk, but for which there may be aesthetic concerns above a particular concentration. Tolerance for water quality constituents vary by crop type, but general irrigation water quality standards have been developed based on literature review. Table C.3-4 identifies target drinking water and irrigation levels for constituents of concern compared to available data for the region. As indicated by the blanks in the table, there are gaps in the data.

In addition to the specific drinking water regulatory limits or agricultural use limits, constituents found in groundwater such as selenium, boron, and salinity that are delivered for municipal potable supply are discharged in the municipal wastewater to local surface water bodies. The levels in the wastewater are approaching concentrations that are in excess of the Regional Board's basin plan limits or in quantities that limit the downstream beneficial uses of the local surface water bodies. This water quality challenge is of particular concern in the Valley Floor Planning area.

Table C.3-4: Groundwater Quality Targets Compared to Measured Range of Values

	EC (umhos/cm)	TDS (ppm)	Nitrate (ppm as NO_3)	Boron (ppb)	Arsenic (ppb)	Chromium (ppb Total)	Manganese (ppb)	Selenium (ppb)	Iron (ppb)	Mercury (ppb)
End Use Target										
Drinking Water	900	500	45	1000	10	50	50	50	300	2
Agricultural	700	450	--	700	100	--	200	20	500	--
Upper Cache Creek Planning Area Groundwater Basins										
Upper Lake Valley Basin										
Scotts Valley Basin										
Big Valley Basin[1]		350-1200		100-2500						
High Valley Basin										
Burns Valley Basin										
Lower Lake Basin										
Long Valley										
Clear Lake Cache Formation Basin										
Middle Creek Basin										
Clear Lake Volcanics Groundwater Source Area										
Bear Valley										
Upper Putah Creek Planning Area Groundwater Basins										
Coyote Valley Basin										
Collayomi Valley Basin										
Pope Valley										
Berryessa Valley										

	EC (umhos/cm)	TDS (ppm)	Nitrate (ppm as NO_3)	Boron (ppb)	Arsenic (ppb)	Chromium (ppb Total)	Manganese (ppb)	Selenium (ppb)	Iron (ppb)	Mercury (ppb)
Valley Floor Planning Area Groundwater Subbasins										
Sacramento River Subbasin (Colusa, Yolo and Solano Subbasins) [2]	1200-1750	671-1052	<0.1-135	140-1500	<15	<5	162	<15	404	<0.5
Dunnigan Hills Subbasin (Colusa Subbasin) [2]	363-590	213-355	>40	400-1200						
Capay Valley Subbasin [2]	330-6100	340-3200	<0.1-39	392-9490	<15	<5-190	<5-1700	<15-11	<100-541	<0.5-0.6
Buckeye Creek Subbasin (Colusa Subbasin) [2]	400-666	250-379	<0.1-48	1300-1500	<2-<5	<10-30	<10-110	<5	140-2100	<0.2-<1
West Yolo Subbasin (Colusa and Yolo Subbasins) [2]	292-1100	181-690	<0.1-120	<20-2200	<2-4	<5-31	<5-290	<5-7.8	<100-6190	<0.2-<1
East Yolo Subbasin (Colusa and Yolo Subbasins) [2]	860-2000	430-1300	22-66	700-3440	<15	<5-46.2	<5-34.1	<15-57.7	<100-1510	<0.5
Solano Subbasin [3]				<500						

Appendix C.4

Environmental Resources

C.4 Environmental Resources

C.4.1 Habitat

Figure C.4-1 provides an overview of the wildlife/habitat types throughout the Westside IRWM region based on habitat classifications used by the California Department of Forestry and Fire Protection's Fire Resource Assessment Program (FRAP) which was selected for use because of the availability of information for the entire Westside Region. In the Upper Cache and Upper Putah Planning Areas, the predominant habitat type is mixed chaparral. In the Valley Floor Planning Area, the predominant habitat type is agriculture.

As shown in Figure C.4-2 and Table C.4-1 water related habitats account for a small percentage (only 5%) of the region, and of the water-related habitats, open water is the predominant type accounting for 4% of the region and 79% of the water-related habitats.

Table C.4-1: Water Related Habitat

Habitat	Portion of Water Related Habitat	Portion of Total Region
Water	79%	4%
Freshwater Emergent Wetland	13%	1%
Riverine	4%	<1%
Valley Foothill Riparian	3%	<1%
Montane Riparian	<1%	<1%
Lacustrine	<1%	<1%
Wet Meadow	<1%	<1%
Saline Emergent Wetland	<1%	<1%

The habitat types surrounding the region's waterways represent both challenges and opportunities for water resources. For example, the presence of grasslands along the waterways may represent a challenge as the use of grasslands for grazing often leads to erosion and sedimentation impacts. An example of an opportunity would be the presence of a high percentage of riparian habitat along waterways, which provides shade and nutrients for fish. Figures C.4-3 to 5 identify the dominant habitat types along each of the planning area's waterways. These figures show that for the Upper Cache Creek and Upper Putah Creek Planning Areas, native habitat account for the majority of land use around waterways. By contrast the Valley Floor Planning Area agriculture accounts for the majority of land use around waterways, suggesting that the water environment of the Valley Floor Planning Area is influenced more by human activities.

C.4.2 Special Status Species

Through a review of the California Natural Diversity Database (CNDDB) and local planning documents, 51 federal and state listed species were identified within the Westside Region.

Table C.4-2 lists these special status species, and Table C.4-3shows the habitats that they are associated with along with the counties in where they are found. Figures C.4-6 to 9 show recorded occurrences of special status species within 500 feet waterways within each of the planning areas. The dot size on the figures represent the range in which the species may be found; smaller dots indicate more accurate records and thus a smaller range of occurrence, and larger dots indicate less certainty in and thus a larger range of occurrence.

Table C.4-2: Special Status Species

Common Name	Scientific Name	Federal Status/State Status/CNPS Status
Aquatic Species		
Wildlife Species		
California freshwater shrimp	*Syncaris pacifica*	FE, SE
Chinook salmon - Sacramento River winter-run ESU	*Oncorhynchus tshawtyscha*	FE, SE
Chinook salmon- Central Valley spring-run ESU	*Oncorhynchus tshawtyscha*	FT, ST
Clear Lake Hitch	*Lavinia exilicauda chi*	SCE
Conservancy fairy shrimp	*Branchinecta conservatio*	FE
Delta smelt	*Hypomesus transpacificus*	FT, ST
Sacramento splittail	*Pogonichthys macrolepidotus*	FT
Steelhead - California Central Valley DPS	*Oncorhynchus mykiss*	FT
Vernal pool fairy shrimp	*Branchinecta lynchi*	FE
Vernal pool tadpole shrimp	*Lepidurus packardi*	FE
Terrestrial Species Associated with Vernal Pool/Wetland Habitat		
Wildlife Species		
California red-legged frog	*Rana aurora draytonii*	FT, SSC
California tiger salamander	*Ambystoma californiense*	FT, ST, SSC
Delta green ground beetle	*Elaphrus viridis*	FT
Foothill yellow-legged frog	*Rana boylii*	SSC
Northern red-legged frog	*Rana aurora aurora*	SSC
Northwestern pond turtle	*Clemmys marmorata marmorata*	SSC
Giant garter snake	*Thamnophis gigas*	FT, ST
Plant Species		
Bogg's Lake hedge-hyssop	*Gratiola heterosepala*	SE, 1B.2
Burke's goldfields	*Lasthenia burkei*	FE, SE, 1B.1
Calistoga popcorn-flower	*Plagiobothrys strictus*	FE, ST, 1B.1
Colusa grass	*Neostapfia colusana*	FT, SE, 1B.1
Few-flowered navarretia	*Navarretia leucocephala ssp. pauciflora*	FE, ST, 1B.1

Common Name	Scientific Name	Federal Status/State Status/CNPS Status
Indian Valley brodiaea	*Brodiaea coronaria ssp. rosea*	SE, 1B.1
Lake County stonecrop	*Parvisedum leiocarpum*	FE, SE, 1B.1
Loch Lomond button-celery	*Eryngium constancei*	FE, SE, 1B.1
Many-flowered navarretia	*Navarretia leucocephala ssp. plieantha*	FE, SE, 1B.2
Napa blue grass	*Poa napensis*	FE, SE, 1B.1
Palmate-bracted bird's beak	*Cordylanthus palmatus*	FE, SE, 1B.1
San Joaquin Valley Orcutt grass	*Orcuttia inaequalis*	FT, SE, 1B.1
Showy rancheria clover	*Trifolium amoenum*	FE, 1B.1
Slender Orcutt grass	*Orcuttia tenuis*	FT, SE, 1B.1
Solano grass	*Tuctoria mucronata*	FT, SE, 1B.1
Terrestrial Species Associated with Riverine/Lacustrine Habitat		
Wildlife Species		
Bald eagle	*Haliaeetus leucocephalus*	SE, SFP
Bank swallow	*Riparia riparia*	ST
Bell’s sage sparrow	*Amphispiza belli belli*	SSC
Cooper’s hawk	*Accipiter cooperi*	SSC
Least Bell's vireo	*Vireo bellii pusillus*	FE, SE
Long-eared myotis	*Myotis evotis*	FSC
Osprey	*Pandion haliaetus*	SSC
Pallid bat	*Antrozous pallidus*	FSC
Ringtail	*Bassariscus astutus*	SFP
Northern Harrier	*Circus cyaneus*	SSC
Sharp-shinned hawk	*Accipiter striatus*	SSC
Swainson's hawk	*Buteo swainsonii*	ST
Valley elderberry longhorn beetle	*Desmocerus californicus dimorphus*	FT
Western Townsend’s big-eared bat	*Cornorhinus townsendii townsendii*	FSC, SSC
Western yellow-billed cuckoo	*Coccyzus americanus occidentalis*	SE
White-tailed kite	*Elanus leucurus*	SFP
Yellow warbler	*Dendroica petechia brewsteri*	SSC
Upland Terrestrial Species		
Wildlife Species		
Callippe silverspot butterfly	*Speyeria callippe callippe*	FE
Mountain plover	*Charadrius montanus*	FPT
Northern spotted owl	*Strix occidentalis caurina*	FT, SSC
Pacific fisher	*Martes pennati*	FC

Common Name	Scientific Name	Federal Status/State Status/CNPS Status
Western snowy plover	*Charadrius alexandrinus nivosus*	FT
Plant Species		
Bent-flowered fiddleneck	*Amsinckia lunaris*	1B.2
Bolander's horkelia	*Horkelia bolanderi*	1B.2
Clara Hunt's milk-vetch	*Astragalus claranus*	FE, ST, 1B.1
Colusa layia	*Layia septentrionalis*	1B.2
Keck's checkerbloom	*Sidalcea keckii*	FE, 1B.1
Konocti Manzanita	*Arctostaphylos manzanita ssp.elegans*	1B.3
Glandular western flax	*Hesperolinon adenophyllum*	1B.2
Lake County western flax	*Hesperolinon didymocarpum*	SE, 1B.2
Milo Baker's lupine	*Lupinus milo-bakeri*	ST, 1B.1
Serpentine cryptantha	*Cryptantha clevelandii var. dissita*	1B.2
Tiburon paintbrush	*Casteileja affinis spp. neglecta*	FE, ST, 1B.2

Sources: CNDDB, Solano County Habitat Conservation Plan, Yolo County Habitat Conservation Plan, Napa County Baseline Data Report for Biological Resources, Yolo Natural Heritage Program Plan Document Working Draft, Adobe Creek Conjunctive Use Project Initial Study.

Federal Status Codes: FE = Endangered, FT = Threatened, FC = Candidate, FPT = Proposed Threatened, FSC Federal Species of Concern

State Status Codes: SE = Endangered, ST = Threatened, SFP = Fully Protected, SCE=State candidate for listing as endangered; SSC = CA Department of Fish and Wildlife Special Concern Species

California Native Plant Society (CNPS) Status: List 1B = Plants rare, threatened or endangered in California and elsewhere, 0.1 = Seriously endangered in California, 0.2 = Fairly endangered in California

Table C.4-3: Special Status Species by Habitat Type

Species by Habitat Type	County				
	Yolo	*Solano*	*Napa*	*Lake*	*Colusa*
Lacustrine and Riverine					
Bogg's Lake hedge-hyssop		X		X	
California tiger salamander	X	X			
California freshwater shrimp			X		
Chinook salmon - Sacramento River winter-run ESU	X	X	X		
Chinook salmon- Central Valley spring-run ESU	X	X	X		
Clear Lake Hitch				X	
Delta smelt	X	X	X		
Sacramento splittail	X	X	X		
Steelhead - California Central Valley DPS	X	X	X		
Fresh Emergent Wetland					
Bogg's Lake hedge-hyssop		X		X	
Giant garter snake	X	X			
Burke's goldfields			X	X	
Alkali Sink					
Palmate-bracted bird's beak	X				X
Conservancy fairy shrimp	X	X			
Vernal pool fairy shrimp	X	X			X
Vernal pool tadpole shrimp	X	X			X
Swainson's hawk	X	X	X		
Vernal Pool Complex					
Bogg's Lake hedge-hyssop		X		X	
Colusa grass	X	X			
Solano grass	X	X			
San Joaquin Valley Orcutt grass		X			
Many-flowered navarretia				X	
Few-flowered navarretia			X	X	
Calistoga popcorn-flower			X		
Slender Orcutt grass				X	
Lake County stonecrop				X	
Loch Lomond button-celery			X	X	
Burke's goldfields			X	X	
Conservancy fairy shrimp	X	X			
Vernal pool fairy shrimp	X	X			

Species by Habitat Type	County				
	Yolo	*Solano*	*Napa*	*Lake*	*Colusa*
Vernal pool tadpole shrimp	X	X			
Swainson's hawk	X	X	X		
Valley Foothill Riparian					
Valley elderberry longhorn beetle	X	X	X	X	X
California red-legged frog	X		X	X	X
Bank swallow	X				
Swainson's hawk	X	X	X		
Bald eagle	X	X	X	X	X
Western yellow-billed cuckoo	X				
Annual Grassland					
Swainson's hawk	X	X	X		
Bald eagle	X	X	X	X	X
California tiger salamander	X	X			
California red-legged frog	X		X	X	X
Delta green ground beetle*		X			
Callippe silverspot butterfly			X		
Clara Hunt's milk-vetch			X		
Tiburon paintbrush			X	X	
Calistoga popcorn-flower			X		
Napa blue grass			X	X	
Lake County stonecrop				X	
Solano grass	X	X			
Palmate-bracted bird's beak	X				X
Indian Valley brodiaea				X	X
Eucalyptus					
Swainson's hawk	X	X	X		
Valley Oak Woodland					
Swainson's hawk	X	X	X		
Valley elderberry longhorn beetle	X	X	X	X	X
Bald eagle	X	X	X	X	X
Indian Valley brodiaea				X	X
Blue Oak Woodland					
Bald eagle	X	X	X	X	X
Clara Hunt's milk-vetch					
Indian Valley brodiaea				X	X
Blue Oak - Foothill Pine					
Clara Hunt's milk-vetch				X	
Chamise					
Covered species may use as foraging or dispersal	X		X	X	

Species by Habitat Type	County				
	Yolo	***Solano***	***Napa***	***Lake***	***Colusa***
Mixed Chaparral					
Indian Valley brodiaea				X	X
Clara Hunt's milk-vetch			X		
Montane Hardwood					
Lake County stonecrop				X	
Montane Riparian					
California red-legged frog	X		X	X	X
Northern spotted owl			X	X	
Valley elderberry longhorn beetle	X	X	X	X	
Closed-Cone-Pine-Cypress					
Indian Valley brodiaea				X	X
Douglas Fir - Ponderosa Pine					
Northern spotted owl			X	X	

C.4.3 Invasive Species

Control of invasive plants has been identified as a challenge for the region. Table C.4-4identifies aquatic/riparian invasive plant species occurring in the Westside Region along with an assessment of the risk each species presents to the region. Species that are common throughout the Westside Region are: Giant reed (Arundo donax), Hoary cress (Cardaria draba), Water hyacinth (Eichhornia crassipes), Perennial pepperweed (Lepidium latifolium), Eurasian watermilfoil (Myriophyllum spicatum), Himalayan blackberry (Rubus discolor), Ravenna grass (Saccharum ravennae) and Tamarisk (Tamarix chinensis).

Table C.4-4: Aquatic/Riparian Invasive Plant Species

Aquatic/Riparian Invasive Species	Projection of Invasiveness	Occurrence within Region	Risk to Region							
			Water Quality	Water Supply	Flooding	Erosion	Fire Hazards	Native Habitats/Wildlife	Recreation	Basis for Risk
African asparagus fern (*Asparagus asparagoides*)	Low abundance in Yolo County	Valley Floor					x	x		African asparagus fern forms dense mats that die back in summer creating fire hazard. It prevents other plants from accessing moisture and nutrients.
Giant reed (*Arundo donax*)	Managed and decreasing throughout Westside Region	Upper Cache Creek Upper Putah Creek Valley Floor	x	x	x	x	x	x	x	Giant reed displaces native plants and associated wildlife species. Unlike native riparian species, giant reed provides little shading to in-stream habitat, leading to increased water temperatures. It also may alter hydrologic regimes and reduce groundwater availability by transpiring large amounts of water. It alters channel morphology by retaining sediments and constricting flows, often reducing stream navigability. Dense growth presents fire hazards by providing large amount of available fuel. It also promotes bank erosion due to its shallow root system that is easily undercut leading to bank collapse.
Hoary cress (*Cardaria draba*)	Managed and decreasing in Yolo County Spreading in Lake and Napa Counties Low abundance in Solano County	Upper Cache Creek Upper Putah Creek Valley Floor						x		Hoary cress quickly colonizes disturbed sites, irrigated agricultural fields, roadsides and ditches. It is highly competitive species that displaces native vegetation forming a monoculture. It degrades wildlife habitat, and competes with native plants for soil moisture.

Aquatic/Riparian Invasive Species	Projection of Invasiveness	Occurrence within Region	Risk to Region							
			Water Quality	Water Supply	Flooding	Erosion	Fire Hazards	Native Habitats/Wildlife	Recreation	Basis for Risk
Brazalian waterweed (*Egeria densa*)	High abundance in Yolo County Managed and decreasing in Lake County	Upper Cache Creek Valley Floor	x	x	x			x	x	Brazilian waterweed forms large mats that fill the water column and can block or severely restrict water flow. Physical blockage reduces recreational quality (e.g. swimming and boating) of infested water systems, clogs intake structures, crowds out native plants, decreases habitat for fish and other wildlife, degrades water quality, and slows water flow in canals, thereby increasing sedimentation rates and impairing irrigation and drainage. clog intake structures, chokes boat engines
Water hyacinth (*Eichhornia crassipes*)	Managed but spreading throughout Westside Region	Upper Cache Creek Upper Putah Creek Valley Floor	x		x			x	x	Water hyacinth is an especially destructive invasive species because of its ability to displace native plant species, harm fish and wildlife, reduce foodweb productivity, and interfere with water conveyance and flood control systems.
Perennial pepperweed (*Lepidium latifolium*)	Managed but spreading throughout Westside Region	Upper Cache Creek Upper Putah Creek Valley Floor						x	X	Perennial pepperweed is a highly invasive plant that alters the ecosystem it grows in. It can invade a wide range of habitats including riparian areas, wetlands, marshes, and floodplains. Dense stands have potential to displace native plants and animals, threatened and endangered species, decrease plant diversity, and reduce nesting frequency of waterfowl in or near wetlands. It can also reduce the forage quality in hay or pasture.

Aquatic/Riparian Invasive Species	Projection of Invasiveness	Occurrence within Region	Risk to Region							
			Water Quality	Water Supply	Flooding	Erosion	Fire Hazards	Native Habitats/Wildlife	Recreation	Basis for Risk
Hydrilla (*Hydrilla verticillata*)	Managed in Clear Lake	Upper Cache Creek Valley Floor	x	x					x	Hydrilla forms large mats that fill the water column and can block or severely restrict water flow. Physical blockage reduces recreational quality (e.g. swimming and boating) of infested water systems, clogs intake structures, crowds out native plants, decreases habitat for fish and other wildlife, degrades water quality, and slows water flow in canals, thereby increasing sedimentation rates and impairing irrigation and drainage. clog intake structures, chokes boat engines
Uruguay water primrose (*Ludwigia hexapetala*)	Spreading in Valley FloorSpreading but managed in Lake County	Upper Cache CreekValley Floor	x		x			x	x	Uruguay water primrose forms dense mats in waterways, reaching above and below the surface, shading out native aquatic vegetation. These dense mats of vegetation provide poor habitat for waterfowl, fish and other wildlife. The high rates of leaf turnover and sloughing off, have drastic affects on water quality such as; the loading of nutrients, increase in pH, decreasing oxygen, and increasing water temperature. It forms dense mats that can clog waterways, making them unusable for navigation or recreation and causing flooding out of the channel. It can block irrigation pumps and water intakes, and it provides optimal habitat for mosquitoes.

Aquatic/Riparian Invasive Species	Projection of Invasiveness	Occurrence within Region	Risk to Region							
			Water Quality	Water Supply	Flooding	Erosion	Fire Hazards	Native Habitats/Wildlife	Recreation	Basis for Risk
Purple loosestrife (*Lythrum salicaria*)	Spreading in western portion of Yolo County	Valley Floor	x	x				x	x	Purple loosestrife can rapidly degrade wetlands, diminishing their value for wildlife habitat. It forms extensive monotypic stands that displace native vegetation relied on by wetland species for food and habitat. It can also clog waterways and wetlands used for boating and other recreational activities. In agricultural areas, it can change hydrology and soil conditions of wetland pastures, meadows and rice fields as well as clog irrigation systems.
Eurasian watermilfoil (*Myriophyllum spicatum*)	High abundance and spreading in Yolo, Solano and Napa Counties Established in Lake Berryessa Managed but spreading in Lake County	Upper Cache Creek Upper Putah Creek Valley Floor	x		x			x	x	Eurasian watermilfoil forms dense canopies within aquatic habitats that shade out native aquatic vegetation. Extensive monotypic stands provide poor habitat for waterfowl, fish and other wildlife. The high rates of leaf turnover and the decomposition of the plants at the end of the growing season, have drastic affects on water quality through; the loading of nutrients, increase in pH, decreasing oxygen, and increasing water temperature. It forms dense mats that can clog waterways, making them unusable for navigation or recreation and causing flooding out of the channel. It can block irrigation pumps and water intakes, and it provides optimal habitat for mosquitoes.

Aquatic/Riparian Invasive Species	Projection of Invasiveness	Occurrence within Region	Risk to Region							
			Water Quality	Water Supply	Flooding	Erosion	Fire Hazards	Native Habitats/Wildlife	Recreation	Basis for Risk
Parrot's feather (*Myriophyllum aquaticum*)	Eradicated around Clear Lake, but spreading west High abundance in Solano County	Upper Cache Creek Valley Floor		x	x			x	x	Parrot's feather competes with native aquatic plants. It forms dense mats that can clog waterways, making them unusable for navigation or recreation and causing flooding out of the channel. It can block irrigation pumps and water intakes, and it provides optimal habitat for mosquitoes.
Himalayan blackberry (*Rubus discolor*)	Managed but spreading along Cache Creek and Putah Creek.	Upper Cache Creek Upper Putah Creek Valley Floor		x		x	x	x	x	Himalayan blackberry colonizes disturbed areas and rapidly displaces native vegetation. They can hinder access of larger mammals to access to water (including livestock) and decrease usable pasture areas. On Cache and Putah Creeks they are known to cause habitat degradation, bank erosion, and excessive transpiration (consumptive use) losses of water.
Ravenna grass (*Saccharum ravennae*)	Managed but spreading within the central and northeastern portion of Yolo County into Napa County Managed but spreading in the south of Colusa County into Lake County Managed and decreasing south of Clear Lake	Upper Cache Creek Upper Putah Creek Valley Floor			x		x	x	x	Highly competitive invasive that displaces native riparian vegetation and provides little habitat for birds and other wildlife. Increases fire risk.

Aquatic/Riparian Invasive Species	Projection of Invasiveness	Occurrence within Region	Risk to Region							
			Water Quality	Water Supply	Flooding	Erosion	Fire Hazards	Native Habitats/Wildlife	Recreation	Basis for Risk
Red sesbania (*Sesbania punicea*)	Managed but spreading along Cache Creek and Putah Creek Managed but spreading in Napa County west of Lake Berryessa	Upper Putah Creek Valley Floor			x	x		x		Displaces native plants used by wildlife and contributes to bank erosion and flooding

Aquatic/Riparian Invasive Species	Projection of Invasiveness	Occurrence within Region	Risk to Region							
			Water Quality	Water Supply	Flooding	Erosion	Fire Hazards	Native Habitats/Wildlife	Recreation	Basis for Risk
Tamarisk (*Tamarix chinensis*)	Managed and decreasing in Yolo County Managed but spreading around Lake Berryessa	Upper Cache Creek Upper Putah Creek Valley Floor	x	x	x	x	x	x		Reduction in the shading of water results in water quality impacts, tamarisk also increases salinity by depositing high salt leaves, loss of surface and groundwater through heavy consumption, obstruction of flood flows, increased erosion due to channel obstructions, monopolization of soil moisture, and increases frequency of fire.

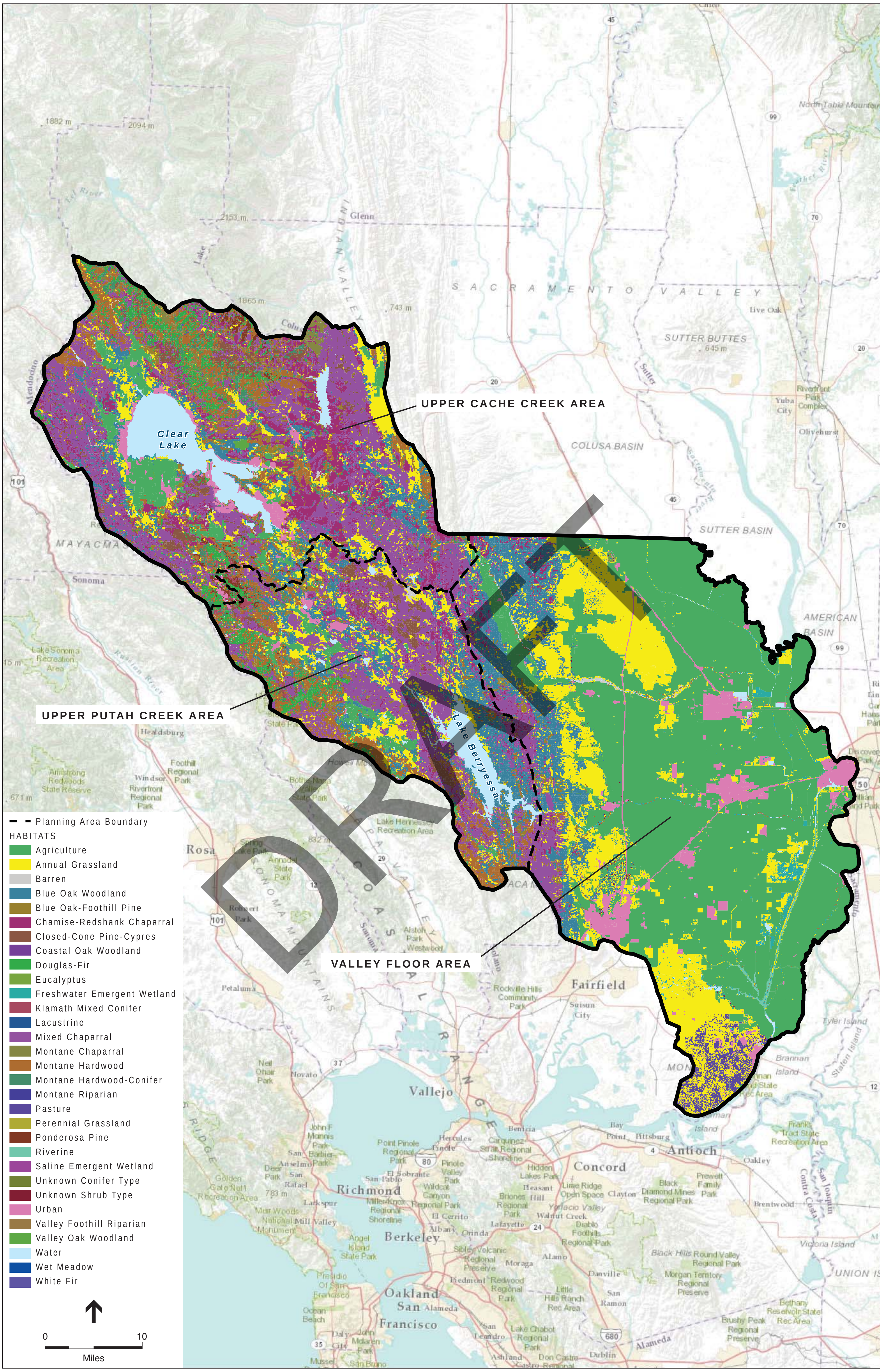
Sources: CalWeed Mapper, California Department of Food and Agriculture, Sacramento River Watershed Program, UC Davis, US Department of Agriculture, Yolo County

Colonization of water bodies by Quagga mussels, zebra mussels and New Zealand mud snails is another challenge that has been articulated for the region. Table C.4-5 identifies the status of these aquatic invertebrate invasive species within the Westside Region along with an assessment of the risk each species presents to the region.

Table C.4-5: Aquatic Invertebrate Invasive Species

Aquatic/Riparian Invasive Species	Projection of Invasiveness	Occurrence within Region	Risk to Region							
			Water Quality	Water Supply	Flooding	Erosion	Fire Hazards	Native Habitats/Wildlife	Recreation	Basis for Risk
Dreissenid mussels (Quagga, zebra)	Not found in Westside Region as of January 2011	---		x				x	x	Mussels clog intake structures, harm or consume native species and food resources
New Zealand mud snail	Being managed in lower Putah Creek.	Valley Floor						x	x	In dense populations, NZMS outcompete native aquatic snails and aquatic insects for food. This leads to a reduction or elimination of the native macroinvertebrates, and therefore a reduction in food available for fish and other members of the native aquatic ecosystem.

Sources: California Department of Fish and Game, Association of California Water Agencies



SOURCE: CNDDB, 2012; USFWS, 2012; ESRI, 2012; and ESA, 2012

Figure C.4-1
Habitats of the Westside Region

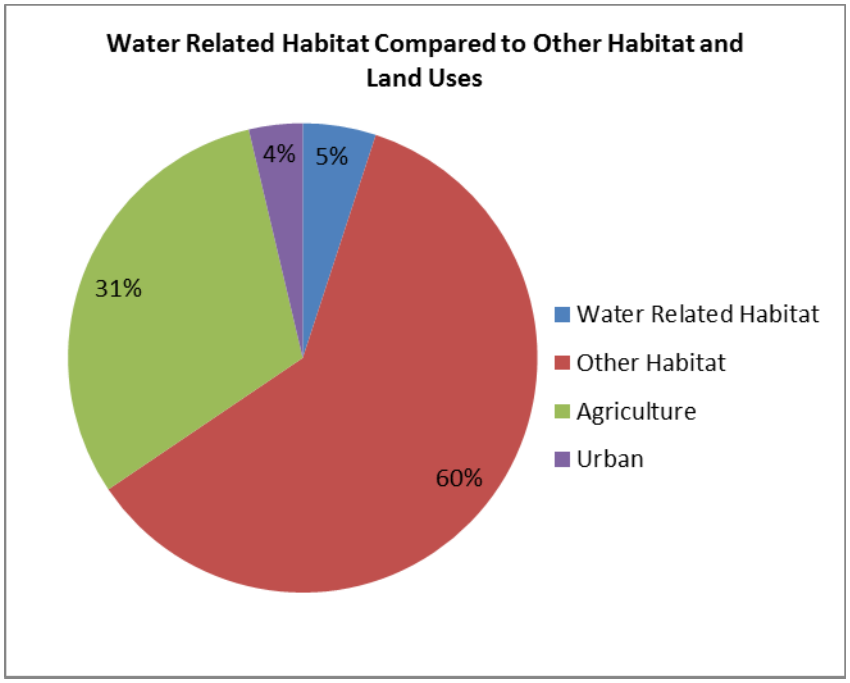


Figure C.4-2 - Water Related Habitat

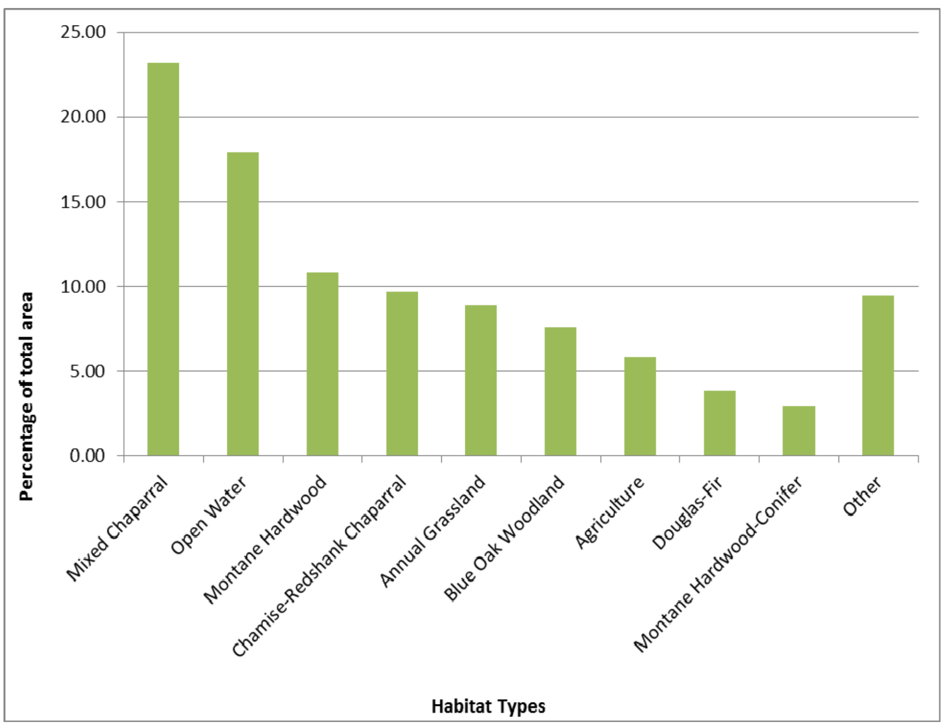


Figure C.4-3 – Dominant Habitat Types along Waterways of the Upper Cache Creek Planning Area

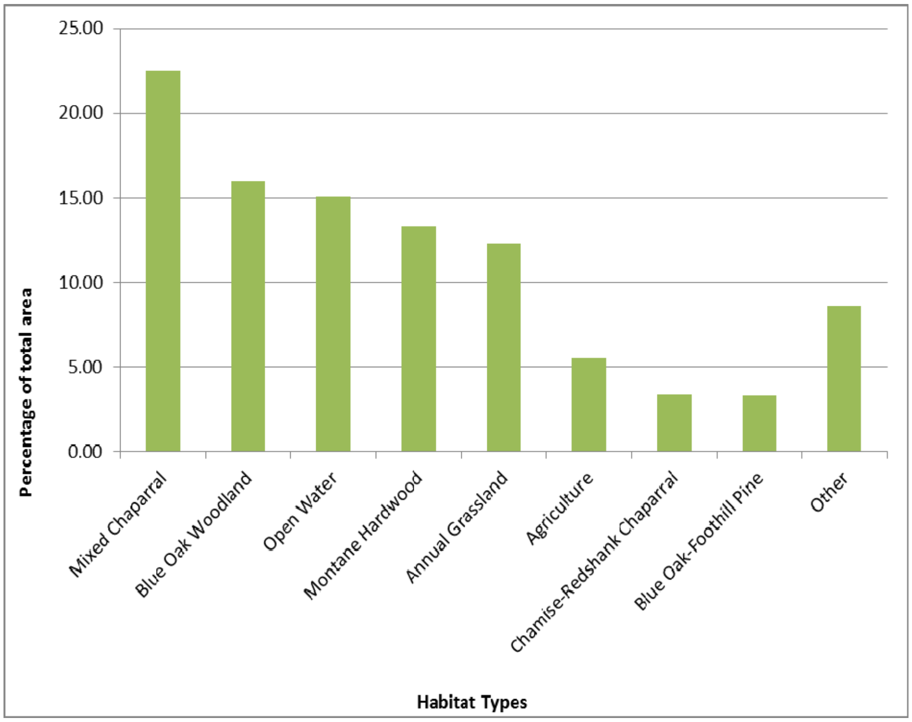


Figure C.4-4 – Dominant Habitat Types along Waterways of the Upper Putah Creek Planning Area

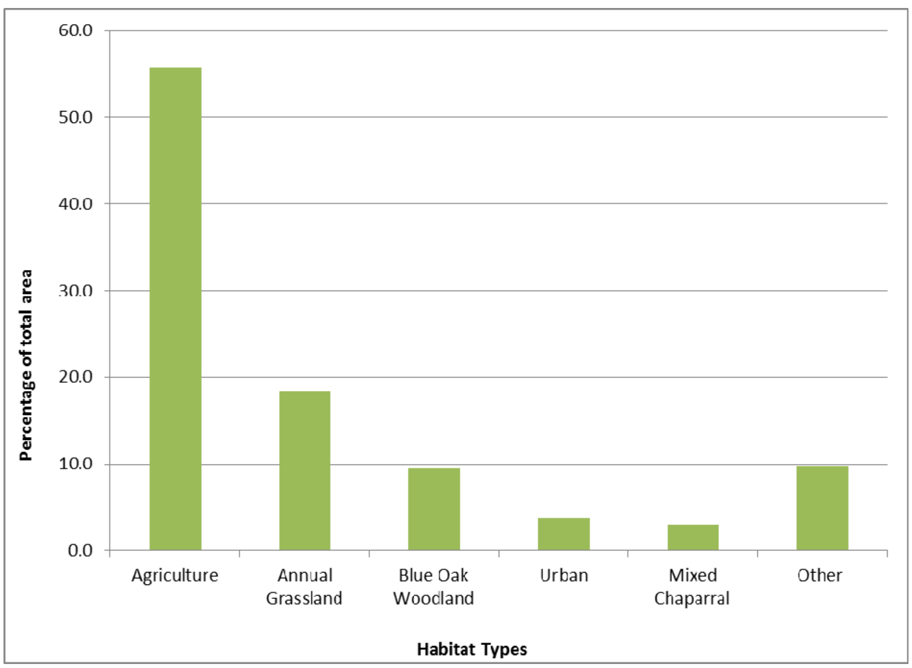
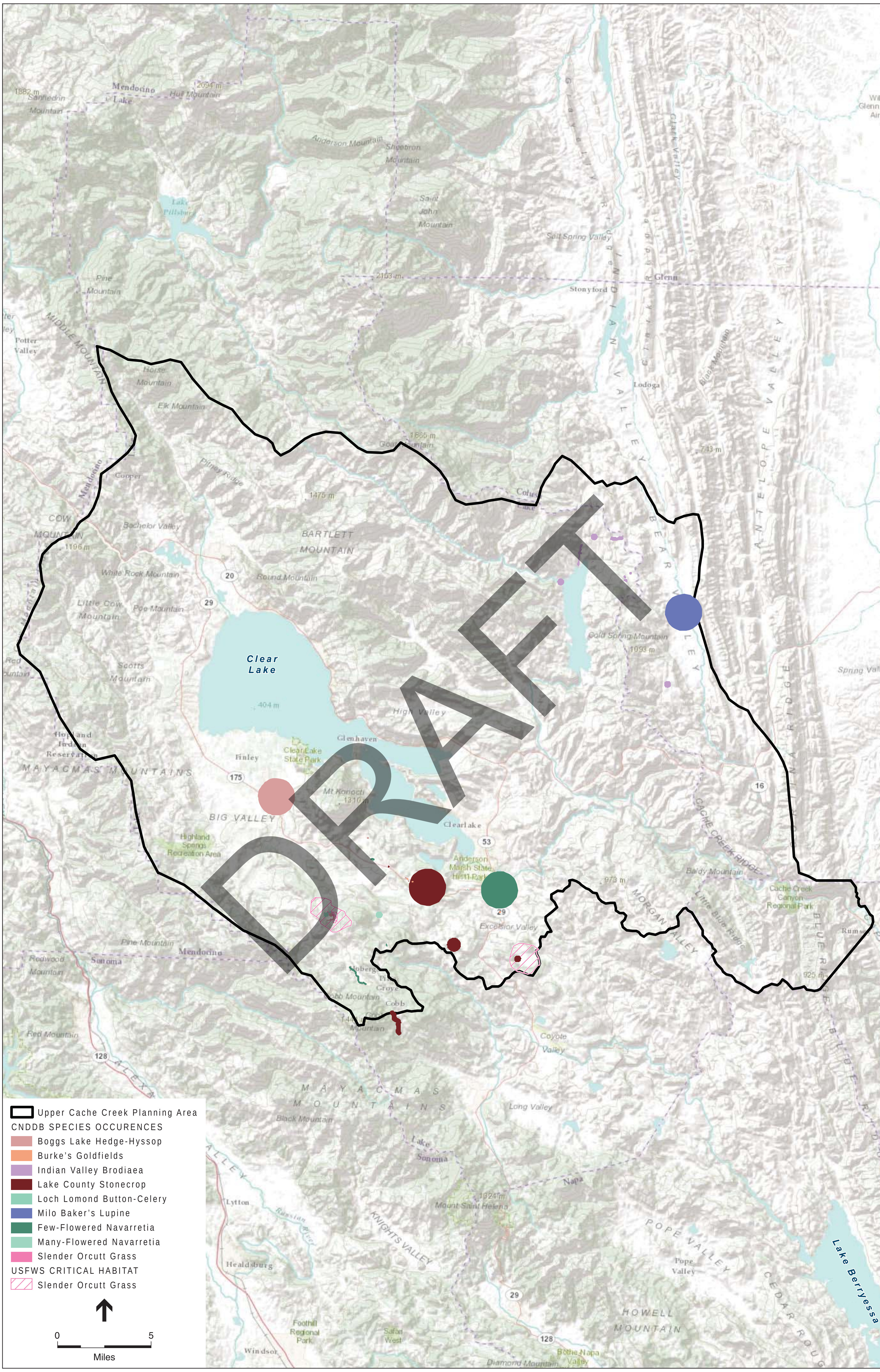
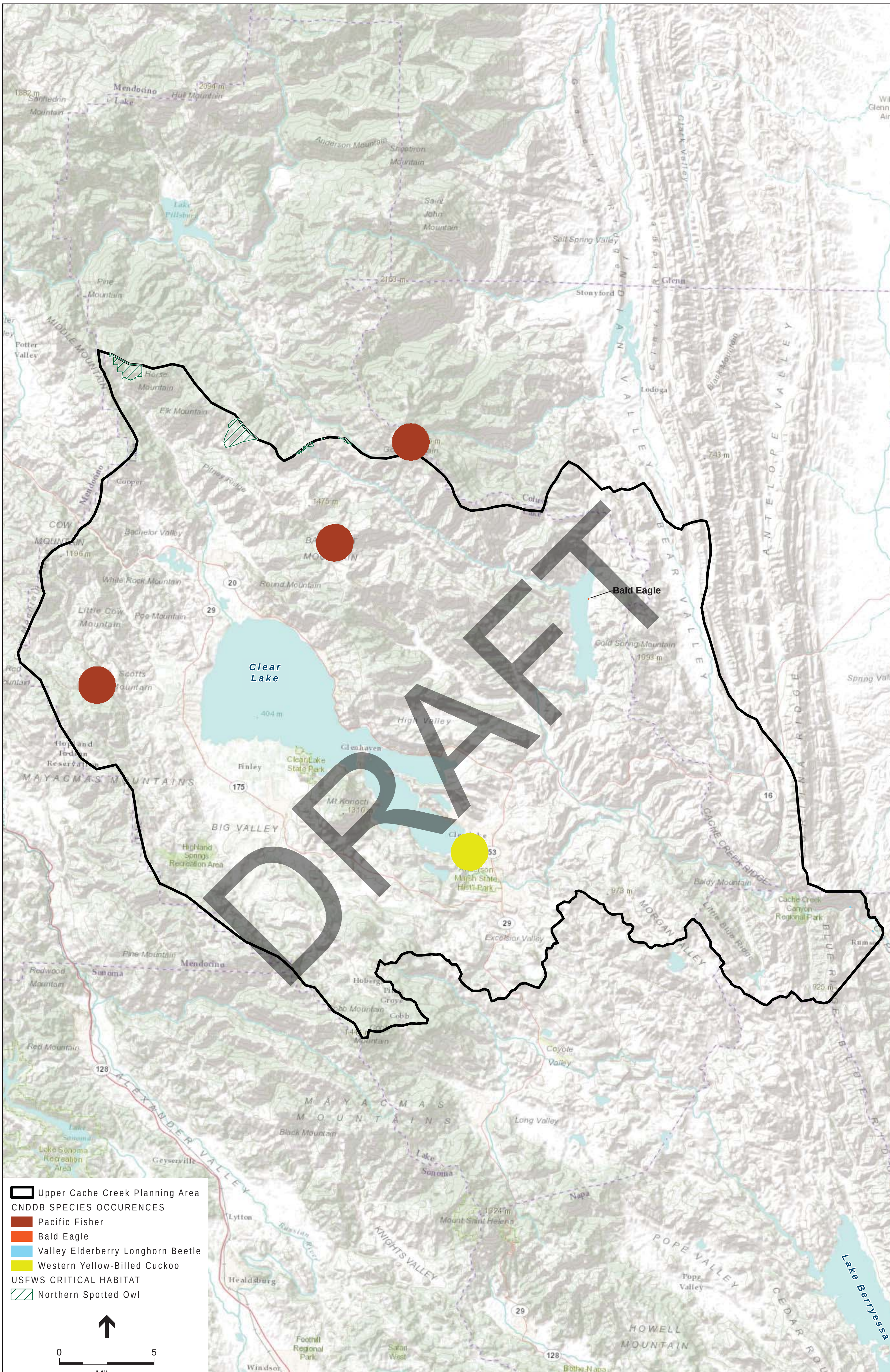


Figure C.4-5 – Dominant Habitat Types along Waterways of the Valley Floor Planning Area



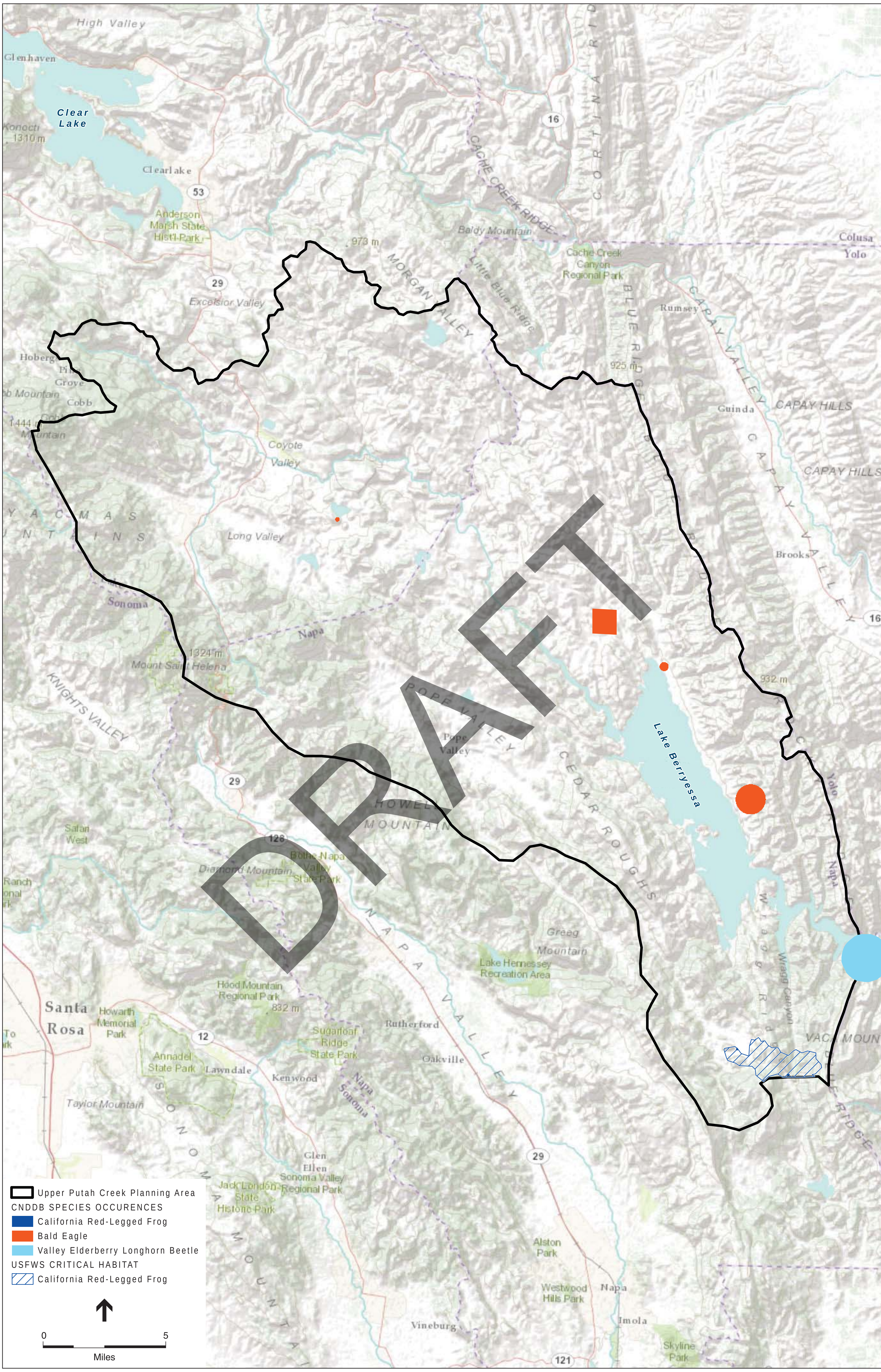
SOURCE: CNDDB, 2012; USFWS, 2012; ESRI, 2012; and ESA, 2012

Figure C.4-6
CNDDB Occurences and USFWS Critical Habitat in the Upper Cache Creek Planning Area – Plants ONLY



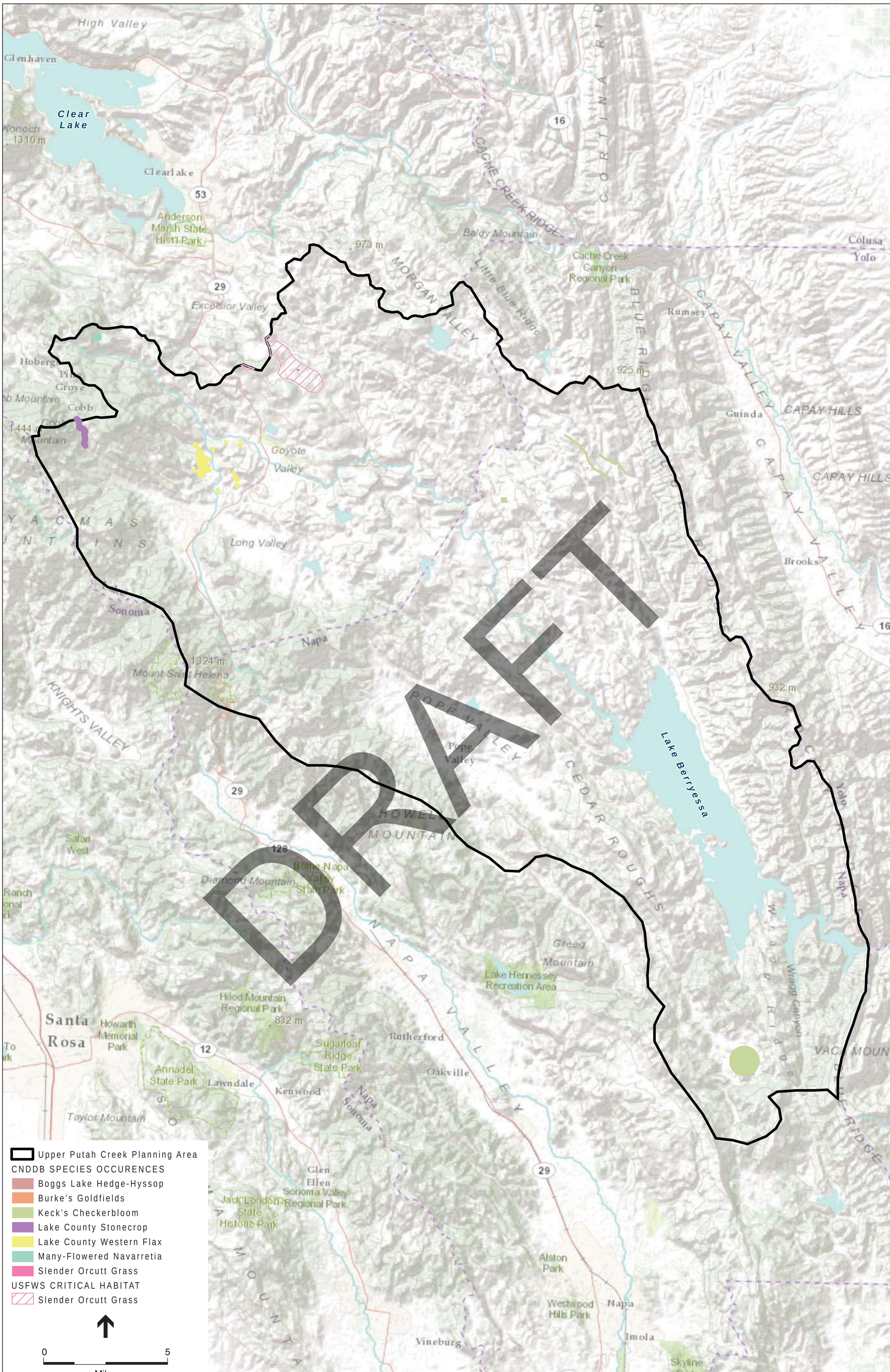
SOURCE: CNDDB, 2012; USFWS, 2012; ESRI, 2012; and ESA, 2012

Figure C.4-7
CNDDB Occurences and USFWS Critical Habitat in the Upper Cache Creek Planning Area – Animals ONLY



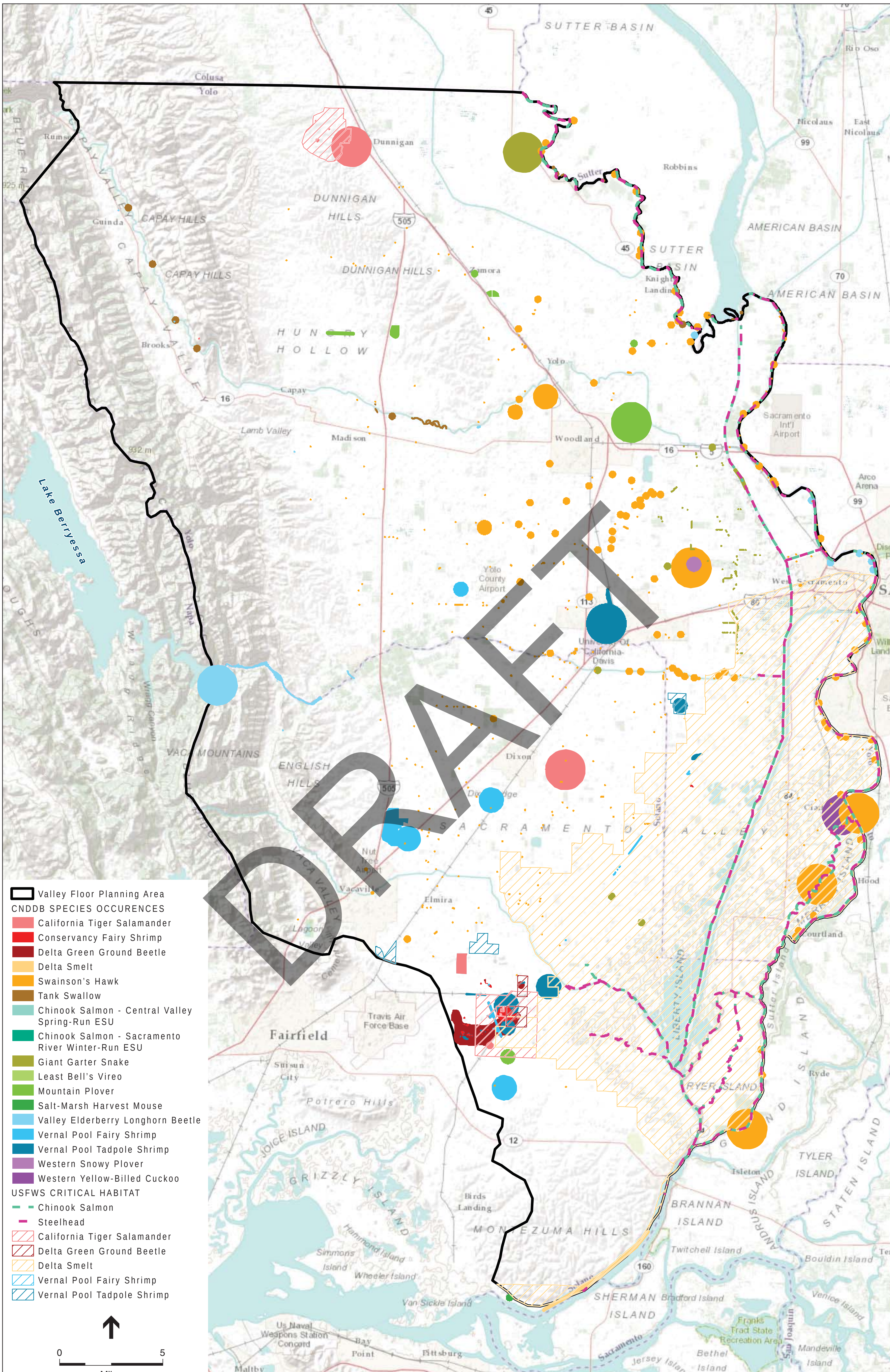
SOURCE: CNDDB, 2012; USFWS, 2012; ESRI, 2012; and ESA, 2012

Figure C.4-8
CNDDB Occurences and USFWS Critical Habitat in the Upper Putah Creek Planning Area – Animals ONLY



SOURCE: CNDDB, 2012; USFWS, 2012; ESRI, 2012; and ESA, 2012

Figure C.4-9
CNDDB Occurences and USFWS Critical Habitat in the Upper Putah Creek Planning Area – Plants ONLY

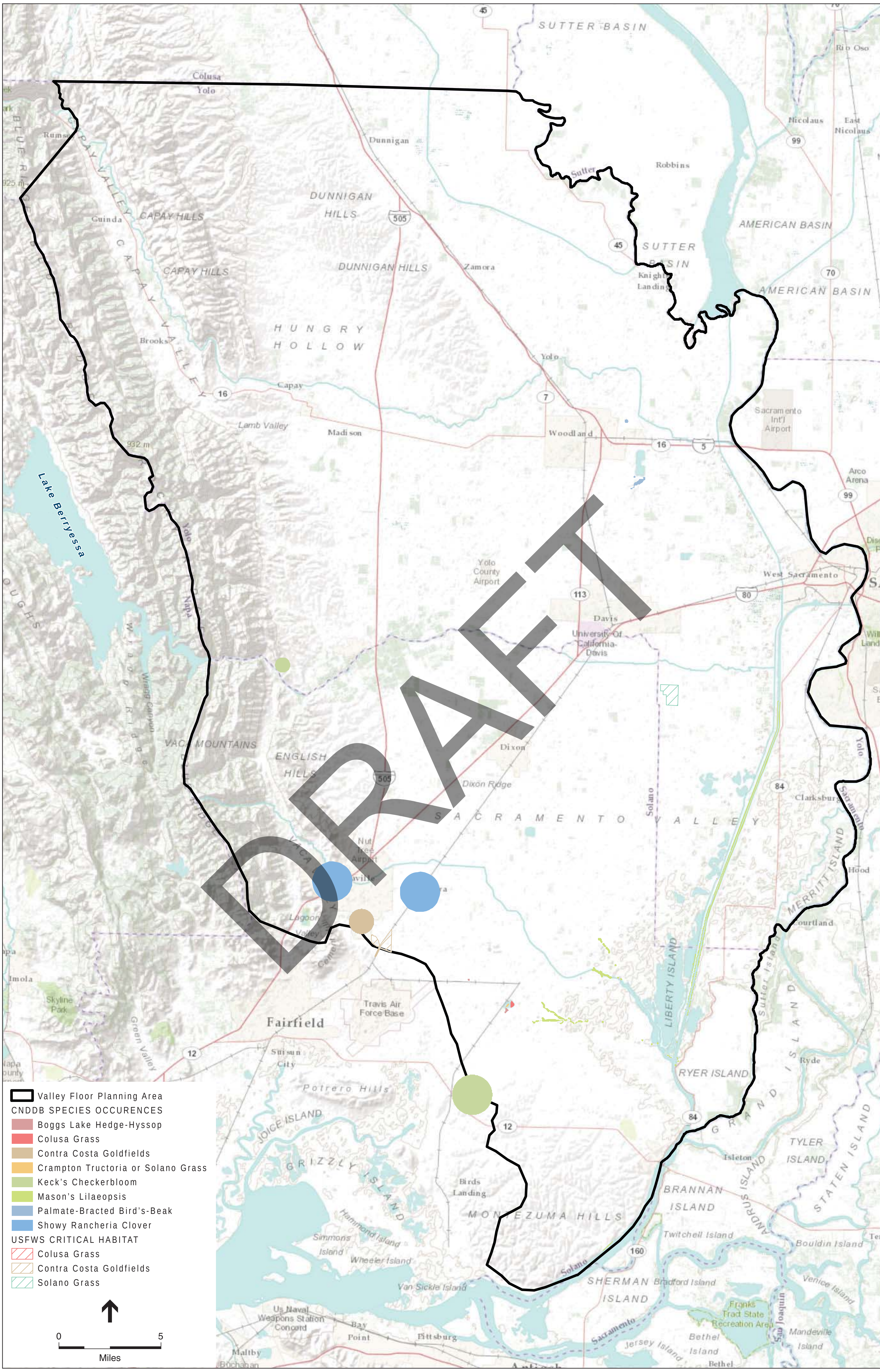


Westside Integrated Regional Water Management Plan . 210721

SOURCE: CNDDB, 2012; USFWS, 2012; ESRI, 2012; and ESA, 2012

Figure C.4-10

CNDDB Occurences and USFWS Critical Habitat in the Valley Floor Planning Area – Animals ONLY



SOURCE: CNDDB, 2012; USFWS, 2012; ESRI, 2012; and ESA, 2012

Figure C.4-11
CNDDB Occurences and USFWS Critical Habitat in the Valley Floor Planning Area – Plants ONLY

Appendix C.5

Climate Change Vulnerability Checklist

C.5 Draft Climate Change Vulnerability Checklist with Draft Priorities per Objectives

This Climate Change Vulnerability Checklist for the Westside Region was provided by the Department of Water Resources (DWR) in its Climate Change Handbook found at http://www.water.ca.gov/climatechange/CCHandbook.cfm. The Proposition 84 IRWM Plan Guidelines issued in November 2012, requires preparation of a climate change vulnerability assessment which is at least equivalent to this checklist in order to meet the anticipated Climate Change Standard for Round 2 and 3 of the Proposition 84 IRWM Implementation Grant.

The questions found in the checklist are identified by number and are not italicized. The draft responses are in italics below each numbered question. This checklist is Appendix C.5 to the IRWM Plan. Specific narrative relevant to climate change that is drawn from the responses to this checklist is incorporated directly into a variety of IRWM Plan sections.

Proposed Prioritization of Climate Change Vulnerabilities
As identified in the 2012 Proposition 84/1E IRWM Guidelines, the IRWM Plan must contain a list of prioritized vulnerabilities based on the vulnerability assessment and the IRWM decision making process. The proposed prioritization of Climate Change vulnerabilities summarized below, are in alignment with the Westside IRWM prioritized objectives described in Section 6.

<u>High Priority Climate Change Vulnerabilities</u>

1. Water Demand
    a. 1.4 Groundwater supplies in parts of the region lack resiliency after drought events
2. Water Supply
    a. 2.6 The region has invasive species management at facilities, conveyance structures or in habitat areas
3. Water Quality
    a. 3.2 Part of the region relies on surface water bodies with current or recurrent water quality issues related to eutrophication, such as… algal blooms.
    b. 3.4 Beneficial uses for some water bodies cannot always be met due to water quality issues.
    c. 3.5 Part of the region observes water quality shifts during rain events that impact treatment facility operation.
4. Sea Level Rise
    a. 4.5 There’s a portion of the region that floods at extreme high tides or storm surges
5. Flooding
    a. 5.1 The region has critical infrastructure that lies within the 200-year floodplain.
    b. 5.2 A part of the region lies within the Sacramento-San Joaquin Drainage District
    c. 5.3 Aging critical flood protection infrastructure exists in the region
    d. 5.4 Flood control facilities have been insufficient in the past
6. Ecosystem and Habitat Vulnerability
    a. 6.1 The region includes inland aquatic habitats vulnerable to erosion and sedimentation issues.
    b. 6.2 The region includes estuarine habitats which rely on freshwater flow
    c. 6.3 Climate-sensitive fauna or flora populations live in the region
    d. 6.4 Endangered and threatened species exist in the region.
    e. 6.6 Rivers in the region with quantified environmental flow requirements or known water quality/quantity stressors to aquatic life

f. 6.8 The region includes the Bay-Delta which is a habitat described in the Endangered Species Coalition's Top 10 habitats vulnerable to climate change.

Medium Priority Climate Change Vulnerabilities

1. Water Demand
    a. 1.2 Water use varies more than 50% seasonally in parts of the region
    b. 1.3 Climate sensitive crops are grown within the region
    c. 1.5 Water use curtailment measures are effective and can harden demand
2. Water Supply
    a. 2.1 A portion of the water supply comes from snowmelt through the CVP/SWP
    b. 2.5 The region faced a drought which it failed to meet local water demands
3. Water Quality
    a. 3.1 Increased wildfires are a threat in the region
5. Flooding
    b. 5.5 Wildfires are a concern in parts of the region
6. Ecosystem and Habitat Vulnerability
    c. 6.5 The region relies on aquatic or water-dependent habitats for recreation.

1 Water Demand

1.1 Are there major industries that require cooling/process water in your planning region?

- As average temperatures increase, cooling water needs may also increase.
- Identify major industrial water users in your region and assess their current and projected needs for cooling and process water.

No associated Objective
Most industry within the Region is light industrial business that do not require large amounts of process water or have large cooling needs. One larger industrial business in the Region is the Woodland tomato processing facility which is likely to have seasonal process water needs. The only facility with large cooling demand that was identified is the UC Davis heating and cooling system.
UC Davis owns and operates a central heating and cooling plant to produce steam and chilled water for the campus. The plant uses a boiler infrastructure at the Central Heating and Cooling Plant (CHCP). The system provides steam for building heat, hot water, and process loads with a boiler at the Central Heating and Cooling Plant. Chilled water is also produced and distributed through the system. It is not known at this time the quantity of make up water needed for boilers and chillers at UC Davis and the potential magnitude of change to meet higher temperatures resulting from climate change.

1.2 Does water use vary by more than 50% seasonally in parts of your region?

- Seasonal water use, which is primarily outdoor water use, is expected to increase as average temperatures increase and droughts become more frequent.
- Where water use records are available, look at total monthly water uses averaged over the last five years (if available). If maximum and minimum monthly water uses vary by more than 25%, then the answer to this question is "yes".
- Where no water use records exist, is crop irrigation responsible for a significant (say >50%) percentage of water demand in parts of your region?

Linkage to objective #12_ priority – medium importance; medium urgency
Water use within the Region consists of approximately 95% agricultural use which is highly seasonal. Water demand for agricultural water throughout the region was estimated using a DWR land use survey containing agricultural acreages by crop type with an estimated annual applied water factor for each crop type (compiled by DWR). Although the applied water factor was summarized annually, the model that DWR uses to calculate these yearly estimates uses monthly evapotranspiration data to estimate applied water for each crop type using the following equation:
Etc=Kc x Eto where Eto (reference evapotranspiration) varies based on local climate changes.

*Within the Valley Floor, which contains the majority of the agricultural water use within the Region, average Eto varies from 1 in January to 8.5 in July. The Kc (*crop coefficient*, a dimensionless number that is multiplied by the Eto value to arrive at a crop Etc estimate) for a crop varies based on its growth pattern. Many plants are only grown in the summer, because growth conditions are appropriate in that season. Plants that are grown annually require more water in the summer due to the higher Eto and the lack of rainfall to supplement the additional needed water for the plants. An exact estimation of seasonal water use was not calculated; however, based on the high seasonal variability of both Eto and Kc, it can be assumed that water use varies by at least 50% seasonally within the Region.*

Climate change is expected to increase average temperatures and cause droughts to become more frequent. This is likely to cause outdoor water use (primarily agriculture in this Region) to increase through increases in evapotranspiration and potential extension of growing seasons. These two factors could increase water demand within the Region, if no mitigating actions are taken such as increased irrigation efficiency and conversion to more water efficient crop types.

1.3 Are crops grown in your region climate-sensitive? Would shifts in daily heat patterns, such as how long heat lingers before night-time cooling, be prohibitive for some crops?

- Fruit and nut crops are climate-sensitive and may require additional water as the climate warms.

Linkage to objective #12_ priority - medium importance; medium urgency
Many of the Valley Floor's row crops are warm-season horticultural crops (e.g., tomato, cucumber, sweet corn, and pepper) that are climate-sensitive with an optimum temperature of 68°F to 77°F for yield, and an acceptable range of 53.6°F to 86°F, with a maximum tolerance of 95°F. Mean mid-summer maximum temperatures within the Valley Floor already slightly exceed this, suggesting that 1.8°F and 5.4°F temperature increase by mid-century may force a shift to hot-season crops such as melon and sweet potato which have higher acceptable temperature ranges (64°F to 95°F). Warmer winter temperatures, however, would favor cool season crops, such as lettuce and broccoli, that are now grown in winter/early spring further south, and which have an acceptable range of 41°F to 77°F. For field crops such as corn and rice, temperature extremes exceeding 41°F-95°F, respectively, decreases in pollen viability and pollen production could reduce yields. For corn, kernel development is reduced at temperatures greater than 86°F, but is less vulnerable to heat waves during the reproductive phase than grains such as wheat, barley, and rice. Fruit trees require 200 to 1,200 hours of winter chill to flower. Chill hours are computed on a daily basis relative to a reference temperature. Using climate predictions for the Central Valley, winter chill hours will decrease from a baseline of 1,000 hours, as observed in 1950, to about 500 hours by 2100. Under most climate scenarios, the winter climate in the Valley Floor will approach the critical thresholds for yield for many fruit tree species by the end of the century.

In the Upper Putah Creek and Upper Cache Creek Areas, there are large acreages of vineyards. High temperatures during the growing season can cause premature ripening and reduce grape quality. Temperature increases are expected to have only modest effect on grape quality in most regions over the next few decades. However, toward the end of the century, wine grapes could ripen as much as one to two months earlier.

1.4 Do groundwater supplies in your region lack resiliency after drought events?

- Droughts are expected to become more frequent and more severe in the future. Areas with a more hardened demand may be particularly vulnerable to droughts and may become more dependent on groundwater pumping.

Linkage to objective #17; priority – High importance, low urgency

Overall, groundwater supplies are resilient throughout the Region. In the Valley Floor, groundwater levels are generally considered high and stable with pumping and recharge in equilibrium. During droughts the groundwater level can decrease significantly. For example, during the1975-77 drought, water levels reached the lowest point ever recorded but have since recovered and are high again. Limited data are available regarding the groundwater basins in the upper watershed. The High Valley Groundwater Basin, near Clearlake

Oaks in the Upper Cache Creek Planning Area, is one groundwater supply source that is slow to recover after droughts because of low recharge rates to the basin; following the drought of 1976, it took 5 years for water levels in the High Valley Groundwater Basin to return to pre-1976 levels.

A large number of farmers throughout the Region rely on groundwater as their primary water supply during a normal year. This number is expected to increase under possible future drought and population growth conditions as water variability within the Region increases, causing inconsistency in surface water supplies. According to the California Department of Water Resources, rice, pasture, and hay have the highest applied water, and evapotranspiration (ET) of applied water, and are therefore most vulnerable to water shortages. In addition, as cropping patterns change from field and row crops to higher value permanent crops such as vineyard, olives, and fruit trees, water supply reliability becomes increasingly important to keep these permanent crops viable. At present, it is estimated that about 15% of the agricultural acreage in the Valley Floor is cultivated with permanent crops.

The known effect of climate change on water supply is higher variability and therefore uncertainty, and thus the effect of these variations in the water supply on agriculture is not fully understood. Groundwater overdraft could contribute to uncertainty in the quantity and sometimes the quality of irrigation water for agriculture and municipal and industrial supplies. Intermittent periods of dry years may not permit an easy rebound for irrigated crops, especially if groundwater is not available and affordable. Perennial crops are particularly vulnerable, but even growers of annual crops are also vulnerable, and may need to shift crops or set aside land. The prognosis of a drier Western United States suggests high vulnerability for crops that are abundant water users, especially if their cash value is low.

1.5 Are water use curtailment measures effective in your region?

- Droughts are expected to become more frequent and more severe in the future. Areas with a more hardened demand may be particularly vulnerable to droughts.

Linkage to objective #12_ priority - medium importance, medium urgency
Curtailment measures can be effective in the Region because the majority of water demand in the Region is agricultural, and agricultural cropping patterns can be modified in response to reduced water availability. Annual crops can also be interchanged for more water efficient crops to reduce water use. If droughts become more frequent and severe, causing water supply to become threatened, growers may need to fallow lands and/or shift towards drip irrigation and crops that provide higher income per amount of applied water. These systems however require substantial investment, labor and energy for pressurization and are not effective on all crop types. In addition, crops with drip irrigation tend towards higher value permanent crops with resulting demand hardening which increases vulnerability to drought.

1.6 Are some instream flow requirements in your region either currently insufficient to support aquatic life, or occasionally unmet?

- Changes in snowmelt patterns in the future may make it difficult to balance water demands. Vulnerabilities for ecosystems and municipal/agricultural water needs may be exacerbated by instream flow requirements that are:
  1. not quantified,
  2. not accurate for ecosystem needs under multiple environmental conditions including droughts, and
  3. not met by regional water managers.

No associated objective
There are instream flow requirements for both Cache Creek and for Putah Creek. These requirements are currently being met within the Region through strategic operations of storage facilities to balance consumptive and non-consumptive demands.

2 Water Supply

2.1 Does a portion of the water supply in your region come from snowmelt?

- Snowmelt is expected to decrease as the climate warms. Water systems supplied by snowmelt are therefore potentially vulnerable to climate change.
- Where watershed planning documents are available, refer to these in identifying parts of your region that rely on surface water for supplies; if your region contains surface water supplies originating in watersheds where snowpack accumulates, the answer to this question is "Yes."
- Where planning documents are not available, identify major rivers in your region with large users. Identify whether the river's headwaters are fed by snowpack.

Linkage to objectives #11 +12_ priority – medium importance, medium urgency for both

The Cache Creek and Putah Creek watersheds are the predominant sources of surface water within the Region and are not dependent on snowmelt. Other water sources in the Region include the Colusa Basin Drain, Willow Slough, Sacramento River, as well as deliveries from the California State Water Project (SWP) (via Oroville Reservoir and the Feather River), and the Federal Central Valley Project (CVP) (via Shasta Reservoir and the Sacramento River). The sources of water from the Sacramento River, SWP and CVP supplies come primarily from snowmelt. The sources and reliability of water supplies throughout the Region are described in a number of watershed and water system planning documents including:

- *Urban Water Management Plans (plans were prepared in 2010 for Vacaville, Dixon, Davis, Woodland, West Sacramento, and Solano County Water Agency)*
- *Lake County Water Inventory Analysis (2006) – Lake County Watershed Protection District*
- *Water Management Plan (2000) – Yolo County Flood Control and Water Conservation District*

Large variations in the weather would affect the municipalities and farmers receiving water from all of these water sources. In many cases, it is likely that improvements to infrastructure to better distribute supplies from the Cache Creek and Putah Creek watersheds to be used conjunctively with groundwater would improve resilience in the region to the effects of climate change. That said, the impacts climate change may have on the Region are highly variable; current information from climate change models is not sufficiently granular to demonstrate specific impacts to water supply reliability within the Region into the future when considering potential changes in hydrologic patterns in the watersheds.

2.2 Does part of your region rely on water diverted from the Delta, imported from the Colorado River, or imported from other climate-sensitive systems outside your region?

- Some imported or transferred water supplies are sources from climate-sensitive watersheds, such as water imported from the Delta and the Colorado River.

No associated objective
Portions of the Valley Floor area receive water through the SWP and CVP estimated at about 20% of water used in the Valley Floor Area. Additionally, some of the local water purveyors along the Sacramento River divert water from the river. Some of the agencies and farmers relying on these source waters have additional groundwater supply wells, should the surface water supply be unavailable in a particular year; however, not all users have access to range of water supplies.

2.3 Does part of your region rely on coastal aquifers? Has salt intrusion been a problem in the past?

- Coastal aquifers are susceptible to salt intrusion as sea levels rise, and many have already observed salt intrusion due to over-extraction, such as the West Coast Basin in southern California.

No associated objective
There are no coastal aquifers in the Region.

2.4 Would your region have difficulty in storing carryover supply surpluses from year to year?

- Droughts are expected to become more severe in the future. Systems that can store more water may be more resilient to droughts.

No associated objective
Both Lake Berryessa and Indian Valley Reservoir have provided carryover storage in a normal year. Clear Lake is more limited in its storage. If the level is below 3.22 Rumsey on May 1, then Yolo County Flood Control and Water Conservation District does not receive water from Clear Lake for use as irrigation water and must rely on water supplied from Indian Valley Reservoir and groundwater. Water levels have been below 3.22 Rumsey on May 1, 13 times since 1900.

2.5 Has your region faced a drought in the past during which it failed to meet local water demands?

- Droughts are expected to become more severe in the future. Systems that have already come close to their supply thresholds may be especially vulnerable to droughts in the future.

Linkage to objectives #11 +12_ priority – medium importance, medium for both

Conjunctive use within the Region has allowed for meeting local water demands in most parts of the Region even in drought years.

2.6 Does your region have invasive species management issues at your facilities, along conveyance structures, or in habitat areas?

- As invasive species are expected to become more prevalent with climate change, existing invasive species issues may indicate an ecological vulnerability to climate change.

Linkage to objective #7, 8,+ 9_ priority –high importance, high urgency, medium importance and medium urgency, and medium importance and medium urgency respectively

Control of invasive species has been identified as a challenge for the region. Appendix C.4 identifies aquatic/riparian invasive plant species occurring in the Westside Region along with an assessment of the risk each species presents to the region. Invasive species that are common throughout the Westside Region are: Giant reed (Arundo donax), Hoary cress (Cardaria draba), Water hyacinth (Eichhornia crassipes), Perennial pepperweed (Lepidium latifolium), Eurasian watermilfoil (Myriophyllum spicatum), Himalayan blackberry (Rubus discolor), Ravenna grass (Saccharum ravennae) and Tamarisk (Tamarix spp.). Of these, giant reed, Himalayan blackberry and tamarisk have the greatest potential to intensify the Region's vulnerability to climate change because they consume large amounts of water. If these species continue to spread along the Region's water conveyance channels, they will further reduce the amount of water available to a Region that is already expected to face reduced water supplies as a result of climate change.

Colonization of water bodies by aquatic invertebrates such as quagga mussels, zebra mussels and New Zealand mud snails is another invasive species management issue that has been identified for the region. Appendix C identifies the status of these aquatic invertebrate invasive species within the Westside Region along with an assessment of the risk each species presents to the region. Quagga mussels and zebra mussels are not yet known to occur in the Region but are being closely monitored because of the threat they present to the water supply infrastructure.

3 Water Quality

3.1 Are increased wildfires a threat in your region? If so, does your region include reservoirs with fire-susceptible vegetation nearby which could pose a water quality concern from increased erosion?

- Some areas are expected to become more vulnerable to wildfires over time. To identify whether this is the case for parts of your region, the California Public Interest Energy Research (PIER) Program has posted wildfire susceptibility projections as a Google Earth application at: http://cal-adapt.org/fire/. These projections are only the results of a single study and are not intended for analysis, but can aid in qualitatively answering this question. Read the application's disclaimers carefully to be aware of its limitations.

Linkage to objective #15_ priority –medium importance, medium urgency

Increased wildfires are a threat to the Region, particularly in the upper watersheds, where the Region's reservoirs are located. The effects of climate change on wildfires in Northwestern California, which includes the Napa and Lake County portions of the Region, are not well understood, but some studies suggest that the probability of large wildfires (>200-ha) will increase. This increased threat of wildfire poses the greatest water quality risk for Lake Berryessa and Indian Valley Reservoir, as the predominant vegetation surrounding these two reservoirs is chaparral, which is highly susceptible to fire.

There is a slight increase in the probability of large wildfires (>200-ha) occurring in the Valley Floor. Because the increase is small and the Valley Floor lacks reservoirs, it is not a significant water quality concern.

3.2 Does part of your region rely on surface water bodies with current or recurrent water quality issues related to eutrophication, such as low dissolved oxygen or algal blooms? Are there other water quality constituents potentially exacerbated by climate change?

- Warming temperatures will result in lower dissolved oxygen levels in water bodies, which are exacerbated by algal blooms and in turn enhance eutrophication. Changes in streamflows may alter pollutant concentrations in water bodies.

Linkage to objective #19_ priority –high importance, medium urgency - Clear Lake Nutrient TMDL

Algal blooms are a recurring issue on Clear Lake but have occurred, at some level, in Clear Lake prior to human habitation. Of particular concern at present is the presence of toxic cyanobacteria from blue-green algae. Research suggest that higher temperatures favor the growth of toxic cyanobacteria species such as Microcystis aeruginosa over other algal species.

3.3 Are seasonal low flows decreasing for some waterbodies in your region? If so, are the reduced low flows limiting the waterbodies' assimilative capacity?

- In the future, low flow conditions are expected to be more extreme and last longer. This may result in higher pollutant concentrations where loadings increase or remain constant.

No associated objective
Decreases in seasonal low flows have not been noted within the Region as both Putah Creek and Cache Creek have controlled releases through upstream storage reservoirs. Upstream storage has allowed Putah and Cache Creeks to have summer flows when they did not typically occur under natural conditions.

3.4 Are there beneficial uses designated for some water bodies in your region that cannot always be met due to water quality issues?

- In the future, low flows are expected decrease, and to last longer. This may result in higher pollutant concentrations where loadings increase or remain constant.

Linkage to objective #19_ priority –high importance, medium urgency - Clear Lake Nutrient TMDL

There are beneficial uses in the Region that are not being met due to water quality impairment. However, because the pollutants causing the water quality impairment are often carried into the water bodies through stormwater or naturally occurring runoff, reduced flows as occurs during drought would also reduce pollutant loading.

3.5 Does part of your region currently observe water quality shifts during rain events that impact treatment facility operation?

- While it is unclear how average precipitation will change with temperature, it is generally agreed that storm severity will probably increase. More intense, severe storms may lead to increased erosion, which will increase turbidity in surface waters. Areas that already observe water quality responses to rainstorm intensity may be especially vulnerable.

Linkage to objectives #15, 23,+ 24 – medium importance, medium urgency; high importance, medium urgency, and high importance, medium urgency respectively

Significant water quality shifts in response to rain events have been observed in the region. Specifically, high flow events in 2006 and 2008 resulted in high turbidities on the Solano Project delivering raw drinking water from Lake Berryessa for the first time in about 30 years. The primary sources of turbidity were erosion along Pleasants Creek and Putah South Canal. Current practice is to bypass peak turbidity event water; this practice could be problematic for drinking water supplies during prolonged storm events.

4 Sea Level Rise

4.1 Has coastal erosion already been observed in your region?

- Coastal erosion is expected to occur over the next century as sea levels rise.

No associated objective
The project area does not include coastline therefore coastal erosion will not occur. However, erosion has been observed on levees in the Delta and levee erosion may be exacerbated due to sea level rise. This concern is addressed further in Section 5, Flooding.

4.2 Are there coastal structures, such as levees or breakwaters, in your region?

- Coastal structures designed for a specific mean sea level may be impacted by sea level rise.

No associated objective
The project area does not include coastline. However, many Delta levees may be threatened with higher sea level, particularly the levees protecting Delta islands, many of which are weak and built on a weak peat soil base although peat soils are not generally found in the region. Higher water levels increase the water pressure on the levees, and will likely cause more failures. Much of the agricultural area in the Delta was created from swampland by building levees around the edges of the many islands and low lying tracts. Much of this area has subsided to below sea level elevations due to compression and oxidation of the peaty materials. The concerns associated with levee failure are addressed further in Section 5, Flooding.

4.3 Is there significant coastal infrastructure, such as residences, recreation, water and wastewater treatment, tourism, and transportation) at less than six feet above mean sea level in your region?

- Coastal flooding will become more common, and will impact a greater extent of property, as sea levels rise. Critical infrastructure in the coastal floodplain may be at risk.

- Digital elevation maps should be compared with locations of coastal infrastructure.

No associated objective
Cal-Adapt mapping does not indicate any additional threats due to sea level rise in the Westside region. However, some critical infrastructure in the floodplain is at-risk. These risks are discussed further in Section 5, Flooding.

4.4 Are there climate-sensitive low-lying coastal habitats in your region?

- Low-lying coastal habitats that are particularly vulnerable to climate change include estuaries and coastal wetlands that rely on a delicate balance of freshwater and salt water.

No associated objective
The habitat in the Delta includes estuaries that may be impacted by increasing salinity as a result of sea level rise, but the degree of impact is not well understood.

4.5 Are there areas in your region that currently flood during extreme high tides or storm surges?

- Areas that are already experiencing flooding during storm surges and very high tides, are more likely to experience increased flooding as sea levels rise.

Linkage to objective #14_ priority –high importance and medium urgency
The lower reaches of the Sacramento River are under the influence of tides. Rio Vista is prone to flooding when very high tides and a large volume of stream outflow occur coincidentally, and strong onshore winds generate wave action that would increase the flood hazard above that of the tidal surge alone. Impact on flood-prone areas of the Westside region is discussed further in Section 5, Flooding.

4.6 Is there land subsidence in the coastal areas of your region?

- Land subsidence may compound the impacts of sea level rise.

No associated objective
Much of the agricultural area in the Delta was created from swampland by building levees around the edges of the many islands and low lying tracts. Much of this area has subsided to below sea level elevations due to compression and oxidation of the peaty materials. The areas below sea level highly susceptible to flooding in the event of a levee failure, and the risk is likely to increase as sea levels rise. Section 5, Flooding, discusses these concerns.

There are additional areas in the region where subsidence due to groundwater pumping has been detected, including the northern Yolo-Zamora area of Yolo County between Zamora and Knights Landing, where subsidence is reported to be on the order of 5 feet and in the vicinity of Davis and Woodland, where subsidence is estimated at 2 to 3 feet.

4.7 Do tidal gauges along the coastal parts of your region show an increase over the past several decades?

- Local sea level rise may be higher or lower than state, national, or continental projections.
- Planners can find information on local tidal gauges at http://tidesandcurrents.noaa.gov/sltrends/sltrends_states.shtml?region=ca.

No associated objective
San Francisco and Port Chicago Stations both indicate a rise in mean sea level. Port Chicago is the most upstream station in the San Francisco Bay and is closest to the Westside Region

San Francisco: The mean sea level trend is 2.01 millimeters/year with a 95% confidence interval of +/- 0.21 mm/yr based on monthly mean sea level data from 1897 to 2006 which is equivalent to a change of 0.66 feet in 100 years

Port Chicago: The mean sea level trend is 2.08 millimeters/year with a 95% confidence interval of +/- 2.74 mm/yr based on monthly mean sea level data from 1976 to 2006 which is equivalent to a change of 0.68 feet in 100 years

5 Flooding

5.1 Does critical infrastructure in your region lie within the 200-year floodplain? DWR's best available floodplain maps are available at:

http://www.water.ca.gov/floodmgmt/lrafmo/fmb/fes/best_available_maps/.

- While it is unclear how average precipitation will change with temperature, it is generally agreed that storm severity will probably increase. More intense, severe storms may lead to higher peak flows and more severe floods.
- Refer to FEMA floodplain maps and any recent FEMA, US Army Corps of Engineers, or DWR studies that might help identify specific local vulnerabilities for your region. Other follow-up questions that might help answer this question:
    1. What public safety issues could be affected by increased flooding events or intensity? For example, evacuation routes, emergency personnel access, hospitals, water treatment and wastewater treatment plants, power generation plants and fire stations should be considered.
    2. Could key regional or economic functions be impacted from more frequent and/or intense flooding?

Linkage to objective #14 _ priority –high importance, medium urgency

Based on 200-yr floodplain mapping prepared in 2008 in accordance with SB-5, there are areas of the Valley Floor planning area, most of which is agricultural land, that lie within the 100-year and 200-year floodplain. The urbanized areas within the 200-year floodplain are restricted to City of West Sacramento and City of Rio Vista while 100-year floodplain areas also include areas near Ulatis and Alamo Creeks in Solano County. Within the City of West Sacramento, the Port of West Sacramento as well as a portion of West Capitol Avenue, a major arterial road into Sacramento; portions of Interstate 80, US-50, the Union Pacific main railroad line, the regional USPS mail processing center, the regional Department of Water Resources flood fight facility, and the California Highway Patrol Academy (a key facility in state emergencies) are all indicated as being within the inundation area. Efforts are underway by the Army Corps of Engineers and the Central Valley Flood Protection Board to strengthen levees as part of the Corps' Sacramento River Bank Protection Project to reduce flood risk in West Sacramento including completion of a section of a setback levee in Fall 2011.

As of 2006, the City of Rio Vista has noted that two (2) miles of roadway and two (2) miles of pipeline are in the 100-year flood plain. Some of these areas also appear to be in the 200-year flood plain. Rio Vista has participated in multi-hazard mitigation planning with the Association of Bay Area Governments (ABAG) as well as tracking Bay-Delta activities including preparation of the Delta Risk Management Strategy and participating in the Delta Area Working Group. An update of the 200-year floodplain map is expected in the middle of 2012 and this narrative will be updated as appropriate. It should be noted that if a flood event were coincident with a high tide event that is exacerbated by climate change impacts, the extent of the flooding will likely be more extensive than estimated.

5.2 Does part of your region lie within the Sacramento-San Joaquin Drainage District?

- The SSJDD contains lands that are susceptible to overflows from the Sacramento and San Joaquin Rivers, and are a key focus of the Central Valley Flood Protection Plan. (http://www.water.ca.gov/cvfmp/program.cfm).

Linkage to objective #14 priority –high importance and medium urgency

Much of the Valley Floor Planning area east of I-5 and Highway 113, south to Rio Vista are within Sacramento-San Joaquin Drainage District under the jurisdiction of the Central Valley Flood Protection Board (CVFPB). The CVFPB cooperates with the US Army Corps of Engineers as well as other agencies to control flooding along the

Sacramento and San Joaquin Rivers. As described in 5.1, much of the lands that will be flooded are agricultural but also include important urban areas as well.

5.3 Does aging critical flood protection infrastructure exist in your region?

- Levees and other flood protection facilities across the state of California are aging and in need of repair. Due to their overall lowered resiliency, these facilities may be particularly vulnerable to climate change impacts.
- DWR is evaluating more than 300 miles of levees in the San Joaquin and Sacramento Rivers Valleys and the Delta (http://www.water.ca.gov/levees/).

Linkage to objectives #10 and 14_ priority –medium importance, low urgency and high importance, medium urgency respectively

Portions of the Valley Floor Planning Area are located in the SSJDD as administered by the CVFPB. In addition, the Central Valley Flood Management Planning Program, a program of DWRs FloodSAFE California, has prepared the Flood Control System Status Report (FCSSR) in 2011 that identifies vulnerabilities to those facilities of the State Plan of Flood Control (SFPC) (i.e. those State-federal flood protection systems). There are also facilities that are maintained by reclamation districts and/or private parties that may not yet have been evaluated. The FCSSR report was developed using information from the DWR Levee Evaluations Program and includes facilities both in the Valley Floor and Upper Cache Creek Planning Areas. FCSSR indicates that many of the levees in the Valley Floor Planning Area and some levees in the Upper Cache Creek Planning Area have a relative levee condition of "higher concern" or are lacking sufficient data to assess. Based on the FCSSR, some of the specific concerns with the flood levees are that they: have a high persistence of animal burrow holes; have urban levees that do not meet freeboard, levee geometry, seepage, and/or stability criteria; have non-urban levees that could fail from under-seepage, through-seepage, slope stability, or erosion; and have potentially inadequate channel capacity. It should be noted that the City of Rio Vista is at risk for flooding as it is located on the Sacramento River at the downstream end of the Yolo Bypass but is not protected by the SPFC, although it is included in the Systemwide Planning area.

5.4 Have flood control facilities (such as impoundment structures) been insufficient in the past?

- Reservoirs and other facilities with impoundment capacity may be insufficient for severe storms in the future. Facilities that have been insufficient in the past may be particularly vulnerable.

Linkage to objectives #10 and 14_,priority –medium importance, low urgency and medium importance, high urgency respectively

Fifteen (15) flooding events with damage have occurred since 1937 in and around Clear Lake some of which is related to poor infrastructure including levee breaches/overtopping, but also due to development in the floodplain, high stages of tributary creeks, and mostly a result of low outflow capacity at Grigsby Riffle, a naturally occurring feature that cannot be modified because of court decrees currently in place.

In addition, flooding also occurs as a result of insufficient levee heights and/or flood control facilities in the Valley Floor along the Sacramento River; the region also includes the Yolo Bypass a significant flood control feature that is instrumental in reducing flooding in the City of Sacramento, but does not provide flood protection to the Valley Floor. There are many flood-prone areas in the Region including:

- *The lower reaches of the Sacramento River (e.g. Rio Vista) under the influence of tides and storm induced wave action – this effect will be exacerbated by higher tides that are likely as a result of climate change.*
- *The lower Cache Creek near Woodland which is the site of some historic levee breaches and levee overtopping*
- *The Colusa Basin Drainage Canal, in the Cottonwood-Willow Slough watershed south of Cache Creek*
- *The Dry Sough/Davis watershed north of Putah Creek*
- *Flooding in the Davis area is a result of relatively flat topography and the backwater from Willow Slough Bypass and Yolo Bypass.*

- *West Sacramento, which is not protected from flooding by the Sacramento River and Yolo Bypass levees during high flood flows.*

Furthermore, the urbanization of Vacaville intensifies flood problems because of the decrease in the amount of open land available to absorb rainfall and runoff, thus increasing the volume of water that must be carried away by waterways.

5.5 Are wildfires a concern in parts of your region?

- Wildfires alter the landscape and soil conditions, increasing the risk of flooding within the burn and downstream areas. Some areas are expected to become more vulnerable to wildfires over time. To identify whether this is the case for parts of your region, the California Public Interest Energy Research Program (PIER) has posted wildfire susceptibility projections as a Google Earth application at: http://cal-adapt.org/fire/. These projections are the results of only a single study and are not intended for analysis, but can aid in qualitatively answering this question. Read the application's disclaimers carefully to be aware of its limitations.

Linkage to objective #15_ priority –medium importance, medium urgency

The Upper Cache Creek planning area includes thousands of acres of land in the Mendocino National Forest and BLM land. USFS and BLM manage wildfires in accordance with guidelines, depending on the land use (wilderness vs. non-wilderness areas). Much of these federal lands and adjacent private lands drain to Clear Lake which could exacerbate tributary and lake flooding if a wildfire were to occur.

CalAdapt indicates that areas that will become more vulnerable to wildfires are the hills and mountains west of the Valley Floor Planning Area, with the highest increase in burned area occurring north, west and south of Clear Lake.

6 Ecosystem and Habitat Vulnerability

6.1 Does your region include inland or coastal aquatic habitats vulnerable to erosion and sedimentation issues?

- Erosion is expected to increase with climate change, and sedimentation is expected to shift. Habitats sensitive to these events may be particularly vulnerable to climate change.

Linkage to objectives #3, 4,5+ 6_ priority – medium importance, medium urgency and high importance, medium urgency for 4,5+ 6 respectively
The region includes inland aquatic habitats that are vulnerable to erosion and sedimentation which in turn impacts fish habitat. The most vulnerable habitats are likely to be the tributaries to Clear Lake, Indian Valley Reservoir and Lake Berryessa which have natural flows into these water bodies. These water bodies control releases in the lower Putah and Cache Creeks and can likely be managed to minimize erosion and sedimentation downstream of the dams.

6.2 Does your region include estuarine habitats which rely on seasonal freshwater flow patterns?

- Seasonal high and low flows, especially those originating from snowmelt, are already shifting in many locations.

Linkage to objectives #3, 4,5+ 6_ priority – medium importance, medium urgency and high importance, medium urgency for 4,5+ 6 respectively

Estuarine habitats exist in the Delta. These habitats may be impacted by increasing salinity as a result of sea level rise (which would be similar to the impact of reduced freshwater flows), but the degree of impact is not well understood.

6.3 Do climate-sensitive fauna or flora populations live in your region?

- Some specific species are more sensitive to climate variations than others.

Linkage to objectives #3, 4,5+ 6_ priority – medium importance, medium urgency and high importance, medium urgency for 4,5+ 6 respectively

Various fish species found in the Westside Region are sensitive to timing and volume of streamflows and water temperature. Reduced spring runoff would impact spawning species such as the Clear Lake hitch. Increasing temperatures could increase water temperatures, thereby threatening steelhead and salmon populations in the Valley Floor and cold water fish such as trout that are found in the Clear Lake watershed.

In general, the reduced availability of water will impact wildlife in the Region. Decreased water availability will decrease the quantity and quality of wetlands and the length of perennial streams, thereby eliminating habitat for fish, amphibians, reptiles and other species.

6.4 Do endangered or threatened species exist in your region? Are changes in species distribution already being observed in parts of your region?

- Species that are already threatened or endangered may have a lowered capacity to adapt to climate change.

Linkage to objectives # 4,5 + 6_ priority –high importance, medium urgency for all

Endangered and threatened species do exist in the Region. Changes in the distribution of these species as a result of climate change have not been identified.

6.5 Does the region rely on aquatic or water-dependent habitats for recreation or other economic activities?

- Economic values associated with natural habitat can influence prioritization.

Linkage to objective #13_ priority –medium importance, low urgency

Kayaking, rafting and sport fishing are important water-dependent recreational activities offered by the Region. Kayakers and rafters are drawn to the Region for its whitewater runs, which would be impacted by decreases in stream flows as a result of decreased precipitation. At present, controlled releases from Indian Valley Reservoir are used to manage flow conditions for whitewater activities that occur in the lower Cache Creek. Increased temperature would impact the viability of cold-water fish species, but would still support sport fishing for warm-water fish species.

6.6 Are there rivers in your region with quantified environmental flow requirements or known water quality/quantity stressors to aquatic life?

- Constrained water quality and quantity requirements may be difficult to meet in the future.

Linkage to objectives #3, 4,5, 6,+15_ priority –medium importance, medium urgency, high importance, medium urgency for 4,5,and 6 and medium importance, medium urgency for 15 respectively

The Putah Creek Accord specifies minimum environmental flows that must be maintained along various reaches of the Lower Putah Creek. Because the environmental flows are regulated through releases at the Putah Diversion Dam, the environmental flows themselves may not be difficult to meet in the future, but maintaining the environmental flows while also meeting municipal and agricultural water demands that are diverted from Putah Creek may become a challenge in the future.

6.7 Do estuaries, coastal dunes, wetlands, marshes, or exposed beaches exist in your region? If so, are coastal storms possible/frequent in your region?

- Storm surges are expected to result in greater damage in the future due to sea level rise. This makes fragile coastal ecosystems vulnerable.

No associated objective
There are no coastal ecosystems in the Region.

6.8 Does your region include one or more of the habitats described in the Endangered Species Coalition's Top 10 habitats vulnerable to climate change (*http://www.itsgettinghotoutthere.org/*)?

- These ecosystems are particularly vulnerable to climate change.

Linkage to objectives #4,5 +6_ priority –high importance, medium urgency for all

The Westside Region includes a portion of the Bay-Delta, which is among the Endangered Species Coalition's Top 10 habitats vulnerable to climate change. As described in the Coalition's report, the main climate change threat to the Bay-Delta is the decrease in cold-water habitat needed for Central Valley steelhead and spring-run and winter-run salmon. There are several studies underway to evaluate the impacts of climate change to the Bay-Delta.

6.9 Are there areas of fragmented estuarine, aquatic, or wetland wildlife habitat within your region? Are there movement corridors for species to naturally migrate? Are there infrastructure projects planned that might preclude species movement?

- These ecosystems are particularly vulnerable to climate change.

No associated objective
Vernal pools, some of which are present in the Region, are fragmented habitats that are particularly vulnerable to climate change because the species are unable to emigrate if changes in temperature or water availability affect their habitat. Studies including the Yolo County NCCP/HCP and the Caltrans California Essential Habitat Connectivity report indicate that both Cache Creek and Putah Creek provide significant ecological linkage from the Sacramento River to its headwaters. In addition efforts such as the proposed Berryessa Snow Mountain National Conservation Area strive to create habitat linkages to improve ecological resilience in the face of climate change. At present, there are no infrastructure projects planned that could preclude species movement.

7 Hydropower

7.1 Is hydropower a source of electricity in your region?

- As seasonal river flows shift, hydropower is expected to become less reliable in the future.

No associated objective
There are currently three (3) hydropower plants within the Region; one installed on each of the major dams. The two operational hydropower plants are located at Monticello Dam at Lake Berryessa and Indian Valley Dam. The hydroelectric capacity is 11.5 MW for Monticello Dam and 3MW for Indian Valley Dam. The hydropower facility located on Clear Lake Dam is not currently functional. Although the Region is not largely affected by changes in snowpack, hydropower production could still be affected by greater variability of rainfall throughout the year causing inconsistency in the timing and availability of water releases. Changes in water release patterns could affect power production operations.

7.2 Are energy needs in your region expected to increase in the future? If so, are there future plans for hydropower generation facilities or conditions for hydropower generation in your region?

- Energy needs are expected to increase in many locations as the climate warms. This increase in electricity demand may compound decreases in hydropower production, increasing its priority for a region.

No associated objective

As growth continues to occur within the Region, energy needs will most likely continue to increase. There are no current plans for additional hydropower production in the Region. However, a potential new source of hydropower generation within the Region would be the renovation of the Clear Lake hydropower facility. The current facility is no longer running due to technical issues that surfaced within the first few years of running the facility. Redesign of the hydro facility to mitigate these issues could allow for increased hydropower production within the Region.

References:

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2. Department of Water Resources, County Land Use Surveys. 1999 – 2008.
3. UC Davis Climate Action Plan. 2010.
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2. Point Reyes Bird Observatory, Projected Effects of Climate Change in California: Ecoregional Summaries Emphasizing Consequences for Wildlife. 2011
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1. Department of Water Resources, http://gis.bam.water.ca.gov/bam/.
2. City of West Sacramento, http://www.cityofwestsacramento.org/city/flood/
3. California Energy Commission, Cal-Adapt.org

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1. Point Reyes Bird Observatory, Projected Effects of Climate Change in California: Ecoregional Summaries Emphasizing Consequences for Wildlife. 2011
2. County of Lake and West Lake and East Lake Resource Conservation District, Clear Lake Integrated Watershed Management Plan (CLIWMP). 2010.
3. Endangered Species Coalition, http://www.itsgettinghotoutthere.org

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1. Water Resources Association of Yolo County, Integrated Regional Water Management Plan. 2007.
2. Solano Agencies, Integration Regional Water Management Plan and Strategic Plan. 2005.

Appendix C.6

Land Use Planning and Water Management

C.6 Land Use Planning and Water Management

Numerous plans and studies related to water resources and land use management in the Westside Region have been reviewed to support the development of the Westside IRWM Plan. The Westside IRWM Plan contains information from local planning efforts in the Region, and is consistent with and supports locally-led planning and implementation of integrated water management as discussed in this Appendix.

Local Water Planning

This section summarizes the specific local water management activities that have been addressed by or incorporated into the Westside IRWM Plan.

Groundwater Management Planning

In 1992, the State Legislature provided guidance for more formal groundwater management with the passage of Assembly Bill (AB) 3030, the Groundwater Management Act (Water Code sections 10750 through 10756). Groundwater is a valuable natural resource in California, and should be managed to ensure both its safe production and its quality. AB3030 encourages local agencies to work cooperatively to manage groundwater resources within their jurisdictions and provides a systematic procedure for local agencies to develop a groundwater management plan. Groundwater management plans may cover a wide range of groundwater-related issues, including saline intrusion, contamination, well construction and abandonment, conjunctive use, groundwater levels, and overdraft. They can also be used to evaluate groundwater basins to help determine the capability of meeting water demands for existing and future conditions.

The following groundwater management plans have been adopted within the Westside Region:

- City of Davis/UC Davis Groundwater Management Plan (City of Davis/UC Davis, 2006)
- Groundwater Evaluation for the City of Rio Vista (City of Rio Vista, 2002)
- City of Vacaville Groundwater Management Plan Update (City of Vacaville, 2011)
- City of Woodland Groundwater Management Plan (City of Woodland, 2011)
- Colusa County Groundwater Management Plan (Colusa County, 2008)
- Big Valley Groundwater Management Plan (Lake County, 1999)
- Lake County Groundwater Management Plan (Lake County, 2006)
- Solano Irrigation District Groundwater Management Plan Upgrade (SID, 2006)
- Groundwater Management Plan (YCFCWC, 2006)

Relevant data and planning actions developed in these groundwater management plans have been considered and incorporated into this IRWM Plan.

Urban Water Management Planning

The Urban Water Management Planning Act is codified in the Water Code, Division 6 Part 2.6 and identifies the requirements for developing Urban Water Management Plans (UWM Plans). UWM Plans are prepared by California's urban water suppliers to support their long-term resource planning and ensure adequate water supplies are available to meet existing and future water demands. Every urban water supplier that either provides over 3,000 acre-feet of water annually or serves more than 3,000 or more connections is required to assess the reliability of its water sources over a 20-year planning horizon considering normal, dry, and multiple dry years. This assessment is to be included in its UWM Plan, which are to be prepared every 5 years and submitted to the Department of Water Resources. The planning process is heavily focused on water resources and water demands, which are dependent on population projections and land use patterns.

UWM Plans have been prepared by the following water purveyors in the Westside region:

- SCWA (voluntarily, because it is not an urban water supplier)
- City of Davis
- CalWater (for City of Dixon)
- City of Rio Vista
- City of Vacaville
- City of West Sacramento
- City of Woodland

The water demand forecasting in the UWM Plans and other relevant planning activities from these UWM Plans have been reviewed and are incorporated in this IRWM Plan.

Agricultural Water Management Planning

The Water Conservation Act of 2009 (Senate Bill X7-7 of 2009) was enacted in November 2009, requiring all water suppliers to increase water use efficiency. The legislation covers Urban Water Conservation and Agricultural Water Conservation. The highlights of this legislation for Agricultural Water Conservation are:

- Agricultural water suppliers shall prepare and adopt agricultural water management plans by December 31, 2012, and update those plans by December 31, 2015, and every 5 years thereafter.

- Agricultural water suppliers shall:

    - Measure the volume of water delivered to customers. The Department of Water Resources issued a report in May 2012 that provides the proposed methodology for quantifying the efficiency of agricultural water use. The State regulation for agricultural water measurement was approved on 11 July, 2012 (Title 23, Division 2 of the California Code of Regulations, Chapter 5.1). It applies to agricultural water suppliers providing water to 25,000 irrigated acres or more, excluding acres that receive only recycled water.

    - Adopt a pricing structure for water customers based at least in part on quantity delivered.

    - Implement Efficient Water Management Practices (EWMPs) (CA Water Code section 10608.48 (b) and (c))

    - Preparation of Agricultural Water Management Plan (CA Water Code section 10826).

- Effective 2013, agricultural water suppliers who do not meet the water management planning requirements established by this bill are not eligible for state water grants or loans.

The Agricultural Water Management Plan is required to:

- Demonstrate compliance with agricultural water measurement requirements,
- Describe best professional practices about the collection of water measurement data, frequency of measurements, method for determining irrigated acres, and quality control and quality assurance procedures, and
- Facilitate the use of EWMPS in an effort to use water efficiently.

For the Westside Region, the agricultural water suppliers to which SBx7-7 applies are:

- YCFCWCD: Service Area 195,780 acres
- Reclamation District 999: Service Area 26,136 acres
- Knights Landing Ridge Drainage District: Service Area 72,000 acres
- Solano County Water Agency: Service Area 538,782 acres

The agricultural water management planning process provides an opportunity for local water managers to collaborate with each other and with the RWMG. The RWMG encourages water managers to review the Westside IRWM Plan and to coordinate with the RWMG during development of agricultural water management plans to ensure that agricultural water management plans within the Region are consistent with the goals and objectives of this IRWM Plan.

General Plans

California law requires that each county and city in the state develop and adopt a general plan, which is a comprehensive long-term plan for the physical development of the county or city. A city or county general plan must contain the following seven state-mandated elements: Land Use, Open Space, Conservation, Housing, Circulation, Noise, and Safety. In addition to the mandatory elements, a city or county may adopt any other elements that relate to its physical development.

Water resource planning is addressed within a general plan due to its close interdependence with land use, housing, conservation, and safety. Because water resources and infrastructure planning is not a separate State-mandated element of a general plan, it is often addressed within one of the mandated elements or as part of an optional element. For instance, Lake County General Plan and Colusa County General Plan (Draft) both include a Public Facilities and Services element that provides goals and policies related to water supply and infrastructure. The Napa County General Plan addresses water resource planning in the Conservation element and the City of Lakeport General Plan includes water resource and infrastructure planning in the Land Use element.

A challenge presented within the general plan framework is that general plans often do not include water demand forecasting in relation to land use and water supply. Additionally, the determination for allowing or disallowing any particular development project lies with the decision-making body on a case-by-case basis. These decisions do not always include detailed analysis of water demands and available supplies, particularly at a regional level. Therefore, an opportunity for better collaboration is for land use planners to explicitly consider the link between water resources planning and land use planning. The RWMG therefore encourages land use planners to specifically consider and evaluate water supply goals when carrying out the goals and policies of a general plan.

Another challenge to water use planning as it relates to land use planning is that institutional boundaries for land use planning agencies typically do not match the watershed boundaries or water supply boundaries. This introduces a complexity in water resources planning, particularly when multiple land use agencies are competing for water supplies.

General plans within the Westside Region are listed below:

- Colusa County General Plan (1989, Update In-Progress)
- Lake County General Plan (2008)
- Napa County General Plan (2008)
- Solano County General Plan (2008)
- Yolo County General Plan (2009)
- City of Clearlake General Plan
- City of Davis General Plan (2007)
- City of Dixon General Plan (1993)
- City of Lakeport General Plan (2009)
- City of Rio Vista General Plan (2001)
- City of Vacaville General Plan (1990, Update In-Progress)
- City of West Sacramento General Plan (1990, Update In-Progress)
- City of Winters General Plan (1992)
- City of Woodland General Plan (2002)

These general plans have been reviewed in preparation of the Westside IRWM Plan and relevant planning information has been incorporated into the Westside IRWM Plan.

Area Plans and Community Plans

According to the California General Plan Guidelines, an "Area Plan" or "Community Plan" focuses on a particular region or community within the overall general plan area. An area or community plan is adopted by resolution as an amendment to the general plan. It refines the policies of the general plan as they apply to a smaller geographic area and is implemented by ordinances and other discretionary actions, such as zoning. The area or community plan process also provides a forum for resolving local conflicts. Several Area Plans have been developed within the Westside Area, as described below:

- The Shoreline Communities Area Plan (2009) is a guide for long-term growth and development in the area east of Clear Lake and is a complement to the Lake County General Plan. The Area Plan provides land use allocations to meet the community's needs while also protecting vital natural resources. This Area Plan includes five special study areas (The Promenade in Lucerne, The Strand in Lucerne, The Plaza in Clearlake Oaks, Short Street in Clearlake Oaks and the East Clearlake Oaks Commercial District). Water resources and infrastructure are addressed in the Area Plan's Natural Resources, Safety, and Community Development elements and have been integrated into the area's land use planning.

- The Middletown Area Plan (2010) is a guide for long-term growth and development in the Middletown area and is a complement to the Lake County General Plan. Water resources and infrastructure are addressed in the Area Plan's Natural Resources, Safety, and Community Development elements and have been integrated into the area's land use planning.

Flood Protection

Flood management and flood protection planning in the Westside Region is influenced by state and federal regulations and programs:

- Counties and communities regulate the floodplain in order to protect people and property and reduce future flood losses. Six bills were enacted in October 2007 - AB162, AB70, AB5, AB156, SB5 and SB17 - to address statewide flood problems, including assessing the capabilities of the Central Valley levee system, developing plans to better manage the flood protection system, and mandating that local planning efforts recognize the risks of flooding. Together, these bills outline a comprehensive approach to improving flood management at the State, regional and local levels.

- DWR's FloodSAFE California Program partners with local, regional, state, tribal, and federal officials in creating sustainable, integrated flood management and emergency response systems throughout California. The goals of FloodSAFE California are to reduce the chances and consequences of flooding, sustain economic growth, protect and enhance ecosystems and promote sustainability.

- The National Flood Insurance Program (NFIP) makes federally backed flood insurance available for all buildings. FEMA-issued Flood Insurance Studies document the existence and severity of flood hazards and are used by local and regional planners to promote sound land use and floodplain development, such as Floodplain Management Plans. Flood management and flood protection planning in the Westside Region is often influenced by the parameters of participating in the NFIP.

The following documents are examples of those that have been prepared to address flood protection planning in the Westside Region:

- Lake County Flood Insurance Study (FEMA, 2011)
- Solano County Flood Insurance Study (FEMA, 2009)
- Yolo County Flood Insurance Study (FEMA, 2010)
- Lake County Floodplain Management Plan (Lake County, 2009)
- Middle Creek Flood Damage Reduction and Ecosystem Restoration, Final Integrated Feasibility Report and Environmental Impact Statement/Environmental Impact Report (US Army Corps of Engineers, 2002)
- Lower Cache Creek, City of Woodland and Vicinity Feasibility Report for Potential Flood Damage Reduction Project

These flood insurance studies and flood protection planning documents serve as a foundation for the flood protection projects developed within the Westside IRWM Plan. The Westside IRWM Plan therefore inherently incorporates and is consistent with local flood protection planning.

Watershed Management

Watershed management planning encompasses several types of documents: watershed assessments, watershed management plans, and sanitary surveys.

Watershed assessments provide an understanding of watershed condition and why the watershed is in a certain condition. In this way, the assessment becomes a useful tool to help direct further actions.

California Code of Regulations, Title 22, Chapter 17, requires all water suppliers to develop a sanitary survey of their watersheds completed every five years to provide an understanding of the state of a watershed and the watershed's affect on receiving water bodies and water quality. The watershed sanitary survey provides a summary of source water quality monitoring data, a description of activities and sources of contamination, a description of any significant changes within the watershed that could impact the quality of the source water, a description of watershed control and management practices, and recommendations for corrective actions.

The following watershed management planning documents have been prepared within the Westside Region:

- Clear Lake Integrated Watershed Management Plan (Lake County, 2010)
- Water Management Plan (YCFCWC, 2000)
- Kelsey Creek Watershed Assessment (East Lake & West Lake RCDs, 2010)
- Bear Creek Watershed Assessment (BLM/Colusa County RCD, 2007)
- Middle Creek Watershed Assessment (West Lake RCD, 2010)
- Scotts Creek Watershed Assessment (West Lake RCD, 2010)
- Clear Lake Watershed Sanitary Survey (Clear Lake water utilities, 2002)
- Lower Putah Creek Watershed Management Action Plan (Lower Putah Creek Coordinating Committee, 2005)
- Watershed Sanitary Survey update: Lake Berryessa/Solano Project Watershed (Solano County Water Agency and Napa County, 2001)

These watershed management planning documents serve as a foundation for the watershed management projects developed within this Westside IRWM Plan and projects from these previous planning documents have been reviewed for consistency with the goals and objectives of the Westside IRWM Plan.

Stormwater Management

The water quality impacts of stormwater runoff from both urbanized (i.e. paved) and agricultural areas are well documented but difficult to manage as they are non-point source discharges (i.e. there are many discharge points to surface water bodies). The State Water Resources Control Board (SWRCB) and Regional Water Quality Control Board's (RWQCB) regulate municipal stormwater discharges (from Municipal Separate Storm Sewer Systems, or MS4s) and oversee irrigated lands regulatory programs for agricultural stormwater discharges.

Municipal Stormwater Management

Polluted stormwater runoff is commonly transported through MS4s, from which it is often discharged untreated into local waterbodies. Permits for MS4s were issued in two phases under the National Pollutant Discharge Elimination System (NPDES) General Permit. Under Phase I, which started in 1990, the RWQCB adopted storm water permits for municipalities greater than 100,000 people while SWRCB issued the General Permit for the Discharge of Storm Water from Small Municipal Separate Storm Sewer Systems WQO No. 2003-0005-DWQ (Small MS4 General Permit) for the Phase II communities less than 100,000 people.

The Small MS4 General Permit requires that Dischargers develop and implement a Storm Water Management Program (SWMP) that describes six program areas including:

1. Public Education
2. Public Participation
3. Illicit Discharge Detection and Elimination
4. Construction Site Storm Water Runoff Control (this program area is duplicated for sites greater than one acre by the SWRCB's Construction General Permit Order No. 2009-0009-DWQ as amended)
5. Post Construction Storm Water Management with focus on Low Impact Design, source controls, and treatment controls
6. Pollution Prevention/Good Housekeeping for Municipal Operations

The General Permit requires all Permittees to develop and implement a SWMP designed to reduce the discharge of pollutants through their MS4s to the Maximum Extent Practicable (MEP). There are no Phase I communities in the Region and 10 Phase II Permittees with the year of their SWMP is:

- UC Davis (2010)
- City of Davis (2006)
- City of Vacaville (2003)
- City of West Sacramento (2003)
- Yolo County (2003)
- Solano County (2003)
- City of Clearlake[1] (2003)
- City of Lakeport[1] (2003)
- Lake County[1] (2003)
- City of Woodland (2004)

All NPDES permits are subject to renewal every 5 years and the Phase II Small MS4 Permit is currently undergoing update with a second draft issued in mid-2012. The draft Small MS4 Permit

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[1] Lake County and the Cities of Lakeport and Clearlake prepared a single SWMP.

contains changes that include Community-based Social Marketing requirements for Public Education and Outreach; linkage to TMDL constituents with urban runoff sources such as diazinon, chlorpyrifos, methylmercury in the Sacramento River/Delta and nutrients in Clear Lake; monitoring requirements; hydromodification; regulation of projects that create/replace 2,500 square feet or more of impervious surface; and watershed process-based stormwater management strategies that will have to be addressed in future SWMPs.

Irrigated Lands Management

The RWQCB has adopted a Conditional Waiver of Waste Discharge Requirements that allows growers, individually or in coalition, to obtain regulatory coverage for their discharges from irrigated lands including tailwater, water from underground drains, and stormwater to surface waters and groundwater. The growers in the Region can be a part of the Sacramento Valley Water Quality Coalition which works directly with their member growers to assist in complying with Central Valley Water Board requirements by conducting surface water monitoring and preparing regional plans to address water quality problems. Each sub-watershed within the Sacramento Valley is represented locally, often by farm bureau or resource conservation district staff. The RWQCB anticipates preparation of waste discharge requirements for irrigated lands discharges in the 2012 timeframe.

Low Impact Development

The water quality and drainage impacts of urbanization are well documented and regulated through the municipal stormwater management permits discussed in Section 0. However, after hundreds of years of drainage management that has resulted in concentrating both flows and pollutants by collecting stormwater into pipes, detention and retention ponds, and discharging it into water ways, an alternative means of stormwater management called low impact design or development (LID) has developed since the 1990s. LID measures manage the dirtiest stormwater from the first flush storm events on-site by retaining and/or returning the site to more natural hydrologic conditions where stormwater can be infiltrated; evaporated through vegetation; or otherwise treated and retained. LID measures are best planned for early in a new development or redevelopment project design when the measures can be incorporated into the site layout to maximize the use of vegetation and landscape.

The SWMPs prepared in the Region address LID in Program Area 5: Post Construction Stormwater Management by means such as updating land development review and construction inspection processes, updates to general plans and ordinances, and education of the development community. The draft Small MS4 Permit has additional requirements such as regulation of projects that create/replace 2,500 square feet or more of impervious surface and other specific LID measures that will have to be addressed in future SWMPs.

Salt and Salinity Management

Salt and salinity management is a new strategy to the California Water Plan, however it has long been a problem needing to be addressed as salts in irrigation water and other land applications of treated effluent have been mismanaged.

The Central Valley Regional Water Quality Control Board (CVRWQCB) has been aware of the growing problem of increasing salinity in the Central Valley, but many of the key decisions that must be made in order to control Valley salinity are outside of CVRWQCB's jurisdiction. *Salinity in the Central Valley* (CVRWQCB, 2006) was a first step in opening a dialogue between the stakeholders and decision makers that will need to be involved in a comprehensive, sustainable, salinity management program for the Central Valley and for the State of California.

The Central Valley Salinity Alternatives for Long-Term Sustainability initiative (CV-SALTS) is a collaborative effort initiated in 2006 to find solutions to the salt problem in the Central Valley. The Central Valley Salinity Coalition is non-profit and formed in July 2008 to organize, facilitate and fund efforts needed for the efficient management of salinity in the Central Valley.

Agricultural land irrigation and wastewater discharges in the form of land application and wetland habitat and aquifer recharge are the primary contributors of salts in the Region. Reducing Total Dissolved Solids (TDS) in wastewater discharges is a primary focus of salt and salinity management and is a driver for some projects already being planned in the Westside Region, like the Davis-Woodland Water Supply Project, and is also an underlying issue of many of the Westside IRWM Plan objectives related to water quality and beneficial uses of water resources.

Land Use Planning

This section provides an assessment of land use management, which builds on the information developed in the region description and provides additional details about collaboration between the RWMG and land use planners.

Land Use Management Assessment

Cities are the regulatory agencies for land use planning in incorporated communities and counties are the regulating agencies for land use planning in unincorporated areas. Public lands in the Westside Region are managed by BLM, Mendocino National Forest, USBR and California Department of Fish and Wildlife (CDFW). Cities make up a very small portion of land use in the region, approximately 5% of total land. Therefore, the remaining 95% of unincorporated lands are managed by the counties, federal agencies, and state agencies.

Land use in incorporated cities and unincorporated county areas is guided by general plans. BLM, Mendocino National Forest, and CDFW each issue management plans that guide land use is in public lands under their jurisdiction.

As discussed in Section 2, the Westside Region is dominated by open space and agriculture. In general, land use planning in the Westside Region is focused on retaining the existing rural character, which translates to preserving open space and limiting development to existing communities. However, land use and economic trends vary by planning area. The land use management assessment provided in this section includes a summary of land use trends by planning area

Upper Cache Creek Planning Area Land Use and Trends

The Upper Cache Creek Planning Area is comprised of approximately 606,000 acres, approximately 82% of which is native vegetation. An additional 8% of the land is designated as water and 6% of the land is designated as agricultural. Preserving the rural and recreational character of the region is strongly supported by the Lake County General Plan.

Approximately 4% of the land use in the Upper Cache Creek Planning Area is developed communities. The principal urban centers are located along the rim of Clear Lake. The rate of population growth in lakeshore areas is (and is projected to be) greater than for the county as a whole. The recreation-vacation industry is the most significant segment of the region's economy. Emphasis on tourism continues to grow as the demand for summer residence increases. Also, a trend has developed in which retired people are taking up permanent residence in the areas surrounding the lake. Commercial development in Lake County is largely concentrated along the rim of Clear Lake and is dominated by enterprises serving the needs of the recreation industry. Another important segment of the commercial community serves the needs of farms, orchards, and vineyards. Approximately 30% of the planning area population lives within the two incorporated cities of Clearlake and Lakeport, with Clearlake being the largest urban center in the Cache Creek Planning Area. Approximately 45% of the planning area population lives in unincorporated communities, including Clearlake Oaks, Clearlake Riviera, Kelseyville, Lower Lake, Lucerne, Nice, North Lakeport, Soda Bay, South Lakeport and Upper Lake.

The Lake County General Plan indicates that population in the unincorporated communities is anticipated to increase by approximately 20,000, or 60% by the year 2030. However, urban development in unincorporated areas of the County is limited to the areas within designated Community Growth Boundaries. According to the City of Lakeport General Plan, the conversion of agricultural lands to urban uses and the provision of urban services by growing communities are important issues to the County and LAFCO. Lakeport is planning to extend its Sphere of Influence (SOI) to include public and privately held lands south of the City, designated as the Specific Plan Area. Development of this area could result in 600 to 1,200 additional residential units at buildout. The City will develop a Specific Plan in accordance with state Planning and Zoning laws prior to submitting an application to LAFCO to amend the City's SOI. The Lakeport area's planned growth will, at some time, require annexation to the City.

Agriculture still forms a highly important segment of the economy, with over half the area under cultivation in pear and walnut orchards. However, recent market conditions have forced many pear farmers in the watershed to remove their orchards, which may have a substantial impact on agricultural land use. Pear orchards are located on level ground that is generally well-suited to urban development or subdivision into small parcels for rural residential development. Walnut acreage has also decreased substantially since the 1980s. Production of wine grapes has recently been introduced, and some walnut orchards are being converted to vineyards. Agriculture is the largest user of water in the planning area and the introduction of permanent crops in areas served by small groundwater basins presents a challenge for water supply, especially during multi-year droughts. Mining, lumbering, and other traditional extractive industries now form a relatively minor segment of the economy; however, the existence of geothermal resources in the county has resulted in exploratory drilling and the expectation of significant development activities. About 79% of the wetlands around Clear Lake have been lost due to reclamation for agriculture and other development.

Lake County has been pursuing the Middle Creek Flood Damage Reduction and Ecosystem Restoration Project (Middle Creek Project) since 1995. This project has been identified as the single largest recommended water quality improvement to Clear Lake. It would restore the largest damaged wetland area around the lake, the outlet of the two largest tributaries to Clear Lake, Scotts and Middle Creeks. The project would restore approximately 1,650 acres by breaching levees and allowing the land to flood. About 1,400 acres of this land would become wetlands and open water, which would double the current area of wetlands around Clear Lake.

The portion of Colusa County within the Upper Cache Creek Planning Area is the Bear Creek watershed. The primary land use in this area is Native with a few small agricultural parcels. According to the Bear Creek Watershed Assessment, approximately 53% of the Bear Creek watershed is under private ownership, with the remainder being publicly held lands (primarily federal). Agricultural lands within the Bear Creek watershed is principally used for livestock grazing. Agricultural land in Bear Creek watershed has remained virtually unchanged since 1986 when mapping began. The constancy of rural land uses has conserved the character of the watershed and its agricultural landscapes.

The Bear Creek watershed has a very small population, most of whom pursue livelihoods in resort tourism, farming and ranching, public land management, and fire suppression. Although the County General Plan has established guiding principles regarding growth and development, the Bear Creek watershed is a unique area within Colusa County and differs significantly from the portion of Colusa County in the Sacramento River Valley where rice and other irrigated crops are dominant. A water district does not cover the watershed, and irrigation water in commercial quantities is not available for summer crops.

BLM administers the following areas that lie wholly or partially within the Upper Cache Creek Planning Area: Cow Mountain Management Area, Indian Valley Management Area, and Cache Creek Management Area. The Resource Management Plan (2006) addresses the BLM approach to managing public lands and mineral resources in ways that sustain their health, diversity, and productivity for the enjoyment of present and future generations. BLM seeks to balance recreational opportunities and environmentally responsible commercial activities with the conservation of natural and cultural resources.

Mendocino National Forest Land and Resource Management Plan (1995) provides the framework to guide the ongoing land and resource management operations of the Forest while providing a management program that reflects a mix of activities for the use and protection of the Forest.

Upper Putah Creek Planning Area Land Use and Trends

The Upper Putah Creek Planning Area is comprised of approximately 360,000 acres, nearly approximately 88% of which is native vegetation. An additional 6% of the land is designated as water.

Approximately 3% of the land use in the Upper Putah Creek Planning Area is developed communities. There are no incorporated cities in the Upper Putah Creek Planning Area. The Lake County General Plan limits urban development in unincorporated areas of the County to the areas within designated Community Growth Boundaries located in the communities of Coyote Valley and

Middletown. The Napa County General Plan includes policies for specific geographic areas of Napa County in recognition of their unique character, several of which lie within the Upper Putah Creek Planning Area: Berryessa Estates and Berryessa Highlands are rural-residential communities and the Lake Berryessa communities of Moskowite Corners, Pope Creek and Spanish Flat are rural mixed-use communities.

Development and growth in the Middletown and Coyote Valley areas is addressed in the Middletown Area Plan (2010), which is a guide for long-term growth and complements the Lake County General Plan. The Plan includes three special study areas (Middletown, Coyote Valley and Langtry/Guenoc Valley). The Plan seeks to balance the goals of promoting a diversified economic base with preserving the area's rural character. The intent of the Area Plan is to concentrate development within Community Growth Boundaries and reduce urban sprawl.

Napa County has a longstanding commitment to agricultural preservation, resource conservation, and urban-centered growth. Napa County's citizens have conscientiously preserved the agricultural lands and rural character. The County has led the nation in innovative agricultural preservation strategies, and it intends to remain a leader in moderating and directing growth in ways that minimize resource consumption and make unincorporated Napa County a sustainable rural community.

Lake Berryessa, located in Napa County, is a 19,000-acre man-made lake dating from the 1950s that stores over one million acre-feet of water for agricultural and municipal uses in much of Solano County. Together with the Blue Ridge Mountains to the east, the lake defines the character of much of eastern Napa County and provides its emphasis on recreation, rather than wine. The lake and a narrow shoreline band (28,000 acres total) are under the jurisdiction of the United States Bureau of Reclamation (USBR), while private properties in upland areas are within Napa County jurisdiction.

The Knoxville Wildlife Area, managed by CDFW, comprises over 8,000 acres of oak woodland, grassland, riparian, and chaparral habitat and is part of the 300,000 acre Blue Ridge/Berryessa Natural Area in Napa, Lake, Colusa, and Yolo Counties. It is one of the few sites in California that protects unusual serpentine habitats. Serpentine soils are high in toxic metals, and low in plant nutrients, so the assemblages of plants that can tolerate them are unusual. This habitat supports a wide array of songbirds, mammals, amphibians, and reptiles. The Cedar Roughs Wildlife Area, also managed by CDFW, is located west of Lake Berryessa and comprises over 400 acres of serpentine chaparral, serpentine grassland, and riparian woodland. Preserving serpentine habitat and the natural setting of these two Wildlife Areas is a priority of the CDFW. The Knoxville Wildlife Area Management Plan and Cedar Roughs Wildlife Area Management Plan provide guidance for the CDFW's mission to "manage the diverse fish, wildlife, and plant resources and the habitats upon which they depend, for their ecological values and for their use and enjoyment by the public."

BLM administers the following areas that lie wholly or partially within the Upper Putah Creek Planning Area: Knoxville Management Area, Cedar Roughs Management Area, Beryessa Management Area, and Geysers Management Area. The Resource Management Plan (2006) addresses the BLM approach to managing public lands and mineral resources in ways that sustain their health, diversity, and productivity for the enjoyment of present and future generations. BLM seeks to balance recreational opportunities and environmentally responsible commercial activities with the conservation of natural and cultural resources.

Valley Floor Planning Area Land Use and Trends

The Valley Floor Planning Area is comprised of approximately 945,000 acres, 52% of which is designated agricultural land use. An additional 41% of the Valley Floor Planning Area is designated as native vegetation, native riparian, or water.

Approximately 6% of the Valley Floor Planning Area is developed communities. The majority of this acreage is located within the seven incorporated cities of Davis, Dixon, Rio Vista, West Sacramento, Vacaville, Winters, and Woodland and UC Davis. Unincorporated communities in Yolo County include Capay, Clarksburg, Dunnigan, Esparto, Guinda, Knights Landing, Madison, Rumsey, Yolo, and Zamora. Unincorporated rural-residential communities in Solano County include Allendale and Elmira, just north and east, respectively, of Vacaville.

Land area in the Valley Floor Planning Area is divided into two topographic sections. The western quarter extends into the foothills of the coastal range. This area is characterized by steep slopes, which become more gently rolling in the eastern portion. The remainder lies within the Sacramento Valley, which is characterized by level topography, with some isolated areas of low rolling hills.

Much of the northeastern third of Solano County within the valley lowlands is intensively farmed with a predominance of irrigated row crops and orchards. Common crops in Yolo County include truck crops such as tomatoes and pasture such as alfalfa and hay. The rest of the Planning Area (except for the urban centers) is open space. The natural vegetative cover is generally grass at the lower elevations, transitioning to brush and trees (mainly oak) at higher elevations.

Agricultural land is concentrated in the eastern portion of the Planning Area and in smaller areas scattered throughout the Planning Area. Agriculture has historically been both an important industry in the region and a central part of the region’s identity, culture, and economy. Agricultural lands account for more land than any other land use and the vast majority of the water use in the region. Agriculture contributes to regional economic health and prosperity, defines much of the County’s visual character, supports wildlife habitats and migration corridors, provides open space and recreational amenities for residents and visitors, and acts as community separators defining the county’s cities.

During the 1970s, Solano County experienced a building boom. Available, affordable land and proximity to the San Francisco and Sacramento metropolitan areas have made it an attractive location for thousands of new homes, and the population of most cities has increased rapidly. The County General Plan vision statement provides a basis for the basic land use strategies:

- Promoting city-centered development consistent with longstanding County policy that “What is urban shall be municipal” and

- Sustaining diverse land uses that define the character and identity of Solano County.

Solano County has historically required that development requiring water and sewer service be incorporated within one of the County's cities. Based on this policy, most residential, commercial and industrial development in the county has been in incorporated areas. The vision statement identifies Solano County's continuing practice of guiding urban development, including most residential and commercial development, toward the county's cities using municipal service areas.

Yolo County has a strong focus on protecting agricultural and open space resources, commodities and identity; resisting urbanization; and directing growth into the existing incorporated cities and towns. For the past 50 years, these policies have been tremendously successful. Over 93 percent of the County remains in farmland and open space, despite intense development pressures from both the Sacramento and Bay Area metropolitan areas. The County made efforts in its General Plan to conserve and preserve agricultural land by enacting ordinances limiting the use of agricultural lands, creating minimum parcel sizes, and implementing the Williamson Act (which enables local governments to enter into contracts with private landowners to restrict specific parcels of land to agricultural or related open space use). Strong community support and UC Davis (which conducts much of Northern California's research on agriculture) have also helped the County preserve its agricultural lands.

Population growth in the Valley Floor Planning Area is anticipated to occur within existing urban areas, and expanding urbanization is expected to have a modest impact on land use and water resources planning mostly from a water quality perspective. Urban land use in the Valley Floor Planning makes up a very small percentage of total land use and Yolo County and Solano County are committed to preserving the existing agricultural character of the planning area and focusing growth within the existing urban areas. The Cities of Vacaville, West Sacramento and Woodland are expected to undergo the most growth in the coming years, including expansion of SOIs and annexation of additional land for development. The general plans for the Cities of Davis and Rio Vista do not indicate substantial growth through expansion of SOI or annexation. Instead, growth is to be directed towards infill. The general plans for the Cities of Dixon and Winters were developed approximately 20 years ago. Although both general plans indicate potential for expansion of SOIs and annexation of land, without more recent planning information, it is difficult to assess the likelihood or timeline for urban growth.

The predominant public land area is the Yolo Bypass Wildlife Area, which comprises approximately 16,770 acres of CDFW-managed wildlife habitat and agricultural land within the Yolo Bypass (Bypass). The Bypass conveys seasonal high flows from the Sacramento River to help control river stage and protect the cities of Sacramento, West Sacramento, and Davis and other local communities, farms, and lands from flooding. Substantial environmental, social and economic benefits are provided by the Yolo Bypass, The Yolo Bypass Wildlife Area Management Plan guides management of habitats, species, appropriate public uses, and programs to achieve CDFW's mission and identifies compatible public-use opportunities within the Yolo Bypass Wildlife Area.

Additional Opportunities for Collaboration

Multiple opportunities exist for collaboration between the RWMG and land use planning agencies, primarily through implementation of previous planning efforts.

General Plan Updates

By statute, the housing element of general plans must be updated every five years. However, updates of the remaining general plan elements are not mandated. When general plans are undergoing updates, they provide a unique opportunity for water managers and land use planners to collaborate in a long-range planning process. The RWMG should remain apprised of general plan updates within the Region and make efforts to collaborate with land use planners and provide input on the general plans so that land use planning and water management have a great level of coordination and cohesion.

One of the objectives of the Yolo County IRWM Plan was to integrate water resource planning and land use planning and the WRA coordinated the Yolo County IRWM Planning process with Yolo County's General Plan Update process. For this purpose, the WRA developed suggested water-related policies for inclusion in the General Plan update. However, because the water-related policies were suggestions only and are not binding on any agency, it is unclear to what extent the polices were incorporated into the Yolo County General Plan Update.

For the Colusa County General Plan update, the public review and comment period ended in January 2012, however the general plan update has not yet been finalized. Opportunity may exist for the RWMG to provide input and coordinate with Colusa County as the general plan update is finalized.

General plan updates are also in progress for the Cities of Vacaville and West Sacramento, which have some of the largest increases in population projected for the region, providing an opportunity for the RWMG to collaborate with the City land use planners with respect to water resources management as the general plan is being updated.

The City of Vacaville Draft General Plan update and EIR are planned to be issued in summer 2012 and provides an opportunity for the RWMG to collaborate with City of Vacaville land use planners as the general plan is finalized.

The City of West Sacramento General Plan update has been suspended for fiscal year 2011-2012 due to budgetary constraints. Work on completing the update is expected to resume in fiscal year 2012-2013 and provides an opportunity for the RWMG to collaborate with the City of West Sacramento land use planners as the general plan is being updated.

Appendix D

Projects

Appendix D.1

Project Information Form

Project Information Form

The Westside Region is accepting suggestions for projects for inclusion in the Westside Integrated Regional Water Management (IRWM) Plan. Projects submitted for consideration should contribute to the attainment of the IRWM Plan Goals and Objectives. To have your project considered for inclusion, please complete this project information form in its entirety and submit the completed form to info@westsideirwm.com .

Please provide information in the tables below:

I. Project Proponent Information

Lead Agency/ Organization	
Name of Primary Contact	
Mailing Address	
E-mail	
Phone (###)###-####	
Other Cooperating Agencies/Organizations	
Is your agency committed to the project through completion? If not, please explain	

II. General Project Information

Project Title	
Project Description (Briefly describe the project, in 300 words or less,)	

Project Location:	
Latitude:	
Longitude:	
Can you provide a map of the project location including boundaries upon request?	☐ Yes ☐ N/A ☐ No
Project Location Description:	
County:	
City/Community:	
Watershed:	
Groundwater Basin:	
Planning Area:	
Additional Comments:	
Project Status (Check only one)	☐ Conceptual ☐ Planning ☐ CEQA/NEPA ☐ Permitting ☐ Design ☐ Construction/Implementation ☐ Study/Other ☐ Maintenance/Monitoring
Earliest expected start date (mm/dd/yr)	

III. Plan Goals/Objectives Addressed

For each of the goals/objectives addressed by the project, provide a one to two sentence description of how the project contributes to attaining the objective. Information related to the proposed goals and objectives can be found at www.westsideirw.com/irwmplan . If the project does not address any of the draft IRWM plan objectives, provide a one to two sentence description of how the project relates to a challenge or opportunity of the region.

Goal(s) that the Project will contribute to:	
Objective(s) that the Project will help accomplish:	

Explanation of Project linkage to goals and objectives	
How will the project be measured to ensure the goals and objectives are being fulfilled?	

IV. Resource Management Strategies

For each resource management strategy employed by the project, provide a one to two sentence description in the table below of how the project incorporates the strategy. A description of the Resource Management Strategies can be found in Volume 2 of the 2009 California Water Plan here: http://www.waterplan.water.ca.gov/cwpu2009/index.cfm

Reduce Water Demand	
Agricultural Water Use Efficiency	
Urban Water Use Efficiency	
Improve Operational Efficiency and Transfers	
Conveyance - Delta	
Conveyance - Regional / local	
System Reoperation	
Water Transfers	
Increase Water Supply	
Conjunctive Management & Groundwater	
Desalination	
Precipitation Enhancement	
Recycled Municipal Water	
Surface Storage -- CALFED	
Surface Storage -- Regional / Local	

Improve Water Quality	
Drinking Water Treatment and Distribution	
Groundwater and Aquifer Remediation	
Matching Water Quality to Use	
Pollution Prevention	
Salt and Salinity Management	
Urban Runoff Management	
Practice Resources Stewardship	
Agricultural Lands Stewardship	
Economic Incentives (Loans, Grants, and Water Pricing)	
Ecosystem Restoration	
Forest Management	
Land Use Planning and Management	
Recharge Areas Protection	
Water-dependent Recreation	
Watershed Management	
Improve Flood Management	
Flood Risk Management	

V. Project Impacts and Benefits

Please select all the project benefit categories that apply and provide a brief explanation. If the project benefits do not fit any of the listed categories, please explain in the box below. Suggested benefit descriptions are included in the Project Information Form instructions sheet.

Benefit Categories:		**Brief Explanation of Selected Benefits**	**Quantification (e.g. acre-feet of water supplied, acres of habitat restored)**
Increase Water Supply			
Improve Water Quality			
Groundwater Improvements			
Water Conservation and Reuse	☐		

Watershed Rehabilitation	☐		
Habitat Improvements			
Flood Management			

Other Benefits:

Please provide a summary of the expected project benefits and impacts in the table below.

a. Describe any expected impacts of the project	
b. If applicable, describe benefits or impacts of the project with respect to Native American Tribal Community considerations.	
c. If applicable, describe benefits or impacts of the project with respect to Disadvantaged Communities*.	
d. If applicable, describe benefits or impacts of the project with respect to Environmental Justice ** considerations.	

e. If applicable, describe how the project assists the region in adapting to effects of climate change.	
f. If applicable, describe the generation or reduction of greenhouse gas emissions associated with the project.	

*A Disadvantaged Community is defined as a community with an annual median household (MHI) income that is less than 80 percent of the Statewide annual MHI. A map identifying DACs in the Westside Region is available at www.westsideirwm.com.

** Environmental Justice is 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.

VI. Statewide Program Preferences and Priorities

Please select the Program Preferences and Statewide Priorities that apply to the proposed project (choose all that apply).

Program Preferences

- ☐ Include regional projects or programs (CWC §10544)
- ☐ Effectively integrate water management programs and projects within a hydrologic region identified in the California Water Plan; the Regional Water Quality Control Board (RWQCB) region or subdivision; or other region or sub-region specifically identified by DWR
- ☐ Effectively resolve significant water-related conflicts within or between regions
- ☐ Contribute to attainment of one or more of the objectives of the CALFED Bay-Delta Program
- ☐ Address critical water supply or water quality needs of disadvantaged communities within the region
- ☐ Effectively integrate water management with land use planning
- ☐ For eligible SWFM funding, projects which: a) are not receiving State funding for flood control or flood prevention projects pursuant to PRC §5096.824 or §75034 or b) provide multiple benefits, including, but not limited to, water quality improvements, ecosystem benefits, reduction of instream erosion and sedimentation, and groundwater recharge.

Statewide Priorities

Drought Preparedness

- ☐ Promote water conservation, conjunctive use, reuse and recycling
- ☐ Improve landscape and agricultural irrigation efficiencies
- ☐ Achieve long term reduction of water use
- ☐ Efficient groundwater basin management
- ☐ System interties

Use and Reuse Water More Efficiently

- ☐ Increase urban and agricultural water use efficiency measures such as conservation and recycling
- ☐ Capture, store, treat, and use urban stormwater runoff (such as percolation to usable aquifers, underground storage beneath parks, small surface basins, domestic stormwater capture systems, or the creation of catch basins or sumps downhill of development
- ☐ Incorporate and implement low impact development (LID) design features, techniques, and practices to reduce or eliminate stormwater runoff

Climate Change Response Actions

- ☐ Adaptation to Climate Change: Advance and expand conjunctive management of multiple water supply sources
- ☐ Adaptation to Climate Change: Use and reuse water more efficiently
- ☐ Adaptation to Climate Change: Water management system modifications that address anticipated climate
  - ☐ Adaptation to Climate Change: Establish migration corridors, re-establish river-floodplain hydrologic continuity, re-introduce anadromous fish populations to upper watersheds, enhance and protect upper watershed forests and meadow systems
- ☐ Reduction of Greenhouse Gas (GHG) Emissions: Reduce energy consumption of water systems and uses
- ☐ Reduction of Greenhouse Gas (GHG) Emissions: Use cleaner energy sources to move and treat water
- ☐ Reduce Energy Consumption: Water use efficiency
- ☐ Reduce Energy Consumption: Water recycling
- ☐ Reduce Energy Consumption: Water system energy efficiency

Expand Environmental Stewardship

- ☐ Expand Environmental Stewardship to protect and enhance the environment by improving watershed, floodplain, and instream functions and to sustain water and flood management

ecosystems.

Practice Integrated Flood Management

☐ Better emergency preparedness and response
☐ Improved flood protection
☐ More sustainable flood and water management systems
☐ Enhanced floodplain ecosystems
☐ LID techniques that store and infiltrate runoff while protecting groundwater

Protect Surface Water and Groundwater Quality

☐ Protecting and restoring surface water and groundwater quality to safeguard public and environmental health and secure water supplies for beneficial uses
☐ Salt/nutrient management planning as a components of an IRWM Plan

Improve Tribal Water and Natural Resources

☐ Improve Tribal Water and Natural Resources and include the development of Tribal consultation, collaboration, and access to funding for water programs.

Ensure Equitable Distribution of Benefits

☐ Increase the participation of small and disadvantaged communities in the IRWM process.
☐ Develop multi-benefit projects with consideration of affected disadvantaged communities and vulnerable populations.
☐ Contain projects that address safe drinking water and wastewater treatment needs of DACs.
☐ Address critical water supply or water quality needs of California Native American Tribes within the region.

VII. Project Cost and Financing

Please provide any estimates of project cost, sources of funding, and operation and maintenance costs as well as the source of the project cost in the table below.

a. Project Costs		
1. Capital (2014 Dollars)		
2. Annual Operations and Maintenance (O&M)		
b. List secured source(s) of funding	**Source(s)**	**Amount**

c. List proposed source(s) of funding and certainty of the sources.		
d. For capital projects, explain how operation and maintenance costs will be financed.		
e. Basis for project cost		
f. Can a detailed cost estimate be provided upon request?	☐ Yes ☐ No	

VIII. Project Status and Schedule

Please provide a status of the project, level of completion as well as a description of the activities planned for each project stage.

Project Stage	Description of Activities in Each Project Stage	Planned/Actual Start Date	Planned/Actual Completion Date
a. Conceptual			
b. Planning			
c. Environmental Documentation (CEQA/NEPA)			
d. Permitting			
e. Tribal Consultation			
f. Design			
g. Construction/Implementation			

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IX. Project Technical Feasibility

Please provide any related documents (date, title, author, and page numbers) that describe and confirm the technical feasibility of the project.

a. List water planning documents that specifically identify this project.	
b. List the adopted planning documents the proposed project is consistent with (e.g. General Plans, UWMPs, GWMPs, Water Master Plans, Habitat Conservation Plans, etc.)	
c. List technical reports and studies supporting the feasibility of this project.	
d. If you are an Urban Water Supplier:	
1. Have you completed an Urban Water Management Plan and submitted to DWR?	☐Yes ☐No ☐N/A
2. Are you in compliance with AB1420?	☐Yes ☐No ☐N/A
3. Do you comply with the water meter requirements (CWC §525)	☐Yes ☐No ☐N/A
4. If the answer to any of the questions above is "no", do you intend to comply prior to receiving Project funding	☐Yes ☐No ☐N/A
e. If you are an Agricultural Water Supplier:	
1. Have you completed and submitted an AWMP (due 12/31/12)?	☐Yes ☐No ☐N/A
2. If not, will you complete and submit an AWMP prior to receiving project funding?	☐Yes ☐No ☐N/A
f. If the project is related to groundwater:	
1. Has a GWMP been completed and submitted for the subject basin?	☐Yes ☐No ☐N/A
2. If not will a GWMP be completed within 1 year of the grant submittal date?	☐Yes ☐No ☐N/A

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Project Information Form

SWRP Projects Addendum

The Yolo WRA is accepting suggestions for projects for inclusion in the Yolo Storm Water Resource Plan (SWRP). Projects submitted for consideration should contribute to the attainment of the IRWM Plan and SWRP Objectives. To have your project considered for inclusion, please complete this project information form in its entirety and submit the completed form by **July 28, 2017** to **Kristin Sicke (ksicke@ycfcwcd.org)**.

Please provide information below:

I. Has this project been submitted to the Westside IRWMP previously?

◯ Yes Please provide the Project Name as submitted on the Westside Sac IRWMP Project Information Form:

◯ No If you answered no, the Westside Sac IRWMP Project Information Form must be completed and submitted with this form. The form can be downloaded at: http://www.westsideirwm.com/Westside%20IRWMP%20Web%20Page/documents/Projects/Project%20Update%20Form-09-01-14.pdf

If you answered yes to the above question, please provide any additional project description/details not provided in the original Westside IRWMP Project Form related to storm water:

II. Land Availability

a. Is the project located on lands with Public ownership? ☐ Yes ☐ No ☐ N/A

b. Have easements and/or all required land use agreements been obtained or are pending? ☐ Yes ☐ No ☐ N/A

c. Describe how this project will result in immediate or downstream storm water benefit to Yolo County:

III. SWRP Objectives – In addition to IRWMP Objectives

Please mark (x) the SWRP Objectives that apply to the proposed project (choose all that apply).

☐ Convert paved and/or impervious areas and increase tree canopy and vegetation, reducing urban heat island effects.

☐ Optimize the rural storm water conveyance system to drain and retain storm water flows as necessary. Provide proper rural drainage and keep conveyance systems clear of debris to minimize county road flooding during storm events.

☐ Enable proper rural retention and modify rural landscape to maximize groundwater recharge of excess storm water.

IV. SWRP Guideline Benefit Categories

Please mark (x) all the project benefit categories that apply and provide a brief explanation. Suggested benefit descriptions are included in the SWRP Guidelines Tables 3 and 4.

MAIN BENEFIT(S)

	x	Brief Explanation of Benefit	Quantification (e.g. acre---feet of water supplied, acres of habitat restored)
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 improvement			
Environmental – Increased urban green space			
Community – Employment opportunities provided			
Community – Public education			

SECONDARY BENEFIT(S)

	x	Brief Explanation of Benefit	Quantification (e.g. acre---feet of water supplied, acres of habitat restored)
Water Quality – Nonpoint source pollutant control			
Water Quality – Reestablished natural water drainage and treatment			
Water Supply – Water conservation			
Flood Management – Reduced sanitary sewer overflows			
Environmental – Reduced energy use, greenhouse gas emissions, or provides			
Environmental – Reestablishment of the natural hydrograph			
Environmental – Water temperature improvements			
Community – Community involvement			
Community – Enhance and/or create recreational and public use areas			

TABLE 3. BENEFIT METRICS

Benefit	Example	Metric Unit(s)
Water Quality *while contributing to compliance with applicable permit and/or TMDL requirements*	Increased filtration and/or treatment of runoff	**Pollutant Load Reduction** pounds (lbs)/day kilograms (kg)/day milligram/Liter microgram /Liter most probable number of bacteria or indicator organisms (mpn)/mL **Volume Treated** million gallons per day (mgd) acre-feet per year (afy)
	Nonpoint source pollution control	
	Reestablished natural water drainage and treatment	
Water Supply *through groundwater management and/or runoff capture and use*[11]	Water supply reliability	**Volume Captured** *in terms of augmentation/replacement of water supply, or reduced dependence on imported water* million gallons per day (mgd) acre-feet per year (afy) **Cost** dollars per volume per year (of augmented water supply)
	Water conservation	
	Conjunctive use	
Flood Management	Decreased flood risk by reducing runoff rate and/or volume	**Rate, Volume, and/or Size** cubic feet per second (cfs) acre-feet (af) cubic feet (cf) acres or linear feet
	Reduced sanitary sewer overflows	
Environmental	Environmental and habitat protection and improvement, including: - wetland enhancement/creation; - riparian enhancement; and/or - instream flow improvement	**Size and/or Rate** acres cubic feet per second (cfs) carbon sequestration (megagrams of carbon per area)

[11] Groundwater management and/or runoff capture and use also includes "on-farm" flood flow capture and recharge projects located on suitable agricultural lands.

TABLE 3. BENEFIT METRICS		
Benefit	**Example**	**Metric Unit(s)**
Environmental *(continued)*	Increased urban green space Reduced energy use, greenhouse gas emissions, or provides a carbon sink Reestablishment of the natural hydrograph Water temperature improvements	**Other**[12] area units of landscape and buffer measure of improved hydrology number of biotic structure number of physical structures reduced temperature (degrees)
Community	Enhanced and/or created recreational and public use areas Community involvement Employment opportunities provided	**Size** size of population served number of people number of jobs acres

2. Integrated Metrics-Based Analysis

The Storm Water Resource Plan should include an integrated watershed-based and metrics-based analysis demonstrating that the proposed storm water and dry weather runoff capture projects and programs within the watershed will collectively address the Plan's storm water management objectives and produce the proposed multiple benefits identified per the guidance in Section VI.D. The following guidance provides the minimum level of information to be included in an integrated metrics-based analysis for different types of projects within the watershed.

a. Water Quality Projects Analysis

The Storm Water Resource Plan should include a watershed-based analysis of how existing and proposed projects/programs comply with or are consistent with Total Maximum Daily Loads, applicable NPDES permit and/or waste discharge requirements. The analysis for water quality projects should simulate the proposed watershed-based outcomes using modeling, calculations, pollutant mass balances, water volume balances and/or other methods of analysis that provide the following, as applicable:

[12] California Wetlands Monitoring Workgroup (CWMW). 2013. California Rapid Assessment Method (CRAM) for Wetlands, Version 6.1 pp. 67:

- **Landscape and buffer** metrics includes aquatic area abundance (for bar-built estuaries this includes stream corridor continuity, aquatic area in adjacent landscape, and marine connectivity) and buffer (percent of area with buffer, average buffer width, and buffer condition).
- **Hydrology** metrics includes water source, hydroperiod or channel stability, and hydrologic connectivity.
- **Biotic structure** metrics includes plant community (number of plant layers present or endemic species richness (vernal pools only), number of co-dominant species, and percent invasion), vertical biotic structure, horizontal interspersion, and native plant species richness.
- **Physical structure** metrics includes structural patch richness and topographic complexity.

TABLE 4. STORM WATER MANAGEMENT BENEFITS		
Benefit Category	**Main Benefit**	**Additional Benefit**
Water Quality *while contributing to compliance with applicable permit and/or TMDL requirements*	Increased filtration and/or treatment of runoff	Nonpoint source pollution control
		Reestablished natural water drainage and treatment
Water Supply *through groundwater management and/or runoff capture and use*	Water supply reliability	Water conservation
	Conjunctive use	
Flood Management	Decreased flood risk by reducing runoff rate and/or volume	Reduced sanitary sewer overflows
Environmental	Environmental and habitat protection and improvement, including; - wetland enhancement/creation; - riparian enhancement; and/or - instream flow improvement	Reduced energy use, greenhouse gas emissions, or provides a carbon sink
		Reestablishment of the natural hydrograph
	Increased urban green space	Water temperature improvements
Community	Employment opportunities provided	Community involvement
	Public education	Enhance and/or create recreational and public use areas

E. PLAN IMPLEMENTATION STRATEGY AND SCHEDULING OF PROJECTS

1. Resources for Plan Implementation

A Storm Water Resource Plan should identify the resources that the participating entities are committing for implementation of the Plan. The Plan should include the following items to ensure its effective implementation. (Wat. Code, § 10562, subd. (d)(8).):

a. Projection of additional funding needs and sources for administration and project implementation needs, above and beyond the needs of the existing storm water management plans and/or integrated regional water management plans; and

b. Schedule for arranging and securing Plan financing for project implementation, including identification of phased Plan and/or project implementation.

Appendix D.2

Project Sorts

Table D-1: Westside IRWM Plan Project Screening Results (sorted by Project Number)

Project No.	Lead Agency /Organization	Project Title	Planned Project/Program Types and Activities	Project Cost	Importance	Urgency
1	West Sacramento Area Flood Control Agency	Bees Lakes Preserve	Conserve and develop limited, low-impact pedestrian-only recreational access to a 23-acre open space area containing sensitive aquatic, riparian, emergent and upland habitats which are associated with the Sacramento River.	$1,000,000	Medium	Low
2	Lower Putah Creek Coord. Committee	505-East Channel Restoration	Restore 10 acres of riparian forest, 3/4 mile of river channel, remove 22 occurrences (2 net acres) of 6 primary invasive weeds; reconfigure one thousand feet of river channel, restore 100 feet of eroding stream bank, create 3/4 mile of south bank bench trail connecting Yolo Housing to the City of Winters at low flows.	$350,000	Medium	Medium
3	Lower Putah Creek Coord. Committee	Apricot Draw Bank Stabilization	Restore 3,000 feet of Apricot Draw, stabilizing eroding banks, removing invasive weeds and planting native vegetation.	$120,000	Medium	Medium
4	Lower Putah Creek Coord. Committee	Dry Creek Wildlife Migration Corridor Feasibility Study	Feasibility study to restore 2 miles of wildlife corridor from the confluence of Putah Creek along Dry Creek on the western boundary of Winters	$20,000	Medium	Medium
5	Lower Putah Creek Coord. Committee	Duncan-Giovannoni Channel Restoration Feasibility Study	Determine feasibility to restore 80 acres of riparian forest, reconfigure one mile of river channel, remove 96 occurrences (7 net acres) of 5 primary invasive weeds. Convert five acres of excess open water (gravel pit captured by the channel) to floodplain, restore natural meander form, pool-riffle sequence, functional floodplain elevations, salmon spawning habitat and native vegetation.	$35,000	Medium	Medium
6	Lower Putah Creek Coord. Committee	Glide Ranch Channel Restoration Feasibility Study	Feasibility study to restore 160 acres of riparian forest, reconfigure 11,250 feet of river channel, remove 128 occurrences (8 net acres) of 8 primary invasive weeds. Grade floodplain to functional elevation, convert 15 acres of excess open water to floodplain, restore natural meander form, pool-riffle sequence, salmon spawning habitat and native vegetation.	$30,000	Medium	Medium
7	Lower Putah Creek Coord. Committee	Putah Creek Interdam Reach Invasive Weed Control	Remove 127 occurrences (8.6 net acres) of 11 primary invasive weeds from 6.5 river miles (400 acres) of riparian corridor between Monticello Dam and Putah Diversion Dam and install native vegetation where weeds are removed.	$150,000	Medium	Medium
8	Lower Putah Creek Coord. Committee	Lower McNamara Pool Channel Reconfiguration Feasibility Study	Determine feasibility to: restore 25 acres of riparian forest, reconfigure 3,150 feet of river channel, remove 25 occurrences (0.5 net acres) of 6 primary invasive weeds. Convert seven acres of excess open water (gravel pit captured by the channel) to floodplain, restore natural meander form, pool-riffle sequence, functional floodplain elevations, salmon spawning habitat and native vegetation.	$30,000	Medium	Medium
9	Lower Putah Creek Coord. Committee	MacQuiddy Channel Reconfiguration Feasibility Study	Determine feasibility to: restore 34 acres of riparian forest, reconfigure 3,800 feet of river channel, remove 44 occurrences (6 net acres) of 5 primary invasive weeds. Grade floodplain to functional elevation, restore natural meander form, pool-riffle sequence, salmon spawning habitat and native vegetation.	$25,000	Medium	Medium
10	Lower Putah Creek Coord. Committee	Mace to Road 106A Channel Restoration Feasibility Study	Feasibility study to restore 305 acres of riparian forest, reconfigure 2.7 miles of river channel, remove 124 occurrences (12.8 net acres) of 5 primary invasive weeds. Grade floodplain to functional elevation, convert 17 acres of excess open water to floodplain, restore natural meander form, pool-riffle sequence, salmon spawning habitat and native vegetation.	$40,000	Medium	Medium
11	Lower Putah Creek Coord. Committee	Nishikawa Channel Restoration Feasibility Study	Feasibility study to restore 37 acres of riparian forest, reconfigure 2,430 feet of river channel, remove 20 occurrences (1.36 net acres) of 6 primary invasive weeds. Grade floodplain to functional elevation, convert 3 acres of excess open water to floodplain, restore natural meander form, pool-riffle sequence, salmon spawning habitat and native vegetation.	$20,000	Medium	Medium
12	Lower Putah Creek Coord. Committee	Old Davis Road to Mace Channel Restoration Feasibility Study	Feasibility study to restore 190 acres of riparian forest, reconfigure 3.4 miles of river channel, remove 172 occurrences (5 net acres) of 9 primary invasive weeds. Grade floodplain to functional elevation, convert 27 acres of excess open water to floodplain, restore natural meander form, pool-riffle sequence, salmon spawning habitat and native vegetation.	$40,000	Medium	Medium
13	Lower Putah Creek Coord. Committee	Olmo-Hammond-UCD Channel Restoration Feasibility Study	Feasibility study to restore 109 acres of riparian forest, reconfigure 9,765 feet of river channel, remove 70 occurrences (2.5 net acres) of 9 primary invasive weeds. Grade floodplain to functional elevation, convert 17 acres of excess open water to floodplain, restore natural meander form, pool-riffle sequence, salmon spawning habitat and native vegetation.	$35,000	Medium	Medium
14	Lower Putah Creek Coord. Committee	Pleasant Creek Wildlife Migration Corridor Plan	Plan to restore 7,000 feet of wildlife corridor of Pleasant Creek to the confluence with Putah Creek, stabilizing eroding banks, removing invasive weeds and planting native vegetation.	$10,000	Medium	Medium
15	Lower Putah Creek Coord. Committee	Pleasants Creek Bank Stabilization	Restores 84 acres of riparian habitat along 7 miles of Pleasants Creek, stabilizing eroding banks, removing 135 occurrences (13.4 acres) of invasive weeds and planting native vegetation.	$1,000,000	Medium	Medium
16	Lower Putah Creek Coord. Committee	Restoria Channel Restoration Feasibility Study	Feasibility study to restore 93 acres of riparian forest, reconfigure 4,300 feet of river channel, remove 46 occurrences (3.2 net acres) of 6 primary invasive weeds. Grade floodplain to functional elevation, convert 2 acres of excess open water to floodplain, restore natural meander form, pool-riffle sequence, salmon spawning habitat and native vegetation.	$25,000	Medium	Medium
17	Lower Putah Creek Coord. Committee	Road 106A to Yolo Bypass Channel Restoration Feasibility Study	Feasibility study to restore 52 acres of riparian forest, reconfigure 6,000 feet of river channel, remove 42 occurrences (8 net acres) of 6 primary invasive weeds. Grade floodplain to functional elevation, convert 11 acres of excess open water to floodplain, restore natural meander form, pool-riffle sequence, salmon spawning habitat and native vegetation.	$30,000	Medium	Medium

Table D-1: Westside IRWM Plan Project Screening Results (sorted by Project Number)

Project No.	Lead Agency /Organization	Project Title	Planned Project/Program Types and Activities	Project Cost	Importance	Urgency
18	Lower Putah Creek Coord. Committee	Russell Ranch Channel Restoration Feasibility Study	Determine feasibility to: restore 50 acres of riparian forest, reconfigure 5,500 feet of river channel, remove 91 occurrences (2.75 net acres) of 8 primary invasive weeds. Grade floodplain to functional elevation, convert 7 acres of excess open water to floodplain, restore natural meander form, pool-riffle sequence, salmon spawning habitat and native vegetation.	$30,000	Medium	Medium
19	Lower Putah Creek Coord. Committee	Stevenson Bridge Channel Restoration Feasibility Study	Feasibility study to restore 22 acres of riparian forest, reconfigure 2,100 feet of river channel, remove 29 occurrences (0.5 net acres) of 6 primary invasive weeds. Grade floodplain to functional elevation, convert 1.5 acres of excess open water to floodplain, restore natural meander form, pool-riffle sequence, salmon spawning habitat and native vegetation.	$25,000	Medium	Medium
20	Lower Putah Creek Coord. Committee	Thompson Canyon Bank Stabilization Design and Permits	This study provides plans, specifications and permits to restore 1.5 miles of Thompson Canyon at the confluence of Putah Creek, stabilizing a poorly engineered legacy road that annually degrade water quality and smother prime trout spawning habitat below Monticello Dam.	$100,000	Medium	Medium
21	Lower Putah Creek Coord. Committee	Upper McNamara Pool Channel Reconfiguration Feasibility Study	Determine feasibility to restore 30 acres of riparian forest, reconfigure 3,300 feet of river channel, remove 52 occurrences (4 net acres) of 7 primary invasive weeds. Convert five acres of excess open water (gravel pit captured by the channel) to floodplain, restore natural meander form, pool-riffle sequence, functional floodplain elevations, salmon spawning habitat and native vegetation.	$30,000	Medium	Medium
22	Lower Putah Creek Coord. Committee	Warren Weed Control	Restore 11 acres of riparian forest, 1,700 of river channel, remove 26 occurrences (2 net acres) of 8 primary invasive weeds. One of the densest thickets of eucalyptus with over 300 trees averaging 24 inches in diameter.	$175,000	Medium	Medium
23	Solano County Water Agency	Aquatic Nuisance Vegetation Management	The goal of the Aquatic Nuisance Species Management Plan is to minimize the harmful ecological, economic, and social impact of aquatic nuisance species through prevention and management of introduction, population growth, and dispersal into, within, and from Solano County.	$0	High	High
24	Solano County Water Agency	Commercial Washer Rebate Program	This program will offer financial incentives to commercial customers (businesses, multi-family units) who purchase or lease (five-year lease) select commercial washers for commercial laundry or common area multi-family installations.	$245,000	Medium	Medium
25	Solano County Water Agency	Gibson Canyon Creek Detention Basin	Provide increased flood protection up to 100-year with improved conveyance and containment of out of bank flows. Convert abandoned City wastewater pond to detention basin.	$10,000,000	High	Medium
26	Solano County Water Agency	Improvements to Solano Project Facilities	Today, the Solano project provides irrigation and municipal water to over 400,000 people in Solano County. However, the Solano Project is 60 years old and is in need of upgrades, repairs, and modernization.	$0	Medium	Low
27	Solano County Water Agency	Invasive Plant Removal Program	Program would consist of reducing the geographic extent of invasive plant species (tamarisk, arundo, yellow star thistle, etc.) in riparian and wetland areas in Solano County.	$0	Medium	Medium
28	Solano County Water Agency	Large Landscape Water Efficiency Program	This program will offer financial incentives to commercial customers (businesses, multi-family units) to encourage replacement and upgrade of selected irrigation equipment with new water-efficient irrigation equipment.	$200,000	Medium	Medium
29	Solano County Water Agency	NBA Infrastructure and Capacity Improvements	The North Bay Aqueduct (NBA) is in need of infrastructure and capacity improvements to increase capacity and minimize WQ impacts, to ensure a reliable water supply for Napa and Solano counties.	$0	Medium	Low
30	Solano County Water Agency	North Bay Aqueduct Alternate Intake Project	The NBA AIP includes the construction and operation of a new intake and pumping plant on the Sacramento River, conveyance pipeline, and inline storage to divert and convey water from the Sacramento River connecting to the existing NBA pipeline near the North Bay Regional Water Treatment Plant in Fairfield.	$500,000,000	High	Medium
31	Solano County Water Agency	Improve Solano Project SCADA infrastructure	This project is to install contiguous dedicated power and data lines from the top end of the Solano Project system to the bottom. This would allow monitoring of the entire system simultaneously from a central location and could allow automated remote control.	$4,000,000	High	Medium
33	Solano County Water Agency	Research on Hydrodynamics and WQ Interactions in the Delta.	With large projects such as the Bay Delta Conservation Plan, restoration of thousands of acres of tidal marsh habitat as part of the Delta Biological Opinions, and others, there is a need to better understand the hydrodynamic and water quality interactions in the Delta.	$100,000	Medium	High
34	Solano County Water Agency	Research on Improving Water Treatment for Delta Sources	The project would build upon past research done at the NBA Treatment Facility, and by other Delta users, to improve water treatment methods, reduce DBPs, and improve water treatment for Delta water users, including the SWP and CVP.	$100,000	High	High
35	Solano County Water Agency	Risk Assessment of Delta Water Supplies	This project would entail a risk assessment of Delta Water supplies, and would look at the impacts of unforeseen circumstances such as: - Earthquakes - Delta levee failure - Sea level rise - and others as needed	$200,000	Medium	Low
36	Solano County Water Agency	Solano Subbasin Conjunctive Use	Project will improve knowledge on the potential for conjunctive use of groundwater and surface water in the Solano Subbasin. The project will focus on increasing the opportunities for conjunctive groundwater use as a means of increasing water supply and reliability.	$100,000	High	Low

Table D-1: Westside IRWM Plan Project Screening Results (sorted by Project Number)

WESTSIDE SAC IRWM
Integrated Regional Water Management Plan

Project No.	Lead Agency /Organization	Project Title	Planned Project/Program Types and Activities	Project Cost	Importance	Urgency
37	Solano County Water Agency	Southwestern Sacramento Valley Basin/Solano Subbasin Groundwater-Surface Water Flow Model to Evaluate Recharge, Conjunctive Water Use, and Future Deep Zone Pumpage	The major goal of this project is to consider the potential effects of conjunctive water use scenarios on stakeholders in the greater Solano area, including the Sacramento River and other significant surface water courses in the model area. Another goal of this project is to evaluate the effects of developing new and/or redistributing deep pumpage either horizontally over a spatial area or vertically over different aquifer units with the goal of reducing drawdowns in the basal zone.	$250,000	High	Low
38	Solano County Water Agency	Source water protection for Delta water sources	This project consists of various improvements such as best management practices, source water protection, and others to reduce the impact of point and non-point sources that could negatively impact Delta water quality, with a particular emphasis on drinking water quality.	$100,000	Medium	Medium
39	Solano County Water Agency	Source water protection for Putah Creek watershed	This project consists of various improvements such as best management practices, source water protection, reduction of in-channel erosion, improved stream channel geomorphology, remediation of historic mining and others to reduce the impact of point and non-point sources that could negatively impact the Putah Creek watershed, as well as the Yolo Bypass.	$20,000	High	Medium
40	RWMG with selected Lead Agency	Regional Invasive Plants, Aquatic and Terrestrial Weeds Management Plan	This project will include the formation of an Invasive Species Task Force/Subcommittee to prepare a Regional Invasive Species Management/Eradication Plan that documents the extent of invasive terrestrial and aquatic species within the Westside Region; evaluates existing programs to manage invasive species that could be leveraged, and identifies supplemental programs to be developed to fill gaps in existing programs to manage invasive species.	$0	High	High
42	Solano County Water Agency	Ulatis Flood Control Channel Grade Control	This is a programmatic project to install rock cross-vanes at most remaining bridge crossings to arrest scour and promote some habitat diversity. There are approximately 20 location that would benefit from these installations.	$500,000	High	Medium
43	Solano County Water Agency	Wetland Restoration Research and Impacts to Source Water Quality.	The project will consist of scientific study/research on wetland restoration, organic carbon generation, and other important areas of study, to determine the corresponding impacts on municipal source water quality.	$0	Medium	Medium
44	City of Clearlake	City of Clearlake Stormwater Management Plan (SWMP), Storm Drainage and Flood Control Project Proposal	The City of Clearlake Stormwater Management Plan (SWMP) includes development of stormwater management program implementation strategies and actions.	$400,000	High	Medium
45	City of Woodland / floodSAFE Yolo Pilot Program	Lower Cache Creek Flood Risk Reduction Project	The primary purpose for the Project is to reduce the risk of flooding to the City of Woodland and adjacent land including the rural Town of Yolo and Interstate 5. The Project is in the initial phases of a feasibility study for which the City has executed a Federal cost share agreement with the USACE and CVFPB and a non-federal cost share agreement with the CVFPB.	$0	High	Medium
46	Colusa County Resource Conservation District	Bear Creek Habitat Enhancement	The Bear Creek Habitat Enhancement project will be implemented in two phases. Phase I will provide for landowner/agency outreach activities and the development of a locally-driven plan to address tamarisk infestations and the re-establishment of native riparian species along Bear Creek in western Colusa County. Phase II will provide for habitat enhancement activities on a minimum of 3.5 miles of Bear Creek and .5 miles of Sulphur Creek.	$400,000	Medium	Medium
48	Crescent Bay Improvement Company	Crescent Bay Improvement Company	Crescent Bay improvement Company has been on a Boil Water Order since 1999. There are 3 objectives to this project:1) replace the 80-year old distribution lines which are leaking, 2) drill a well and replace our surface water source with ground water, and 3) explore the feasibility of and purchase a neighboring water company and develop an intertie with that system.	$1,000,000	High	High
49	Dixon Regional Watershed Joint Powers Authority	Dixon Main Drain / V-drain Enlargement Project	The purpose of the project is to reduce local flooding caused by regional drainage flows that exceed the existing capacity of these channels by increasing the capacity of these constructed drainage facilities.	$3,100,000	High	Medium
50	Dixon Regional Watershed Joint Powers Authority	Eastside Drain	The Eastside Drain project will construct segments of new channels and enlarge existing channels. The Project will add an increment of 120 cfs to the Dixon Main Drain / V-drain Enlargement Project.	$5,251,000	High	Medium
51	Dixon Resource Conservation District	Storm Flow Reduction From Agricultural Lands North of Interstate 80	The Proposed Project is based on providing detention storage for a 10-year storm event.	$487,000	High	Medium
52	Cache Creek Conservancy	Implementation of the Cache Creek Resources Management Plan	Implementation of projects wtihin the Cache Creek Resources Management Plan (CCRMP) area, located along 15 miles of lower Cache Creek from the Capay Dam to the town of Yolo. The proposed project consists of various phases of activities that meet specific grant requirements such as habitat restoration or enhancement, streambank stabilization, invasive plant removal, monitoring, and/or watershed stewardship through education, workshops, and outreach to landowners.	$300,000	Medium	Medium
53	California Land Stewardship Institute	Invasive Plant Removal in Ulatis Creek	This project will first map out where the Arundo is present on the 17 mile channel of Ulatis Creek, then contact the landowners who own property with Arundo to educate them about the Arundo hazards; then, with their permission, eradicate the plant on their land, and lastly revegetate areas with native trees.	$500,000	Medium	Medium
55	Clearlake Oaks County Water District	Plant Intake	Install a new water intake in the lake that is capable of drawing water from different depths, with installation of an amiad pre-filter at the pier where the intakes are located. This will allow a greater control of influent turbidity and pH by controlling what depth the intake will be drawing water from.	$0	High	High

Table D-1: Westside IRWM Plan Project Screening Results (sorted by Project Number)

Project No.	Lead Agency /Organization	Project Title	Planned Project/Program Types and Activities	Project Cost	Importance	Urgency
56	East Lake Resource Conservation District	Upper Putah CreekWatershed Management Plan	This project will produce a comprehensive Regional Watershed Management Plan for the Putah Creek Watershed located in Lake, Napa, Solano, and Yolo Counties. This will include conducting a thorough geomorphic study to better understand current conditions as related to water quality, water quantity, wildlife habitat, and socioeconomics. The project will assemble past studies and reports to identify data gaps, conduct on-the ground scientific investigations, and interview citizens and stakeholders through an education and outreach program. The result will be a management plan that identifies watershed related issues that will provide recommendations for implementation.	$500,000	Medium	Medium
57	Lake County Water Resources Department	Restore Native Fish Spawning Areas in Clear Lake Tributaries	This is a series of projects to eliminate some of the major barriers to fish passage. Projects include: Kelseyville Main Street check dam (Kelsey Creek); Decker Bridge (Scotts Creek); Rancheria Road Bridge (Middle Creek); Sewer Crossing (Seigler Canyon Creek); Clover Creek Diversion Channel; Creek Delta Diversity (multiple creeks).	$5,560,000	High	Medium
58	Lake County Water Resources Department	Reduce Flood Damage	This project will reduce flood damage by structural and non-structural methods and will reduce flood risk to property owners in Lake County through 1) buyouts and relocations or floodproofing 2) implementation of the Middle Creek Flood Damage Reduction and Ecosystem Restoration Project 3) Upgrades of bridge and culvert capacities to reduce flooding 4) Implementation of the Cache Creek flow enhancement project 5) Implement channel and levee improvements to the Middle Creek Flood Control Project	$0	High	Medium
59	Lake County Water Resources Department	Middle Creek Flood Damage Reduction and Ecosystem Restoration Project	This project will eliminate flood risk to 18 residential structures, numerous outbuildings and approximately 1,650 acres of agricultural land and will restore damaged habitat and the water quality of the Clear Lake watershed. Reconnection of this large, previously reclaimed area, as a functional wetland is anticipated to have a significant affect on the watershed health and the water quality of Clear Lake. The project consists of purchasing the flood prone property "protected" by the substandard levee, mitigating flood impacts to roads and utilities, reconstructing historic channel patterns, and breaching the levee in numerous locations that allow Clear Lake to reflood the Project area.	$55,426,000	High	Medium
60	Lake County Water Resources Department	Improve Watershed Roads and Trails to Reduce Soil Erosion	Provide supplemental funding to government programs to survey road and trail conditions and maintain, upgrade, decommission, or re-route them as needed.	$0	Medium	Medium
61	Lake County Water Resources Department	Improve Water Dependent Recreation Opportunities	Development of a trail system within Lake County as described in the general plan.	$0	Medium	Low
62	Lake County Water Resources Department	Identify, Protect and restore Important Wildlife Habitat Areas in Clear Lake	Development of a plant that provides for protection of important wildlife habitat areas within Clear Lake including bird nesting areas and shoreline wildlife preserves.	$0	Medium	Medium
63	Lake County Water Resources Department	Develop and Implement a Comprehensive Watershed Monitoring Programs	Meeting of agencies, Tribes, and organizations currently monitoring water quality in the Clear Lake Watershed to coordinate monitoring activities and reduce overlap when possible.	$0	High	Medium
64	Lake County Water Resources Department	Develop a Native Fish Management Plan	Conduct studies to identify and fill gaps in information and understanding of native fish populations with in Lake County. Use these studies to develop a Native Fish Management Plan.	$250,000	High	Medium
65	Lake County Water Resources Department	Collaborative Process to Update Clear Lake Integrated Watershed Management Plan	Update of CLIWM Plan.	$0	Medium	Medium
66	Lake County Water Resources Department	Clear Lake Water Quality Assessment	Planning/assessment project to assess the current limnological conditions and to identify and select measures necessary for Clear Lake to meet the water quality objectives as specified in the Basin Plan, as required by the Basin Plan amendment implementing the Nutrient TMDL for Clear Lake.	$540,000	High	Medium
67	Lake County Water Resources Department	Cache Creek Flow Enhancement Project	This project will evaluate the removal and maintenance of the gravel bar at the Grigsby Riffle to reduce flow restrictions in the Cache Creek Outlet Channel.	$200,000	High	Medium
68	Lake County Water Resources Department	Assess stream channel hydrology and related riparian and aquatic habitats for restoration	This project will survey stream channels, especially in the level valleys in the lower elevations of the Upper Cache and Upper Putah Creek watersheds, and subsequent prioritization based on erosion hazard, potential for significant habitat improvement, and other factors.	$250,000	Medium	Medium
69	Lake County Water Resources Department	Adobe Creek Conjunctive Use Project	Addition of conjunctive use to the operation of Highland Creek Reservoir (Lake County), through the addition of sluice gates to the existing Principal Spillway structure at Highland Creek Dam.	$700,000	High	Medium
70	Mendocino National Forest	Lakeview Hazardous Fuels Reduction	The primary activities proposed under this project are vegetation and surface fuel treatments to reduce hazardous fuels and modify wildland fire behavior.	$1,250,000	Medium	Medium
71	Mendocino National Forest	Hazardous Fuels Reduction in the Upper Lake Watershed	Management of 28,600 acres within the Upper Lake watershed, including hazardous fuels reduction on areas to be determined during the planning stage.	$0	Medium	Medium
72	Napa County	Regional Collaborative Water Conservation Program	Expansion of the implementation of the Regional Water Conservation Education Program's conservation education and consumer incentive programs and build on regional water conservation initiatives.	$125,000	Medium	Medium
73	Robinson Rancheria	The Restoration of the Clear Lake Hitch to Blue Lakes	Transfer of live hitch fry to the waters of the Blue Lakes in Lake County.	$0	High	Medium
74	Robinson Rancheria	Spawning Hitch fish and reproduction loss correction measures for an artificial trap	Installation of a grate at the mouth of the manmade ditch along the Rodman Slough to prevent Hitch fatalities.	$0	High	Medium

Table D-1: Westside IRWM Plan Project Screening Results (sorted by Project Number)

Project No.	Lead Agency /Organization	Project Title	Planned Project/Program Types and Activities	Project Cost	Importance	Urgency
75	Rural Community Assistance Corporation	DAC Community Wastewater Management Project	RCAC will work with Lake County DACs and tribes to create and implement a septic inspection and monitoring program.	$108,322	High	Medium
76	RWMG with selected Lead Agency	Regional Invasive Mussels Management Plan	This project will include the formation of an Invasive Species Task Force/Subcommittee to prepare a Regional Invasive Mussels Species Prevention Plan that evaluates existing programs to prevent invasive species that could be leveraged, and identifies supplemental programs to be developed to fill gaps in existing programs to manage invasive species. Special high priority emphasis will be placed on prevention of water body infestation by Quagga Mussels.	$0	High	High
80	Tuleyome	Cache Creek Anadramous Fish Reintroduction Project	Conduct studies to look at the physical constraints such as temperature, flow regimes, and spawning opportunities, climate change impacts for the reintroduction of anadromous fish to Cache Creek, institutional issues including safe harbor for the YCFCWCD and stakeholder outreach.	$500,000	High	Medium
81	Tuleyome, Inc.	Comprehensive Mercury Assessment and Implementation for the Westside Region	This project will: 1) compile and georeference existing data pertinent to characterization of known and potential mercury priority areas in the Westside Region 2) monitor streambeds within the Putah Creek Watershed 3) upload relevant data into a regional or statewide on-line library 4) develop a summary 5) develop best management practices toolkit 6) identify 2-3 feasible priority projects and 7) develop implementation measures using the Toolkit and decision support tools.	$492,000	High	Medium
82	West Lake Resource Conservation District	Non-Native Invasive Weed Management Project	This project will maintain the existing weed management program currently being implemented by the Lake County Weed Management Area.	$0	Medium	Medium
83	West Sacramento Area Flood Control Agency	Lower Sacramento and Delta North Regional Flood Management Plan	Develop a lower Sacramento and Delta North Regional Flood Management Plan that follows the requirements outlined in the Central Valley Flood Protection Plan (CVFPP)	$1,734,907	High	Medium
84	Yolo County Flood Control and Water Conservation District	Winters Main Canal Modernization Project: Integrated Precision Water Mgmt.	Installation of automatic water control gates, pump flow meters and vegetated native grass canal banks, to improve irrigation efficiency. In addition, planting of native grasses to minimize erosion and decrease use of herbicides.	$2,175,000	High	Medium
85	Yolo County Flood Control and Water Conservation District	Abandoned Well Incentive Program	Development of a Regional 3 year Abandoned Well Incentive Program to properly abandon wells.	$2,200,000	Medium	Medium
86	Yolo County Service Area #6	County Service Area (CSA) #6 Levee Repair Project	Non-urban levee repair project as part of the levee rehabilitation identified to restore the District levee to its authorized level of flood protection.	$3,222,450	High	Medium
87	Lake Berryessa Resort Improvement District	LBRID Wastewater Storage Pond and Disposal Improvements	This project will upgrade the wastewater storage ponds and disposal spray fields.	$3,000,000	High	High
88	Lake Berryessa Resort Improvement District	Water Tank Replacement Project	The three existing potable storage tanks have reached the end of their useful life. The project will replace these three tanks to ensure a continuous water supply for the residents in the future.	$1,500,000	High	Medium
89	Lake County Special Districts	Soda Bay Water System Improvements	This project will correct deficiencies caused by increased algae blooms in Clear Lake in the system that are required for public safety and regulatory requirements.	$1,500,000	Medium	Medium
90	Napa Berryessa Resort Improvement District	NBRID Water Treatment Plant Replacement	The existing water treatment plant will be replaced with a new more technically advanced water treatment plant.	$2,500,000	High	High
91	Napa Berryessa Resort Improvement District	NBRID Wastewater Storage Pond and Disposal Improvements	This project will upgrade the wastewater storage ponds and disposal spray fields.	$3,000,000	Medium	Medium
92	Napa Berryessa Resort Improvement District	NBRID Wastewater Treatment Plant Replacement	This project will upgrade the existing WWTP. The project will also repair or replace all the existing sewer lift stations.	$1,500,000	High	High
93	Rural Community Assistance Corporation	Rural Disadvantaged Community (DAC) Partnership Project	RCAC will manage the Prop 84 grant funds to address inadequate water supply and water quality in rural disadvantaged communities (DACs) in the Westside Sacramento IRWM region.	$127,753	High	High
94	Lake County Water Resources Department	Increase Cache and Putah Creek Watershed Education and Outreach	Develop and improve education programs that provide public with information on watershed programs and related proper management techniques.	$0	Medium	Low
96	Knights Landing Ridge Drainage District	Mid Valley, Knights Landing Repair Project	Subset of the Mid-Valley Area Levee Reconstruction Project currently underway through a partnership with ACOE and the Central Valley Flood Protection Board.	$6,883,000	High	Medium
97	Lake County Water Resources Department for RWMG	Form Task Force/Subcommittee to strategize and implement Watershed Education and Outreach	Support appointment of an Education Task Force/Subcommittee to prepare a Regional Watershed Education Plan for a 2-year implementation period.	$0	Medium	Low
99	Reclamation District No. 2068	Agricultural Tail Water Reuse Program	This program proposes to develop an ag water recapture and reuse facility at strategic locations within the agency.	$50,000	Medium	Medium
100	Reclamation District No. 2068	Irrigation Billing / Irrigation Management System Improvements	The software for a unique water billing is in need of an update, including enhancements in the user interface, data management capability and software/hardware compatibility.	$50,000	Medium	Medium
102	Reclamation District No. 2068	SCADA Implementation	Install/coordinate local and regional SCADA system to monitor water diversions, pumping plant operations, flood water elevations, groundwater elevations, water distribution within the agency jurisdiction.	$250,000	High	Medium
105	Solano Resource Conservation District	Solano County Riparian Habitat Restoration and Enhancement Project	The project will work to improve riparian habitat and reduce noxious weed cover in Eastern Solano County creeks.	$750,000	Medium	Medium
106	Solano Resource Conservation District	Waterway Management for Improved Water Quality and Wildlife Habitat	Solano Resource Conservation District will work with partners and landowners to demonstrate integrated waterway and levee management.	$500,000	Medium	Low

Table D-1: Westside IRWM Plan Project Screening Results (sorted by Project Number)

Project No.	Lead Agency /Organization	Project Title	Planned Project/Program Types and Activities	Project Cost	Importance	Urgency
108	Tuleyome, Inc.	Sulphur Creek Mercury and Sediment Reduction Project	This project will: 1) Characterize mercury as required to enable erosion control work, 2) Hydrologically disconnect up to 23 miles of road networks that are currently contributing runoff and contaminated sediment to downstream waters, 3) Stabilize 2000 feet of eroding stream banks that are over-steepened and delivering methylmercury contaminated sediment into the stream system, 4) Treat 115 road-related erosion and sediment delivery sites and 5) Stabilize three major valley bottom headcuts that are resulting in serious valley fill erosion along the main stem Sulphur Creek, desiccating alkali wet-meadows and lowering the water table.	$900,000	High	Medium
109	Tuleyome, Inc.	Elgin Mine Drainage Water Treatment Project	Compile existing maps, reports, water data, and other information about Elgin Mine in the IRWM region indicating location, ownership history, and mineral production. Address all regulatory requirements, Conduct baseline and post-project monitoring of downstream water, sediment, and biota. Design and construct a hot spring treatment system to minimize mercury loads downstream.	$1,500,000	High	Medium
111	West Sacramento Area Flood Control Agency	Deep Water Ship Channel East Levee Repair	Correct deficiencies, protect against underseepage, and maintain the Port of West Sacramento levees to current standards for FEMA 100 yr and urban levee 200 year levels of flood protection.	$7,676,000	High	Medium
112	West Sacramento Area Flood Control Agency	Deep Water Ship Canal Navigation Levee Repair	Correct deficiencies, protect against underseepage, and maintain the Deep Water Ship Canal Levees to current standards for FEMA 100 yr and urban levee 200 year levels of flood protection.	$181,018,000	High	Medium
113	West Sacramento Area Flood Control Agency	Port of West Sacramento North and South Levee Repair	Correct deficiencies, protect against underseepage, and maintain the Port of West Sacramento levees to current standards for FEMA 100 yr and urban levee 200 year levels of flood protection.	$58,400,000	High	Medium
114	West Sacramento Area Flood Control Agency	Sacramento River Levee Repair	Correct deficiencies, protect against underseepage, and maintain the Sacramento River Levees to current standards for FEMA 100 yr and SB 5 200 year levels of flood protection.	$250,000,000	High	Medium
115	West Sacramento Area Flood Control Agency	Sacramento River Recreational Trail	Construct a continuous 13.1 mile, 192-acre recreation corridor along the entire length of the Sacramento River within City limits.	$80,000,000	Medium	Low
116	West Sacramento Area Flood Control Agency	Sacramento Bypass-Yolo Bypass Levee Repair Phase II	Correct deficiencies, protect against underseepage, and maintain the Sacramento Bypass and Yolo Bypass Levees to current standards for FEMA 100 yr and urban levee 200 year levels of flood protection.	$60,900,000	High	Medium
117	West Sacramento Area Flood Control Agency	West Sacramento South Cross Levee Repair	Correct deficiencies, protect against underseepage, and maintain the West Sacramento South Cross Levee to current standards for FEMA 100 yr and urban levee 200 year levels of flood protection.	$14,605,000	High	Medium
118	Yolo County Flood Control and Water Conservation District	Conjunctive Water Use Program	This conjunctive water use project envisions using a variety of methods (recharge/recovery, off-stream storage and canal system modernization) to effectively store and conjunctively use groundwater in the District's service area.	$8,000,000	High	Medium
119	Yolo County Flood Control and Water Conservation District	Moore Siphon Reliability/Restoration Project	Due to the age and exposure of the 72" corrugated metal pipe, as well as Cache Creek erosion issues at both ends of the siphon, the siphon well either need to be replaced or rehabilitated in the near future.	$1,000,000	Medium	Low
120	Yolo County	Yolo County Airport Drainage Plan	In order for the airport to eliminate flooding of its facilities and to expand, a 2005 Drainage Plan engineered by Wood Rogers needs to be implemented.	$1,250,000	High	Medium
122	Yolo County, Natural Resources Division	Cache Creek Parkway Plan	Once complete the Plan will result in a comprehensive planning document that will guide the restoration and ultimate uses of County owned lands within the Cache Creek Area Plan boundary.	$300,000	Medium	Medium
123	Yolo County	Clarksburg Flood Protection Feasibility Study	The project involves conducting a feasibility study of alternatives to provide a 100-year level of flood protection to the Clarksburg region.	$200,000	High	Medium
125	Yolo County	Methylmercury Impacts Analyses for the Yolo Bypass	Yolo County proposes to collect data and analyze changes in methyl mercury production and bioaccumulation that could result from (1) a proposed Bay Delta Conservation Plan (BDCP) project to enhance fisheries habitat in the Yolo Bypass; and (2) a Central Valley Flood Protection Plan proposal to expand the Yolo Bypass to improve flood capacity.	$100,000	High	Medium
126	Yolo County Resource Conservation District	Implementation of the Cache Creek Watershed Invasive Weed Management Plan	The newly completed Cache Creek Watershed Invasive Weed Management Plan (CCW-IWMP), a living document, identifies specific invasive plants for either eradication, containment or monitoring and prioritizes weeds within those categories. Starting in the upper watershed and working downstream we will use weed mapping information to eradicate those which can be eradicated, contain the edges of those identified in that category, and monitor so as to continually update the plan and re-prioritize and implement vegetation management actions.	$250,000	Medium	Medium
127	Yolo County Resource Conservation District	Agricultural Drain, Slough and Canal Riparian Habitat Enhancement	Control of invasive weeds, site preparation, installation of native trees, shrubs, grasses and/or forbs as appropriate to the site, and 2 years of vegetation management/ maintenance post-plant along natural and man-made waterways, with focus on Cottonwood, Union School, Willow and Chickahominy sloughs; and main irrigation supply canals in western Yolo County.	$750,000	Medium	Medium
128	Lake Berryessa Resort Improvement District	Program to Prevent Wastewater Discharges	This project will repair or replace sections of sanitary sewer collection laterals and mains that are experiencing above normal levels of storm water inflow/infiltration (I/I).	$1,500,000	Medium	Medium
129	Putah Creek Council	Native Plant Nursery to Support Putah-Cache Ecotype Restoration	Putah Creek Council (PCC) will manage a native plant nursery to grow Putah Creek plants from wild-collected seeds and cuttings at a nursery at the LA Moran Reforestation Center, Davis.	$16,000	Medium	Medium
130	Putah Creek Council	Pollution Prevention and Watershed Education Project	Putah Creek Council (PCC) will educate Winters students, residents, and visitors about storm water and urban runoff, watershed function, and wildlife habitat along Putah Creek via our “Pollution Prevention and Watershed Education” project.	$23,500	Medium	Low
131	Yolo Basin Foundation	Pacific Flyway Center/Delta Gateway	The Pacific Flyway Center (Center) is a proposed educational facility and site intended to serve the general public, Central Valley area school districts, various public sector agencies and special environmentally focused events and activities.	$13,000,000	Medium	Low

Table D-1: Westside IRWM Plan Project Screening Results (sorted by Project Number)

Project No.	Lead Agency /Organization	Project Title	Planned Project/Program Types and Activities	Project Cost	Importance	Urgency
132	Yolo Basin Foundation	Lower Putah Creek Restoration from Toe Drain to Putah Creek Diversion Dam (Yolo Bypass Wildlife Area Element)	The project will enhance and restore 300-700 acres of tidal freshwater wetlands and create 5 miles of a new creek channel, entirely within the Yolo Bypass Wildlife Area.	$1,000,000	High	Medium
133	Yolo Basin Foundation	Yolo Bypass Wildlife Area Public Use Improvements	This proposal would complete some of the tasks related to enhancement of public use infrastructure; including maintain and improve wildlife observation, angling and hunting.	$1,000,000	Medium	Low
134	RWMG with selected Lead Agency	Climate Change Adaptation Study	Regional study to advance understanding of the effects of climate change and consider potential modifications to the water management system.	$0	High	Medium
135	Reclamation District 2035	Tule Canal Habitat Enhancement & Sediment Removal	The project consists of: 1) securing an environmental easement that would protect valuable floodplain habitat and adjacent lands from other uses 2) construction of operational facilities for water control and fish passage and 3) regrading portions of the floodplain habitat to increase the quality of seasonally inundation based on managed flows from the Sacramento River.	$0	High	Medium
136	Reclamation District 2035	Levee Repairs/Maintenance- Segments 150, 173 and 297	Complete geological analysis, engineering design required to identify and correct levee deficiencies and hazard mitigation recommendations contained in the URS levee evaluation report (2010) completed at the direction of the Department of Water Resources and additional geologic investigation analysis (to be completed) recommendations.	$0	High	Medium
137	Reclamation District 2035	Installation of Groundwater Wells	Engineer, design and install groundwater wells.	$0	Medium	Low
138	Reclamation District 2035	Groundwater Studies	Reclamation District 2035's Ground Studies Project will consist of the identification and analysis of issues, if any, surrounding the quality and availability of groundwater.	$0	High	Low
139	Reclamation District 2035	Floodway Corridor Project	The project consists of three major phases/components: 1) acquisition of Conservation/Flowage Easements - Approx. 7,000 acres.2) New Sacramento River By Pass - A new bypass facility will be constructed to divert flows from the Sac River to the Yolo Bypass. During large storm evens flood flows would be diverted (Sac River) over a new weir to a new bypass channel that would deliver flows to the Yolo Bypass.3) Diverting additional flood flows in to the Yolo Bypass would increase flow and stages in the bypass downstream from the new bypass. To mitigate for potential flow increases, a portion of Conaway Ranch (outside of the Bypass), would be used to convey and store (transitory storage of over 66K acre feet) of flood water during large storm events.	$0	High	Medium
140	Reclamation District 2035	Cross Bypass Canal Modernization	The project consists of piping (or lining) the Cross Bypass Canal and the installation of flow control and measurement devices to improve the conveyance system and increase water use efficiency.	$0	Medium	Low
141	Reclamation District 2035	Conjunctive Use Study	The project consists of the study and analysis of the coordinated use of surface and groundwater that could benefit the agricultural, urban, and environmental interests within, nearby and downstream of Yolo County, especially the North Delta region.	$0	High	Medium
142	City of Vacaville	Centennial Park Riparian Forest Restoration and Loop Trail Development Project	This project proposes to restore riparian environment along two tributaries of Horse Creek by controlling invasive species and installing a diverse selection of native trees, shrubs and perennial forbs in a 140 foot by 2,400 foot long corridor along the middle tributary and a 185 foot wide by 2,950 foot long corridor along the northern tributary.	$1,248,027	Medium	Medium
143	RWMG with selected Lead Agency	Regional Capital Improvement Plan	Create Regional asset management plan to identify and prioritize key water management infrastructure.	$0	Medium	Low
145	City of West Sacramento	Municipal Well at the George Kristoff Water Treatment Plant	Project includes environmental, design and construction of a new municipal well located at 400 N.Harbor Blvd in the City of West Sacramento. This well will augment City potable water supplies during drought conditions. This well in not intended to increase water production but allow upstream surface water diversions by as much as 4,500 acre feet annually.	$750,000	High	Medium
147	Lake County Special Districts	Paradise Vallev-Clearlake Oaks County Water Consolidation	Paradise Valley Water System, County Service Area 16 (CSA #16), serves 75 customers. The system does not have adequate source capacity in accordance with Section 64554, Chapter 16, Title 22 of the California Code of Regulations. CSA #16 has three wells that when combined do not produce the required source capacity. Attempts to drill a fourth well in 2012 were unsuccessful. The current drought has further reduced the wells ability to prod uce and the CSA is critically challenged to produce sufficient water for human consumption. The CSA is under an urgency ordinance and required to keep usage below 50 gpd per person. The option of building a surface water treatment plant is not desirable due to the poor water quality of Clear Lake and the costs would be prohibitive for the very small district. It has been determined that consolidating with Clearlake Oaks County Water System (CLOCWS) is the best option for resolving the lack of source capacity. Consolidation with CLOCWS would benefit both systems as it would resolve source capacity for CSA # 16 and would allow CLOCWS to expand their customer base and upgrade storage. Project will include the construction of a pipeline to distribute water to CSA # 16.	$1,500,000	High	Medium

Project No.	Lead Agency /Organization	Project Title	Planned Project/Program Types and Activities	Project Cost	Importance	Urgency
148	Lake County Special Districts	Spring Valley Water System Distribution Line Loop	Spring Valley, CSA #2 is a public water system serving 493 customers. CSA #2 draws water from Indian Valley Reservoir which is at a critically low level due to the drought. Storage for Indian Valley reservoir is currently 27,753 acre feet compared to 96,411 acre feet last year. Release of 10 cubic feet per second is required for fish habitat. This project would help preserve sufficient quantities of water for both human consumption and preservation of the fish habitat. The old and deteriorated distribution system is experiencing numerous leaks which are increasing the amount of water required for community consumption. In addition to the leaking pipes, the system has lines that "dead end" and must be flushed regularly to avoid a dangerous buildup of trihalomethanes. (a dangerous by-product of the treatment process) Flushing the lines also requires large quantities of water to be wasted.TSpring Valley, CSA #2 is a public water system serving 493 customers. CSA #2 draws water from Indian Valley Reservoir which is at a critically low level due to the drought. Storage for Indian Valley reservoir is currently 27,753 acre feet compared to 96,411 acre feet last year. Release of 10 cubic feet per second is required for fish habitat. This project would help preserve sufficient quantities of water for both human consumption and preservation of the fish habitat. The very old distribution system is experiencing numerous leaks which are increasing the amount of water required. Over 12,000,000 gallons of treated water is being lost per year through leaks. In addition to the leaking pipes, the system has lines that "dead end" and must be flushed regularly to avoid a dangerous buildup of trihalomethanes. (A dangerous by-product of the treatment process) Flushing the lines also requires large quantities of water to be wasted.The proposed project would resolve these two critical needs. Additional benefits would be improvements to the fire suppression abilities and a decrease on operating and maintenance costs. The extension of water lines for looping the system would allow installation of fire hydrants in areas that have not had access to water lines and are at risk of wild fires. This project would consist of the replacement of 7,500 feet and new installation of approximately 9,100 feet of C-900 water lines which will increase water supply reliability, water conservation and water use efficiency as well as improve drinking water quality and help alleviate fire danger. Up to 45% of the water drawn from the reservoir and treated is being lost due to the old deteriorated water lines and the need for frequent line flushing.	$1,260,000	High	Medium
150	Lake County Special Districts	Mt. Hannah, CSA #22 Water System	Mt. Hannah, CSA #22 is a public water system serving 36 customers. CSA #22 relies on ground water for supply. Due to current drought conditions, the well level dropped 65% from January 2013 to January 2014. The well has lost the ability to recharge and can only be pumped for approximately 30 minutes and then must be allowed to recharge for 2 to 3 hours. Due to the well being overdrawn, turbidity issues have become a problem. Filtering for turbidity requires even more water that is not available. We are in the process of preparing to truck water to the community from outside the area. This will be very costly and an extreme financial burdon on the disadvantaged community.In addition to the loss of capacity, the system has a deteriorated trunk line that has severe leaks and is losing up to 45% of the water being pumped. The customers are economically disadvantaged. They have been conserving water and the average consumption for the CSA is approx. 35 gallons per day per person.Water rates for this CSA are considerably higher than the county average but due to the small number of customers, the CSA struggles financially and has not been able to build a capital reserve fund. The geographic location of this CSA eliminates the option of consolidation. It is located on Cobb Mountain and not near any other systems that it could tie into. The CSA desperately needs a deeper well and a new trunk line installed.	$270,000	High	Medium
151	Yolo County Flood Control and Water Conservation District	Regional Drought Preparedness through Increased Groundwater Recharge	The District proposes to divert winter flows from Cache Creek into the canal system to increase groundwater recharge. Groundwater recharge and recovery is central to good conjunctive management of surface and groundwater resources. Currently, by District policy, 160 miles of surface water canals remain unlined, providing summertime groundwater recharge services that benefit the aquifer and riparian habitat. The recharged groundwater is used by farmers, individual well owners and business, cities, and small communities. Normally, the majority of canal recharge occurs in the summertime, during the irrigation season. This project proposes to divert wintertime water into the canal system which would require the installation of automated canal gates to replace manual gates. This project will improve local water supply reliability during times of drought and improve conjunctive use management overall. The District has been building and planning improvements to its conjunctive use system for many decades. The regionally supported groundwater monitoring program is extensive. The ag/urban partnership between the cities of Davis, Woodland, and Winters and the Water District is strong. Indeed, the Cities depend on the recharge activities of the District to maintain their water supplies. The disadvantaged communities (DAC) in the western half of the District also depend exclusively on groundwater. The installation of automated gates to make winter recharge possible will increase groundwater storage and will benefit the community for years to come.	$3.0 million	High	Medium

Table D-1: Westside IRWM Plan Project Screening Results (sorted by Project Number)

Project No.	Lead Agency /Organization	Project Title	Planned Project/Program Types and Activities	Project Cost	Importance	Urgency
152	Tuleyome, Inc.	Corona & Twin Peaks Mines Cleanup	The principle physical improvements that this project will implement include a novel, low-maintenance, in situ treatment system to reduce acidity and metals loadings from the Corona Drain Tunnel, consolidating mine waste, improving runoff controls, enhancing revegetation of waste rock and tailings at the Boiler House Adit and Twin Peaks Adit, and improving the existing infiltration trenches at the Boiler House Adit and Twin Peaks Adit. This project will address several key issues commonly associated with mine cleanup projects, including:· Physical hazards: Restricting access to the adits and infiltration trenches by people and wildlife· Chemical hazards: Treating mine drainage and site seepage/runoff to attain water quality standards· Legal liability: Protecting "Good Samaritans" who implement projects or manage lands for the good of society· Multiple goals: Seeking multiple benefits (public health & safety, wildlife habitat, cultural resources, etc.) while addressing competing interests· Limited funds: Minimizing remediation costs to encouraging similar efforts elsewhere.	$1.6 million	High	Medium
153	Lake Berryessa Resort Improvements District	Sewer Lift Station Upgrades	A single six (6) inch asbestos cement sewer main installed in the mid 1960s conveys pumped raw sewage from the Lift Station A Collection Tank to remote Facultative Ponds and Sprayfields. Approximately 5,200 feet of the sewer trunk line is under high pressure due to a 231 foot change in elevation from the tank to terminus manhole and frictional headloss within the pipe. Combination of age (50 years), high working pressure (> 100 psi) and asbestos cement pipe properties have caused leaks and breaks prompting emergency repairs. The existing AC sewer main has inadequate hydraulic capacity to handle 100-year design storm inflows per requirements mandated by the Central Valley RWQCB. The project will replace 3,000 feet of sewer main and appurtenances from Lift Station A traversing below the Storage Pond access road.	$1,094,250	Medium	Medium
154	Lake Berryessa Resort Improvements District	Sewer Lift Station Upgrades	Sewer Lift Stations B, C and D in the residential collection system have insufficient firm pumping capacity and to handle 100-year design storm inflows per requirements mandated by the Central Valley RWQCB. The project will replace progressive cavity style pumps with latest technology chopper pumps, renew yard piping plus appurtenances and upgrade the electrical systems.	$635,500	Medium	Medium
155	Solano County Water Agency	Lower Putah Creek Restoration: Monticello Dam to Dry Creek	The project restores over 600 acres of riparian forest along nine river miles (30% of the length and area of the riparian corridor) from Monticello Dam to Dry Creek (see Figure 1) replacing 223 occurrences of invasive weeds (20 net acres) with weed resistant native vegetation, restoring natural channel form and function including meander form and pool-riffle-run sequence to 2,400 feet of channel, creating 12 new salmon spawning riffles, grading 45 acres of floodplain to functional elevation, converting 3 acres of excess open water to floodplain, lowering water temperatures and adding an acre of shaded riverine habitat.	$666,666	Medium	Medium
156	Solano County Water Agency	Solano and Napa County Drought Relief Project	This project offers drought relief and long-term water savings in the form of a package of water conservation programs to improve water use efficiency throughout eastern Solano County and unicorporated Napa County. The programs include 1) Water-Efficient Landscape Rebates, 2) Weather-Based Irrigation Controller Rebates, 3) High-Efficiency Washer Rebates and 4) the installation of High-Efficiency Toilets and Urinals in commercial and multi-family buildings.	$500,000	Medium	Medium
159	City of Winters, CA	City of Winters Drinking Water Hexavalent Chromium (Cr6) Compliance Project	The City is under Notice of Violation with the SWRCB Division of Drinking Water to reduce Cr6 levels in four of its five wells (82% of the City's water supply) exceeding the new Cr6 Primary MCL. This is a new drinking water quality regulation approved by the State in July 2014 with enforcement beginning in August 2015 for urban water suppliers with sources in exceedance of the new Cr6 regulations. The City is requesting funds to design a cost-effective Cr6 compliance strategy for the community that meets the new Cr6 regulations within the State's compliance schedule.	$6-8 million (over 5 years)	Medium	Medium
160	City of Davis	Parks and Greenbelts Irrigation and Landscape Upgrades	The goal of the project is to increase water use efficiency and reduce overall water use in City parks and greenbelts. This will involve converting less used turf areas along greenbelts and in parks to lower water use plants to reduce irrigation needs, the conversion of irrigation in non-turf areas to drip, and the replacement of sprinkler heads and irrigation controllers to increase efficiency. The project will also include converting wells that are currently used for potable water uses to irrigation (non-potable) wells that will supply local parks and greenbelts. The project will also provide some stormwater quality benefits with less water runoff in areas that have been converted to drip irrigation.	$150,000	Medium	Medium
161	City of Davis	Leak Detection Survey	Hire a consultant to use acoustical listening technology to survey water mains and laterals within the City of Davis water distribution area to detect and locate leaks. Prioritize leaks based on severity. Purchase leak detection equipment to install within distribution system to continuously monitor for potential leaks at key areas identified through the leak detection survey.	$150,000	Medium	Medium
162	City of Davis	Drainage Channel Feasibility Study	Looking to study feasibility to enhance the five separate storm drain conveyance channels to improve evoptranspiration through design improvements. This feasibility study would provide specific ways to improve the design of the existing facilities to improve water quality for the discharges that occur from each channel. The facilities are located Citywide. The study may yield that only one channel is worthy of modification. In particular, the City would like to study the El Macero Drainage Channel in southeast Davis as it is believed to be the channel with that would benefit the most from design improvements. A map can be provided to aid in located each of these drainage channels. If project is developed an educational component can be added.	80,000 for feasibility study	High	Medium

Project No.	Lead Agency /Organization	Project Title	Planned Project/Program Types and Activities	Project Cost	Importance	Urgency
163	City of Davis	Retention Pond Feasibility Study	Looking to study feasibility for design enhancements for the seven separate storm drain retention ponds to improve evoptranspiration and water quality in the City's discharge. This feasibility study would provide specific ways to improve the design of the existing facilities to improve water quality for the discharges that occur from each facility. The facilities are located Citywide, but all of the ponds are located north of I 80 in the northern two thirds of the City. The study may yield that only one pond is worthy of modification. In particular, the City would like to study the Core Area Pond in central Davis as it believed to be the pond that receives the most pollutants from its drainage shed. A map can be provided to aid in located each of these ponds. If project is developed an educational component can be added.	100,000 for feasibility study	High	Medium
164	City of Davis	Russel Boulevard Demonstration LID Project	The project is to be located in front of City Hall (already proposed and working its way through the City's Parks and Community Services Department) along Russell Boulevard. Russel Boulevard is one of the City's prominent east-west arterials. The project is to create a vegetated swale to treat stromwater runoff on the north side of the roadway. The surface area it will treat is 8,000 square feet. It is proposed to treat drainage prior to discharge to the City's stormdrain system consistent with the standards of Section E.12 of the State's Small MS4 Phase II General Permit (Permit). A map can be provided to aid in the location of this project.	42,763 for construction	High	Medium
166	Department of State Hospital	Recycled Water Conversion projects	Napa State Hospital currently utilizes potable water supplied by the City of Napa for almost all irrigation needs (a limited area is currently served by recycled water). In 2011, NSD installed a recycled water main through NSH which included three metered turnouts. The project will connect to these turnouts, with the downstream improvements owned and operated by NSH. To convert the irrigation system, approximately 38,000 lineal feet of recycled water pipe will be installed, along with valves, and ancillary improvements to deliver water to 139 irrigation points of connection, The connections typically occur at existing irrigation back flow devices, which will be replaced. Existing improvements downstream of the back flow devices will remain in place. Signage and modifications to above ground irrigation valves in accordance with NSD requirements are also part of the project.	$6,133,900	High	Medium
167	City of Davis	Davis Greenbelts Landscape Conversions	One of the greatest assets to the Davis park system is the network of more than 60 miles of Green Belts with bike trails that connect parks and neighborhoods throughout the City. Each belt is typically between 100 to 200 feet across with an 8-foot bike path meandering through the middle. Most of the landscape consists of irrigated turf and shade trees. Large open turf areas are greatly appreciated as multi-use event areas for local neighbors, but a majority of the space is mostly utilized by the public as aesthetic while passing through on the bike path. It is these spaces that are great candidates to convert existing turf to a low water use, drought tolerant landscape with interpretive learning opportunities to show the general public ways of converting their landscapes at home.	$234,819 per acre converted	Medium	Medium
168	Davis Joint Unified School District	Harper Junior High Water Conservation Improvements	Frances Harper Junior High School presents a unique opportunity for water conservation through education and the creation of outdoor classrooms. The school serves over 600 students in grades 7 to 9. Located on East Covell Boulevard in Davis, the property is a 45-acre parcel with about 23 acres in active use. Primary improvements for water conservation are proposed to occur at the front and interior of the site. Current landscape at the front of the school includes 2.3 acres of turf that is primarily for the purpose of aesthetics. There are also interior courtyards with underutilized turf panels that total a little over one-third of an acre. Planned improvements for these areas include replacing the turf with drought tolerant plants, pollinator gardens, benches, bio swales and decomposed granite paths. Interpretive panels would be installed to inform students and visitors of the benefits of the water conservation improvements and the relative ecosystems for each environment. Interior improvements would also include capturing roof water from downspouts and directing the water to bio swales where it would be filtered before entering the storm drain system or simply percolate into the soil. Interior courtyard landscapes would also be laid out to accommodate a setting for outdoor classrooms.	$862,968 if full project implemented	Medium	Medium
169	City of Davis	Recycled Water Projects	The City is currently evaluating the feasibility of various uses of recycled water using WWTP effluent. The WWTP is being upgraded allowing the City to produce high quality recycled water meeting Title 22 Standards. This project would be to assist with funding implementation of the chosen recycled water use(s). These uses may include but are not limited to water for: habitat, Yolo County Landfill, City-owned lands south of the WWTP, agricultural users in the area, City municipal uses, and filling stations.	$4.5 million	High	Medium
170	Harbor View Mutual Water	Water Storage Tank Replacement Project	The community currently has two 50 year old redwood storage tanks that have started to leak a significant amount of water due to rot and age. One of the tanks is in the middle of the water system and can't be taken out of service for maintenance. Neither tank is seismically secured to the cement foundation under them. The company contracted Water Works Engineering to draft us a PER as to the best way to solve our water storage tank problems, it was determined that replacement of all three of our current tanks with two new bolted steel tanks would be the cheapest and easiest fix for the long term. The estimated replacement cost the entire project is 1.3 million.	$1,361,068	High	Medium
171-YS	University of California, Davis	Agricultural Stormwater Improvements	Agricultural runoff currently enters the storm drain system directly. This projects would create retention basins and vegetated ditches to collect stormwater and irrigation runoff along edges of agricultural fields.	$250,000	High	Medium

Table D-1: Westside IRWM Plan Project Screening Results (sorted by Project Number)

Project No.	Lead Agency /Organization	Project Title	Planned Project/Program Types and Activities	Project Cost	Importance	Urgency
172-YS	University of California, Davis	Arboretum Waterway Wetland Restoration and Enhancement	UC Davis is proposing to enhance the Arboretum Waterway, which captures stormwater discharge from 900 acres of the UC Davis campus, by establishing a wetland area to treat stormwater discharge and recycled water prior to discharge to Putah Creek. This project will include establishing wetlands, increasing stormwater retention, slope stabilization, enhancing a recreation area for the public, utilization of recycled water for irrigation, and creating public education opportunities.	$4 million	Medium	Medium
173-YS	City of Davis	Bike Tunnel Landscaping Redesign for Stormwater Quality Improvement	Redesign the current drainage and landscaping near greenbelt bike tunnels to prevent flooding from stormwater. Assess the top highly-trafficked tunnels with drainage issues within the greenbelt system. Improved drainage would include re-landscaping the areas surrounding these tunnels to prevent flood events and improve stormwater quality discharges through the use of different stormwater low impact design methods through infiltration, transpiration and evaporation. Each site could showcase a different method; signage near the tunnels would illustrate the project and highlight elements of the project design.	Estimate of $40,000 for site survey and initial project design	High	Medium
174-YS	City of Davis	Feasibility Study for Stormwater Trash Control Measures	Feasibility study to assess options for stormwater trash control measures. This study will assess the best method(s) to help the City meet mandatory requirements for trash screening to prevent trash from entering waterways. One particular area of concern is Channel A. An option for this area is to install trash racks/debris cages in the Wildhorse Basin to address issues with trash flowing from the area directly into Channel A. There is currently no barrier between the stormwater from the basin and the channel. This study would provide an assessment of potential options to comply with the trash amendment requirements of the Small MS4 permit.	150,000 for feasibility study	High	Medium
175-YS	Yolo County Flood Control and Water Conservation District	Flood Monitoring Network Project	Project installs flow monitoring stations at canals and sloughs in order to optimize conveyance capacity for both agricultural operations or during rain events, which could occur at the same time. It is not known how much flow sloughs contribute to the canal systems during rain events.	$0	High	Medium
176-YS	Yolo County Flood Control and Water Conservation District	Forbes Ranch Regulating Pond	Develop and construct a 200 acre-feet regulating pond to reduce drainage and flood waters through the town of Madison and District canal system. Divert stormwater flows to the pond through the existing conveyance. The regulating pond would provide storm water retention during the winter and would allow for groundwater recharge in the spring and summer when capacity and water is available. The regulating pond would provide water quality benefits by allowing the sediments in the runoff to settle and lessening the transfer of pollutants and chemicals downstream. The surrounding area would have native vegetation that would promote benefits for wildlife habitat, and the property would allow for groups to visit and learn about the multi-functional project. Similar to the District's Chapman Reservoir, we would install automated gates and monitoring devices at the regulating pond that would be connected to the District's SCADA system for real-time management.	$700,000	High	Medium
177-YS	Yolo County	Knights Landing Storm Drain Project	Design and construct a new storm drain or culvert in the vicinity of 4th and Railroad streets in the community of Knights Landing. KL has historically experience standing water (localized flooding) in the northern portions of town that can be as deep as 2 feet in wet years. The new storm drainage would convey storm water to the County's existing drainage system on the east side of Railroad Street. Design and construction are proposed to be completed by Public Works.	$100,000	High	Medium
178-YS	Yolo County/	Knights Landing Underground Drainage Study	This project would model new underground drainage facilities for the entire Town of Knights Landing to determine location(s) for outfall to the Sacramento River or Ridge Cut Slough. Preliminarily it is estimated that the underground drainage facilities would be sized for 30-50 cfs of storm flows and the system outfall would need to be sized accordingly to prevent backup of the system. Outfall locations would also need to be evaluated to determine if the downstream capacity would be sufficient to convey this additional flow during storm events. LID strategies will be used to ensure discharge water quality does not impact the Sacramento River or Ridge Cut Slough water quality.	$100,000	High	Medium
179-YS	Yolo County FCWCD with Madison CSD	Madison Drainage Study	This project would model new underground drainage facilities for the entire Town of Madison to determine location(s) for outfall (possibly Cache Creek, the South Fork Willow Slough or Cottonwood Slough). Preliminarily it is estimated that the underground drainage facilities would be sized for 110 cfs of storm flows and the system outfall would need to be sized accordingly to prevent backup of the system. Outfall locations would also need to be evaluated to determine if the downstream capacity would be sufficient to convey this additional flow during storm events. LID strategies will be used to ensure discharge water quality does not negatively impact downstream water quality.	$100,000	High	Medium
180-YS	City of Woodland	North Regional Pond and Pump Station	The project involves the design and construction of an approximate 75 acre sedimentation pond and a pump station able to eventually accomodate a 120-cfs design flow.Project re-purposes an existing City evaporation pond that is no longer in use for any purpose. Currently the pond only receives nearby runoff.This project will add the NR Pond hydraulically into the City's storm drainage network and include:* Low flow training wall and inlet pipes from the Gibson Channel to the NR Pond* High flow weir from South Canal to the NR Pond* Outlet pipes from NR Pond to the South Canal* Pump station at the downstream terminus of the South Canal* Force main and outfall from the pump station to the outfall channel	$8,000,000	High	Medium

Project No.	Lead Agency /Organization	Project Title	Planned Project/Program Types and Activities	Project Cost	Importance	Urgency
181-YS	Yolo County	Raise Highway 16 Out of Flood plain	This project was initially proposed by Caltrans as flooding of Highway 16 is a chronic problem. The project was not constructed because of concerns of some farmers about grades at farm road crossings. Raising Highway 16 creates a barrier that could be used to store storm water north of the highway in detention basins/recharge ponds. Increasing the capacity of Willow Slough south of Highway 16 west of Madison is needed so that flows can be conveyed to the detention basins. Willow Slough is the source of the majority of flooding in Madison. Cottonwood Slough contributes to occasional flooding (last time was 1996) in Madison. This project could be coordinated with the Madison Canals project as other upstream diversions could benefit this project and/or the planned detention basins could be coordinated.	To be determined	High	Medium
182-YS	City of Davis	Site Survey for Converting Rocky Swales to Bioswales	In public greenbelts and parks, convert existing rocky drainage swales into bioswales to provide environmental benefits. Convert drainage in areas that currently use rocky swales, such as in Mace Ranch Park and the housing development behind Montgomery Elementary in South Davis, to bioswales. Converting the existing rocky swales to vegetative bioswales will encourage microhabitats, beneficial insects, infiltration, transpiration, and evaporation to better showcase stormwater retention techniques. Other possible sites include Evergreen Pond and North Star Park.	Estimate of $40,000 for site survey and initial project design	Medium	Medium
183-YS	City of Davis	Site Survey for Hardscape Conversion to Pervious Pavement	Survey public parking lots that currently have impervious surfacing to assess the practicality of converting these locations to pervious pavement when they are in need of resurfacing, maintenance or redesign. Portions of the pathways near the sites could potentially highlight permeable pavers in addition to the parking lots. Projects could be planned with improvements to incorporate bioswales, low water use plants, and other low-impact design measures into any landscape changes at the site. The projects would include signage on stormwater techniques implemented and information about water quality.	Estimate of $40,000 for site survey and initial project design	High	Medium
184-YS	Yolo County FCWCD with Madison CSD	Upstream Flow Management to Prevent Madison Flooding and to Facilitate GW Recharge	The District proposes to manage high flows from Lamb Valley, Cottonwood and S. Fork Willow Sloughs using the existing canal system as well as other means such as upstream check dams. During storm events Willow Slough floods the Town of Madison. The Canal system can be used to convey water away from the Town of Madison and reduce flood levels while also managing peak flows through use of check dams, particularly in Lamb Valley Slough. Flow and water level monitoring could serve several purposes. GW recharge can be accomplished through canal bottoms and potential recharge/detention basins. P. 29 and 30 of the 2012 FIS describe some of the upstream channel capacity limitations and a review of FIRM maps shows several points of intersection between the sloughs and canals to be explored. This project can be coordinated with Raising Highway 16 project.	To be determined	High	Medium
185-YS	Yolo County Flood Control and Water Conservation District	West Adams Canal Renovation and China Slough Rehabilitation Project	Enlargement and improvement of the Yolo County Flood Control & Water Conservation District's (District) West Adams, East Adams, and Acacia Canal system, and rehabilitation and improvement of China Slough (a natural storm drainage channel). The District's canal system would need to be modernized to allow for a "demand" system and to ensure no spills. China Slough would need to be cleaned, an operating road constructed, and installation of about eight check structures. Improvements to the canals and slough would be implemented to convey 10,000 acre-feet of surface water per year through China Slough to farmers in the Yolo-Zamora region (~4,200 acres).	2017$ (15,671,929)	High	Medium
186-YS	City of Davis	West Area Pond Redesign	Redesign the West Area Pond (detention basin) to utilize agricultural summer flows to enhance aquatic wildlife habitat and improve water quality. This proposal involves redirecting existing agricultural runoff through the Stonegate drainage pond and pumping it into the West Area Pond. This would enhance aquatic habitat while improving any water discharges through retention, enhancing opportunities for infiltration, transpiration and evaporation.	100,000 for feasibility study	Medium	Medium
187-YS	Solano County Water Agency	Winters Bioswales Project and Habitat Enhancement	Stormwater from the town of Winters drains residential areas, business districts, and undeveloped lands into a culvert system that delivers contaminated runoff to Putah Creek and one of its major tributaries, Dry Creek. Eighteen discharge points exist, eight of which are connected directly to Putah Creek, the remaining to Dry Creek. Three main culvert delivery sites occur within the Winters Putah Creek Nature Park (WPCNP), draining approximately 200 acres of impervious lands. The stormwater network drains streets, parking lots, businesses and suburban lots, over-irrigated landscapes and disturbed lands, carrying sediment, petroleum products, fertilizers, pesticides, and bacteria into Putah Creek. We have assembled numerous stakeholders to begin addressing this water quality issue and are developing seasonal wetland (bioswale) water treatment projects within the WPCNP that will improve water quality, enhance floodplain function, restore wildlife habitat, and provide educational opportunities for the Winters community. By redirecting this stormwater runoff onto newly constructed floodplains of Putah Creek, water quality contaminants can be decreased through the breakdown action of sunlight, soil, plant roots and microorganisms. Moreover, the redirected water can assist in rehydrating portions of the floodplain during periods of drought and enhance riparian plant growth for the benefit of corridor wildlife. Each culvert outlet, along with the receiving floodplain landscape requires novel designs to redirect, capture, and infiltrate stormwater, all involving site-specific earthworks, specialized soil treatments, appropriate vegetation, monitoring, and post-installation management. We are conducting feasibility analyses and developing designs for the three major culvert networks within the park. We anticipate moving forward with implementation of our first site in Summer, 2018. Along with stormwater treatment and creekside improvements, we intend to develop a community outreach component that will educate people on “Upper Watershed” creek care within the suburban areas that comprise the stormwater drainage networks.	$195,328	Medium	Medium

Table D-1: Westside IRWM Plan Project Screening Results (sorted by Project Number)

Project No.	Lead Agency /Organization	Project Title	Planned Project/Program Types and Activities	Project Cost	Importance	Urgency
188-YS	Yolo County Flood Control and Water Conservation District	Winters North Area Stormwater Pond	Develop and construct a 5,000 acre-feet stormwater retention pond in the north area of Winters to reduce drainage and flood waters from the Chickahominy Slough. The retention pond would also be used for groundwater recharge in times when the capacity and water was available. The retention pond would provide water quality benefits by allowing the sediments in the runoff to settle and lessening the transfer of pollutants and chemicals downstream. The surrounding area would have native vegetation that would promote benefits for wildlife habitat, and the property would allow for groups to visit and learn about the multi-beneficial, multi-agency partnership. Similar to the District's Chapman Reservoir, we would install automated gates and monitoring devices at the retention pond that would be connected to the District's SCADA system for real-time management.	$0	High	Medium
189-YS	Yolo County Flood Control and Water Conservation District	Yolo County Drains and Sloughs -- Governance and Maintenance Study	Plan that will identify governing bodies and maintenance responsibilities involved in the County's drains, canals, and sloughs. The District and County will work together to develop a governance and maintenance study that will assist in providing effective rural storm water management responsibilities based on the defined governing bodies. Plan/investigation will initiate a legitimate storm water management program in Yolo County.	$150,000	High	Medium
190-YS	Madison CSD	Madison Farmer Field Stormwater Capture and Groundwater Recharge	Modify farmer fields around Madison, specifically those next to Highway 16 and those that will capture upstream flows. The two options considered include 1) 1,200 acres of farmer field modification for rainfall capture (8"-berm) and 2) modification of a farmer field near Cache Creek (maybe half of APN 049-060-017) for rainfall and storm water runoff capture a 3-' high storm water detention basin. This project will require farmer participation and advanced planning for field modification, and will depend on the storm intensity. The first option will only capture rainfall and the second option will capture rainfall and allow runoff to be collected into the detention basin. The second option will require more modification to the property, additional infrastructure for channeling runoff into the basin, and a pump if the water needs to be drained from the basin.	$100,000 - $400,000	High	Medium
191-YS	Madison CSD	Western Yolo Sloughs Citizen Science Program	Sloughs surrounding the Madison area are known to cause regular flooding in Madison and beyond. Namely, Cottonwood Slough, Lamb Valley Slough, the South Fork Willow Slough and the Madison Drain have been identified as sources of flooding in Madison in various studies and reports. It seems likely that mitigation upstream in these sloughs to remove water before the sloughs reach Madison and Esparto, and management of the sloughs to keep them free of debris could help in alleviating flooding in the area. However, none of these channels are monitored, therefore, it is unknown what capacity these sloughs have, when that capacity is reached (during or after a storm), or what type of mitigation would be most fitting for each slough. Additionally, it is not known if the Winters Canal is also full when sloughs are full, or if it may have capacity that could be used to alleviate the sloughs when they are over flowing. The Madison CSD with its partners will develop a citizen science program where Madison residents and residents from the nearby areas will visit sloughs and canals that carry water in and around Madison following rain events. The program members will record whether they see water flowing in the sloughs and canals at previously determined locations, and record observations such as whether the channels are successfully carrying the flows, appear to be obstructed, or are overflowing. The information will be compiled in an easy to use format so that members can easily share the information with Madison CSD and others. The information will initially be used until a flow monitoring network can be developed in the sloughs, and potentially beyond. The goal is to gain a better understanding of the slough flow patterns and information that can be used to plan for flood mitigation in Madison, while also engaging and educating the community.	$0	High	Medium
192	Solano Resource Conservation District	Barker Slough Water Quality and Habitat Restoration Project	Barker Slough is part of the North Bay Aqueduct (NBA), providing drinking water for up to 500,000 people in urban areas of Napa and Solano Counties. It is also a major tributary to Lindsey Slough, part of the Cache Slough complex of the Sacramento-San Joaquin River Delta. Nearly all of its length is ranched, and in many areas, cattle have free access to the slough. The water coming from the slough has been shown to have high amounts of organic carbon, bacterial coliform, turbidity and salts that exceed drinking water standards. Past projects have attempted to fence cattle off the slough and allow water quality to improve, but these have not been well maintained and cattle continue to degrade water quality. This project would install/repair fencing and off-stream cattle troughs at multiple project sites along Barker Slough, and install native riparian vegetation in this currently denuded watershed. A total of 5 stream miles will be fenced off from cattle and 5 acres of riparian habitat will be restored. In addition, a Barker Slough Watershed Management Plan will be created to bring ranchers, landowners, and urban water users together to identify priority projects that will improve and maintain water quality.	$300,000	High	Medium

Table D-1: Westside IRWM Plan Project Screening Results (sorted by Project Number)

Project No.	Lead Agency /Organization	Project Title	Planned Project/Program Types and Activities	Project Cost	Importance	Urgency
193	City of Woodland	Well 31 ASR Project	The project involves the design and construction of a new municipal aquifer storage and recovery (ASR) well #31 near the site of the existing Well #6. The new ASR well will facilitate groundwater recharge by injecting treated surface water into the gravel layer approximately 500 feet below the surface when surplus Sacramento River water is available during winter months. The ASR well water would be pumped from the ASR well to supplement surface water during drought conditions and to meet peak summer demands. ASR also has long-term water quality benefits because injected water replaces native groundwater impaired by nitrate and naturally occurring metallic species, including arsenic, hexavalent chromium, manganese, and selenium, with better-quality water.The intent is to inject water into the ASR well each winter and build a large reservoir of treated surface water beneath the well and utilize the water primarily during drought years. The project removes a high capacity groundwater extraction well from the regional aquifer and replaces it with a well that will promote groundwater recharge and sustainability while improving Woodland's water supply reliability during a drought. The ASR program greatly reduces the need for Woodland to utilize native groundwater in the City's water system. The City recently completed construction of three ASR Wells. The testing completed to date has been a success and indicates that ASR technology is successful in Woodland. The extracted water retains the constituent characteristics of treated surface water. The new ASR well would include the ability to inject treated surface water at a rate of approximately 2,000 gpm and extract water at a rate of approximately 3,500 gpm. The new ASR well is considered a Categorical Exemption under CEQA as it is a replacement of an existing water supply facility. The EIR for the ASR program has been completed and all necessary permits have been secured. The existing well will be properly destroyed.	$6,250,000	High	Medium
194	City of Woodland	Outfall Channel Culvert Replacement Project	City has a single stormwater discharge location. The outfall is limited by three (3) existing 36" diameter culvert pipes that penetrate a levee road. The existing culverts are limited in that: (a) they are in poor condition and their flap gates have fallen off and (b) within the next few years, based on development, they will be insufficient to handle the amount of City stormwater flows. Plan to the replace the three (3) existing 36" diameter culverts with five (5) 72" diameter ones to accommodate for full City build-out (2035)	$2.5 million	High	Medium
195	City of Woodland	Woodland Recycled Water Utility Expansion Project (Phase II)	The City of Woodland currently has tertiary treated Title 22 effluent from the City's Water Pollution Control Facility (WPCF) providing a firm capacity of approximately 2,700 gpm for recycled water. Woodland has an existing recycled water utility serving 2 City parks and a large industrial user in the industrial area northwest of the Water Pollution Control Facility (WPCF). The City has planned for an expansion of the recycled water utility into the Spring Lake Area of the City and also to serve the planned Woodland Research & Technology Park. There are several existing large water users that would use the recycled water for irrigation of parks and roadside landscaping. Businesses in the Research Park would utilize recycled water for cooling buildings. In addition, recycled water would be available to extend into new development areas for landscape irrigation. Portions of recycled water pipelines in Spring Lake have already been constructed by development projects. Providing recycled water to these areas would reduce demands on the potable water distribution system and reduce the demand on the groundwater aquifer. The recycled water pipeline would be constructed in the City's existing right of way. The City has recently completed a Mitigated Negative Declaration for the project. The expected initial demand for recycled water would exceed 110 acre feet per year. The Capital Cost for the Project is approximately $2.5M.The recycled water project includes construction of approximately 10,000 feet of 8" diameter purple pipe and a 100,000 gallon storage tank. The project also provides recycled water for expansion (Phase III) to west of Highway 113.	$2,500,000	High	Medium
196	City of Woodland	Woodland Recycled Water Utility Expansion Project (Phase III)	The City of Woodland currently has tertiary treated Title 22 effluent from the City's Water Pollution Control Facility (WPCF) providing a firm capacity of approximately 2,700 gpm for recycled water. Woodland has an existing recycled water utility serving 2 City parks and a large industrial user in the industrial area northwest of the Water Pollution Control Facility (WPCF). The City has planned for an expansion of the recycled water utility into the Sports Park Area of the City and also to serve the planned SP1B and SP1C areas in the City's General Plan. There are several existing large water users that would use the recycled water for irrigation of parks and roadside landscaping. In addition, recycled water would be available to extend into new development areas for landscape irrigation. Providing recycled water to these areas would reduce demands on the potable water distribution system and reduce the demand on the groundwater aquifer. The recycled water pipeline would be constructed in the City's existing right of way. The City has recently completed a Mitigated Negative Declaration for the project. The expected initial demand for recycled water would exceed 70 acre feet per year. The Capital Cost for the Project is approximately $925,000.The recycled water project includes construction of approximately 4,300 feet of 8" diameter purple pipe.	$925,000	High	Medium

Table D-1: Westside IRWM Plan Project Screening Results (sorted by Project Number)

Project No.	Lead Agency /Organization	Project Title	Planned Project/Program Types and Activities	Project Cost	Importance	Urgency
197	Solano Resource Conservation District	Cronin Ranch Habitat Corridor Project	This project aims to create habitat connectivity by planting native perennial grasses, trees and shrubs along more than 4 miles of irrigation and drainage canals that interlace the 2,200 acre Cronin Ranch. This project would connect other habitat restoration projects previously established by Solano RCD, and create over 35 acres of new riparian corridors in a landscape dominated by little more than irrigated pasture and hay fields. New fencing would be installed to exclude cattle from waterways, thereby reducing sediment loads and fecal contamination in waters that drain to the Lower Sacramento River. Native perennial grasses will filter out nutrients and sediment from irrigated pasture tailwater and reduce erosion and bank sloughing along waterways. The deep root systems of native grasses, shrubs and trees increase water infiltration and storage, while also sequestering carbon deep into the soil profile.	$592,000	Medium	Medium
198	Solano Resource Conservation District	Ulatis Creek Riparian Floodplain Restoration Project	This proposed habitat restoration project would be a partnership between the landowner, SRCD and agency partners to control non-native weeds and restore 35 acres of unique riparian floodplain habitat to perennial grasses, forbs, trees and shrubs. The project will plant native species of plants that are well adapted to the local hydrology and soil conditions on 35 acres of Delta riparian floodplain. The project will result in the increase in diversity and richness of native species vegetation that would improve the habitat and attract a myriad of local wildlife throughout the year. This project is designed in such a way that the primary function of the channel as a flood control feature is not compromised. Water quality will be improved by maintaining perennial ground cover that will serve as erosion control and as a filter. Occasional grazing by livestock will be an important management tool for maintaining the site long term to reduce excessive thatch build-up and to manage the acceptable level of woody vegetation by the local managing flood control agencies. This project will remain part of the working agricultural landscape, managed long term by Emigh Livestock (landowner) following the operating and maintenance easement guidelines of the channel area by the Solano County Water Agency.	$350,000	Medium	Medium
199	Solano Resource Conservation District	Solano County K-12 Watershed Education in the Sacramento River Watershed	Enhance and expand existing watershed education programming for K-12 students to support personal stewardship behavior and understanding of Sacramento River conservation and restoration goals. This program encompasses two place-based field trip programs: the Watershed Explorers program for third graders and the Solano County Biomonitoring program for high school students, as well as the multi-grade Solano Water Education Program that provides Project WET training and resources to teachers along with targeted water resource lessons, field trip opportunities and classroom supplies. Programming provides education about water conservation, proper used oil disposal, water quality assessment and protection, the Reduce-Reuse-Recycle ethic, native species protection, and the fun and health values of being outdoors in the watershed. By learning about watershed ecology, phenology, biomonitoring, resource conservation, and restoration work, participants understand the important relationship between science and the necessary environmental stewardship of the Sacramento River watershed. We work with Solano County, its cities, county and regional resource agencies, and local businesses to provide context and connection to ongoing local, regional and state environmental stewardship challenges. We formally assess student learning, and use the information we gain to refine and improve our programs.	$10,000	Medium	Low
200	Solano Resource Conservation District	Centennial Park Pine Creek and Wetlands Habitat Restoration Project	This project will cleanup and restore wildlife habitat, while attenuating high flood events and filtering excessive eroded sediments at a 26 acre riparian creek and wetland complex located at the southern end of Centennial Park in Vacaville. Project activities include:-Removing all trash and concrete debris from 26 acres-Re-shaping and contouring the wetland area to promote plant diversity, natural wetland function, and diversity of wildlife habitat- Controlling invasive noxious weeds (including arundo, stinkwort and perennial pepperweed) on 26 acres- Planting 1,000 native trees/shrubs and seeding 10 acres of native grass and wildflowers along Pine Creek and its associated upland terraces, creating 2,000 feet of native riparian corridor.- Planting 500 native trees/shrubs and 20,000 native rush and sedge plugs in the wetland basin, creating 16 acres of native wetland marsh habitat.- Installing a 1,500 foot long asphalt walking trail and three interpretive panels along the north side of Pine Creek so that park visitors can experience and learn about riparian and wetland ecology	$600,000	Medium	Medium
201	City of Davis	Davis Wetlands Public Access Improvements	Install user amenities at the Davis Wetlands to enhance educational and passive recreational access. Primary improvements include installation of a permanent vault toilet, observation tower with interpretive panels, and shaded picnic facility.	$150,000	Medium	Low
202	City of Davis	Davis Manor Neighborhood Green Street Project	The Davis Manor Neighborhood Green Street Project proposes to retrofit the neighborhood with the following greening treatments: -Plant 90 new trees to sequester carbon and reduce energy consumption -Build 40 rain garden planters to serve as new wildlife habitat and capture stormwater-Convert 9,480 sq. ft. of impermeable surfaces into walkable green space to enhance the pedestrian experience -Transform 5,000 sq. ft. area of the neighborhood into the "Green Heart" toserve as a hub for resident gatherings -Replace 3,000 sq. ft. section of street parking area with a permeable surface strip -Replace 400 sq. ft. area of streetscape with new drought-tolerant landscaping -Install 15 curb ramps and widening sidewalks to improve accessibility -Renovate a dilapidated pocket park to increase community usage -Install interpretative signage to teach visitors and encourage replication	$1,526,450	Medium	Low

Table D-1: Westside IRWM Plan Project Screening Results (sorted by Project Number)

Project No.	Lead Agency /Organization	Project Title	Planned Project/Program Types and Activities	Project Cost	Importance	Urgency
203	City of Davis	Recycled Water Pump Station	With the completion of secondary and tertiary improvements, the City's Wastewater Treatment Plant is now capable of producing tertiary disinfected effluent that meets the requirements of Title 22 of the California Code of Regulations for recycled water. However, a final component of these upgrades is a means of delivering the recycled water produced at the WWTP to potential future customers. New infrastructure is necessary to convey recycled water from the WWTP to potential future customers or to send recycled water to locations within the WWTP property boundary for storage or disposal. This infrastructure, referred to as the “Phase 1 Recycled Water Facilities”, will include a new Recycled Water Pump Station and associated piping specifically for conveyance of recycled water to onsite storage ponds and the WWTP's overland flow (OLF) site. To allow for greater operational flexibility, the Recycled Water Pump Station will be designed for a target minimum flowrate of 2,500 gpm with one pump in operation. At this higher flowrate, the City will be able to operate the Recycled Water Pump Station for less than 24 hours per day and still meet the peak day diversion targets. The pump will also be equipped with a variable frequency drive (VFD), which further increases operational flexibility. The pump station will be sized to accommodate a second pump in the future. The Recycled Water Pump Station will draw disinfected tertiary recycled water from the effluent channel of the recently-constructed chlorine contact tank (CCT) and has been designed to deliver water to any of the following locations for disposal or beneficial reuse: · Zones 5 - 15 of the OLF · Recycled Water Pond 1 (formerly Aerated Pond 1) · The Return Channel that provides conveyance to the WWTP's former Oxidation Ponds · A future off-site recycled water storage tank located on the City's Howatt Ranch property	$1,025,800	High	Medium
204	City of Davis	Sewer Lateral Replacement	The project would replace aging sewer laterals with corrosion and other issues to protect water quality and reduce the potential for accidental sanitary sewer discharges into the stormwater conveyance system. The project would occur City wide over 3 to 4 years.	$1,000,000	Medium	Medium

Table D-2: Westside IRWM Plan Project Screening Results (sorted by Project Type)

Project No.	Lead Agency /Organization	Project Title	Planned Project/Program Types and Activities	Total Criteria Score	Readiness	Potentially Critical DAC Project	Project Type	Importance	Urgency	Primary Objective
71	Mendocino National Forest	Hazardous Fuels Reduction in the Upper Lake Watershed	Management of 28,600 acres within the Upper Lake watershed, including hazardous fuels reduction on areas to be determined during the planning stage.	11	3	Yes	Conceptual	Medium	Medium	15
99	Reclamation District No. 2068	Agricultural Tail Water Reuse Program	This program proposes to develop an ag water recapture and reuse facility at strategic locations within the agency.	7	1	No	Conceptual	Medium	Medium	12
102	Reclamation District No. 2068	SCADA Implementation	Install/coordinate local and regional SCADA system to monitor water diversions, pumping plant operations, flood water elevations, groundwater elevations, water distribution within the agency jurisdiction.	11	2	No	Conceptual	High	Medium	18
106	Solano Resource Conservation District	Waterway Management for Improved Water Quality and Wildlife Habitat	Solano Resource Conservation District will work with partners and landowners to demonstrate integrated waterway and levee management.	8	4	No	Conceptual	Medium	Low	2
1	West Sacramento Area Flood Control Agency	Bees Lakes Preserve	Conserve and develop limited, low-impact pedestrian-only recreational access to a 23-acre open space area containing sensitive aquatic, riparian, emergent and upland habitats which are associated with the Sacramento River.	10	3	No	Feasibility Study	Medium	Low	13
2	Lower Putah Creek Coord. Committee	505-East Channel Restoration	Restore 10 acres of riparian forest, 3/4 mile of river channel, remove 22 occurrences (2 net acres) of 6 primary invasive weeds; reconfigure one thousand feet of river channel, restore 100 feet of eroding stream bank, create 3/4 mile of south bank bench trail connecting Yolo Housing to the City of Winters at low flows.	14	7	No	Feasibility Study	Medium	Medium	3
4	Lower Putah Creek Coord. Committee	Dry Creek Wildlife Migration Corridor Feasibility Study	Feasibility study to restore 2 miles of wildlife corridor from the confluence of Putah Creek along Dry Creek on the western boundary of Winters	11	4	No	Feasibility Study	Medium	Medium	3
5	Lower Putah Creek Coord. Committee	Duncan-Giovannoni Channel Restoration Feasibility Study	Determine feasibility to restore 80 acres of riparian forest, reconfigure one mile of river channel, remove 96 occurrences (7 net acres) of 5 primary invasive weeds. Convert five acres of excess open water (gravel pit captured by the channel) to floodplain, restore natural meander form, pool-riffle sequence, functional floodplain elevations, salmon spawning habitat and native vegetation.	11	4	No	Feasibility Study	Medium	Medium	3
6	Lower Putah Creek Coord. Committee	Glide Ranch Channel Restoration Feasibility Study	Feasibility study to restore 160 acres of riparian forest, reconfigure 11,250 feet of river channel, remove 128 occurrences (8 net acres) of 8 primary invasive weeds. Grade floodplain to functional elevation, convert 15 acres of excess open water to floodplain, restore natural meander form, pool-riffle sequence, salmon spawning habitat and native vegetation.	11	4	No	Feasibility Study	Medium	Medium	3
8	Lower Putah Creek Coord. Committee	Lower McNamara Pool Channel Reconfiguration Feasibility Study	Determine feasibility to: restore 25 acres of riparian forest, reconfigure 3,150 feet of river channel, remove 25 occurrences (0.5 net acres) of 6 primary invasive weeds. Convert seven acres of excess open water (gravel pit captured by the channel) to floodplain, restore natural meander form, pool-riffle sequence, functional floodplain elevations, salmon spawning habitat and native vegetation.	11	4	No	Feasibility Study	Medium	Medium	3
9	Lower Putah Creek Coord. Committee	MacQuiddy Channel Reconfiguration Feasibility Study	Determine feasibility to: restore 34 acres of riparian forest, reconfigure 3,800 feet of river channel, remove 44 occurrences (6 net acres) of 5 primary invasive weeds. Grade floodplain to functional elevation, restore natural meander form, pool-riffle sequence, salmon spawning habitat and native vegetation.	11	4	No	Feasibility Study	Medium	Medium	3
10	Lower Putah Creek Coord. Committee	Mace to Road 106A Channel Restoration Feasibility Study	Feasibility study to restore 305 acres of riparian forest, reconfigure 2.7 miles of river channel, remove 124 occurrences (12.8 net acres) of 5 primary invasive weeds. Grade floodplain to functional elevation, convert 17 acres of excess open water to floodplain, restore natural meander form, pool-riffle sequence, salmon spawning habitat and native vegetation.	11	4	No	Feasibility Study	Medium	Medium	3
11	Lower Putah Creek Coord. Committee	Nishikawa Channel Restoration Feasibility Study	Feasibility study to restore 37 acres of riparian forest, reconfigure 2,430 feet of river channel, remove 20 occurrences (1.36 net acres) of 6 primary invasive weeds. Grade floodplain to functional elevation, convert 3 acres of excess open water to floodplain, restore natural meander form, pool-riffle sequence, salmon spawning habitat and native vegetation.	11	4	No	Feasibility Study	Medium	Medium	3
12	Lower Putah Creek Coord. Committee	Old Davis Road to Mace Channel Restoration Feasibility Study	Feasibility study to restore 190 acres of riparian forest, reconfigure 3.4 miles of river channel, remove 172 occurrences (5 net acres) of 9 primary invasive weeds. Grade floodplain to functional elevation, convert 27 acres of excess open water to floodplain, restore natural meander form, pool-riffle sequence, salmon spawning habitat and native vegetation.	11	4	No	Feasibility Study	Medium	Medium	3
13	Lower Putah Creek Coord. Committee	Olmo-Hammond-UCD Channel Restoration Feasibility Study	Feasibility study to restore 109 acres of riparian forest, reconfigure 9,765 feet of river channel, remove 70 occurrences (2.5 net acres) of 9 primary invasive weeds. Grade floodplain to functional elevation, convert 17 acres of excess open water to floodplain, restore natural meander form, pool-riffle sequence, salmon spawning habitat and native vegetation.	11	4	No	Feasibility Study	Medium	Medium	3
16	Lower Putah Creek Coord. Committee	Restoria Channel Restoration Feasibility Study	Feasibility study to restore 93 acres of riparian forest, reconfigure 4,300 feet of river channel, remove 46 occurrences (3.2 net acres) of 6 primary invasive weeds. Grade floodplain to functional elevation, convert 2 acres of excess open water to floodplain, restore natural meander form, pool-riffle sequence, salmon spawning habitat and native vegetation.	11	4	No	Feasibility Study	Medium	Medium	3
17	Lower Putah Creek Coord. Committee	Road 106A to Yolo Bypass Channel Restoration Feasibility Study	Feasibility study to restore 52 acres of riparian forest, reconfigure 6,000 feet of river channel, remove 42 occurrences (8 net acres) of 6 primary invasive weeds. Grade floodplain to functional elevation, convert 11 acres of excess open water to floodplain, restore natural meander form, pool-riffle sequence, salmon spawning habitat and native vegetation.	11	4	No	Feasibility Study	Medium	Medium	3
18	Lower Putah Creek Coord. Committee	Russell Ranch Channel Restoration Feasibility Study	Determine feasibility to: restore 50 acres of riparian forest, reconfigure 5,500 feet of river channel, remove 91 occurrences (2.75 net acres) of 8 primary invasive weeds. Grade floodplain to functional elevation, convert 7 acres of excess open water to floodplain, restore natural meander form, pool-riffle sequence, salmon spawning habitat and native vegetation.	11	4	No	Feasibility Study	Medium	Medium	3
19	Lower Putah Creek Coord. Committee	Stevenson Bridge Channel Restoration Feasibility Study	Feasibility study to restore 22 acres of riparian forest, reconfigure 2,100 feet of river channel, remove 29 occurrences (0.5 net acres) of 6 primary invasive weeds. Grade floodplain to functional elevation, convert 1.5 acres of excess open water to floodplain, restore natural meander form, pool-riffle sequence, salmon spawning habitat and native vegetation.	11	4	No	Feasibility Study	Medium	Medium	3
21	Lower Putah Creek Coord. Committee	Upper McNamara Pool Channel Reconfiguration Feasibility Study	Determine feasibility to restore 30 acres of riparian forest, reconfigure 3,300 feet of river channel, remove 52 occurrences (4 net acres) of 7 primary invasive weeds. Convert five acres of excess open water (gravel pit captured by the channel) to floodplain, restore natural meander form, pool-riffle sequence, functional floodplain elevations, salmon spawning habitat and native vegetation.	11	4	No	Feasibility Study	Medium	Medium	3
45	City of Woodland / floodSAFE Yolo Pilot Program	Lower Cache Creek Flood Risk Reduction Project	The primary purpose for the Project is to reduce the risk of flooding to the City of Woodland and adjacent land including the rural Town of Yolo and Interstate 5. The Project is in the initial phases of a feasibility study for which the City has executed a Federal cost share agreement with the USACE and CVFPB and a non-federal cost share agreement with the CVFPB.	8	3	No	Feasibility Study	High	Medium	14
67	Lake County Water Resources Department	Cache Creek Flow Enhancement Project	This project will evaluate the removal and maintenance of the gravel bar at the Grigsby Riffle to reduce flow restrictions in the Cache Creek Outlet Channel.	11	3	Yes	Feasibility Study	High	Medium	23

Table D-2: Westside IRWM Plan Project Screening Results (sorted by Project Type)

WESTSIDE SAC IRWM
Integrated Regional Water Management Plan

Project No.	Lead Agency /Organization	Project Title	Planned Project/Program Types and Activities	Total Criteria Score	Readiness	Potentially Critical DAC Project	Project Type	Importance	Urgency	Primary Objective
68	Lake County Water Resources Department	Assess stream channel hydrology and related riparian and aquatic habitats for restoration	This project will survey stream channels, especially in the level valleys in the lower elevations of the Upper Cache and Upper Putah Creek watersheds, and subsequent prioritization based on erosion hazard, potential for significant habitat improvement, and other factors.	13	3	Yes	Feasibility Study	Medium	Medium	3
80	Tuleyome	Cache Creek Anadramous Fish Reintroduction Project	Conduct studies to look at the physical constraints such as temperature, flow regimes, and spawning opportunities, climate change impacts for the reintroduction of anadromous fish to Cache Creek, institutional issues including safe harbor for the YCFCWCD and stakeholder outreach.	7	1	Yes	Feasibility Study	High	Medium	6
136	Reclamation District 2035	Levee Repairs/Maintenance- Segments 150, 173 and 297	Complete geological analysis, engineering design required to identify and correct levee deficiencies and hazard mitigation recommendations contained in the URS levee evaluation report (2010) completed at the direction of the Department of Water Resources and additional geologic investigation analysis (to be completed) recommendations.	10	3	No	Feasibility Study	High	Medium	14
139	Reclamation District 2035	Floodway Corridor Project	The project consists of three major phases/components: 1) acquisition of Conservation/Flowage Easements - Approx. 7,000 acres.2) New Sacramento River By Pass - A new bypass facility will be constructed to divert flows from the Sac River to the Yolo Bypass. During large storm evens flood flows would be diverted (Sac River) over a new weir to a new bypass channel that would deliver flows to the Yolo Bypass.3) Diverting additional flood flows in to the Yolo Bypass would increase flow and stages in the bypass downstream from the new bypass. To mitigate for potential flow increases, a portion of Conaway Ranch (outside of the Bypass), would be used to convey and store (transitory storage of over 66K acre feet) of flood water during large storm events.	9	2	No	Feasibility Study	High	Medium	14
162	City of Davis	Drainage Channel Feasibility Study	Looking to study feasibility to enhance the five separate storm drain conveyance channels to improve evoptranspiration through design improvements. This feasibility study would provide specific ways to improve the design of the existing facilities to improve water quality for the discharges that occur from each channel. The facilities are located Citywide. The study may yield that only one channel is worthy of modification. In particular, the City would like to study the El Macero Drainage Channel in southeast Davis as it is believed to be the channel with that would benefit the most from design improvements. A map can be provided to aid in located each of these drainage channels. If project is developed an educational component can be added.	11	4	Yes	Feasibility Study	High	Medium	14
163	City of Davis	Retention Pond Feasibility Study	Looking to study feasibility for design enhancements for the seven separate storm drain retention ponds to improve evoptranspiration and water quality in the City's discharge. This feasibility study would provide specific ways to improve the design of the existing facilities to improve water quality for the discharges that occur from each facility. The facilities are located Citywide, but all of the ponds are located north of I 80 in the northern two thirds of the City. The study may yield that only one pond is worthy of modification. In particular, the City would like to study the Core Area Pond in central Davis as it believed to be the pond that receives the most pollutants from its drainage shed. A map can be provided to aid in located each of these ponds. If project is developed an educational component can be added.	11	5	Yes	Feasibility Study	High	Medium	19
174-YS	City of Davis	Feasibility Study for Stormwater Trash Control Measures	Feasibility study to assess options for stormwater trash control measures. This study will assess the best method(s) to help the City meet mandatory requirements for trash screening to prevent trash from entering waterways. One particular area of concern is Channel A. An option for this area is to install trash racks/debris cages in the Wildhorse Basin to address issues with trash flowing from the basin directly into Channel A. There is currently no barrier between the stormwater from the basin and the channel. This study would provide an assessment of potential options to comply with the trash amendment requirements of the Small MS4 permit.	10	3	Yes	Feasibility Study	High	Medium	19
23	Solano County Water Agency	Aquatic Nuisance Vegetation Management	The goal of the Aquatic Nuisance Species Management Plan is to minimize the harmful ecological, economic, and social impact of aquatic nuisance species through prevention and management of introduction, population growth, and dispersal into, within, and from Solano County.	11	6	No	Implementable Program	High	High	7
25	Solano County Water Agency	Gibson Canyon Creek Detention Basin	Provide increased flood protection up to 100-year with improved conveyance and containment of out of bank flows. Convert abandoned City wastewater pond to detention basin.	7	5	No	Implementable Program	High	Medium	14
26	Solano County Water Agency	Improvements to Solano Project Facilities	Today, the Solano project provides irrigation and municipal water to over 400,000 people in Solano County. However, the Solano Project is 60 years old and is in need of upgrades, repairs, and modernization.	8	5	No	Implementable Program	Medium	Low	10
27	Solano County Water Agency	Invasive Plant Removal Program	Program would consist of reducing the geographic extent of invasive plant species (tamarisk, arundo, yellow star thistle, etc.) in riparian and wetland areas in Solano County.	5	5	No	Implementable Program	Medium	Medium	8
28	Solano County Water Agency	Large Landscape Water Efficiency Program	This program will offer financial incentives to commercial customers (businesses, multi-family units) to encourage replacement and upgrade of selected irrigation equipment with new water-efficient irrigation equipment.	7	5	No	Implementable Program	Medium	Medium	11
29	Solano County Water Agency	NBA Infrastructure and Capacity Improvements	The North Bay Aqueduct (NBA) is in need of infrastructure and capacity improvements to increase capacity and minimize WQ impacts, to ensure a reliable water supply for Napa and Solano counties.	8	5	No	Implementable Program	Medium	Low	10
40	RWMG with selected Lead Agency	Regional Invasive Plants, Aquatic and Terrestrial Weeds Management Plan	This project will include the formation of an Invasive Species Task Force/Subcommittee to prepare a Regional Invasive Species Management/Eradication Plan that documents the extent of invasive terrestrial and aquatic species within the Westside Region; evaluates existing programs to manage invasive species that could be leveraged, and identifies supplemental programs to be developed to fill gaps in existing programs to manage invasive species.	13	3	Yes	Implementable Program	High	High	8
63	Lake County Water Resources Department	Develop and Implement a Comprehensive Watershed Monitoring Programs	Meeting of agencies, Tribes, and organizations currently monitoring water quality in the Clear Lake Watershed to coordinate monitoring activities and reduce overlap when possible.	14	2	Yes	Implementable Program	High	Medium	18
76	RWMG with selected Lead Agency	Regional Invasive Mussels Management Plan	This project will include the formation of an Invasive Species Task Force/Subcommittee to prepare a Regional Invasive Mussels Species Prevention Plan that evaluates existing programs to prevent invasive species that could be leveraged, and identifies supplemental programs to be developed to fill gaps in existing programs to manage invasive species. Special high priority emphasis will be placed on prevention of water body infestation by Quagga Mussels.	13	3	Yes	Implementable Program	High	High	7
94	Lake County Water Resources Department	Increase Cache and Putah Creek Watershed Education and Outreach	Develop and improve education programs that provide public with information on watershed programs and related proper management techniques.	14	3	Yes	Implementable Program	Medium	Low	2
118	Yolo County Flood Control and Water Conservation District	Conjunctive Water Use Program	This conjunctive water use project envisions using a variety of methods (recharge/recovery, off-stream storage and canal system modernization) to effectively store and conjunctively use groundwater in the District's service area.	16	7	Yes	Implementable Program	High	Medium	23

Table D-2: Westside IRWM Plan Project Screening Results (sorted by Project Type)

Project No.	Lead Agency /Organization	Project Title	Planned Project/Program Types and Activities	Total Criteria Score	Readiness	Potentially Critical DAC Project	Project Type	Importance	Urgency	Primary Objective
3	Lower Putah Creek Coord. Committee	Apricot Draw Bank Stabilization	Restore 3,000 feet of Apricot Draw, stabilizing eroding banks, removing invasive weeds and planting native vegetation.	14	7	No	Implementable Project	Medium	Medium	3
7	Lower Putah Creek Coord. Committee	Putah Creek Interdam Reach Invasive Weed Control	Remove 127 occurrences (8.6 net acres) of 11 primary invasive weeds from 6.5 river miles (400 acres) of riparian corridor between Monticello Dam and Putah Diversion Dam and install native vegetation where weeds are removed.	14	7	No	Implementable Project	Medium	Medium	3
14	Lower Putah Creek Coord. Committee	Pleasant Creek Wildlife Migration Corridor Plan	Plan to restore 7,000 feet of wildlife corridor of Pleasant Creek to the confluence with Putah Creek, stabilizing eroding banks, removing invasive weeds and planting native vegetation.	13	6	No	Implementable Project	Medium	Medium	3
15	Lower Putah Creek Coord. Committee	Pleasants Creek Bank Stabilization	Restores 84 acres of riparian habitat along 7 miles of Pleasants Creek, stabilizing eroding banks, removing 135 occurrences (13.4 acres) of invasive weeds and planting native vegetation.	15	8	No	Implementable Project	Medium	Medium	3
20	Lower Putah Creek Coord. Committee	Thompson Canyon Bank Stabilization Design and Permits	This study provides plans, specifications and permits to restore 1.5 miles of Thompson Canyon at the confluence of Putah Creek, stabilizing a poorly engineered legacy road that annually degrade water quality and smother prime trout spawning habitat below Monticello Dam.	12	5	No	Implementable Project	Medium	Medium	3
22	Lower Putah Creek Coord. Committee	Warren Weed Control	Restore 11 acres of riparian forest, 1,700 of river channel, remove 26 occurrences (2 net acres) of 8 primary invasive weeds. One of the densest thickets of eucalyptus with over 300 trees averaging 24 inches in diameter.	11	5	No	Implementable Project	Medium	Medium	3
30	Solano County Water Agency	North Bay Aqueduct Alternate Intake Project	The NBA AIP includes the construction and operation of a new intake and pumping plant on the Sacramento River, conveyance pipeline, and inline storage to divert and convey water from the Sacramento River connecting to the existing NBA pipeline near the North Bay Regional Water Treatment Plant in Fairfield.	11	5	No	Implementable Project	High	Medium	23
31	Solano County Water Agency	Improve Solano Project SCADA infrastructure	This project is to install contiguous dedicated power and data lines from the top end of the Solano Project system to the bottom. This would allow monitoring of the entire system simultaneously from a central location and could allow automated remote control.	8	6	No	Implementable Project	High	Medium	18
33	Solano County Water Agency	Research on Hydrodynamics and WQ Interactions in the Delta.	With large projects such as the Bay Delta Conservation Plan, restoration of thousands of acres of tidal marsh habitat as part of the Delta Biological Opinions, and others, there is a need to better understand the hydrodynamic and water quality interactions in the Delta.	7	4	No	Implementable Project	Medium	High	16
34	Solano County Water Agency	Research on Improving Water Treatment for Delta Sources	The project would build upon past research done at the NBA Treatment Facility, and by other Delta users, to improve water treatment methods, reduce DBPs, and improve water treatment for Delta water users, including the SWP and CVP.	6	4	No	Implementable Project	High	High	22
35	Solano County Water Agency	Risk Assessment of Delta Water Supplies	This project would entail a risk assessment of Delta Water supplies, and would look at the impacts of unforeseen circumstances such as: - Earthquakes - Delta levee failure - Sea level rise - and others as needed	8	4	No	Implementable Project	Medium	Low	10
36	Solano County Water Agency	Solano Subbasin Conjunctive Use	Project will improve knowledge on the potential for conjunctive use of groundwater and surface water in the Solano Subbasin. The project will focus on increasing the opportunities for conjunctive groundwater use as a means of increasing water supply and reliability.	8	5	No	Implementable Project	High	Low	17
37	Solano County Water Agency	Southwestern Sacramento Valley Basin/Solano Subbasin Groundwater-Surface Water Flow Model to Evaluate Recharge, Conjunctive Water Use, and Future Deep Zone Pumpage	The major goal of this project is to consider the potential effects of conjunctive water use scenarios on stakeholders in the greater Solano area, including the Sacramento River and other significant surface water courses in the model area. Another goal of this project is to evaluate the effects of developing new and/or redistributing deep pumpage either horizontally over a spatial area or vertically over different aquifer units with the goal of reducing drawdowns in the basal zone.	10	5	No	Implementable Project	High	Low	17
38	Solano County Water Agency	Source water protection for Delta water sources	This project consists of various improvements such as best management practices, source water protection, and others to reduce the impact of point and non-point sources that could negatively impact Delta water quality, with a particular emphasis on drinking water quality.	8	4	No	Implementable Project	Medium	Medium	21
39	Solano County Water Agency	Source water protection for Putah Creek watershed	This project consists of various improvements such as best management practices, source water protection, reduction of in-channel erosion, improved stream channel geomorphology, remediation of historic mining and others to reduce the impact of point and non-point sources that could negatively impact the Putah Creek watershed, as well as the Yolo Bypass.	7	4	No	Implementable Project	High	Medium	19
42	Solano County Water Agency	Ulatis Flood Control Channel Grade Control	This is a programmatic project to install rock cross-vanes at most remaining bridge crossings to arrest scour and promote some habitat diversity. There are approximately 20 location that would benefit from these installations.	11	6	No	Implementable Project	High	Medium	14
43	Solano County Water Agency	Wetland Restoration Research and Impacts to Source Water Quality.	The project will consist of scientific study/research on wetland restoration, organic carbon generation, and other important areas of study, to determine the corresponding impacts on municipal source water quality.	7	4	No	Implementable Project	Medium	Medium	21
48	Crescent Bay Improvement Company	Crescent Bay Improvement Company	Crescent Bay improvement Company has been on a Boil Water Order since 1999. There are 3 objectives to this project:1) replace the 80-year old distribution lines which are leaking, 2) drill a well and replace our surface water source with ground water, and 3) explore the feasibility of and purchase a neighboring water company and develop an intertie with that system.	11	3	Yes	Implementable Project	High	High	22
52	Cache Creek Conservancy	Implementation of the Cache Creek Resources Management Plan	Implementation of projects wtihin the Cache Creek Resources Management Plan (CCRMP) area, located along 15 miles of lower Cache Creek from the Capay Dam to the town of Yolo. The proposed project consists of various phases of activities that meet specific grant requirements such as habitat restoration or enhancement, streambank stabilization, invasive plant removal, monitoring, and/or watershed stewardship through education, workshops, and outreach to landowners.	19	9	Yes	Implementable Project	Medium	Medium	3
57	Lake County Water Resources Department	Restore Native Fish Spawning Areas in Clear Lake Tributaries	This is a series of projects to eliminate some of the major barriers to fish passage. Projects include: Kelseyville Main Street check dam (Kelsey Creek); Decker Bridge (Scotts Creek); Rancheria Road Bridge (Middle Creek); Sewer Crossing (Seigler Canyon Creek); Clover Creek Diversion Channel; Creek Delta Diversity (multiple creeks).	9	3	Yes	Implementable Project	High	Medium	6

Table D-2: Westside IRWM Plan Project Screening Results (sorted by Project Type)

Project No.	Lead Agency /Organization	Project Title	Planned Project/Program Types and Activities	Total Criteria Score	Readiness	Potentially Critical DAC Project	Project Type	Importance	Urgency	Primary Objective
59	Lake County Water Resources Department	Middle Creek Flood Damage Reduction and Ecosystem Restoration Project	This project will eliminate flood risk to 18 residential structures, numerous outbuildings and approximately 1,650 acres of agricultural land and will restore damaged habitat and the water quality of the Clear Lake watershed. Reconnection of this large, previously reclaimed area, as a functional wetland is anticipated to have a significant affect on the watershed health and the water quality of Clear Lake. The project consists of purchasing the flood prone property "protected" by the substandard levee, mitigating flood impacts to roads and utilities, reconstructing historic channel patterns, and breaching the levee in numerous locations that allow Clear Lake to reflood the Project area.	17	6	Yes	Implementable Project	High	Medium	14
69	Lake County Water Resources Department	Adobe Creek Conjunctive Use Project	Addition of conjunctive use to the operation of Highland Creek Reservoir (Lake County), through the addition of sluice gates to the existing Principal Spillway structure at Highland Creek Dam.	12	3	Yes	Implementable Project	High	Medium	22
70	Mendocino National Forest	Lakeview Hazardous Fuels Reduction	The primary activities proposed under this project are vegetation and surface fuel treatments to reduce hazardous fuels and modify wildland fire behavior.	19	9	Yes	Implementable Project	Medium	Medium	15
72	Napa County	Regional Collaborative Water Conservation Program	Expansion of the implementation of the Regional Water Conservation Education Program's conservation education and consumer incentive programs and build on regional water conservation initiatives.	19	9	Yes	Implementable Project	Medium	Medium	11
73	Robinson Rancheria	The Restoration of the Clear Lake Hitch to Blue Lakes	Transfer of live hitch fry to the waters of the Blue Lakes in Lake County.	8	6	Yes	Implementable Project	High	Medium	6
74	Robinson Rancheria	Spawning Hitch fish and reproduction loss correction measures for an artificial trap	Installation of a grate at the mouth of the manmade ditch along the Rodman Slough to prevent Hitch fatalities.	5	1	Yes	Implementable Project	High	Medium	6
75	Rural Community Assistance Corporation	DAC Community Wastewater Management Project	RCAC will work with Lake County DACs and tribes to create and implement a septic inspection and monitoring program.	15	0	Yes	Implementable Project	High	Medium	18
82	West Lake Resource Conservation District	Non-Native Invasive Weed Management Project	This project will maintain the existing weed management program currently being implemented by the Lake County Weed Management Area.	9	6	Yes	Implementable Project	Medium	Medium	9
83	West Sacramento Area Flood Control Agency	Lower Sacramento and Delta North Regional Flood Management Plan	Develop a lower Sacramento and Delta North Regional Flood Management Plan that follows the requirements outlined in the Central Valley Flood Protection Plan (CVFPP)	13	6	Yes	Implementable Project	High	Medium	14
84	Yolo County Flood Control and Water Conservation District	Winters Main Canal Modernization Project: Integrated Precision Water Mgmt.	Installation of automatic water control gates, pump flow meters and vegetated native grass canal banks, to improve irrigation efficiency. In addition, planting of native grasses to minimize erosion and decrease use of herbicides.	18	9	Yes	Implementable Project	High	Medium	24
85	Yolo County Flood Control and Water Conservation District	Abandoned Well Incentive Program	Development of a Regional 3 year Abandoned Well Incentive Program to properly abandon wells.	16	9	No	Implementable Project	Medium	Medium	21
86	Yolo County Service Area #6	County Service Area (CSA) #6 Levee Repair Project	Non-urban levee repair project as part of the levee rehabilitation identified to restore the District levee to its authorized level of flood protection.	16	9	Yes	Implementable Project	High	Medium	14
87	Lake Berryessa Resort Improvement District	LBRID Wastewater Storage Pond and Disposal Improvements	This project will upgrade the wastewater storage ponds and disposal spray fields.	13	6	Yes	Implementable Project	High	High	22
88	Lake Berryessa Resort Improvement District	Water Tank Replacement Project	The three existing potable storage tanks have reached the end of their useful life. The project will replace these three tanks to ensure a continuous water supply for the residents in the future.	15	9	Yes	Implementable Project	High	Medium	23
89	Lake County Special Districts	Soda Bay Water System Improvements	This project will correct deficiencies caused by increased algae blooms in Clear Lake in the system that are required for public safety and regulatory requirements.	15	8	Yes	Implementable Project	Medium	Medium	21
90	Napa Berryessa Resort Improvement District	NBRID Water Treatment Plant Replacement	The existing water treatment plant will be replaced with a new more technically advanced water treatment plant.	14	9	No	Implementable Project	High	High	22
91	Napa Berryessa Resort Improvement District	NBRID Wastewater Storage Pond and Disposal Improvements	This project will upgrade the wastewater storage ponds and disposal spray fields.	14	9	No	Implementable Project	Medium	Medium	20
92	Napa Berryessa Resort Improvement District	NBRID Wastewater Treatment Plant Replacement	This project will upgrade the existing WWTP. The project will also repair or replace all the existing sewer lift stations.	14	9	No	Implementable Project	High	High	22
96	Knights Landing Ridge Drainage District	Mid Valley, Knights Landing Repair Project	Subset of the Mid-Valley Area Levee Reconstruction Project currently underway through a partnership with ACOE and the Central Valley Flood Protection Board.	13	9	No	Implementable Project	High	Medium	14
105	Solano Resource Conservation District	Solano County Riparian Habitat Restoration and Enhancement Project	The project will work to improve riparian habitat and reduce noxious weed cover in Eastern Solano County creeks.	7	9	No	Implementable Project	Medium	Medium	9
108	Tuleyome, Inc.	Sulphur Creek Mercury and Sediment Reduction Project	This project will: 1) Characterize mercury as required to enable erosion control work, 2) Hydrologically disconnect up to 23 miles of road networks that are currently contributing runoff and contaminated sediment to downstream waters, 3) Stabilize 2000 feet of eroding stream banks that are over-steepened and delivering methylmercury contaminated sediment into the stream system, 4) Treat 115 road-related erosion and sediment delivery sites and 5) Stabilize three major valley bottom headcuts that are resulting in serious valley fill erosion along the main stem Sulphur Creek, desiccating alkali wet-meadows and lowering the water table.	12	3	Yes	Implementable Project	High	Medium	19
111	West Sacramento Area Flood Control Agency	Deep Water Ship Channel East Levee Repair	Correct deficiencies, protect against underseepage, and maintain the Port of West Sacramento levees to current standards for FEMA 100 yr and urban levee 200 year levels of flood protection.	11	8	No	Implementable Project	High	Medium	14
112	West Sacramento Area Flood Control Agency	Deep Water Ship Canal Navigation Levee Repair	Correct deficiencies, protect against underseepage, and maintain the Deep Water Ship Canal Levees to current standards for FEMA 100 yr and urban levee 200 year levels of flood protection.	10	4	No	Implementable Project	High	Medium	14
113	West Sacramento Area Flood Control Agency	Port of West Sacramento North and South Levee Repair	Correct deficiencies, protect against underseepage, and maintain the Port of West Sacramento levees to current standards for FEMA 100 yr and urban levee 200 year levels of flood protection.	11	4	No	Implementable Project	High	Medium	14
114	West Sacramento Area Flood Control Agency	Sacramento River Levee Repair	Correct deficiencies, protect against underseepage, and maintain the Sacramento River Levees to current standards for FEMA 100 yr and SB 5 200 year levels of flood protection.	20	9	Yes	Implementable Project	High	Medium	14
115	West Sacramento Area Flood Control Agency	Sacramento River Recreational Trail	Construct a continuous 13.1 mile, 192-acre recreation corridor along the entire length of the Sacramento River within City limits.	20	9	Yes	Implementable Project	Medium	Low	13
116	West Sacramento Area Flood Control Agency	Sacramento Bypass-Yolo Bypass Levee Repair Phase II	Correct deficiencies, protect against underseepage, and maintain the Sacramento Bypass and Yolo Bypass Levees to current standards for FEMA 100 yr and urban levee 200 year levels of flood protection.	18	9	Yes	Implementable Project	High	Medium	14

Table D-2: Westside IRWM Plan Project Screening Results (sorted by Project Type)

Project No.	Lead Agency /Organization	Project Title	Planned Project/Program Types and Activities	Total Criteria Score	Readiness	Potentially Critical DAC Project	Project Type	Importance	Urgency	Primary Objective
117	West Sacramento Area Flood Control Agency	West Sacramento South Cross Levee Repair	Correct deficiencies, protect against underseepage, and maintain the West Sacramento South Cross Levee to current standards for FEMA 100 yr and urban levee 200 year levels of flood protection.	10	4	No	Implementable Project	High	Medium	14
119	Yolo County Flood Control and Water Conservation District	Moore Siphon Reliability/Restoration Project	Due to the age and exposure of the 72" corrugated metal pipe, as well as Cache Creek erosion issues at both ends of the siphon, the siphon well either need to be replaced or rehabilitated in the near future.	12	5	Yes	Implementable Project	Medium	Low	10
122	Yolo County, Natural Resources Division	Cache Creek Parkway Plan	Once complete the Plan will result in a comprehensive planning document that will guide the restoration and ultimate uses of County owned lands within the Cache Creek Area Plan boundary.	11	8	No	Implementable Project	Medium	Medium	3
123	Yolo County	Clarksburg Flood Protection Feasibility Study	The project involves conducting a feasibility study of alternatives to provide a 100-year level of flood protection to the Clarksburg region.	6	6	No	Implementable Project	High	Medium	14
126	Yolo County Resource Conservation District	Implementation of the Cache Creek Watershed Invasive Weed Management Plan	The newly completed Cache Creek Watershed Invasive Weed Management Plan (CCW-IWMP), a living document, identifies specific invasive plants for either eradication, containment or monitoring and prioritizes weeds within those categories. Starting in the upper watershed and working downstream we will use weed mapping information to eradicate those which can be eradicated, contain the edges of those identified in that category, and monitor so as to continually update the plan and re-prioritize and implement vegetation management actions.	10	7	No	Implementable Project	Medium	Medium	9
127	Yolo County Resource Conservation District	Agricultural Drain, Slough and Canal Riparian Habitat Enhancement	Control of invasive weeds, site preparation, installation of native trees, shrubs, grasses and/or forbs as appropriate to the site, and 2 years of vegetation management/ maintenance post-plant along natural and man-made waterways, with focus on Cottonwood, Union School, Willow and Chickahominy sloughs; and main irrigation supply canals in western Yolo County.	14	7	No	Implementable Project	Medium	Medium	3
128	Lake Berryessa Resort Improvement District	Program to Prevent Wastewater Discharges	This project will repair or replace sections of sanitary sewer collection laterals and mains that are experiencing above normal levels of storm water inflow/infiltration (I/I).	14	8	Yes	Implementable Project	Medium	Medium	20
129	Putah Creek Council	Native Plant Nursery to Support Putah-Cache Ecotype Restoration	Putah Creek Council (PCC) will manage a native plant nursery to grow Putah Creek plants from wild-collected seeds and cuttings at a nursery at the LA Moran Reforestation Center, Davis.	11	6	No	Implementable Project	Medium	Medium	3
130	Putah Creek Council	Pollution Prevention and Watershed Education Project	Putah Creek Council (PCC) will educate Winters students, residents, and visitors about storm water and urban runoff, watershed function, and wildlife habitat along Putah Creek via our “Pollution Prevention and Watershed Education” project.	12	6	No	Implementable Project	Medium	Low	2
132	Yolo Basin Foundation	Lower Putah Creek Restoration from Toe Drain to Putah Creek Diversion Dam (Yolo Bypass Wildlife Area Element)	The project will enhance and restore 300-700 acres of tidal freshwater wetlands and create 5 miles of a new creek channel, entirely within the Yolo Bypass Wildlife Area.	10	7	No	Implementable Project	High	Medium	6
133	Yolo Basin Foundation	Yolo Bypass Wildlife Area Public Use Improvements	This proposal would complete some of the tasks related to enhancement of public use infrastructure; including maintain and improve wildlife observation, angling and hunting.	10	4	No	Implementable Project	Medium	Low	13
135	Reclamation District 2035	Tule Canal Habitat Enhancement & Sediment Removal	The project consists of: 1) securing an environmental easement that would protect valuable floodplain habitat and adjacent lands from other uses 2) construction of operational facilities for water control and fish passage and 3) regrading portions of the floodplain habitat to increase the quality of seasonally inundation based on managed flows from the Sacramento River.	9	2	No	Implementable Project	High	Medium	6
140	Reclamation District 2035	Cross Bypass Canal Modernization	The project consists of piping (or lining) the Cross Bypass Canal and the installation of flow control and measurement devices to improve the conveyance system and increase water use efficiency.	10	2	No	Implementable Project	Medium	Low	10
142	City of Vacaville	Centennial Park Riparian Forest Restoration and Loop Trail Development Project	This project proposes to restore riparian environment along two tributaries of Horse Creek by controlling invasive species and installing a diverse selection of native trees, shrubs and perennial forbs in a 140 foot by 2,400 foot long corridor along the middle tributary and a 185 foot wide by 2,950 foot long corridor along the northern tributary.	16	8	No	Implementable Project	Medium	Medium	3
145	City of West Sacramento	Municipal Well at the George Kristoff Water Treatment Plant	Project includes environmental, design and construction of a new municipal well located at 400 N.Harbor Blvd in the City of West Sacramento. This well will augment City potable water supplies during drought conditions. This well in not intended to increase water production but allow upstream surface water diversions by as much as 4,500 acre feet annually.	7	3	No	Implementable Project	High	Medium	23
147	Lake County Special Districts	Paradise Vallev-Clearlake Oaks County Water Consolidation	Paradise Valley Water System, County Service Area 16 (CSA #16), serves 75 customers. The system does not have adequate source capacity in accordance with Section 64554, Chapter 16, Title 22 of the California Code of Regulations. CSA #16 has three wells that when combined do not produce the required source capacity. Attempts to drill a fourth well in 2012 were unsuccessful. The current drought has further reduced the wells ability to prod uce and the CSA is critically challenged to produce sufficient water for human consumption. The CSA is under an urgency ordinance and required to keep usage below 50 gpd per person. The option of building a surface water treatment plant is not desirable due to the poor water quality of Clear Lake and the costs would be prohibitive for the very small district. It has been determined that consolidating with Clearlake Oaks County Water System (CLOCWS) is the best option for resolving the lack of source capacity. Consolidation with CLOCWS would benefit both systems as it would resolve source capacity for CSA # 16 and would allow CLOCWS to expand their customer base and upgrade storage. Project will include the construction of a pipeline to distribute water to CSA # 16.	14	7	No	Implementable Project	High	Medium	23

Table D-2: Westside IRWM Plan Project Screening Results (sorted by Project Type)

Project No.	Lead Agency /Organization	Project Title	Planned Project/Program Types and Activities	Total Criteria Score	Readiness	Potentially Critical DAC Project	Project Type	Importance	Urgency	Primary Objective
148	Lake County Special Districts	Spring Valley Water System Distribution Line Loop	Spring Valley, CSA #2 is a public water system serving 493 customers. CSA #2 draws water from Indian Valley Reservoir which is at a critically low level due to the drought. Storage for Indian Valley reservoir is currently 27,753 acre feet compared to 96,411 acre feet last year. Release of 10 cubic feet per second is required for fish habitat. This project would help preserve sufficient quantities of water for both human consumption and preservation of the fish habitat. The old and deteriorated distribution system is experiencing numerous leaks which are increasing the amount of water required for community consumption. In addition to the leaking pipes, the system has lines that "dead end" and must be flushed regularly to avoid a dangerous buildup of trihalomethanes. (a dangerous by-product of the treatment process) Flushing the lines also requires large quantities of water to be wasted.TSpring Valley, CSA #2 is a public water system serving 493 customers. CSA #2 draws water from Indian Valley Reservoir which is at a critically low level due to the drought. Storage for Indian Valley reservoir is currently 27,753 acre feet compared to 96,411 acre feet last year. Release of 10 cubic feet per second is required for fish habitat. This project would help preserve sufficient quantities of water for both human consumption and preservation of the fish habitat. The very old distribution system is experiencing numerous leaks which are increasing the amount of water required. Over 12,000,000 gallons of treated water is being lost per year through leaks. In addition to the leaking pipes, the system has lines that "dead end" and must be flushed regularly to avoid a dangerous buildup of trihalomethanes. (A dangerous by-product of the treatment process) Flushing the lines also requires large quantities of water to be wasted.The proposed project would resolve these two critical needs. Additional benefits would be improvements to the fire suppression abilities and a decrease on operating and maintenance costs. The extension of water lines for looping the system would allow installation of fire hydrants in areas that have not had access to water lines and are at risk of wild fires. This project would consist of the replacement of 7,500 feet and new installation of approximately 9,100 feet of C-900 water lines which will increase water supply reliability, water conservation and water use efficiency as well as improve drinking water quality and help alleviate fire danger. Up to 45% of the water drawn from the reservoir and treated is being lost due to the old deteriorated water lines and the need for frequent line flushing.	15	7	Yes	Implementable Project	High	Medium	23
150	Lake County Special Districts	Mt. Hannah, CSA #22 Water System	Mt. Hannah, CSA #22 is a public water system serving 36 customers. CSA #22 relies on ground water for supply. Due to current drought conditions, the well level dropped 65% from January 2013 to January 2014. The well has lost the ability to recharge and can only be pumped for approximately 30 minutes and then must be allowed to recharge for 2 to 3 hours. Due to the well being overdrawn, turbidity issues have become a problem. Filtering for turbidity requires even more water that is not available. We are in the process of preparing to truck water to the community from outside the area. This will be very costly and an extreme financial burdon on the disadvantaged community.In addition to the loss of capacity, the system has a deteriorated trunk line that has severe leaks and is losing up to 45% of the water being pumped. The customers are economically disadvantaged. They have been conserving water and the average consumption for the CSA is approx. 35 gallons per day per person.Water rates for this CSA are considerably higher than the county average but due to the small number of customers, the CSA struggles financially and has not been able to build a capital reserve fund. The geographic location of this CSA eliminates the option of consolidation. It is located on Cobb Mountain and not near any other systems that it could tie into. The CSA desperately needs a deeper well and a new trunk line installed.	15	7	Yes	Implementable Project	High	Medium	23
151	Yolo County Flood Control and Water Conservation District	Regional Drought Preparedness through Increased Groundwater Recharge	The District proposes to divert winter flows from Cache Creek into the canal system to increase groundwater recharge. Groundwater recharge and recovery is central to good conjunctive management of surface and groundwater resources. Currently, by District policy, 160 miles of surface water canals remain unlined, providing summertime groundwater recharge services that benefit the aquifer and riparian habitat. The recharged groundwater is used by farmers, individual well owners and business, cities, and small communities. Normally, the majority of canal recharge occurs in the summertime, during the irrigation season. This project proposes to divert wintertime water into the canal system which would require the installation of automated canal gates to replace manual gates. This project will improve local water supply reliability during times of drought and improve conjunctive use management overall. The District has been building and planning improvements to its conjunctive use system for many decades. The regionally supported groundwater monitoring program is extensive. The ag/urban partnership between the cities of Davis, Woodland, and Winters and the Water District is strong. Indeed, the Cities depend on the recharge activities of the District to maintain their water supplies. The disadvantaged communities (DAC) in the western half of the District also depend exclusively on groundwater. The installation of automated gates to make winter recharge possible will increase groundwater storage and will benefit the community for years to come.	16	7	Yes	Implementable Project	High	Medium	23
152	Tuleyome, Inc.	Corona & Twin Peaks Mines Cleanup	The principle physical improvements that this project will implement include a novel, low-maintenance, in situ treatment system to reduce acidity and metals loadings from the Corona Drain Tunnel, consolidating mine waste, improving runoff controls, enhancing revegetation of waste rock and tailings at the Boiler House Adit and Twin Peaks Adit, and improving the existing infiltration trenches at the Boiler House Adit and Twin Peaks Adit. This project will address several key issues commonly associated with mine cleanup projects, including:· Physical hazards: Restricting access to the adits and infiltration trenches by people and wildlife· Chemical hazards: Treating mine drainage and site seepage/runoff to attain water quality standards· Legal liability: Protecting "Good Samaritans" who implement projects or manage lands for the good of society· Multiple goals: Seeking multiple benefits (public health & safety, wildlife habitat, cultural resources, etc.) while addressing competing interests· Limited funds: Minimizing remediation costs to encouraging similar efforts elsewhere.	16	5	Yes	Implementable Project	High	Medium	19
153	Lake Berryessa Resort Improvements District	Sewer Lift Station Upgrades	A single six (6) inch asbestos cement sewer main installed in the mid 1960s conveys pumped raw sewage from the Lift Station A Collection Tank to remote Facultative Ponds and Sprayfields. Approximately 5,200 feet of the sewer trunk line is under high pressure due to a 231 foot change in elevation from the tank to terminus manhole and frictional headloss within the pipe. Combination of age (50 years), high working pressure (> 100 psi) and asbestos cement pipe properties have caused leaks and breaks prompting emergency repairs. The existing AC sewer main has inadequate hydraulic capacity to handle 100-year design storm inflows per requirements mandated by the Central Valley RWQCB. The project will replace 3,000 feet of sewer main and appurtenances from Lift Station A traversing below the Storage Pond access road.	10	8	Yes	Implementable Project	Medium	Medium	20

Table D-2: Westside IRWM Plan Project Screening Results (sorted by Project Type)

Project No.	Lead Agency /Organization	Project Title	Planned Project/Program Types and Activities	Total Criteria Score	Readiness	Potentially Critical DAC Project	Project Type	Importance	Urgency	Primary Objective
154	Lake Berryessa Resort Improvements District	Sewer Lift Station Upgrades	Sewer Lift Stations B, C and D in the residential collection system have insufficient firm pumping capacity and to handle 100-year design storm inflows per requirements mandated by the Central Valley RWQCB. The project will replace progressive cavity style pumps with latest technology chopper pumps, renew yard piping plus appurtenances and upgrade the electrical systems.	11	8	Yes	Implementable Project	Medium	Medium	20
155	Solano County Water Agency	Lower Putah Creek Restoration: Monticello Dam to Dry Creek	The project restores over 600 acres of riparian forest along nine river miles (30% of the length and area of the riparian corridor) from Monticello Dam to Dry Creek (see Figure 1) replacing 223 occurrences of invasive weeds (20 net acres) with weed resistant native vegetation, restoring natural channel form and function including meander form and pool-riffle-run sequence to 2,400 feet of channel, creating 12 new salmon spawning riffles, grading 45 acres of floodplain to functional elevation, converting 3 acres of excess open water to floodplain, lowering water temperatures and adding an acre of shaded riverine habitat.	12	7	No	Implementable Project	Medium	Medium	3
156	Solano County Water Agency	Solano and Napa County Drought Relief Project	This project offers drought relief and long-term water savings in the form of a package of water conservation programs to improve water use efficiency throughout eastern Solano County and unicorporated Napa County. The programs include 1) Water-Efficient Landscape Rebates, 2) Weather-Based Irrigation Controller Rebates, 3) High-Efficiency Washer Rebates and 4) the installation of High-Efficiency Toilets and Urinals in commercial and multi-family buildings.	11	8	No	Implementable Project	Medium	Medium	11
160	City of Davis	Parks and Greenbelts Irrigation and Landscape Upgrades	The goal of the project is to increase water use efficiency and reduce overall water use in City parks and greenbelts. This will involve converting less used turf areas along greenbelts and in parks to lower water use plants to reduce irrigation needs, the conversion of irrigation in non-turf areas to drip, and the replacement of sprinkler heads and irrigation controllers to increase efficiency. The project will also include converting wells that are currently used for potable water uses to irrigation (non-potable) wells that will supply local parks and greenbelts. The project will also provide some stormwater quality benefits with less water runoff in areas that have been converted to drip irrigation.	14	8	No	Implementable Project	Medium	Medium	11
161	City of Davis	Leak Detection Survey	Hire a consultant to use acoustical listening technology to survey water mains and laterals within the City of Davis water distribution area to detect and locate leaks. Prioritize leaks based on severity. Purchase leak detection equipment to install within distribution system to continuously monitor for potential leaks at key areas identified through the leak detection survey.	12	7	No	Implementable Project	Medium	Medium	11
164	City of Davis	Russel Boulevard Demonstration LID Project	The project is to be located in front of City Hall (already proposed and working its way through the City's Parks and Community Services Department) along Russell Boulevard. Russel Boulevard is one of the City's prominent east-west arterials. The project is to create a vegetated swale to treat stromwater runoff on the north side of the roadway. The surface area it will treat is 8,000 square feet. It is proposed to treat drainage prior to discharge to the City's stormdrain system consistent with the standards of Section E.12 of the State's Small MS4 Phase II General Permit (Permit). A map can be provided to aid in the location of this project.	12	7	Yes	Implementable Project	High	Medium	14
166	Department of State Hospital	Recycled Water Conversion projects	Napa State Hospital currently utilizes potable water supplied by the City of Napa for almost all irrigation needs (a limited area is currently served by recycled water). In 2011, NSD installed a recycled water main through NSH which included three metered turnouts. The project will connect to these turnouts, with the downstream improvements owned and operated by NSH. To convert the irrigation system, approximately 38,000 lineal feet of recycled water pipe will be installed, along with valves, and ancillary improvements to deliver water to 139 irrigation points of connection, The connections typically occur at existing irrigation back flow devices, which will be replaced. Existing improvements downstream of the back flow devices will remain in place. Signage and modifications to above ground irrigation valves in accordance with NSD requirements are also part of the project.	13	4	No	Implementable Project	High	Medium	23
167	City of Davis	Davis Greenbelts Landscape Conversions	One of the greatest assets to the Davis park system is the network of more than 60 miles of Green Belts with bike trails that connect parks and neighborhoods throughout the City. Each belt is typically between 100 to 200 feet across with an 8-foot bike path meandering through the middle. Most of the landscape consists of irrigated turf and shade trees. Large open turf areas are greatly appreciated as multi-use event areas for local neighbors, but a majority of the space is mostly utilized by the public as aesthetic while passing through on the bike path. It is these spaces that are great candidates to convert existing turf to a low water use, drought tolerant landscape with interpretive learning opportunities to show the general public ways of converting their landscapes at home.	10	5	No	Implementable Project	Medium	Medium	11
168	Davis Joint Unified School District	Harper Junior High Water Conservation Improvements	Frances Harper Junior High School presents a unique opportunity for water conservation through education and the creation of outdoor classrooms. The school serves over 600 students in grades 7 to 9. Located on East Covell Boulevard in Davis, the property is a 45-acre parcel with about 23 acres in active use. Primary improvements for water conservation are proposed to occur at the front and interior of the site. Current landscape at the front of the school includes 2.3 acres of turf that is primarily for the purpose of aesthetics. There are also interior courtyards with underutilized turf panels that total a little over one-third of an acre. Planned improvements for these areas include replacing the turf with drought tolerant plants, pollinator gardens, benches, bio swales and decomposed granite paths. Interpretive panels would be installed to inform students and visitors of the benefits of the water conservation improvements and the relative ecosystems for each environment. Interior improvements would also include capturing roof water from downspouts and directing the water to bio swales where it would be filtered before entering the storm drain system or simply percolate into the soil. Interior courtyard landscapes would also be laid out to accommodate a setting for outdoor classrooms.	11	4	No	Implementable Project	Medium	Medium	11
169	City of Davis	Recycled Water Projects	The City is currently evaluating the feasibility of various uses of recycled water using WWTP effluent. The WWTP is being upgraded allowing the City to produce high quality recycled water meeting Title 22 Standards. This project would be to assist with funding implementation of the chosen recycled water use(s). These uses may include but are not limited to water for: habitat, Yolo County Landfill, City-owned lands south of the WWTP, agricultural users in the area, City municipal uses, and filling stations.	10	3	No	Implementable Project	High	Medium	23

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Project No.	Lead Agency /Organization	Project Title	Planned Project/Program Types and Activities	Total Criteria Score	Readiness	Potentially Critical DAC Project	Project Type	Importance	Urgency	Primary Objective
170	Harbor View Mutual Water	Water Storage Tank Replacement Project	The community currently has two 50 year old redwood storage tanks that have started to leak a significant amount of water due to rot and age. One of the tanks is in the middle of the water system and can't be taken out of service for maintenance. Neither tank is seismically secured to the cement foundation under them. The company contracted Water Works Engineering to draft us a PER as to the best way to solve our water storage tank problems, it was determined that replacement of all three of our current tanks with two new bolted steel tanks would be the cheapest and easiest fix for the long term. The estimated replacement cost the entire project is 1.3 million.	10	6	No	Implementable Project	High	Medium	23
171-YS	University of California, Davis	Agricultural Stormwater Improvements	Agricultural runoff currently enters the storm drain system directly. This projects would create retention basins and vegetated ditches to collect stormwater and irrigation runoff along edges of agricultural fields.	9	2	No	Implementable Project	High	Medium	19
172-YS	University of California, Davis	Arboretum Waterway Wetland Restoration and Enhancement	UC Davis is proposing to enhance the Arboretum Waterway, which captures stormwater discharge from 900 acres of the UC Davis campus, by establishing a wetland area to treat stormwater discharge and recycled water prior to discharge to Putah Creek. This project will include establishing wetlands, increasing stormwater retention, slope stabilization, enhancing a recreation area for the public, utilization of recycled water for irrigation, and creating public education opportunities.	12	3	No	Implementable Project	Medium	Medium	3
173-YS	City of Davis	Bike Tunnel Landscaping Redesign for Stormwater Quality Improvement	Redesign the current drainage and landscaping near greenbelt bike tunnels to prevent flooding from stormwater. Assess the top highly-trafficked tunnels with drainage issues within the greenbelt system. Improved drainage would include re-landscaping the areas surrounding these tunnels to prevent flood events and improve stormwater quality discharges through the use of different stormwater low impact design methods through infiltration, transpiration and evaporation. Each site could showcase a different method; signage near the tunnels would illustrate the project and highlight elements of the project design.	11	2	Yes	Implementable Project	High	Medium	14
175-YS	Yolo County Flood Control and Water Conservation District	Flood Monitoring Network Project	Project installs flow monitoring stations at canals and sloughs in order to optimize conveyance capacity for both agricultural operations or during rain events, which could occur at the same time. It is not known how much flow sloughs contribute to the canal systems during rain events.	7	3	No	Implementable Project	High	Medium	18
176-YS	Yolo County Flood Control and Water Conservation District	Forbes Ranch Regulating Pond	Develop and construct a 200 acre-feet regulating pond to reduce drainage and flood waters through the town of Madison and District canal system. Divert stormwater flows to the pond through the existing conveyance. The regulating pond would provide storm water retention during the winter and would allow for groundwater recharge in the spring and summer when capacity and water is available. The regulating pond would provide water quality benefits by allowing the sediments in the runoff to settle and lessening the transfer of pollutants and chemicals downstream. The surrounding area would have native vegetation that would promote benefits for wildlife habitat, and the property would allow for groups to visit and learn about the multi-functional project. Similar to the District's Chapman Reservoir, we would install automated gates and monitoring devices at the regulating pond that would be connected to the District's SCADA system for real-time management.	12	3	Yes	Implementable Project	High	Medium	14
177-YS	Yolo County	Knights Landing Storm Drain Project	Design and construct a new storm drain or culvert in the vicinity of 4th and Railroad streets in the community of Knights Landing. KL has historically experience standing water (localized flooding) in the northern portions of town that can be as deep as 2 feet in wet years. The new storm drainage would convey storm water to the County's existing drainage system on the east side of Railroad Street. Design and construction are proposed to be completed by Public Works.	10	2	Yes	Implementable Project	High	Medium	14
180-YS	City of Woodland	North Regional Pond and Pump Station	The project involves the design and construction of an approximate 75 acre sedimentation pond and a pump station able to eventually accomodate a 120-cfs design flow.Project re-purposes an existing City evaporation pond that is no longer in use for any purpose. Currently the pond only receives nearby runoff.This project will add the NR Pond hydraulically into the City's storm drainage network and include:* Low flow training wall and inlet pipes from the Gibson Channel to the NR Pond* High flow weir from South Canal to the NR Pond* Outlet pipes from NR Pond to the South Canal* Pump station at the downstream terminus of the South Canal* Force main and outfall from the pump station to the outfall channel	13	5	No	Implementable Project	High	Medium	14
181-YS	Yolo County	Raise Highway 16 Out of Flood plain	This project was initially proposed by Caltrans as flooding of Highway 16 is a chronic problem. The project was not constructed because of concerns of some farmers about grades at farm road crossings. Raising Highway 16 creates a barrier that could be used to store storm water north of the highway in detention basins/recharge ponds. Increasing the capacity of Willow Slough south of Highway 16 west of Madison is needed so that flows can be conveyed to the detention basins. Willow Slough is the source of the majority of flooding in Madison. Cottonwood Slough contributes to occasional flooding (last time was 1996) in Madison. This project could be coordinated with the Madison Canals project as other upstream diversions could benefit this project and/or the planned detention basins could be coordinated.	13	4	Yes	Implementable Project	High	Medium	14
184-YS	Yolo County FCWCD with Madison CSD	Upstream Flow Management to Prevent Madison Flooding and to Facilitate GW Recharge	The District proposes to manage high flows from Lamb Valley, Cottonwood and S. Fork Willow Sloughs using the existing canal system as well as other means such as upstream check dams. During storm events Willow Slough floods the Town of Madison. The Canal system can be used to convey water away from the Town of Madison and reduce flood levels while also managing peak flows through use of check dams, particularly in Lamb Valley Slough. Flow and water level monitoring could serve several purposes. GW recharge can be accomplished through canal bottoms and potential recharge/detention basins. P. 29 and 30 of the 2012 FIS describe some of the upstream channel capacity limitations and a review of FIRM maps shows several points of intersection between the sloughs and canals to be explored. This project can be coordinated with Raising Highway 16 project.	12	1	Yes	Implementable Project	High	Medium	14
185-YS	Yolo County Flood Control and Water Conservation District	West Adams Canal Renovation and China Slough Rehabilitation Project	Enlargement and improvement of the Yolo County Flood Control & Water Conservation District's (District) West Adams, East Adams, and Acacia Canal system, and rehabilitation and improvement of China Slough (a natural storm drainage channel). The District's canal system would need to be modernized to allow for a "demand" system and to ensure no spills. China Slough would need to be cleaned, an operating road constructed, and installation of about eight check structures. Improvements to the canals and slough would be implemented to convey 10,000 acre-feet of surface water per year through China Slough to farmers in the Yolo-Zamora region (~4,200 acres).	11	2	No	Implementable Project	High	Medium	24
186-YS	City of Davis	West Area Pond Redesign	Redesign the West Area Pond (detention basin) to utilize agricultural summer flows to enhance aquatic wildlife habitat and improve water quality. This proposal involves redirecting existing agricultural runoff through the Stonegate drainage pond and pumping it into the West Area Pond. This would enhance aquatic habitat while improving any water discharges through retention, enhancing opportunities for infiltration, transpiration and evaporation.	12	3	Yes	Implementable Project	Medium	Medium	3

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187-YS	Solano County Water Agency	Winters Bioswales Project and Habitat Enhancement	Stormwater from the town of Winters drains residential areas, business districts, and undeveloped lands into a culvert system that delivers contaminated runoff to Putah Creek and one of its major tributaries, Dry Creek. Eighteen discharge points exist, eight of which are connected directly to Putah Creek, the remaining to Dry Creek. Three main culvert delivery sites occur within the Winters Putah Creek Nature Park (WPCNP), draining approximately 200 acres of impervious lands. The stormwater network drains streets, parking lots, businesses and suburban lots, over-irrigated landscapes and disturbed lands, carrying sediment, petroleum products, fertilizers, pesticides, and bacteria into Putah Creek. We have assembled numerous stakeholders to begin addressing this water quality issue and are developing seasonal wetland (bioswale) water treatment projects within the WPCNP that will improve water quality, enhance floodplain function, restore wildlife habitat, and provide educational opportunities for the Winters community. By redirecting this stormwater runoff onto newly constructed floodplains of Putah Creek, water quality contaminants can be decreased through the breakdown action of sunlight, soil, plant roots and microorganisms. Moreover, the redirected water can assist in rehydrating portions of the floodplain during periods of drought and enhance riparian plant growth for the benefit of corridor wildlife. Each culvert outlet, along with the receiving floodplain landscape requires novel designs to redirect, capture, and infiltrate stormwater, all involving site-specific earthworks, specialized soil treatments, appropriate vegetation, monitoring, and post-installation management. We are conducting feasibility analyses and developing designs for the three major culvert networks within the park. We anticipate moving forward with implementation of our first site in Summer, 2018. Along with stormwater treatment and creekside improvements, we intend to develop a community outreach component that will educate people on "Upper Watershed" creek care within the suburban areas that comprise the stormwater drainage networks.	14	7	No	Implementable Project	Medium	Medium	3
188-YS	Yolo County Flood Control and Water Conservation District	Winters North Area Stormwater Pond	Develop and construct a 5,000 acre-feet stormwater retention pond in the north area of Winters to reduce drainage and flood waters from the Chickahominy Slough. The retention pond would also be used for groundwater recharge in times when the capacity and water was available. The retention pond would provide water quality benefits by allowing the sediments in the runoff to settle and lessening the transfer of pollutants and chemicals downstream. The surrounding area would have native vegetation that would promote benefits for wildlife habitat, and the property would allow for groups to visit and learn about the multi-beneficial, multi-agency partnership. Similar to the District's Chapman Reservoir, we would install automated gates and monitoring devices at the retention pond that would be connected to the District's SCADA system for real-time management.	13	3	Yes	Implementable Project	High	Medium	14
190-YS	Madison CSD	Madison Farmer Field Stormwater Capture and Groundwater Recharge	Modify farmer fields around Madison, specifically those next to Highway 16 and those that will capture upstream flows. The two options considered include 1) 1,200 acres of farmer field modification for rainfall capture (8"-berm) and 2) modification of a farmer field near Cache Creek (maybe half of APN 049-060-017) for rainfall and storm water runoff capture a 3-' high storm water detention basin. This project will require farmer participation and advanced planning for field modification, and will depend on the storm intensity. The first option will only capture rainfall and the second option will capture rainfall and allow runoff to be collected into the detention basin. The second option will require more modification to the property, additional infrastructure for channeling runoff into the basin, and a pump if the water needs to be drained from the basin.	16	6	Yes	Implementable Project	High	Medium	14
192	Solano Resource Conservation District	Barker Slough Water Quality and Habitat Restoration Project	Barker Slough is part of the North Bay Aqueduct (NBA), providing drinking water for up to 500,000 people in urban areas of Napa and Solano Counties. It is also a major tributary to Lindsey Slough, part of the Cache Slough complex of the Sacramento-San Joaquin River Delta. Nearly all of its length is ranched, and in many areas, cattle have free access to the slough. The water coming from the slough has been shown to have high amounts of organic carbon, bacterial coliform, turbidity and salts that exceed drinking water standards. Past projects have attempted to fence cattle off the slough and allow water quality to improve, but these have not been well maintained and cattle continue to degrade water quality. This project would install/repair fencing and off-stream cattle troughs at multiple project sites along Barker Slough, and install native riparian vegetation in this currently denuded watershed. A total of 5 stream miles will be fenced off from cattle and 5 acres of riparian habitat will be restored. In addition, a Barker Slough Watershed Management Plan will be created to bring ranchers, landowners, and urban water users together to identify priority projects that will improve and maintain water quality.	11	2	No	Implementable Project	High	Medium	19
193	City of Woodland	Well 31 ASR Project	The project involves the design and construction of a new municipal aquifer storage and recovery (ASR) well #31 near the site of the existing Well #6. The new ASR well will facilitate groundwater recharge by injecting treated surface water into the gravel layer approximately 500 feet below the surface when surplus Sacramento River water is available during winter months. The ASR well water would be pumped from the ASR well to supplement surface water during drought conditions and to meet peak summer demands. ASR also has long-term water quality benefits because injected water replaces native groundwater impaired by nitrate and naturally occurring metallic species, including arsenic, hexavalent chromium, manganese, and selenium, with better-quality water.The intent is to inject water into the ASR well each winter and build a large reservoir of treated surface water beneath the well and utilize the water primarily during drought years. The project removes a high capacity groundwater extraction well from the regional aquifer and replaces it with a well that will promote groundwater recharge and sustainability while improving Woodland's water supply reliability during a drought. The ASR program greatly reduces the need for Woodland to utilize native groundwater in the City's water system. The City recently completed construction of three ASR Wells. The testing completed to date has been a success and indicates that ASR technology is successful in Woodland. The extracted water retains the constituent characteristics of treated surface water. The new ASR well would include the ability to inject treated surface water at a rate of approximately 2,000 gpm and extract water at a rate of approximately 3,500 gpm. The new ASR well is considered a Categorical Exemption under CEQA as it is a replacement of an existing water supply facility. The EIR for the ASR program has been completed and all necessary permits have been secured. The existing well will be properly destroyed.	13	6	No	Implementable Project	High	Medium	23

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194	City of Woodland	Outfall Channel Culvert Replacement Project	City has a single stormwater discharge location. The outfall is limited by three (3) existing 36" diameter culvert pipes that penetrate a levee road. The existing culverts are limited in that: (a) they are in poor condition and their flap gates have fallen off and (b) within the next few years, based on development, they will be insufficient to handle the amount of City stormwater flows. Plan to the replace the three (3) existing 36" diameter culverts with five (5) 72" diameter ones to accommodate for full City build-out (2035)	9	3	No	Implementable Project	High	Medium	14
195	City of Woodland	Woodland Recycled Water Utility Expansion Project (Phase II)	The City of Woodland currently has tertiary treated Title 22 effluent from the City's Water Pollution Control Facility (WPCF) providing a firm capacity of approximately 2,700 gpm for recycled water. Woodland has an existing recycled water utility serving 2 City parks and a large industrial user in the industrial area northwest of the Water Pollution Control Facility (WPCF). The City has planned for an expansion of the recycled water utility into the Spring Lake Area of the City and also to serve the planned Woodland Research & Technology Park. There are several existing large water users that would use the recycled water for irrigation of parks and roadside landscaping. Businesses in the Research Park would utilize recycled water for cooling buildings. In addition, recycled water would be available to extend into new development areas for landscape irrigation. Portions of recycled water pipelines in Spring Lake have already been constructed by development projects. Providing recycled water to these areas would reduce demands on the potable water distribution system and reduce the demand on the groundwater aquifer. The recycled water pipeline would be constructed in the City's existing right of way. The City has recently completed a Mitigated Negative Declaration for the project. The expected initial demand for recycled water would exceed 110 acre feet per year. The Capital Cost for the Project is approximately $2.5M.The recycled water project includes construction of approximately 10,000 feet of 8" diameter purple pipe and a 100,000 gallon storage tank. The project also provides recycled water for expansion (Phase III) to west of Highway 113.	11	4	No	Implementable Project	High	Medium	23
196	City of Woodland	Woodland Recycled Water Utility Expansion Project (Phase III)	The City of Woodland currently has tertiary treated Title 22 effluent from the City's Water Pollution Control Facility (WPCF) providing a firm capacity of approximately 2,700 gpm for recycled water. Woodland has an existing recycled water utility serving 2 City parks and a large industrial user in the industrial area northwest of the Water Pollution Control Facility (WPCF). The City has planned for an expansion of the recycled water utility into the Sports Park Area of the City and also to serve the planned SP1B and SP1C areas in the City's General Plan. There are several existing large water users that would use the recycled water for irrigation of parks and roadside landscaping. In addition, recycled water would be available to extend into new development areas for landscape irrigation. Providing recycled water to these areas would reduce demands on the potable water distribution system and reduce the demand on the groundwater aquifer. The recycled water pipeline would be constructed in the City's existing right of way. The City has recently completed a Mitigated Negative Declaration for the project. The expected initial demand for recycled water would exceed 70 acre feet per year. The Capital Cost for the Project is approximately $925,000.The recycled water project includes construction of approximately 4,300 feet of 8" diameter purple pipe.	11	4	No	Implementable Project	High	Medium	23
197	Solano Resource Conservation District	Cronin Ranch Habitat Corridor Project	This project aims to create habitat connectivity by planting native perennial grasses, trees and shrubs along more than 4 miles of irrigation and drainage canals that interlace the 2,200 acre Cronin Ranch. This project would connect other habitat restoration projects previously established by Solano RCD, and create over 35 acres of new riparian corridors in a landscape dominated by little more than irrigated pasture and hay fields. New fencing would be installed to exclude cattle from waterways, thereby reducing sediment loads and fecal contamination in waters that drain to the Lower Sacramento River. Native perennial grasses will filter out nutrients and sediment from irrigated pasture tailwater and reduce erosion and bank sloughing along waterways. The deep root systems of native grasses, shrubs and trees increase water infiltration and storage, while also sequestering carbon deep into the soil profile.	12	2	Yes	Implementable Project	Medium	Medium	3
198	Solano Resource Conservation District	Ulatis Creek Riparian Floodplain Restoration Project	This proposed habitat restoration project would be a partnership between the landowner, SRCD and agency partners to control non-native weeds and restore 35 acres of unique riparian floodplain habitat to perennial grasses, forbs, trees and shrubs. The project will plant native species of plants that are well adapted to the local hydrology and soil conditions on 35 acres of Delta riparian floodplain. The project will result in the increase in diversity and richness of native species vegetation that would improve the habitat and attract a myriad of local wildlife throughout the year. This project is designed in such a way that the primary function of the channel as a flood control feature is not compromised. Water quality will be improved by maintaining perennial ground cover that will serve as erosion control and as a filter. Occasional grazing by livestock will be an important management tool for maintaining the site long term to reduce excessive thatch build-up and to manage the acceptable level of woody vegetation by the local managing flood control agencies. This project will remain part of the working agricultural landscape, managed long term by Emigh Livestock (landowner) following the operating and maintenance easement guidelines of the channel area by the Solano County Water Agency.	11	2	No	Implementable Project	Medium	Medium	3
200	Solano Resource Conservation District	Centennial Park Pine Creek and Wetlands Habitat Restoration Project	This project will cleanup and restore wildlife habitat, while attenuating high flood events and filtering excessive eroded sediments at a 26 acre riparian creek and wetland complex located at the southern end of Centennial Park in Vacaville. Project activities include:- Removing all trash and concrete debris from 26 acres-Re-shaping and contouring the wetland area to promote plant diversity, natural wetland function, and diversity of wildlife habitat- Controlling invasive noxious weeds (including arundo, stinkwort and perennial pepperweed) on 26 acres- Planting 1,000 native trees/shrubs and seeding 10 acres of native grass and wildflowers along Pine Creek and its associated upland terraces, creating 2,000 feet of native riparian corridor.- Planting 500 native trees/shrubs and 20,000 native rush and sedge plugs in the wetland basin, creating 16 acres of native wetland marsh habitat.- Installing a 1,500 foot long asphalt walking trail and three interpretive panels along the north side of Pine Creek so that park visitors can experience and learn about riparian and wetland ecology	12	2	Yes	Implementable Project	Medium	Medium	3
201	City of Davis	Davis Wetlands Public Access Improvements	Install user amenities at the Davis Wetlands to enhance educational and passive recreational access. Primary improvements include installation of a permanent vault toilet, observation tower with interpretive panels, and shaded picnic facility.	12	3	No	Implementable Project	Medium	Low	13

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202	City of Davis	Davis Manor Neighborhood Green Street Project	The Davis Manor Neighborhood Green Street Project proposes to retrofit the neighborhood with the following greening treatments: -Plant 90 new trees to sequester carbon and reduce energy consumption -Build 40 rain garden planters to serve as new wildlife habitat and capture stormwater-Convert 9,480 sq. ft. of impermeable surfaces into walkable green space to enhance the pedestrian experience -Transform 5,000 sq. ft. area of the neighborhood into the "Green Heart" toserve as a hub for resident gatherings -Replace 3,000 sq. ft. section of street parking area with a permeable surface strip -Replace 400 sq. ft. area of streetscape with new drought-tolerant landscaping -Install 15 curb ramps and widening sidewalks to improve accessibility -Renovate a dilapidated pocket park to increase community usage -Install interpretative signage to teach visitors and encourage replication	15	5	Yes	Implementable Project	Medium	Low	2
203	City of Davis	Recycled Water Pump Station	With the completion of secondary and tertiary improvements, the City's Wastewater Treatment Plant is now capable of producing tertiary disinfected effluent that meets the requirements of Title 22 of the California Code of Regulations for recycled water. However, a final component of these upgrades is a means of delivering the recycled water produced at the WWTP to potential future customers. New infrastructure is necessary to convey recycled water from the WWTP to potential future customers or to send recycled water to locations within the WWTP property boundary for storage or disposal. This infrastructure, referred to as the "Phase 1 Recycled Water Facilities", will include a new Recycled Water Pump Station and associated piping specifically for conveyance of recycled water to onsite storage ponds and the WWTP's overland flow (OLF) site. To allow for greater operational flexibility, the Recycled Water Pump Station will be designed for a target minimum flowrate of 2,500 gpm with one pump in operation. At this higher flowrate, the City will be able to operate the Recycled Water Pump Station for less than 24 hours per day and still meet the peak day diversion targets. The pump will also be equipped with a variable frequency drive (VFD), which further increases operational flexibility. The pump station will be sized to accommodate a second pump in the future. The Recycled Water Pump Station will draw disinfected tertiary recycled water from the effluent channel of the recently-constructed chlorine contact tank (CCT) and has been designed to deliver water to any of the following locations for disposal or beneficial reuse: · Zones 5 - 15 of the OLF · Recycled Water Pond 1 (formerly Aerated Pond 1) · The Return Channel that provides conveyance to the WWTP's former Oxidation Ponds · A future off-site recycled water storage tank located on the City's Howatt Ranch property	14	8	No	Implementable Project	High	Medium	23
204	City of Davis	Sewer Lateral Replacement	The project would replace aging sewer laterals with corrosion and other issues to protect water quality and reduce the potential for accidental sanitary sewer discharges into the stormwater conveyance system. The project would occur City wide over 3 to 4 years.	7	3	No	Implementable Project	Medium	Medium	20
100	Reclamation District No. 2068	Irrigation Billing / Irrigation Management System Improvements	The software for a unique water billing is in need of an update, including enhancements in the user interface, data management capability and software/hardware compatibility.	12	3	No	Maintenance/Monitoring	Medium	Medium	12
24	Solano County Water Agency	Commercial Washer Rebate Program	This program will offer financial incentives to commercial customers (businesses, multi-family units) who purchase or lease (five-year lease) select commercial washers for commercial laundry or common area multi-family installations.	11	4	Yes	Planning	Medium	Medium	11
44	City of Clearlake	City of Clearlake Stormwater Management Plan (SWMP), Storm Drainage and Flood Control Project Proposal	The City of Clearlake Stormwater Management Plan (SWMP) includes development of stormwater management program implementation strategies and actions.	13	3	Yes	Planning	High	Medium	19
46	Colusa County Resource Conservation District	Bear Creek Habitat Enhancement	The Bear Creek Habitat Enhancement project will be implemented in two phases. Phase I will provide for landowner/agency outreach activities and the development of a locally-driven plan to address tamarisk infestations and the re-establishment of native riparian species along Bear Creek in western Colusa County. Phase II will provide for habitat enhancement activities on a minimum of 3.5 miles of Bear Creek and .5 miles of Sulphur Creek.	9	4	No	Planning	Medium	Medium	8
49	Dixon Regional Watershed Joint Powers Authority	Dixon Main Drain / V-drain Enlargement Project	The purpose of the project is to reduce local flooding caused by regional drainage flows that exceed the existing capacity of these channels by increasing the capacity of these constructed drainage facilities.	15	1	No	Planning	High	Medium	14
50	Dixon Regional Watershed Joint Powers Authority	Eastside Drain	The Eastside Drain project will construct segments of new channels and enlarge existing channels. The Project will add an increment of 120 cfs to the Dixon Main Drain / V-drain Enlargement Project.	11	1	No	Planning	High	Medium	14
51	Dixon Resource Conservation District	Storm Flow Reduction From Agricultural Lands North of Interstate 80	The Proposed Project is based on providing detention storage for a 10-year storm event.	8	1	No	Planning	High	Medium	14
53	California Land Stewardship Institute	Invasive Plant Removal in Ulatis Creek	This project will first map out where the Arundo is present on the 17 mile channel of Ulatis Creek, then contact the landowners who own property with Arundo to educate them about the Arundo hazards; then, with their permission, eradicate the plant on their land, and lastly revegetate areas with native trees.	13	4	Yes	Planning	Medium	Medium	8
55	Clearlake Oaks County Water District	Plant Intake	Install a new water intake in the lake that is capable of drawing water from different depths, with installation of an amiad pre-filter at the pier where the intakes are located. This will allow a greater control of influent turbidity and pH by controlling what depth the intake will be drawing water from.	11	3	Yes	Planning	High	High	22
56	East Lake Resource Conservation District	Upper Putah CreekWatershed Management Plan	This project will produce a comprehensive Regional Watershed Management Plan for the Putah Creek Watershed located in Lake, Napa, Solano, and Yolo Counties. This will include conducting a thorough geomorphic study to better understand current conditions as related to water quality, water quantity, wildlife habitat, and socioeconomics. The project will assemble past studies and reports to identify data gaps, conduct on-the ground scientific investigations, and interview citizens and stakeholders through an education and outreach program. The result will be a management plan that identifies watershed related issues that will provide recommendations for implementation.	13	5	Yes	Planning	Medium	Medium	3

Table D-2: Westside IRWM Plan Project Screening Results (sorted by Project Type)

Project No.	Lead Agency /Organization	Project Title	Planned Project/Program Types and Activities	Total Criteria Score	Readiness	Potentially Critical DAC Project	Project Type	Importance	Urgency	Primary Objective
58	Lake County Water Resources Department	Reduce Flood Damage	This project will reduce flood damage by structural and non-structural methods and will reduce flood risk to property owners in Lake County through 1) buyouts and relocations or floodproofing 2) implementation of the Middle Creek Flood Damage Reduction and Ecosystem Restoration Project 3) Upgrades of bridge and culvert capacities to reduce flooding 4) Implementation of the Cache Creek flow enhancement project 5) Implement channel and levee improvements to the Middle Creek Flood Control Project	9	3	Yes	Planning	High	Medium	14
60	Lake County Water Resources Department	Improve Watershed Roads and Trails to Reduce Soil Erosion	Provide supplemental funding to government programs to survey road and trail conditions and maintain, upgrade, decommission, or re-route them as needed.	9	2	Yes	Planning	Medium	Medium	15
61	Lake County Water Resources Department	Improve Water Dependent Recreation Opportunities	Development of a trail system within Lake County as described in the general plan.	6	3	Yes	Planning	Medium	Low	13
62	Lake County Water Resources Department	Identify, Protect and restore Important Wildlife Habitat Areas in Clear Lake	Development of a plant that provides for protection of important wildlife habitat areas within Clear Lake including bird nesting areas and shoreline wildlife preserves.	9	3	Yes	Planning	Medium	Medium	3
64	Lake County Water Resources Department	Develop a Native Fish Management Plan	Conduct studies to identify and fill gaps in information and understanding of native fish populations with in Lake County. Use these studies to develop a Native Fish Management Plan.	10	3	Yes	Planning	High	Medium	5
65	Lake County Water Resources Department	Collaborative Process to Update Clear Lake Integrated Watershed Management Plan	Update of CLIWM Plan.	14	4	Yes	Planning	Medium	Medium	3
66	Lake County Water Resources Department	Clear Lake Water Quality Assessment	Planning/assessment project to assess the current limnological conditions and to identify and select measures necessary for Clear Lake to meet the water quality objectives as specified in the Basin Plan, as required by the Basin Plan amendment implementing the Nutrient TMDL for Clear Lake.	11	4	Yes	Planning	High	Medium	19
81	Tuleyome, Inc.	Comprehensive Mercury Assessment and Implementation for the Westside Region	This project will: 1) compile and georeference existing data pertinent to characterization of known and potential mercury priority areas in the Westside Region 2) monitor streambeds within the Putah Creek Watershed 3) upload relevant data into a regional or statewide on-line library 4) develop a summary 5) develop best management practices toolkit 6) identify 2-3 feasible priority projects and 7) develop implementation measures using the Toolkit and decision support tools.	11	4	Yes	Planning	High	Medium	19
93	Rural Community Assistance Corporation	Rural Disadvantaged Community (DAC) Partnership Project	RCAC will manage the Prop 84 grant funds to address inadequate water supply and water quality in rural disadvantaged communities (DACs) in the Westside Sacramento IRWM region.	15	7	Yes	Planning	High	High	22
97	Lake County Water Resources Department for RWMG	Form Task Force/Subcommittee to strategize and implement Watershed Education and Outreach	Support appointment of an Education Task Force/Subcommittee to prepare a Regional Watershed Education Plan for a 2-year implementation period.	14	4	Yes	Planning	Medium	Low	1
109	Tuleyome, Inc.	Elgin Mine Drainage Water Treatment Project	Compile existing maps, reports, water data, and other information about Elgin Mine in the IRWM region indicating location, ownership history, and mineral production. Address all regulatory requirements, Conduct baseline and post-project monitoring of downstream water, sediment, and biota. Design and construct a hot spring treatment system to minimize mercury loads downstream.	7	1	Yes	Planning	High	Medium	19
120	Yolo County	Yolo County Airport Drainage Plan	In order for the airport to eliminate flooding of its facilities and to expand, a 2005 Drainage Plan engineered by Wood Rogers needs to be implemented.	7	3	No	Planning	High	Medium	14
125	Yolo County	Methylmercury Impacts Analyses for the Yolo Bypass	Yolo County proposes to collect data and analyze changes in methyl mercury production and bioaccumulation that could result from (1) a proposed Bay Delta Conservation Plan (BDCP) project to enhance fisheries habitat in the Yolo Bypass; and (2) a Central Valley Flood Protection Plan proposal to expand the Yolo Bypass to improve flood capacity.	7	1	No	Planning	High	Medium	18
131	Yolo Basin Foundation	Pacific Flyway Center/Delta Gateway	The Pacific Flyway Center (Center) is a proposed educational facility and site intended to serve the general public, Central Valley area school districts, various public sector agencies and special environmentally focused events and activities.	9	2	No	Planning	Medium	Low	2
134	RWMG with selected Lead Agency	Climate Change Adaptation Study	Regional study to advance understanding of the effects of climate change and consider potential modifications to the water management system.	11	2	No	Planning	High	Medium	14
137	Reclamation District 2035	Installation of Groundwater Wells	Engineer, design and install groundwater wells.	8	2	No	Planning	Medium	Low	10
138	Reclamation District 2035	Groundwater Studies	Reclamation District 2035's Ground Studies Project will consist of the identification and analysis of issues, if any, surrounding the quality and availability of groundwater.	10	3	No	Planning	High	Low	17
141	Reclamation District 2035	Conjunctive Use Study	The project consists of the study and analysis of the coordinated use of surface and groundwater that could benefit the agricultural, urban, and environmental interests within, nearby and downstream of Yolo County, especially the North Delta region.	11	2	No	Planning	High	Medium	24
143	RWMG with selected Lead Agency	Regional Capital Improvement Plan	Create Regional asset management plan to identify and prioritize key water management infrastructure.	5	2	No	Planning	Medium	Low	10
159	City of Winters, CA	City of Winters Drinking Water Hexavalent Chromium (Cr6) Compliance Project	The City is under Notice of Violation with the SWRCB Division of Drinking Water to reduce Cr6 levels in four of its five wells (82% of the City's water supply) exceeding the new Cr6 Primary MCL. This is a new drinking water quality regulation approved by the State in July 2014 with enforcement beginning in August 2015 for urban water suppliers with sources in exceedance of the new Cr6 regulations. The City is requesting funds to design a cost-effective Cr6 compliance strategy for the community that meets the new Cr6 regulations within the State's compliance schedule.	13	4	Yes	Planning	Medium	Medium	21
178-YS	Yolo County/	Knights Landing Underground Drainage Study	This project would model new underground drainage facilities for the entire Town of Knights Landing to determine location(s) for outfall to the Sacramento River or Ridge Cut Slough. Preliminarily it is estimated that the underground drainage facilities would be sized for 30-50 cfs of storm flows and the system outfall would need to be sized accordingly to prevent backup of the system. Outfall locations would also need to be evaluated to determine if the downstream capacity would be sufficient to convey this additional flow during storm events. LID strategies will be used to ensure discharge water quality does not impact the Sacramento River or Ridge Cut Slough water quality.	10	3	Yes	Planning	High	Medium	14
179-YS	Yolo County FCWCD with Madison CSD	Madison Drainage Study	This project would model new underground drainage facilities for the entire Town of Madison to determine location(s) for outfall (possibly Cache Creek, the South Fork Willow Slough or Cottonwood Slough). Preliminarily it is estimated that the underground drainage facilities would be sized for 110 cfs of storm flows and the system outfall would need to be sized accordingly to prevent backup of the system. Outfall locations would also need to be evaluated to determine if the downstream capacity would be sufficient to convey this additional flow during storm events. LID strategies will be used to ensure discharge water quality does not negatively impact downstream water quality.	10	3	Yes	Planning	High	Medium	14

Project No.	Lead Agency /Organization	Project Title	Planned Project/Program Types and Activities	Total Criteria Score	Readiness	Potentially Critical DAC Project	Project Type	Importance	Urgency	Primary Objective
182-YS	City of Davis	Site Survey for Converting Rocky Swales to Bioswales	In public greenbelts and parks, convert existing rocky drainage swales into bioswales to provide environmental benefits. Convert drainage in areas that currently use rocky swales, such as in Mace Ranch Park and the housing development behind Montgomery Elementary in South Davis, to bioswales. Converting the existing rocky swales to vegetative bioswales will encourage microhabitats, beneficial insects, infiltration, transpiration, and evaporation to better showcase stormwater retention techniques. Other possible sites include Evergreen Pond and North Star Park.	10	2	Yes	Planning	Medium	Medium	3
183-YS	City of Davis	Site Survey for Hardscape Conversion to Pervious Pavement	Survey public parking lots that currently have impervious surfacing to assess the practicality of converting these locations to pervious pavement when they are in need of resurfacing, maintenance or redesign. Portions of the pathways near the sites could potentially highlight permeable pavers in addition to the parking lots. Projects could be planned with improvements to incorporate bioswales, low water use plants, and other low-impact design measures into any landscape changes at the site. The projects would include signage on stormwater techniques implemented and information about water quality.	10	2	Yes	Planning	High	Medium	14
189-YS	Yolo County Flood Control and Water Conservation District	Yolo County Drains and Sloughs -- Governance and Maintenance Study	Plan that will identify governing bodies and maintenance responsibilities involved in the County's drains, canals, and sloughs. The District and County will work together to develop a governance and maintenance study that will assist in providing effective rural storm water management responsibilities based on the defined governing bodies. Plan/investigation will initiate a legitimate storm water management program in Yolo County.	12	3	Yes	Planning	High	Medium	14
191-YS	Madison CSD	Western Yolo Sloughs Citizen Science Program	Sloughs surrounding the Madison area are known to cause regular flooding in Madison and beyond. Namely, Cottonwood Slough, Lamb Valley Slough, the South Fork Willow Slough and the Madison Drain have been identified as sources of flooding in Madison in various studies and reports. It seems likely that mitigation upstream in these sloughs to remove water before the sloughs reach Madison and Esparto, and management of the sloughs to keep them free of debris could help in alleviating flooding in the area. However, none of these channels are monitored, therefore, it is unknown what capacity these sloughs have, when that capacity is reached (during or after a storm), or what type of mitigation would be most fitting for each slough. Additionally, it is not known if the Winters Canal is also full when sloughs are full, or if it may have capacity that could be used to alleviate the sloughs when they are over flowing. The Madison CSD with its partners will develop a citizen science program where Madison residents and residents from the nearby areas will visit sloughs and canals that carry water in and around Madison following rain events. The program members will record whether they see water flowing in the sloughs and canals at previously determined locations, and record observations such as whether the channels are successfully carrying the flows, appear to be obstructed, or are overflowing. The information will be compiled in an easy to use format so that members can easily share the information with Madison CSD and others. The information will initially be used until a flow monitoring network can be developed in the sloughs, and potentially beyond. The goal is to gain a better understanding of the slough flow patterns and information that can be used to plan for flood mitigation in Madison, while also engaging and educating the community.	10	2	Yes	Planning	High	Medium	14
199	Solano Resource Conservation District	Solano County K-12 Watershed Education in the Sacramento River Watershed	Enhance and expand existing watershed education programming for K-12 students to support personal stewardship behavior and understanding of Sacramento River conservation and restoration goals. This program encompasses two place-based field trip programs: the Watershed Explorers program for third graders and the Solano County Biomonitoring program for high school students, as well as the multi-grade Solano Water Education Program that provides Project WET training and resources to teachers along with targeted water resource lessons, field trip opportunities and classroom supplies. Programming provides education about water conservation, proper used oil disposal, water quality assessment and protection, the Reduce-Reuse-Recycle ethic, native species protection, and the fun and health values of being outdoors in the watershed. By learning about watershed ecology, phenology, biomonitoring, resource conservation, and restoration work, participants understand the important relationship between science and the necessary environmental stewardship of the Sacramento River watershed. We work with Solano County, its cities, county and regional resource agencies, and local businesses to provide context and connection to ongoing local, regional and state environmental stewardship challenges. We formally assess student learning, and use the information we gain to refine and improve our programs.	13	4	Yes	Planning	Medium	Low	1

Table D-3: Westside IRWM Plan Project Screening Results (sorted by Total Criteria Score)

Project No.	Lead Agency /Organization	Project Title	Planned Project/Program Types and Activities	Total Criteria Score	Readiness	Project Cost	Potential DWR Impl. Grants	Potentially Critical DAC Project	Project Type	Importance	Urgency	Primary Objective
27	Solano County Water Agency	Invasive Plant Removal Program	Program would consist of reducing the geographic extent of invasive plant species (tamarisk, arundo, yellow star thistle, etc.) in riparian and wetland areas in Solano County.	5	5	$0	No	No	Implementable Program	Medium	Medium	8
74	Robinson Rancheria	Spawning Hitch fish and reproduction loss correction measures for an artificial trap	Installation of a grate at the mouth of the manmade ditch along the Rodman Slough to prevent Hitch fatalities.	5	1	$0	Yes	Yes	Implementable Project	High	Medium	6
143	RWMG with selected Lead Agency	Regional Capital Improvement Plan	Create Regional asset management plan to identify and prioritize key water management infrastructure.	5	2	$0	No	No	Planning	Medium	Low	10
34	Solano County Water Agency	Research on Improving Water Treatment for Delta Sources	The project would build upon past research done at the NBA Treatment Facility, and by other Delta users, to improve water treatment methods, reduce DBPs, and improve water treatment for Delta water users, including the SWP and CVP.	6	4	$100,000	Yes	No	Implementable Project	High	High	22
61	Lake County Water Resources Department	Improve Water Dependent Recreation Opportunities	Development of a trail system within Lake County as described in the general plan.	6	3	$0	No	Yes	Planning	Medium	Low	13
123	Yolo County	Clarksburg Flood Protection Feasibility Study	The project involves conducting a feasibility study of alternatives to provide a 100-year level of flood protection to the Clarksburg region.	6	6	$200,000	Yes	No	Implementable Project	High	Medium	14
25	Solano County Water Agency	Gibson Canyon Creek Detention Basin	Provide increased flood protection up to 100-year with improved conveyance and containment of out of bank flows. Convert abandoned City wastewater pond to detention basin.	7	5	$10,000,000	No	No	Implementable Program	High	Medium	14
28	Solano County Water Agency	Large Landscape Water Efficiency Program	This program will offer financial incentives to commercial customers (businesses, multi-family units) to encourage replacement and upgrade of selected irrigation equipment with new water-efficient irrigation equipment.	7	5	$200,000	No	No	Implementable Program	Medium	Medium	11
33	Solano County Water Agency	Research on Hydrodynamics and WQ Interactions in the Delta.	With large projects such as the Bay Delta Conservation Plan, restoration of thousands of acres of tidal marsh habitat as part of the Delta Biological Opinions, and others, there is a need to better understand the hydrodynamic and water quality interactions in the Delta.	7	4	$100,000	Yes	No	Implementable Project	Medium	High	16
39	Solano County Water Agency	Source water protection for Putah Creek watershed	This project consists of various improvements such as best management practices, source water protection, reduction of in-channel erosion, improved stream channel geomorphology, remediation of historic mining and others to reduce the impact of point and non-point sources that could negatively impact the Putah Creek watershed, as well as the Yolo Bypass.	7	4	$20,000	Yes	No	Implementable Project	High	Medium	19
43	Solano County Water Agency	Wetland Restoration Research and Impacts to Source Water Quality.	The project will consist of scientific study/research on wetland restoration, organic carbon generation, and other important areas of study, to determine the corresponding impacts on municipal source water quality.	7	4	$0	Yes	No	Implementable Project	Medium	Medium	21
80	Tuleyome	Cache Creek Anadramous Fish Reintroduction Project	Conduct studies to look at the physical constraints such as temperature, flow regimes, and spawning opportunities, climate change impacts for the reintroduction of anadromous fish to Cache Creek, institutional issues including safe harbor for the YCFCWCD and stakeholder outreach.	7	1	$500,000	No	Yes	Feasibility Study	High	Medium	6
99	Reclamation District No. 2068	Agricultural Tail Water Reuse Program	This program proposes to develop an ag water recapture and reuse facility at strategic locations within the agency.	7	1	$50,000	No	No	Conceptual	Medium	Medium	12
105	Solano Resource Conservation District	Solano County Riparian Habitat Restoration and Enhancement Project	The project will work to improve riparian habitat and reduce noxious weed cover in Eastern Solano County creeks.	7	9	$750,000	Yes	No	Implementable Project	Medium	Medium	9
109	Tuleyome, Inc.	Elgin Mine Drainage Water Treatment Project	Compile existing maps, reports, water data, and other information about Elgin Mine in the IRWM region indicating location, ownership history, and mineral production. Address all regulatory requirements, Conduct baseline and post-project monitoring of downstream water, sediment, and biota. Design and construct a hot spring treatment system to minimize mercury loads downstream.	7	1	$1,500,000	No	Yes	Planning	High	Medium	19
120	Yolo County	Yolo County Airport Drainage Plan	In order for the airport to eliminate flooding of its facilities and to expand, a 2005 Drainage Plan engineered by Wood Rogers needs to be implemented.	7	3	$1,250,000	No	No	Planning	High	Medium	14
125	Yolo County	Methylmercury Impacts Analyses for the Yolo Bypass	Yolo County proposes to collect data and analyze changes in methyl mercury production and bioaccumulation that could result from (1) a proposed Bay Delta Conservation Plan (BDCP) project to enhance fisheries habitat in the Yolo Bypass; and (2) a Central Valley Flood Protection Plan proposal to expand the Yolo Bypass to improve flood capacity.	7	1	$100,000	No	No	Planning	High	Medium	18
145	City of West Sacramento	Municipal Well at the George Kristoff Water Treatment Plant	Project includes environmental, design and construction of a new municipal well located at 400 N.Harbor Blvd in the City of West Sacramento. This well will augment City potable water supplies during drought conditions. This well in not intended to increase water production but allow upstream surface water diversions by as much as 4,500 acre feet annually.	7	3	$750,000	Yes	No	Implementable Project	High	Medium	23
175-YS	Yolo County Flood Control and Water Conservation District	Flood Monitoring Network Project	Project installs flow monitoring stations at canals and sloughs in order to optimize conveyance capacity for both agricultural operations or during rain events, which could occur at the same time. It is not known how much flow sloughs contribute to the canal systems during rain events.	7	3	$0	Yes	No	Implementable Project	High	Medium	18
204	City of Davis	Sewer Lateral Replacement	The project would replace aging sewer laterals with corrosion and other issues to protect water quality and reduce the potential for accidental sanitary sewer discharges into the stormwater conveyance system. The project would occur City wide over 3 to 4 years.	7	3	$1,000,000	Yes	No	Implementable Project	Medium	Medium	20
26	Solano County Water Agency	Improvements to Solano Project Facilities	Today, the Solano project provides irrigation and municipal water to over 400,000 people in Solano County. However, the Solano Project is 60 years old and is in need of upgrades, repairs, and modernization.	8	5	$0	No	No	Implementable Program	Medium	Low	10
29	Solano County Water Agency	NBA Infrastructure and Capacity Improvements	The North Bay Aqueduct (NBA) is in need of infrastructure and capacity improvements to increase capacity and minimize WQ impacts, to ensure a reliable water supply for Napa and Solano counties.	8	5	$0	No	No	Implementable Program	Medium	Low	10
31	Solano County Water Agency	Improve Solano Project SCADA infrastructure	This project is to install contiguous dedicated power and data lines from the top end of the Solano Project system to the bottom. This would allow monitoring of the entire system simultaneously from a central location and could allow automated remote control.	8	6	$4,000,000	Yes	No	Implementable Project	High	Medium	18
35	Solano County Water Agency	Risk Assessment of Delta Water Supplies	This project would entail a risk assessment of Delta Water supplies, and would look at the impacts of unforeseen circumstances such as: - Earthquakes - Delta levee failure - Sea level rise - and others as needed	8	4	$200,000	Yes	No	Implementable Project	Medium	Low	10
36	Solano County Water Agency	Solano Subbasin Conjunctive Use	Project will improve knowledge on the potential for conjunctive use of groundwater and surface water in the Solano Subbasin. The project will focus on increasing the opportunities for conjunctive groundwater use as a means of increasing water supply and reliability.	8	5	$100,000	Yes	No	Implementable Project	High	Low	17
38	Solano County Water Agency	Source water protection for Delta water sources	This project consists of various improvements such as best management practices, source water protection, and others to reduce the impact of point and non-point sources that could negatively impact Delta water quality, with a particular emphasis on drinking water quality.	8	4	$100,000	Yes	No	Implementable Project	Medium	Medium	21
45	City of Woodland / floodSAFE Yolo Pilot Program	Lower Cache Creek Flood Risk Reduction Project	The primary purpose for the Project is to reduce the risk of flooding to the City of Woodland and adjacent land including the rural Town of Yolo and Interstate 5. The Project is in the initial phases of a feasibility study for which the City has executed a Federal cost share agreement with the USACE and CVFPB and a non-federal cost share agreement with the CVFPB.	8	3	$0	No	No	Feasibility Study	High	Medium	14
51	Dixon Resource Conservation District	Storm Flow Reduction From Agricultural Lands North of Interstate 80	The Proposed Project is based on providing detention storage for a 10-year storm event.	8	1	$487,000	No	No	Planning	High	Medium	14

WESTSIDE SAC IRWM
Integrated Regional Water Management Plan

Table D-3: Westside IRWM Plan Project Screening Results (sorted by Total Criteria Score)

Project No.	Lead Agency /Organization	Project Title	Planned Project/Program Types and Activities	Total Criteria Score	Readiness	Project Cost	Potential DWR Impl. Grants	Potentially Critical DAC Project	Project Type	Importance	Urgency	Primary Objective
73	Robinson Rancheria	The Restoration of the Clear Lake Hitch to Blue Lakes	Transfer of live hitch fry to the waters of the Blue Lakes in Lake County.	8	6	$0	Yes	Yes	Implementable Project	High	Medium	6
106	Solano Resource Conservation District	Waterway Management for Improved Water Quality and Wildlife Habitat	Solano Resource Conservation District will work with partners and landowners to demonstrate integrated waterway and levee management.	8	4	$500,000	No	No	Conceptual	Medium	Low	2
137	Reclamation District 2035	Installation of Groundwater Wells	Engineer, design and install groundwater wells.	8	2	$0	No	No	Planning	Medium	Low	10
46	Colusa County Resource Conservation District	Bear Creek Habitat Enhancement	The Bear Creek Habitat Enhancement project will be implemented in two phases. Phase I will provide for landowner/agency outreach activities and the development of a locally-driven plan to address tamarisk infestations and the re-establishment of native riparian species along Bear Creek in western Colusa County. Phase II will provide for habitat enhancement activities on a minimum of 3.5 miles of Bear Creek and .5 miles of Sulphur Creek.	9	4	$400,000	No	No	Planning	Medium	Medium	8
57	Lake County Water Resources Department	Restore Native Fish Spawning Areas in Clear Lake Tributaries	This is a series of projects to eliminate some of the major barriers to fish passage. Projects include: Kelseyville Main Street check dam (Kelsey Creek); Decker Bridge (Scotts Creek); Rancheria Road Bridge (Middle Creek); Sewer Crossing (Seigler Canyon Creek); Clover Creek Diversion Channel; Creek Delta Diversity (multiple creeks).	9	3	$5,560,000	Yes	Yes	Implementable Project	High	Medium	6
58	Lake County Water Resources Department	Reduce Flood Damage	This project will reduce flood damage by structural and non-structural methods and will reduce flood risk to property owners in Lake County through 1) buyouts and relocations or floodproofing 2) implementation of the Middle Creek Flood Damage Reduction and Ecosystem Restoration Project 3) Upgrades of bridge and culvert capacities to reduce flooding 4) Implementation of the Cache Creek flow enhancement project 5) Implement channel and levee improvements to the Middle Creek Flood Control Project	9	3	$0	No	Yes	Planning	High	Medium	14
60	Lake County Water Resources Department	Improve Watershed Roads and Trails to Reduce Soil Erosion	Provide supplemental funding to government programs to survey road and trail conditions and maintain, upgrade, decommission, or re-route them as needed.	9	2	$0	No	Yes	Planning	Medium	Medium	15
62	Lake County Water Resources Department	Identify, Protect and restore Important Wildlife Habitat Areas in Clear Lake	Development of a plant that provides for protection of important wildlife habitat areas within Clear Lake including bird nesting areas and shoreline wildlife preserves.	9	3	$0	No	Yes	Planning	Medium	Medium	3
82	West Lake Resource Conservation District	Non-Native Invasive Weed Management Project	This project will maintain the existing weed management program currently being implemented by the Lake County Weed Management Area.	9	6	$0	Yes	Yes	Implementable Project	Medium	Medium	9
131	Yolo Basin Foundation	Pacific Flyway Center/Delta Gateway	The Pacific Flyway Center (Center) is a proposed educational facility and site intended to serve the general public, Central Valley area school districts, various public sector agencies and special environmentally focused events and activities.	9	2	$13,000,000	No	No	Planning	Medium	Low	2
135	Reclamation District 2035	Tule Canal Habitat Enhancement & Sediment Removal	The project consists of: 1) securing an environmental easement that would protect valuable floodplain habitat and adjacent lands from other uses 2) construction of operational facilities for water control and fish passage and 3) regrading portions of the floodplain habitat to increase the quality of seasonally inundation based on managed flows from the Sacramento River.	9	2	$0	Yes	No	Implementable Project	High	Medium	6
139	Reclamation District 2035	Floodway Corridor Project	The project consists of three major phases/components: 1) acquisition of Conservation/Flowage Easements - Approx. 7,000 acres.2) New Sacramento River By Pass - A new bypass facility will be constructed to divert flows from the Sac River to the Yolo Bypass. During large storm evens flood flows would be diverted (Sac River) over a new weir to a new bypass channel that would deliver flows to the Yolo Bypass.3) Diverting additional flood flows in to the Yolo Bypass would increase flow and stages in the bypass downstream from the new bypass. To mitigate for potential flow increases, a portion of Conaway Ranch (outside of the Bypass), would be used to convey and store (transitory storage of over 66K acre feet) of flood water during large storm events.	9	2	$0	No	No	Feasibility Study	High	Medium	14
171-YS	University of California, Davis	Agricultural Stormwater Improvements	Agricultural runoff currently enters the storm drain system directly. This projects would create retention basins and vegetated ditches to collect stormwater and irrigation runoff along edges of agricultural fields.	9	2	$250,000	Yes	No	Implementable Project	High	Medium	19
194	City of Woodland	Outfall Channel Culvert Replacement Project	City has a single stormwater discharge location. The outfall is limited by three (3) existing 36" diameter culvert pipes that penetrate a levee road. The existing culverts are limited in that: (a) they are in poor condition and their flap gates have fallen off and (b) within the next few years, based on development, they will be insufficient to handle the amount of City stormwater flows. Plan to the replace the three (3) existing 36" diameter culverts with five (5) 72" diameter ones to accommodate for full City build-out (2035)	9	3	$2.5 million	Yes	No	Implementable Project	High	Medium	14
1	West Sacramento Area Flood Control Agency	Bees Lakes Preserve	Conserve and develop limited, low-impact pedestrian-only recreational access to a 23-acre open space area containing sensitive aquatic, riparian, emergent and upland habitats which are associated with the Sacramento River.	10	3	$1,000,000	No	No	Feasibility Study	Medium	Low	13
37	Solano County Water Agency	Southwestern Sacramento Valley Basin/Solano Subbasin Groundwater-Surface Water Flow Model to Evaluate Recharge, Conjunctive Water Use, and Future Deep Zone Pumpage	The major goal of this project is to consider the potential effects of conjunctive water use scenarios on stakeholders in the greater Solano area, including the Sacramento River and other significant surface water courses in the model area. Another goal of this project is to evaluate the effects of developing new and/or redistributing deep pumpage either horizontally over a spatial area or vertically over different aquifer units with the goal of reducing drawdowns in the basal zone.	10	5	$250,000	Yes	No	Implementable Project	High	Low	17
64	Lake County Water Resources Department	Develop a Native Fish Management Plan	Conduct studies to identify and fill gaps in information and understanding of native fish populations with in Lake County. Use these studies to develop a Native Fish Management Plan.	10	3	$250,000	No	Yes	Planning	High	Medium	5
112	West Sacramento Area Flood Control Agency	Deep Water Ship Canal Navigation Levee Repair	Correct deficiencies, protect against underseepage, and maintain the Deep Water Ship Canal Levees to current standards for FEMA 100 yr and urban levee 200 year levels of flood protection.	10	4	$181,018,000	Yes	No	Implementable Project	High	Medium	14
117	West Sacramento Area Flood Control Agency	West Sacramento South Cross Levee Repair	Correct deficiencies, protect against underseepage, and maintain the West Sacramento South Cross Levee to current standards for FEMA 100 yr and urban levee 200 year levels of flood protection.	10	4	$14,605,000	Yes	No	Implementable Project	High	Medium	14
126	Yolo County Resource Conservation District	Implementation of the Cache Creek Watershed Invasive Weed Management Plan	The newly completed Cache Creek Watershed Invasive Weed Management Plan (CCW-IWMP), a living document, identifies specific invasive plants for either eradication, containment or monitoring and prioritizes weeds within those categories. Starting in the upper watershed and working downstream we will use weed mapping information to eradicate those which can be eradicated, contain the edges of those identified in that category, and monitor so as to continually update the plan and re-prioritize and implement vegetation management actions.	10	7	$250,000	Yes	No	Implementable Project	Medium	Medium	9
132	Yolo Basin Foundation	Lower Putah Creek Restoration from Toe Drain to Putah Creek Diversion Dam (Yolo Bypass Wildlife Area Element)	The project will enhance and restore 300-700 acres of tidal freshwater wetlands and create 5 miles of a new creek channel, entirely within the Yolo Bypass Wildlife Area.	10	7	$1,000,000	Yes	No	Implementable Project	High	Medium	6
133	Yolo Basin Foundation	Yolo Bypass Wildlife Area Public Use Improvements	This proposal would complete some of the tasks related to enhancement of public use infrastructure; including maintain and improve wildlife observation, angling and hunting.	10	4	$1,000,000	Yes	No	Implementable Project	Medium	Low	13
136	Reclamation District 2035	Levee Repairs/Maintenance- Segments 150, 173 and 297	Complete geological analysis, engineering design required to identify and correct levee deficiencies and hazard mitigation recommendations contained in the URS levee evaluation report (2010) completed at the direction of the Department of Water Resources and additional geologic investigation analysis (to be completed) recommendations.	10	3	$0	No	No	Feasibility Study	High	Medium	14
138	Reclamation District 2035	Groundwater Studies	Reclamation District 2035's Ground Studies Project will consist of the identification and analysis of issues, if any, surrounding the quality and availability of groundwater.	10	3	$0	No	No	Planning	High	Low	17

WESTSIDE SAC IRWM
Integrated Regional Water Management Plan

Table D-3: Westside IRWM Plan Project Screening Results (sorted by Total Criteria Score)

Project No.	Lead Agency /Organization	Project Title	Planned Project/Program Types and Activities	Total Criteria Score	Readiness	Project Cost	Potential DWR Impl. Grants	Potentially Critical DAC Project	Project Type	Importance	Urgency	Primary Objective
140	Reclamation District 2035	Cross Bypass Canal Modernization	The project consists of piping (or lining) the Cross Bypass Canal and the installation of flow control and measurement devices to improve the conveyance system and increase water use efficiency.	10	2	$0	Yes	No	Implementable Project	Medium	Low	10
153	Lake Berryessa Resort Improvements District	Sewer Lift Station Upgrades	A single six (6) inch asbestos cement sewer main installed in the mid 1960s conveys pumped raw sewage from the Lift Station A Collection Tank to remote Facultative Ponds and Sprayfields. Approximately 5,200 feet of the sewer trunk line is under high pressure due to a 231 foot change in elevation from the tank to terminus manhole and frictional headloss within the pipe. Combination of age (50 years), high working pressure (> 100 psi) and asbestos cement pipe properties have caused leaks and breaks prompting emergency repairs. The existing AC sewer main has inadequate hydraulic capacity to handle 100-year design storm inflows per requirements mandated by the Central Valley RWQCB. The project will replace 3,000 feet of sewer main and appurtenances from Lift Station A traversing below the Storage Pond access road.	10	8	$1,094,250	Yes	Yes	Implementable Project	Medium	Medium	20
167	City of Davis	Davis Greenbelts Landscape Conversions	One of the greatest assets to the Davis park system is the network of more than 60 miles of Green Belts with bike trails that connect parks and neighborhoods throughout the City. Each belt is typically between 100 to 200 feet across with an 8-foot bike path meandering through the middle. Most of the landscape consists of irrigated turf and shade trees. Large open turf areas are greatly appreciated as multi-use event areas for local neighbors, but a majority of the space is mostly utilized by the public as aesthetic while passing through on the bike path. It is these spaces that are great candidates to convert existing turf to a low water use, drought tolerant landscape with interpretive learning opportunities to show the general public ways of converting their landscapes at home.	10	5	$234,819 per acre converted	Yes	No	Implementable Project	Medium	Medium	11
169	City of Davis	Recycled Water Projects	The City is currently evaluating the feasibility of various uses of recycled water using WWTP effluent. The WWTP is being upgraded allowing the City to produce high quality recycled water meeting Title 22 Standards. This project would be to assist with funding implementation of the chosen recycled water use(s). These uses may include but are not limited to water for: habitat, Yolo County Landfill, City-owned lands south of the WWTP, agricultural users in the area, City municipal uses, and filling stations.	10	3	$4.5 million	Yes	No	Implementable Project	High	Medium	23
170	Harbor View Mutual Water	Water Storage Tank Replacement Project	The community currently has two 50 year old redwood storage tanks that have started to leak a significant amount of water due to rot and age. One of the tanks is in the middle of the water system and can't be taken out of service for maintenance. Neither tank is seismically secured to the cement foundation under them. The company contracted Water Works Engineering to draft us a PER as to the best way to solve our water storage tank problems, it was determined that replacement of all three of our current tanks with two new bolted steel tanks would be the cheapest and easiest fix for the long term. The estimated replacement cost the entire project is 1.3 million.	10	6	$1,361,068	Yes	No	Implementable Project	High	Medium	23
174-YS	City of Davis	Feasibility Study for Stormwater Trash Control Measures	Feasibility study to assess options for stormwater trash control measures. This study will assess the best method(s) to help the City meet mandatory requirements for trash screening to prevent trash from entering waterways. One particular area of concern is Channel A. An option for this area is to install trash racks/debris cages in the Wildhorse Basin to address issues with trash flowing from the area directly into Channel A. There is currently no barrier between the stormwater from the basin and the channel. This study would provide an assessment of potential options to comply with the trash amendment requirements of the Small MS4 permit.	10	3	150,000 for feasibility study	No	Yes	Feasibility Study	High	Medium	19
177-YS	Yolo County	Knights Landing Storm Drain Project	Design and construct a new storm drain or culvert in the vicinity of 4th and Railroad streets in the community of Knights Landing. KL has historically experience standing water (localized flooding) in the northern portions of town that can be as deep as 2 feet in wet years. The new storm drainage would convey storm water to the County's existing drainage system on the east side of Railroad Street. Design and construction are proposed to be completed by Public Works.	10	2	$100,000	Yes	Yes	Implementable Project	High	Medium	14
178-YS	Yolo County/	Knights Landing Underground Drainage Study	This project would model new underground drainage facilities for the entire Town of Knights Landing to determine location(s) for outfall to the Sacramento River or Ridge Cut Slough. Preliminarily it is estimated that the underground drainage facilities would be sized for 30-50 cfs of storm flows and the system outfall would need to be sized accordingly to prevent backup of the system. Outfall locations would also need to be evaluated to determine if the downstream capacity would be sufficient to convey this additional flow during storm events. LID strategies will be used to ensure discharge water quality does not impact the Sacramento River or Ridge Cut Slough water quality.	10	3	$100,000	No	Yes	Planning	High	Medium	14
179-YS	Yolo County FCWCD with Madison CSD	Madison Drainage Study	This project would model new underground drainage facilities for the entire Town of Madison to determine location(s) for outfall (possibly Cache Creek, the South Fork Willow Slough or Cottonwood Slough). Preliminarily it is estimated that the underground drainage facilities would be sized for 110 cfs of storm flows and the system outfall would need to be sized accordingly to prevent backup of the system. Outfall locations would also need to be evaluated to determine if the downstream capacity would be sufficient to convey this additional flow during storm events. LID strategies will be used to ensure discharge water quality does not negatively impact downstream water quality.	10	3	$100,000	No	Yes	Planning	High	Medium	14
182-YS	City of Davis	Site Survey for Converting Rocky Swales to Bioswales	In public greenbelts and parks, convert existing rocky drainage swales into bioswales to provide environmental benefits. Convert drainage in areas that currently use rocky swales, such as in Mace Ranch Park and the housing development behind Montgomery Elementary in South Davis, to bioswales. Converting the existing rocky swales to vegetative bioswales will encourage microhabitats, beneficial insects, infiltration, transpiration, and evaporation to better showcase stormwater retention techniques. Other possible sites include Evergreen Pond and North Star Park.	10	2	Estimate of $40,000 for site survey and initial project design	No	Yes	Planning	Medium	Medium	3
183-YS	City of Davis	Site Survey for Hardscape Conversion to Pervious Pavement	Survey public parking lots that currently have impervious surfacing to assess the practicality of converting these locations to pervious pavement when they are in need of resurfacing, maintenance or redesign. Portions of the pathways near the sites could potentially highlight permeable pavers in addition to the parking lots. Projects could be planned with improvements to incorporate bioswales, low water use plants, and other low-impact design measures into any landscape changes at the site. The projects would include signage on stormwater techniques implemented and information about water quality.	10	2	Estimate of $40,000 for site survey and initial project design	No	Yes	Planning	High	Medium	14

Table D-3: Westside IRWM Plan Project Screening Results (sorted by Total Criteria Score)

Project No.	Lead Agency /Organization	Project Title	Planned Project/Program Types and Activities	Total Criteria Score	Readiness	Project Cost	Potential DWR Impl. Grants	Potentially Critical DAC Project	Project Type	Importance	Urgency	Primary Objective
191-YS	Madison CSD	Western Yolo Sloughs Citizen Science Program	Sloughs surrounding the Madison area are known to cause regular flooding in Madison and beyond. Namely, Cottonwood Slough, Lamb Valley Slough, the South Fork Willow Slough and the Madison Drain have been identified as sources of flooding in Madison in various studies and reports. It seems likely that mitigation upstream in these sloughs to remove water before the sloughs reach Madison and Esparto, and management of the sloughs to keep them free of debris could help in alleviating flooding in the area. However, none of these channels are monitored, therefore, it is unknown what capacity these sloughs have, when that capacity is reached (during or after a storm), or what type of mitigation would be most fitting for each slough. Additionally, it is not known if the Winters Canal is also full when sloughs are full, or if it may have capacity that could be used to alleviate the sloughs when they are over flowing. The Madison CSD with its partners will develop a citizen science program where Madison residents and residents from the nearby areas will visit sloughs and canals that carry water in and around Madison following rain events. The program members will record whether they see water flowing in the sloughs and canals at previously determined locations, and record observations such as whether the channels are successfully carrying the flows, appear to be obstructed, or are overflowing. The information will be compiled in an easy to use format so that members can easily share the information with Madison CSD and others. The information will initially be used until a flow monitoring network can be developed in the sloughs, and potentially beyond. The goal is to gain a better understanding of the slough flow patterns and information that can be used to plan for flood mitigation in Madison, while also engaging and educating the community.	10	2	$0	No	Yes	Planning	High	Medium	14
4	Lower Putah Creek Coord. Committee	Dry Creek Wildlife Migration Corridor Feasibility Study	Feasibility study to restore 2 miles of wildlife corridor from the confluence of Putah Creek along Dry Creek on the western boundary of Winters	11	4	$20,000	No	No	Feasibility Study	Medium	Medium	3
5	Lower Putah Creek Coord. Committee	Duncan-Giovannoni Channel Restoration Feasibility Study	Determine feasibility to restore 80 acres of riparian forest, reconfigure one mile of river channel, remove 96 occurrences (7 net acres) of 5 primary invasive weeds. Convert five acres of excess open water (gravel pit captured by the channel) to floodplain, restore natural meander form, pool-riffle sequence, functional floodplain elevations, salmon spawning habitat and native vegetation.	11	4	$35,000	No	No	Feasibility Study	Medium	Medium	3
6	Lower Putah Creek Coord. Committee	Glide Ranch Channel Restoration Feasibility Study	Feasibility study to restore 160 acres of riparian forest, reconfigure 11,250 feet of river channel, remove 128 occurrences (8 net acres) of 8 primary invasive weeds. Grade floodplain to functional elevation, convert 15 acres of excess open water to floodplain, restore natural meander form, pool-riffle sequence, salmon spawning habitat and native vegetation.	11	4	$30,000	No	No	Feasibility Study	Medium	Medium	3
8	Lower Putah Creek Coord. Committee	Lower McNamara Pool Channel Reconfiguration Feasibility Study	Determine feasibility to: restore 25 acres of riparian forest, reconfigure 3,150 feet of river channel, remove 25 occurrences (0.5 net acres) of 6 primary invasive weeds. Convert seven acres of excess open water (gravel pit captured by the channel) to floodplain, restore natural meander form, pool-riffle sequence, functional floodplain elevations, salmon spawning habitat and native vegetation.	11	4	$30,000	No	No	Feasibility Study	Medium	Medium	3
9	Lower Putah Creek Coord. Committee	MacQuiddy Channel Reconfiguration Feasibility Study	Determine feasibility to: restore 34 acres of riparian forest, reconfigure 3,800 feet of river channel, remove 44 occurrences (6 net acres) of 5 primary invasive weeds. Grade floodplain to functional elevation, restore natural meander form, pool-riffle sequence, salmon spawning habitat and native vegetation.	11	4	$25,000	No	No	Feasibility Study	Medium	Medium	3
10	Lower Putah Creek Coord. Committee	Mace to Road 106A Channel Restoration Feasibility Study	Feasibility study to restore 305 acres of riparian forest, reconfigure 2.7 miles of river channel, remove 124 occurrences (12.8 net acres) of 5 primary invasive weeds. Grade floodplain to functional elevation, convert 17 acres of excess open water to floodplain, restore natural meander form, pool-riffle sequence, salmon spawning habitat and native vegetation.	11	4	$40,000	No	No	Feasibility Study	Medium	Medium	3
11	Lower Putah Creek Coord. Committee	Nishikawa Channel Restoration Feasibility Study	Feasibility study to restore 37 acres of riparian forest, reconfigure 2,430 feet of river channel, remove 20 occurrences (1.36 net acres) of 6 primary invasive weeds. Grade floodplain to functional elevation, convert 3 acres of excess open water to floodplain, restore natural meander form, pool-riffle sequence, salmon spawning habitat and native vegetation.	11	4	$20,000	No	No	Feasibility Study	Medium	Medium	3
12	Lower Putah Creek Coord. Committee	Old Davis Road to Mace Channel Restoration Feasibility Study	Feasibility study to restore 190 acres of riparian forest, reconfigure 3.4 miles of river channel, remove 172 occurrences (5 net acres) of 9 primary invasive weeds. Grade floodplain to functional elevation, convert 27 acres of excess open water to floodplain, restore natural meander form, pool-riffle sequence, salmon spawning habitat and native vegetation.	11	4	$40,000	No	No	Feasibility Study	Medium	Medium	3
13	Lower Putah Creek Coord. Committee	Olmo-Hammond-UCD Channel Restoration Feasibility Study	Feasibility study to restore 109 acres of riparian forest, reconfigure 9,765 feet of river channel, remove 70 occurrences (2.5 net acres) of 9 primary invasive weeds. Grade floodplain to functional elevation, convert 17 acres of excess open water to floodplain, restore natural meander form, pool-riffle sequence, salmon spawning habitat and native vegetation.	11	4	$35,000	No	No	Feasibility Study	Medium	Medium	3
16	Lower Putah Creek Coord. Committee	Restoria Channel Restoration Feasibility Study	Feasibility study to restore 93 acres of riparian forest, reconfigure 4,300 feet of river channel, remove 46 occurrences (3.2 net acres) of 6 primary invasive weeds. Grade floodplain to functional elevation, convert 2 acres of excess open water to floodplain, restore natural meander form, pool-riffle sequence, salmon spawning habitat and native vegetation.	11	4	$25,000	No	No	Feasibility Study	Medium	Medium	3
17	Lower Putah Creek Coord. Committee	Road 106A to Yolo Bypass Channel Restoration Feasibility Study	Feasibility study to restore 52 acres of riparian forest, reconfigure 6,000 feet of river channel, remove 42 occurrences (8 net acres) of 6 primary invasive weeds. Grade floodplain to functional elevation, convert 11 acres of excess open water to floodplain, restore natural meander form, pool-riffle sequence, salmon spawning habitat and native vegetation.	11	4	$30,000	No	No	Feasibility Study	Medium	Medium	3
18	Lower Putah Creek Coord. Committee	Russell Ranch Channel Restoration Feasibility Study	Determine feasibility to: restore 50 acres of riparian forest, reconfigure 5,500 feet of river channel, remove 91 occurrences (2.75 net acres) of 8 primary invasive weeds. Grade floodplain to functional elevation, convert 7 acres of excess open water to floodplain, restore natural meander form, pool-riffle sequence, salmon spawning habitat and native vegetation.	11	4	$30,000	No	No	Feasibility Study	Medium	Medium	3
19	Lower Putah Creek Coord. Committee	Stevenson Bridge Channel Restoration Feasibility Study	Feasibility study to restore 22 acres of riparian forest, reconfigure 2,100 feet of river channel, remove 29 occurrences (0.5 net acres) of 6 primary invasive weeds. Grade floodplain to functional elevation, convert 1.5 acres of excess open water to floodplain, restore natural meander form, pool-riffle sequence, salmon spawning habitat and native vegetation.	11	4	$25,000	No	No	Feasibility Study	Medium	Medium	3
21	Lower Putah Creek Coord. Committee	Upper McNamara Pool Channel Reconfiguration Feasibility Study	Determine feasibility to restore 30 acres of riparian forest, reconfigure 3,300 feet of river channel, remove 52 occurrences (4 net acres) of 7 primary invasive weeds. Convert five acres of excess open water (gravel pit captured by the channel) to floodplain, restore natural meander form, pool-riffle sequence, functional floodplain elevations, salmon spawning habitat and native vegetation.	11	4	$30,000	No	No	Feasibility Study	Medium	Medium	3
22	Lower Putah Creek Coord. Committee	Warren Weed Control	Restore 11 acres of riparian forest, 1,700 of river channel, remove 26 occurrences (2 net acres) of 8 primary invasive weeds. One of the densest thickets of eucalyptus with over 300 trees averaging 24 inches in diameter.	11	5	$175,000	Yes	No	Implementable Project	Medium	Medium	3
23	Solano County Water Agency	Aquatic Nuisance Vegetation Management	The goal of the Aquatic Nuisance Species Management Plan is to minimize the harmful ecological, economic, and social impact of aquatic nuisance species through prevention and management of introduction, population growth, and dispersal into, within, and from Solano County.	11	6	$0	No	No	Implementable Program	High	High	7
24	Solano County Water Agency	Commercial Washer Rebate Program	This program will offer financial incentives to commercial customers (businesses, multi-family units) who purchase or lease (five-year lease) select commercial washers for commercial laundry or common area multi-family installations.	11	4	$245,000	No	Yes	Planning	Medium	Medium	11
30	Solano County Water Agency	North Bay Aqueduct Alternate Intake Project	The NBA AIP includes the construction and operation of a new intake and pumping plant on the Sacramento River, conveyance pipeline, and inline storage to divert and convey water from the Sacramento River connecting to the existing NBA pipeline near the North Bay Regional Water Treatment Plant in Fairfield.	11	5	$500,000,000	Yes	No	Implementable Project	High	Medium	23
42	Solano County Water Agency	Ulatis Flood Control Channel Grade Control	This is a programmatic project to install rock cross-vanes at most remaining bridge crossings to arrest scour and promote some habitat diversity. There are approximately 20 location that would benefit from these installations.	11	6	$500,000	Yes	No	Implementable Project	High	Medium	14

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48	Crescent Bay Improvement Company	Crescent Bay Improvement Company	Crescent Bay improvement Company has been on a Boil Water Order since 1999. There are 3 objectives to this project:1) replace the 80-year old distribution lines which are leaking, 2) drill a well and replace our surface water source with ground water, and 3) explore the feasibility of and purchase a neighboring water company and develop an intertie with that system.	11	3	$1,000,000	Yes	Yes	Implementable Project	High	High	22
50	Dixon Regional Watershed Joint Powers Authority	Eastside Drain	The Eastside Drain project will construct segments of new channels and enlarge existing channels. The Project will add an increment of 120 cfs to the Dixon Main Drain / V-drain Enlargement Project.	11	1	$5,251,000	No	No	Planning	High	Medium	14
55	Clearlake Oaks County Water District	Plant Intake	Install a new water intake in the lake that is capable of drawing water from different depths, with installation of an amiad pre-filter at the pier where the intakes are located. This will allow a greater control of influent turbidity and pH by controlling what depth the intake will be drawing water from.	11	3	$0	No	Yes	Planning	High	High	22
66	Lake County Water Resources Department	Clear Lake Water Quality Assessment	Planning/assessment project to assess the current limnological conditions and to identify and select measures necessary for Clear Lake to meet the water quality objectives as specified in the Basin Plan, as required by the Basin Plan amendment implementing the Nutrient TMDL for Clear Lake.	11	4	$540,000	No	Yes	Planning	High	Medium	19
67	Lake County Water Resources Department	Cache Creek Flow Enhancement Project	This project will evaluate the removal and maintenance of the gravel bar at the Grigsby Riffle to reduce flow restrictions in the Cache Creek Outlet Channel.	11	3	$200,000	No	Yes	Feasibility Study	High	Medium	23
71	Mendocino National Forest	Hazardous Fuels Reduction in the Upper Lake Watershed	Management of 28,600 acres within the Upper Lake watershed, including hazardous fuels reduction on areas to be determined during the planning stage.	11	3	$0	No	Yes	Conceptual	Medium	Medium	15
81	Tuleyome, Inc.	Comprehensive Mercury Assessment and Implementation for the Westside Region	This project will: 1) compile and georeference existing data pertinent to characterization of known and potential mercury priority areas in the Westside Region 2) monitor streambeds within the Putah Creek Watershed 3) upload relevant data into a regional or statewide on-line library 4) develop a summary 5) develop best management practices toolkit 6) identify 2-3 feasible priority projects and 7) develop implementation measures using the Toolkit and decision support tools.	11	4	$492,000	No	Yes	Planning	High	Medium	19
102	Reclamation District No. 2068	SCADA Implementation	Install/coordinate local and regional SCADA system to monitor water diversions, pumping plant operations, flood water elevations, groundwater elevations, water distribution within the agency jurisdiction.	11	2	$250,000	No	No	Conceptual	High	Medium	18
111	West Sacramento Area Flood Control Agency	Deep Water Ship Channel East Levee Repair	Correct deficiencies, protect against underseepage, and maintain the Port of West Sacramento levees to current standards for FEMA 100 yr and urban levee 200 year levels of flood protection.	11	8	$7,676,000	Yes	No	Implementable Project	High	Medium	14
113	West Sacramento Area Flood Control Agency	Port of West Sacramento North and South Levee Repair	Correct deficiencies, protect against underseepage, and maintain the Port of West Sacramento levees to current standards for FEMA 100 yr and urban levee 200 year levels of flood protection.	11	4	$58,400,000	Yes	No	Implementable Project	High	Medium	14
122	Yolo County, Natural Resources Division	Cache Creek Parkway Plan	Once complete the Plan will result in a comprehensive planning document that will guide the restoration and ultimate uses of County owned lands within the Cache Creek Area Plan boundary.	11	8	$300,000	Yes	No	Implementable Project	Medium	Medium	3
129	Putah Creek Council	Native Plant Nursery to Support Putah-Cache Ecotype Restoration	Putah Creek Council (PCC) will manage a native plant nursery to grow Putah Creek plants from wild-collected seeds and cuttings at a nursery at the LA Moran Reforestation Center, Davis.	11	6	$16,000	Yes	No	Implementable Project	Medium	Medium	3
134	RWMG with selected Lead Agency	Climate Change Adaptation Study	Regional study to advance understanding of the effects of climate change and consider potential modifications to the water management system.	11	2	$0	No	No	Planning	High	Medium	14
141	Reclamation District 2035	Conjunctive Use Study	The project consists of the study and analysis of the coordinated use of surface and groundwater that could benefit the agricultural, urban, and environmental interests within, nearby and downstream of Yolo County, especially the North Delta region.	11	2	$0	No	No	Planning	High	Medium	24
154	Lake Berryessa Resort Improvements District	Sewer Lift Station Upgrades	Sewer Lift Stations B, C and D in the residential collection system have insufficient firm pumping capacity and to handle 100-year design storm inflows per requirements mandated by the Central Valley RWQCB. The project will replace progressive cavity style pumps with latest technology chopper pumps, renew yard piping plus appurtenances and upgrade the electrical systems.	11	8	$635,500	Yes	Yes	Implementable Project	Medium	Medium	20
156	Solano County Water Agency	Solano and Napa County Drought Relief Project	This project offers drought relief and long-term water savings in the form of a package of water conservation programs to improve water use efficiency throughout eastern Solano County and unicorporated Napa County. The programs include 1) Water-Efficient Landscape Rebates, 2) Weather-Based Irrigation Controller Rebates, 3) High-Efficiency Washer Rebates and 4) the installation of High-Efficiency Toilets and Urinals in commercial and multi-family buildings.	11	8	$500,000	Yes	No	Implementable Project	Medium	Medium	11
156	Solano County Water Agency	Solano and Napa County Drought Relief Project	This project offers drought relief and long-term water savings in the form of a package of water conservation programs to improve water use efficiency throughout eastern Solano County and unicorporated Napa County. The programs include 1) Water-Efficient Landscape Rebates, 2) Weather-Based Irrigation Controller Rebates, 3) High-Efficiency Washer Rebates and 4) the installation of High-Efficiency Toilets and Urinals in commercial and multi-family buildings.	11	8	$500,000	No	No	Implementable Project	Medium	Medium	11
162	City of Davis	Drainage Channel Feasibility Study	Looking to study feasibility to enhance the five separate storm drain conveyance channels to improve evoptranspiration through design improvements. This feasibility study would provide specific ways to improve the design of the existing facilities to improve water quality for the discharges that occur from each channel. The facilities are located Citywide. The study may yield that only one channel is worthy of modification. In particular, the City would like to study the El Macero Drainage Channel in southeast Davis as it is believed to be the channel with that would benefit the most from design improvements. A map can be provided to aid in located each of these drainage channels. If project is developed an educational component can be added.	11	4	80,000 for feasibility study	No	Yes	Feasibility Study	High	Medium	14
163	City of Davis	Retention Pond Feasibility Study	Looking to study feasibility for design enhancements for the seven separate storm drain retention ponds to improve evoptranspiration and water quality in the City's discharge. This feasibility study would provide specific ways to improve the design of the existing facilities to improve water quality for the discharges that occur from each facility. The facilities are located Citywide, but all of the ponds are located north of I 80 in the northern two thirds of the City. The study may yield that only one pond is worthy of modification. In particular, the City would like to study the Core Area Pond in central Davis as it believed to be the pond that receives the most pollutants from its drainage shed. A map can be provided to aid in located each of these ponds. If project is developed an educational component can be added.	11	5	100,000 for feasibility study	No	Yes	Feasibility Study	High	Medium	19
168	Davis Joint Unified School District	Harper Junior High Water Conservation Improvements	Frances Harper Junior High School presents a unique opportunity for water conservation through education and the creation of outdoor classrooms. The school serves over 600 students in grades 7 to 9. Located on East Covell Boulevard in Davis, the property is a 45-acre parcel with about 23 acres in active use. Primary improvements for water conservation are proposed to occur at the front and interior of the site. Current landscape at the front of the school includes 2.3 acres of turf that is primarily for the purpose of aesthetics. There are also interior courtyards with underutilized turf panels that total a little over one-third of an acre. Planned improvements for these areas include replacing the turf with drought tolerant plants, pollinator gardens, benches, bio swales and decomposed granite paths. Interpretive panels would be installed to inform students and visitors of the benefits of the water conservation improvements and the relative ecosystems for each environment. Interior improvements would also include capturing roof water from downspouts and directing the water to bio swales where it would be filtered before entering the storm drain system or simply percolate into the soil. Interior courtyard landscapes would also be laid out to accommodate a setting for outdoor classrooms.	11	4	$862,968 if full project implemented	No	No	Implementable Project	Medium	Medium	11

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Table D-3: Westside IRWM Plan Project Screening Results (sorted by Total Criteria Score)

Project No.	Lead Agency /Organization	Project Title	Planned Project/Program Types and Activities	Total Criteria Score	Readiness	Project Cost	Potential DWR Impl. Grants	Potentially Critical DAC Project	Project Type	Importance	Urgency	Primary Objective
173-YS	City of Davis	Bike Tunnel Landscaping Redesign for Stormwater Quality Improvement	Redesign the current drainage and landscaping near greenbelt bike tunnels to prevent flooding from stormwater. Assess the top highly-trafficked tunnels with drainage issues within the greenbelt system. Improved drainage would include re-landscaping the areas surrounding these tunnels to prevent flood events and improve stormwater quality discharges through the use of different stormwater low impact design methods through infiltration, transpiration and evaporation. Each site could showcase a different method; signage near the tunnels would illustrate the project and highlight elements of the project design.	11	2	Estimate of $40,000 for site survey and initial project design	Yes	Yes	Implementable Project	High	Medium	14
185-YS	Yolo County Flood Control and Water Conservation District	West Adams Canal Renovation and China Slough Rehabilitation Project	Enlargement and improvement of the Yolo County Flood Control & Water Conservation District's (District) West Adams, East Adams, and Acacia Canal system, and rehabilitation and improvement of China Slough (a natural storm drainage channel). The District's canal system would need to be modernized to allow for a "demand" system and to ensure no spills. China Slough would need to be cleaned, an operating road constructed, and installation of about eight check structures. Improvements to the canals and slough would be implemented to convey 10,000 acre-feet of surface water per year through China Slough to farmers in the Yolo-Zamora region (~4,200 acres).	11	2	2017$ (15,671,929)	Yes	No	Implementable Project	High	Medium	24
192	Solano Resource Conservation District	Barker Slough Water Quality and Habitat Restoration Project	Barker Slough is part of the North Bay Aqueduct (NBA), providing drinking water for up to 500,000 people in urban areas of Napa and Solano Counties. It is also a major tributary to Lindsey Slough, part of the Cache Slough complex of the Sacramento-San Joaquin River Delta. Nearly all of its length is ranched, and in many areas, cattle have free access to the slough. The water coming from the slough has been shown to have high amounts of organic carbon, bacterial coliform, turbidity and salts that exceed drinking water standards. Past projects have attempted to fence cattle off the slough and allow water quality to improve, but these have not been well maintained and cattle continue to degrade water quality. This project would install/repair fencing and off-stream cattle troughs at multiple project sites along Barker Slough, and install native riparian vegetation in this currently denuded watershed. A total of 5 stream miles will be fenced off from cattle and 5 acres of riparian habitat will be restored. In addition, a Barker Slough Watershed Management Plan will be created to bring ranchers, landowners, and urban water users together to identify priority projects that will improve and maintain water quality.	11	2	$300,000	Yes	No	Implementable Project	High	Medium	19
195	City of Woodland	Woodland Recycled Water Utility Expansion Project (Phase II)	The City of Woodland currently has tertiary treated Title 22 effluent from the City's Water Pollution Control Facility (WPCF) providing a firm capacity of approximately 2,700 gpm for recycled water. Woodland has an existing recycled water utility serving 2 City parks and a large industrial user in the industrial area northwest of the Water Pollution Control Facility (WPCF). The City has planned for an expansion of the recycled water utility into the Spring Lake Area of the City and also to serve the planned Woodland Research & Technology Park. There are several existing large water users that would use the recycled water for irrigation of parks and roadside landscaping. Businesses in the Research Park would utilize recycled water for cooling buildings. In addition, recycled water would be available to extend into new development areas for landscape irrigation. Portions of recycled water pipelines in Spring Lake have already been constructed by development projects. Providing recycled water to these areas would reduce demands on the potable water distribution system and reduce the demand on the groundwater aquifer. The recycled water pipeline would be constructed in the City's existing right of way. The City has recently completed a Mitigated Negative Declaration for the project. The expected initial demand for recycled water would exceed 110 acre feet per year. The Capital Cost for the Project is approximately $2.5M.The recycled water project includes construction of approximately 10,000 feet of 8" diameter purple pipe and a 100,000 gallon storage tank. The project also provides recycled water for expansion (Phase III) to west of Highway 113.	11	4	$2,500,000	Yes	No	Implementable Project	High	Medium	23
196	City of Woodland	Woodland Recycled Water Utility Expansion Project (Phase III)	The City of Woodland currently has tertiary treated Title 22 effluent from the City's Water Pollution Control Facility (WPCF) providing a firm capacity of approximately 2,700 gpm for recycled water. Woodland has an existing recycled water utility serving 2 City parks and a large industrial user in the industrial area northwest of the Water Pollution Control Facility (WPCF). The City has planned for an expansion of the recycled water utility into the Sports Park Area of the City and also to serve the planned SP1B and SP1C areas in the City's General Plan. There are several existing large water users that would use the recycled water for irrigation of parks and roadside landscaping. In addition, recycled water would be available to extend into new development areas for landscape irrigation. Providing recycled water to these areas would reduce demands on the potable water distribution system and reduce the demand on the groundwater aquifer. The recycled water pipeline would be constructed in the City's existing right of way. The City has recently completed a Mitigated Negative Declaration for the project. The expected initial demand for recycled water would exceed 70 acre feet per year. The Capital Cost for the Project is approximately $925,000.The recycled water project includes construction of approximately 4,300 feet of 8" diameter purple pipe.	11	4	$925,000	Yes	No	Implementable Project	High	Medium	23
198	Solano Resource Conservation District	Ulatis Creek Riparian Floodplain Restoration Project	This proposed habitat restoration project would be a partnership between the landowner, SRCD and agency partners to control non-native weeds and restore 35 acres of unique riparian floodplain habitat to perennial grasses, forbs, trees and shrubs. The project will plant native species of plants that are well adapted to the local hydrology and soil conditions on 35 acres of Delta riparian floodplain. The project will result in the increase in diversity and richness of native species vegetation that would improve the habitat and attract a myriad of local wildlife throughout the year. This project is designed in such a way that the primary function of the channel as a flood control feature is not compromised. Water quality will be improved by maintaining perennial ground cover that will serve as erosion control and as a filter. Occasional grazing by livestock will be an important management tool for maintaining the site long term to reduce excessive thatch build-up and to manage the acceptable level of woody vegetation by the local managing flood control agencies. This project will remain part of the working agricultural landscape, managed long term by Emigh Livestock (landowner) following the operating and maintenance easement guidelines of the channel area by the Solano County Water Agency.	11	2	$350,000	Yes	No	Implementable Project	Medium	Medium	3
20	Lower Putah Creek Coord. Committee	Thompson Canyon Bank Stabilization Design and Permits	This study provides plans, specifications and permits to restore 1.5 miles of Thompson Canyon at the confluence of Putah Creek, stabilizing a poorly engineered legacy road that annually degrade water quality and smother prime trout spawning habitat below Monticello Dam.	12	5	$100,000	Yes	No	Implementable Project	Medium	Medium	3
69	Lake County Water Resources Department	Adobe Creek Conjunctive Use Project	Addition of conjunctive use to the operation of Highland Creek Reservoir (Lake County), through the addition of sluice gates to the existing Principal Spillway structure at Highland Creek Dam.	12	3	$700,000	Yes	Yes	Implementable Project	High	Medium	22
100	Reclamation District No. 2068	Irrigation Billing / Irrigation Management System Improvements	The software for a unique water billing is in need of an update, including enhancements in the user interface, data management capability and software/hardware compatibility.	12	3	$50,000	No	No	Maintenance/Monitoring	Medium	Medium	12
108	Tuleyome, Inc.	Sulphur Creek Mercury and Sediment Reduction Project	This project will: 1) Characterize mercury as required to enable erosion control work, 2) Hydrologically disconnect up to 23 miles of road networks that are currently contributing runoff and contaminated sediment to downstream waters, 3) Stabilize 2000 feet of eroding stream banks that are over-steepened and delivering methylmercury contaminated sediment into the stream system, 4) Treat 115 road-related erosion and sediment delivery sites and 5) Stabilize three major valley bottom headcuts that are resulting in serious valley fill erosion along the main stem Sulphur Creek, desiccating alkali wet-meadows and lowering the water table.	12	3	$900,000	Yes	Yes	Implementable Project	High	Medium	19

WESTSIDE SAC IRWM
Integrated Regional Water Management Plan

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Project No.	Lead Agency /Organization	Project Title	Planned Project/Program Types and Activities	Total Criteria Score	Readiness	Project Cost	Potential DWR Impl. Grants	Potentially Critical DAC Project	Project Type	Importance	Urgency	Primary Objective
119	Yolo County Flood Control and Water Conservation District	Moore Siphon Reliability/Restoration Project	Due to the age and exposure of the 72" corrugated metal pipe, as well as Cache Creek erosion issues at both ends of the siphon, the siphon well either need to be replaced or rehabilitated in the near future.	12	5	$1,000,000	Yes	Yes	Implementable Project	Medium	Low	10
130	Putah Creek Council	Pollution Prevention and Watershed Education Project	Putah Creek Council (PCC) will educate Winters students, residents, and visitors about storm water and urban runoff, watershed function, and wildlife habitat along Putah Creek via our "Pollution Prevention and Watershed Education" project.	12	6	$23,500	Yes	No	Implementable Project	Medium	Low	2
155	Solano County Water Agency	Lower Putah Creek Restoration: Monticello Dam to Dry Creek	The project restores over 600 acres of riparian forest along nine river miles (30% of the length and area of the riparian corridor) from Monticello Dam to Dry Creek (see Figure 1) replacing 223 occurrences of invasive weeds (20 net acres) with weed resistant native vegetation, restoring natural channel form and function including meander form and pool-riffle-run sequence to 2,400 feet of channel, creating 12 new salmon spawning riffles, grading 45 acres of floodplain to functional elevation, converting 3 acres of excess open water to floodplain, lowering water temperatures and adding an acre of shaded riverine habitat.	12	7	$666,666	Yes	No	Implementable Project	Medium	Medium	3
161	City of Davis	Leak Detection Survey	Hire a consultant to use acoustical listening technology to survey water mains and laterals within the City of Davis water distribution area to detect and locate leaks. Prioritize leaks based on severity. Purchase leak detection equipment to install within distribution system to continuously monitor for potential leaks at key areas identified through the leak detection survey.	12	7	$150,000	Yes	No	Implementable Project	Medium	Medium	11
164	City of Davis	Russel Boulevard Demonstration LID Project	The project is to be located in front of City Hall (already proposed and working its way through the City's Parks and Community Services Department) along Russell Boulevard. Russel Boulevard is one of the City's prominent east-west arterials. The project is to create a vegetated swale to treat stromwater runoff on the north side of the roadway. The surface area it will treat is 8,000 square feet. It is proposed to treat drainage prior to discharge to the City's stormdrain system consistent with the standards of Section E.12 of the State's Small MS4 Phase II General Permit (Permit). A map can be provided to aid in the location of this project.	12	7	42,763 for construction	Yes	Yes	Implementable Project	High	Medium	14
172-YS	University of California, Davis	Arboretum Waterway Wetland Restoration and Enhancement	UC Davis is proposing to enhance the Arboretum Waterway, which captures stormwater discharge from 900 acres of the UC Davis campus, by establishing a wetland area to treat stormwater discharge and recycled water prior to discharge to Putah Creek. This project will include establishing wetlands, increasing stormwater retention, slope stabilization, enhancing a recreation area for the public, utilization of recycled water for irrigation, and creating public education opportunities.	12	3	$4 million	Yes	No	Implementable Project	Medium	Medium	3
176-YS	Yolo County Flood Control and Water Conservation District	Forbes Ranch Regulating Pond	Develop and construct a 200 acre-feet regulating pond to reduce drainage and flood waters through the town of Madison and District canal system. Divert stormwater flows to the pond through the existing conveyance. The regulating pond would provide storm water retention during the winter and would allow for groundwater recharge in the spring and summer when capacity and water is available. The regulating pond would provide water quality benefits by allowing the sediments in the runoff to settle and lessening the transfer of pollutants and chemicals downstream. The surrounding area would have native vegetation that would promote benefits for wildlife habitat, and the property would allow for groups to visit and learn about the multi-functional project. Similar to the District's Chapman Reservoir, we would install automated gates and monitoring devices at the regulating pond that would be connected to the District's SCADA system for real-time management.	12	3	$700,000	Yes	Yes	Implementable Project	High	Medium	14
184-YS	Yolo County FCWCD with Madison CSD	Upstream Flow Management to Prevent Madison Flooding and to Facilitate GW Recharge	The District proposes to manage high flows from Lamb Valley, Cottonwood and S. Fork Willow Sloughs using the existing canal system as well as other means such as upstream check dams. During storm events Willow Slough floods the Town of Madison. The Canal system can be used to convey water away from the Town of Madison and reduce flood levels while also managing peak flows through use of check dams, particularly in Lamb Valley Slough. Flow and water level monitoring could serve several purposes. GW recharge can be accomplished through canal bottoms and potential recharge/detention basins. P. 29 and 30 of the 2012 FIS describe some of the upstream channel capacity limitations and a review of FIRM maps shows several points of intersection between the sloughs and canals to be explored. This project can be coordinated with Raising Highway 16 project.	12	1	To be determined	Yes	Yes	Implementable Project	High	Medium	14
186-YS	City of Davis	West Area Pond Redesign	Redesign the West Area Pond (detention basin) to utilize agricultural summer flows to enhance aquatic wildlife habitat and improve water quality. This proposal involves redirecting existing agricultural runoff through the Stonegate drainage pond and pumping it into the West Area Pond. This would enhance aquatic habitat while improving any water discharges through retention, enhancing opportunities for infiltration, transpiration and evaporation.	12	3	100,000 for feasibility study	Yes	Yes	Implementable Project	Medium	Medium	3
189-YS	Yolo County Flood Control and Water Conservation District	Yolo County Drains and Sloughs -- Governance and Maintenance Study	Plan that will identify governing bodies and maintenance responsibilities involved in the County's drains, canals, and sloughs. The District and County will work together to develop a governance and maintenance study that will assist in providing effective rural storm water management responsibilities based on the defined governing bodies. Plan/investigation will initiate a legitimate storm water management program in Yolo County.	12	3	$150,000	No	Yes	Planning	High	Medium	14
197	Solano Resource Conservation District	Cronin Ranch Habitat Corridor Project	This project aims to create habitat connectivity by planting native perennial grasses, trees and shrubs along more than 4 miles of irrigation and drainage canals that interlace the 2,200 acre Cronin Ranch. This project would connect other habitat restoration projects previously established by Solano RCD, and create over 35 acres of new riparian corridors in a landscape dominated by little more than irrigated pasture and hay fields. New fencing would be installed to exclude cattle from waterways, thereby reducing sediment loads and fecal contamination in waters that drain to the Lower Sacramento River. Native perennial grasses will filter out nutrients and sediment from irrigated pasture tailwater and reduce erosion and bank sloughing along waterways. The deep root systems of native grasses, shrubs and trees increase water infiltration and storage, while also sequestering carbon deep into the soil profile.	12	2	$592,000	Yes	Yes	Implementable Project	Medium	Medium	3
200	Solano Resource Conservation District	Centennial Park Pine Creek and Wetlands Habitat Restoration Project	This project will cleanup and restore wildlife habitat, while attenuating high flood events and filtering excessive eroded sediments at a 26 acre riparian creek and wetland complex located at the southern end of Centennial Park in Vacaville. Project activities include:- Removing all trash and concrete debris from 26 acres-Re-shaping and contouring the wetland area to promote plant diversity, natural wetland function, and diversity of wildlife habitat- Controlling invasive noxious weeds (including arundo, stinkwort and perennial pepperweed) on 26 acres- Planting 1,000 native trees/shrubs and seeding 10 acres of native grass and wildflowers along Pine Creek and its associated upland terraces, creating 2,000 feet of native riparian corridor.- Planting 500 native trees/shrubs and 20,000 native rush and sedge plugs in the wetland basin, creating 16 acres of native wetland marsh habitat.- Installing a 1,500 foot long asphalt walking trail and three interpretive panels along the north side of Pine Creek so that park visitors can experience and learn about riparian and wetland ecology	12	2	$600,000	Yes	Yes	Implementable Project	Medium	Medium	3
201	City of Davis	Davis Wetlands Public Access Improvements	Install user amenities at the Davis Wetlands to enhance educational and passive recreational access. Primary improvements include installation of a permanent vault toilet, observation tower with interpretive panels, and shaded picnic facility.	12	3	$150,000	Yes	No	Implementable Project	Medium	Low	13
14	Lower Putah Creek Coord. Committee	Pleasant Creek Wildlife Migration Corridor Plan	Plan to restore 7,000 feet of wildlife corridor of Pleasant Creek to the confluence with Putah Creek, stabilizing eroding banks, removing invasive weeds and planting native vegetation.	13	6	$10,000	Yes	No	Implementable Project	Medium	Medium	3
40	RWMG with selected Lead Agency	Regional Invasive Plants, Aquatic and Terrestrial Weeds Management Plan	This project will include the formation of an Invasive Species Task Force/Subcommittee to prepare a Regional Invasive Species Management/Eradication Plan that documents the extent of invasive terrestrial and aquatic species within the Westside Region; evaluates existing programs to manage invasive species that could be leveraged, and identifies supplemental programs to be developed to fill gaps in existing programs to manage invasive species.	13	3	$0	No	Yes	Implementable Program	High	High	8

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44	City of Clearlake	City of Clearlake Stormwater Management Plan (SWMP), Storm Drainage and Flood Control Project Proposal	The City of Clearlake Stormwater Management Plan (SWMP) includes development of stormwater management program implementation strategies and actions.	13	3	$400,000	No	Yes	Planning	High	Medium	19
53	California Land Stewardship Institute	Invasive Plant Removal in Ulatis Creek	This project will first map out where the Arundo is present on the 17 mile channel of Ulatis Creek, then contact the landowners who own property with Arundo to educate them about the Arundo hazards; then, with their permission, eradicate the plant on their land, and lastly revegetate areas with native trees.	13	4	$500,000	No	Yes	Planning	Medium	Medium	8
56	East Lake Resource Conservation District	Upper Putah CreekWatershed Management Plan	This project will produce a comprehensive Regional Watershed Management Plan for the Putah Creek Watershed located in Lake, Napa, Solano, and Yolo Counties. This will include conducting a thorough geomorphic study to better understand current conditions as related to water quality, water quantity, wildlife habitat, and socioeconomics. The project will assemble past studies and reports to identify data gaps, conduct on-the ground scientific investigations, and interview citizens and stakeholders through an education and outreach program. The result will be a management plan that identifies watershed related issues that will provide recommendations for implementation.	13	5	$500,000	No	Yes	Planning	Medium	Medium	3
68	Lake County Water Resources Department	Assess stream channel hydrology and related riparian and aquatic habitats for restoration	This project will survey stream channels, especially in the level valleys in the lower elevations of the Upper Cache and Upper Putah Creek watersheds, and subsequent prioritization based on erosion hazard, potential for significant habitat improvement, and other factors.	13	3	$250,000	No	Yes	Feasibility Study	Medium	Medium	3
76	RWMG with selected Lead Agency	Regional Invasive Mussels Management Plan	This project will include the formation of an Invasive Species Task Force/Subcommittee to prepare a Regional Invasive Mussels Species Prevention Plan that evaluates existing programs to prevent invasive species that could be leveraged, and identifies supplemental programs to be developed to fill gaps in existing programs to manage invasive species. Special high priority emphasis will be placed on prevention of water body infestation by Quagga Mussels.	13	3	$0	No	Yes	Implementable Program	High	High	7
83	West Sacramento Area Flood Control Agency	Lower Sacramento and Delta North Regional Flood Management Plan	Develop a lower Sacramento and Delta North Regional Flood Management Plan that follows the requirements outlined in the Central Valley Flood Protection Plan (CVFPP)	13	6	$1,734,907	Yes	Yes	Implementable Project	High	Medium	14
87	Lake Berryessa Resort Improvement District	LBRID Wastewater Storage Pond and Disposal Improvements	This project will upgrade the wastewater storage ponds and disposal spray fields.	13	6	$3,000,000	Yes	Yes	Implementable Project	High	High	22
96	Knights Landing Ridge Drainage District	Mid Valley, Knights Landing Repair Project	Subset of the Mid-Valley Area Levee Reconstruction Project currently underway through a partnership with ACOE and the Central Valley Flood Protection Board.	13	9	$6,883,000	Yes	No	Implementable Project	High	Medium	14
159	City of Winters, CA	City of Winters Drinking Water Hexavalent Chromium (Cr6) Compliance Project	The City is under Notice of Violation with the SWRCB Division of Drinking Water to reduce Cr6 levels in four of its five wells (82% of the City's water supply) exceeding the new Cr6 Primary MCL. This is a new drinking water quality regulation approved by the State in July 2014 with enforcement beginning in August 2015 for urban water suppliers with sources in exceedance of the new Cr6 regulations. The City is requesting funds to design a cost-effective Cr6 compliance strategy for the community that meets the new Cr6 regulations within the State's compliance schedule.	13	4	$6-8 million (over 5 years)	No	Yes	Planning	Medium	Medium	21
166	Department of State Hospital	Recycled Water Conversion projects	Napa State Hospital currently utilizes potable water supplied by the City of Napa for almost all irrigation needs (a limited area is currently served by recycled water). In 2011, NSD installed a recycled water main through NSH which included three metered turnouts. The project will connect to these turnouts, with the downstream improvements owned and operated by NSH. To convert the irrigation system, approximately 38,000 lineal feet of recycled water pipe will be installed, along with valves, and ancillary improvements to deliver water to 139 irrigation points of connection, The connections typically occur at existing irrigation back flow devices, which will be replaced. Existing improvements downstream of the back flow devices will remain in place. Signage and modifications to above ground irrigation valves in accordance with NSD requirements are also part of the project.	13	4	$6,133,900	No	No	Implementable Project	High	Medium	23
180-YS	City of Woodland	North Regional Pond and Pump Station	The project involves the design and construction of an approximate 75 acre sedimentation pond and a pump station able to eventually accomodate a 120-cfs design flow.Project re-purposes an existing City evaporation pond that is no longer in use for any purpose. Currently the pond only receives nearby runoff.This project will add the NR Pond hydraulically into the City's storm drainage network and include:* Low flow training wall and inlet pipes from the Gibson Channel to the NR Pond* High flow weir from South Canal to the NR Pond* Outlet pipes from NR Pond to the South Canal* Pump station at the downstream terminus of the South Canal* Force main and outfall from the pump station to the outfall channel	13	5	$8,000,000	Yes	No	Implementable Project	High	Medium	14
181-YS	Yolo County	Raise Highway 16 Out of Flood plain	This project was initially proposed by Caltrans as flooding of Highway 16 is a chronic problem. The project was not constructed because of concerns of some farmers about grades at farm road crossings. Raising Highway 16 creates a barrier that could be used to store storm water north of the highway in detention basins/recharge ponds. Increasing the capacity of Willow Slough south of Highway 16 west of Madison is needed so that flows can be conveyed to the detention basins. Willow Slough is the source of the majority of flooding in Madison. Cottonwood Slough contributes to occasional flooding (last time was 1996) in Madison. This project could be coordinated with the Madison Canals project as other upstream diversions could benefit this project and/or the planned detention basins could be coordinated.	13	4	To be determined	Yes	Yes	Implementable Project	High	Medium	14
188-YS	Yolo County Flood Control and Water Conservation District	Winters North Area Stormwater Pond	Develop and construct a 5,000 acre-feet stormwater retention pond in the north area of Winters to reduce drainage and flood waters from the Chickahominy Slough. The retention pond would also be used for groundwater recharge in times when the capacity and water was available. The retention pond would provide water quality benefits by allowing the sediments in the runoff to settle and lessening the transfer of pollutants and chemicals downstream. The surrounding area would have native vegetation that would promote benefits for wildlife habitat, and the property would allow for groups to visit and learn about the multi-beneficial, multi-agency partnership. Similar to the District's Chapman Reservoir, we would install automated gates and monitoring devices at the retention pond that would be connected to the District's SCADA system for real-time management.	13	3	$0	Yes	Yes	Implementable Project	High	Medium	14

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193	City of Woodland	Well 31 ASR Project	The project involves the design and construction of a new municipal aquifer storage and recovery (ASR) well #31 near the site of the existing Well #6. The new ASR well will facilitate groundwater recharge by injecting treated surface water into the gravel layer approximately 500 feet below the surface when surplus Sacramento River water is available during winter months. The ASR well water would be pumped from the ASR well to supplement surface water during drought conditions and to meet peak summer demands. ASR also has long-term water quality benefits because injected water replaces native groundwater impaired by nitrate and naturally occurring metallic species, including arsenic, hexavalent chromium, manganese, and selenium, with better-quality water.The intent is to inject water into the ASR well each winter and build a large reservoir of treated surface water beneath the well and utilize the water primarily during drought years. The project removes a high capacity groundwater extraction well from the regional aquifer and replaces it with a well that will promote groundwater recharge and sustainability while improving Woodland's water supply reliability during a drought. The ASR program greatly reduces the need for Woodland to utilize native groundwater in the City's water system. The City recently completed construction of three ASR Wells. The testing completed to date has been a success and indicates that ASR technology is successful in Woodland. The extracted water retains the constituent characteristics of treated surface water. The new ASR well would include the ability to inject treated surface water at a rate of approximately 2,000 gpm and extract water at a rate of approximately 3,500 gpm. The new ASR well is considered a Categorical Exemption under CEQA as it is a replacement of an existing water supply facility. The EIR for the ASR program has been completed and all necessary permits have been secured. The existing well will be properly destroyed.	13	6	$6,250,000	Yes	No	Implementable Project	High	Medium	23
199	Solano Resource Conservation District	Solano County K-12 Watershed Education in the Sacramento River Watershed	Enhance and expand existing watershed education programming for K-12 students to support personal stewardship behavior and understanding of Sacramento River conservation and restoration goals. This program encompasses two place-based field trip programs: the Watershed Explorers program for third graders and the Solano County Biomonitoring program for high school students, as well as the multi-grade Solano Water Education Program that provides Project WET training and resources to teachers along with targeted water resource lessons, field trip opportunities and classroom supplies. Programming provides education about water conservation, proper used oil disposal, water quality assessment and protection, the Reduce-Reuse-Recycle ethic, native species protection, and the fun and health values of being outdoors in the watershed. By learning about watershed ecology, phenology, biomonitoring, resource conservation, and restoration work, participants understand the important relationship between science and the necessary environmental stewardship of the Sacramento River watershed. We work with Solano County, its cities, county and regional resource agencies, and local businesses to provide context and connection to ongoing local, regional and state environmental stewardship challenges. We formally assess student learning, and use the information we gain to refine and improve our programs.	13	4	$10,000	No	Yes	Planning	Medium	Low	1
2	Lower Putah Creek Coord. Committee	505-East Channel Restoration	Restore 10 acres of riparian forest, 3/4 mile of river channel, remove 22 occurrences (2 net acres) of 6 primary invasive weeds; reconfigure one thousand feet of river channel, restore 100 feet of eroding stream bank, create 3/4 mile of south bank bench trail connecting Yolo Housing to the City of Winters at low flows.	14	7	$350,000	No	No	Feasibility Study	Medium	Medium	3
3	Lower Putah Creek Coord. Committee	Apricot Draw Bank Stabilization	Restore 3,000 feet of Apricot Draw, stabilizing eroding banks, removing invasive weeds and planting native vegetation.	14	7	$120,000	Yes	No	Implementable Project	Medium	Medium	3
7	Lower Putah Creek Coord. Committee	Putah Creek Interdam Reach Invasive Weed Control	Remove 127 occurrences (8.6 net acres) of 11 primary invasive weeds from 6.5 river miles (400 acres) of riparian corridor between Monticello Dam and Putah Diversion Dam and install native vegetation where weeds are removed.	14	7	$150,000	Yes	No	Implementable Project	Medium	Medium	3
63	Lake County Water Resources Department	Develop and Implement a Comprehensive Watershed Monitoring Programs	Meeting of agencies, Tribes, and organizations currently monitoring water quality in the Clear Lake Watershed to coordinate monitoring activities and reduce overlap when possible.	14	2	$0	No	Yes	Implementable Program	High	Medium	18
65	Lake County Water Resources Department	Collaborative Process to Update Clear Lake Integrated Watershed Management Plan	Update of CLIWM Plan.	14	4	$0	No	Yes	Planning	Medium	Medium	3
90	Napa Berryessa Resort Improvement District	NBRID Water Treatment Plant Replacement	The existing water treatment plant will be replaced with a new more technically advanced water treatment plant.	14	9	$2,500,000	Yes	No	Implementable Project	High	High	22
91	Napa Berryessa Resort Improvement District	NBRID Wastewater Storage Pond and Disposal Improvements	This project will upgrade the wastewater storage ponds and disposal spray fields.	14	9	$3,000,000	Yes	No	Implementable Project	Medium	Medium	20
92	Napa Berryessa Resort Improvement District	NBRID Wastewater Treatment Plant Replacement	This project will upgrade the existing WWTP. The project will also repair or replace all the existing sewer lift stations.	14	9	$1,500,000	Yes	No	Implementable Project	High	High	22
94	Lake County Water Resources Department	Increase Cache and Putah Creek Watershed Education and Outreach	Develop and improve education programs that provide public with information on watershed programs and related proper management techniques.	14	3	$0	No	Yes	Implementable Program	Medium	Low	2
97	Lake County Water Resources Department for RWMG	Form Task Force/Subcommittee to strategize and implement Watershed Education and Outreach	Support appointment of an Education Task Force/Subcommittee to prepare a Regional Watershed Education Plan for a 2-year implementation period.	14	4	$0	No	Yes	Planning	Medium	Low	1
127	Yolo County Resource Conservation District	Agricultural Drain, Slough and Canal Riparian Habitat Enhancement	Control of invasive weeds, site preparation, installation of native trees, shrubs, grasses and/or forbs as appropriate to the site, and 2 years of vegetation management/ maintenance post-plant along natural and man-made waterways, with focus on Cottonwood, Union School, Willow and Chickahominy sloughs; and main irrigation supply canals in western Yolo County.	14	7	$750,000	Yes	No	Implementable Project	Medium	Medium	3
128	Lake Berryessa Resort Improvement District	Program to Prevent Wastewater Discharges	This project will repair or replace sections of sanitary sewer collection laterals and mains that are experiencing above normal levels of storm water inflow/infiltration (I/I).	14	8	$1,500,000	Yes	Yes	Implementable Project	Medium	Medium	20
147	Lake County Special Districts	Paradise Vallev-Clearlake Oaks County Water Consolidation	Paradise Valley Water System, County Service Area 16 (CSA #16), serves 75 customers. The system does not have adequate source capacity in accordance with Section 64554, Chapter 16, Title 22 of the California Code of Regulations. CSA #16 has three wells that when combined do not produce the required source capacity. Attempts to drill a fourth well in 2012 were unsuccessful. The current drought has further reduced the wells ability to prod uce and the CSA is critically challenged to produce sufficient water for human consumption. The CSA is under an urgency ordinance and required to keep usage below 50 gpd per person. The option of building a surface water treatment plant is not desirable due to the poor water quality of Clear Lake and the costs would be prohibitive for the very small district. It has been determined that consolidating with Clearlake Oaks County Water System (CLOCWS) is the best option for resolving the lack of source capacity. Consolidation with CLOCWS would benefit both systems as it would resolve source capacity for CSA # 16 and would allow CLOCWS to expand their customer base and upgrade storage. Project will include the construction of a pipeline to distribute water to CSA # 16.	14	7	$1,500,000	Yes	No	Implementable Project	High	Medium	23

Table D-3: Westside IRWM Plan Project Screening Results (sorted by Total Criteria Score)

Project No.	Lead Agency /Organization	Project Title	Planned Project/Program Types and Activities	Total Criteria Score	Readiness	Project Cost	Potential DWR Impl. Grants	Potentially Critical DAC Project	Project Type	Importance	Urgency	Primary Objective
160	City of Davis	Parks and Greenbelts Irrigation and Landscape Upgrades	The goal of the project is to increase water use efficiency and reduce overall water use in City parks and greenbelts. This will involve converting less used turf areas along greenbelts and in parks to lower water use plants to reduce irrigation needs, the conversion of irrigation in non-turf areas to drip, and the replacement of sprinkler heads and irrigation controllers to increase efficiency. The project will also include converting wells that are currently used for potable water uses to irrigation (non-potable) wells that will supply local parks and greenbelts. The project will also provide some stormwater quality benefits with less water runoff in areas that have been converted to drip irrigation.	14	8	$150,000	Yes	No	Implementable Project	Medium	Medium	11
187-YS	Solano County Water Agency	Winters Bioswales Project and Habitat Enhancement	Stormwater from the town of Winters drains residential areas, business districts, and undeveloped lands into a culvert system that delivers contaminated runoff to Putah Creek and one of its major tributaries, Dry Creek. Eighteen discharge points exist, eight of which are connected directly to Putah Creek, the remaining to Dry Creek. Three main culvert delivery sites occur within the Winters Putah Creek Nature Park (WPCNP), draining approximately 200 acres of impervious lands. The stormwater network drains streets, parking lots, businesses and suburban lots, over-irrigated landscapes and disturbed lands, carrying sediment, petroleum products, fertilizers, pesticides, and bacteria into Putah Creek. We have assembled numerous stakeholders to begin addressing this water quality issue and are developing seasonal wetland (bioswale) water treatment projects within the WPCNP that will improve water quality, enhance floodplain function, restore wildlife habitat, and provide educational opportunities for the Winters community. By redirecting this stormwater runoff onto newly constructed floodplains of Putah Creek, water quality contaminants can be decreased through the breakdown action of sunlight, soil, plant roots and microorganisms. Moreover, the redirected water can assist in rehydrating portions of the floodplain during periods of drought and enhance riparian plant growth for the benefit of corridor wildlife. Each culvert outlet, along with the receiving floodplain landscape requires novel designs to redirect, capture, and infiltrate stormwater, all involving site-specific earthworks, specialized soil treatments, appropriate vegetation, monitoring, and post-installation management. We are conducting feasibility analyses and developing designs for the three major culvert networks within the park. We anticipate moving forward with implementation of our first site in Summer, 2018. Along with stormwater treatment and creekside improvements, we intend to develop a community outreach component that will educate people on "Upper Watershed" creek care within the suburban areas that comprise the stormwater drainage networks.	14	7	$195,328	Yes	No	Implementable Project	Medium	Medium	3
203	City of Davis	Recycled Water Pump Station	With the completion of secondary and tertiary improvements, the City's Wastewater Treatment Plant is now capable of producing tertiary disinfected effluent that meets the requirements of Title 22 of the California Code of Regulations for recycled water. However, a final component of these upgrades is a means of delivering the recycled water produced at the WWTP to potential future customers. New infrastructure is necessary to convey recycled water from the WWTP to potential future customers or to send recycled water to locations within the WWTP property boundary for storage or disposal. This infrastructure, referred to as the "Phase 1 Recycled Water Facilities", will include a new Recycled Water Pump Station and associated piping specifically for conveyance of recycled water to onsite storage ponds and the WWTP's overland flow (OLF) site. To allow for greater operational flexibility, the Recycled Water Pump Station will be designed for a target minimum flowrate of 2,500 gpm with one pump in operation. At this higher flowrate, the City will be able to operate the Recycled Water Pump Station for less than 24 hours per day and still meet the peak day diversion targets. The pump will also be equipped with a variable frequency drive (VFD), which further increases operational flexibility. The pump station will be sized to accommodate a second pump in the future. The Recycled Water Pump Station will draw disinfected tertiary recycled water from the effluent channel of the recently-constructed chlorine contact tank (CCT) and has been designed to deliver water to any of the following locations for disposal or beneficial reuse: · Zones 5 - 15 of the OLF · Recycled Water Pond 1 (formerly Aerated Pond 1) · The Return Channel that provides conveyance to the WWTP's former Oxidation Ponds · A future off-site recycled water storage tank located on the City's Howatt Ranch property	14	8	$1,025,800	Yes	No	Implementable Project	High	Medium	23
15	Lower Putah Creek Coord. Committee	Pleasants Creek Bank Stabilization	Restores 84 acres of riparian habitat along 7 miles of Pleasants Creek, stabilizing eroding banks, removing 135 occurrences (13.4 acres) of invasive weeds and planting native vegetation.	15	8	$1,000,000	Yes	No	Implementable Project	Medium	Medium	3
49	Dixon Regional Watershed Joint Powers Authority	Dixon Main Drain / V-drain Enlargement Project	The purpose of the project is to reduce local flooding caused by regional drainage flows that exceed the existing capacity of these channels by increasing the capacity of these constructed drainage facilities.	15	1	$3,100,000	No	No	Planning	High	Medium	14
75	Rural Community Assistance Corporation	DAC Community Wastewater Management Project	RCAC will work with Lake County DACs and tribes to create and implement a septic inspection and monitoring program.	15	0	$108,322	No	Yes	Implementable Project	High	Medium	18
88	Lake Berryessa Resort Improvement District	Water Tank Replacement Project	The three existing potable storage tanks have reached the end of their useful life. The project will replace these three tanks to ensure a continuous water supply for the residents in the future.	15	9	$1,500,000	Yes	Yes	Implementable Project	High	Medium	23
89	Lake County Special Districts	Soda Bay Water System Improvements	This project will correct deficiencies caused by increased algae blooms in Clear Lake in the system that are required for public safety and regulatory requirements.	15	8	$1,500,000	Yes	Yes	Implementable Project	Medium	Medium	21
93	Rural Community Assistance Corporation	Rural Disadvantaged Community (DAC) Partnership Project	RCAC will manage the Prop 84 grant funds to address inadequate water supply and water quality in rural disadvantaged communities (DACs) in the Westside Sacramento IRWM region.	15	7	$127,753	No	Yes	Planning	High	High	22

Table D-3: Westside IRWM Plan Project Screening Results (sorted by Total Criteria Score)

Project No.	Lead Agency /Organization	Project Title	Planned Project/Program Types and Activities	Total Criteria Score	Readiness	Project Cost	Potential DWR Impl. Grants	Potentially Critical DAC Project	Project Type	Importance	Urgency	Primary Objective
148	Lake County Special Districts	Spring Valley Water System Distribution Line Loop	Spring Valley, CSA #2 is a public water system serving 493 customers. CSA #2 draws water from Indian Valley Reservoir which is at a critically low level due to the drought. Storage for Indian Valley reservoir is currently 27,753 acre feet compared to 96,411 acre feet last year. Release of 10 cubic feet per second is required for fish habitat. This project would help preserve sufficient quantities of water for both human consumption and preservation of the fish habitat. The old and deteriorated distribution system is experiencing numerous leaks which are increasing the amount of water required for community consumption. In addition to the leaking pipes, the system has lines that “dead end” and must be flushed regularly to avoid a dangerous buildup of trihalomethanes. (a dangerous by-product of the treatment process) Flushing the lines also requires large quantities of water to be wasted.TSpring Valley, CSA #2 is a public water system serving 493 customers. CSA #2 draws water from Indian Valley Reservoir which is at a critically low level due to the drought. Storage for Indian Valley reservoir is currently 27,753 acre feet compared to 96,411 acre feet last year. Release of 10 cubic feet per second is required for fish habitat. This project would help preserve sufficient quantities of water for both human consumption and preservation of the fish habitat. The very old distribution system is experiencing numerous leaks which are increasing the amount of water required. Over 12,000,000 gallons of treated water is being lost per year through leaks. In addition to the leaking pipes, the system has lines that “dead end” and must be flushed regularly to avoid a dangerous buildup of trihalomethanes. (A dangerous by-product of the treatment process) Flushing the lines also requires large quantities of water to be wasted.The proposed project would resolve these two critical needs. Additional benefits would be improvements to the fire suppression abilities and a decrease on operating and maintenance costs. The extension of water lines for looping the system would allow installation of fire hydrants in areas that have not had access to water lines and are at risk of wild fires. This project would consist of the replacement of 7,500 feet and new installation of approximately 9,100 feet of C-900 water lines which will increase water supply reliability, water conservation and water use efficiency as well as improve drinking water quality and help alleviate fire danger. Up to 45% of the water drawn from the reservoir and treated is being lost due to the old deteriorated water lines and the need for frequent line flushing.	15	7	$1,260,000	Yes	Yes	Implementable Project	High	Medium	23
150	Lake County Special Districts	Mt. Hannah, CSA #22 Water System	Mt. Hannah, CSA #22 is a public water system serving 36 customers. CSA #22 relies on ground water for supply. Due to current drought conditions, the well level dropped 65% from January 2013 to January 2014. The well has lost the ability to recharge and can only be pumped for approximately 30 minutes and then must be allowed to recharge for 2 to 3 hours. Due to the well being overdrawn, turbidity issues have become a problem. Filtering for turbidity requires even more water that is not available. We are in the process of preparing to truck water to the community from outside the area. This will be very costly and an extreme financial burdon on the disadvantaged community.In addition to the loss of capacity, the system has a deteriorated trunk line that has severe leaks and is losing up to 45% of the water being pumped. The customers are economically disadvantaged. They have been conserving water and the average consumption for the CSA is approx. 35 gallons per day per person.Water rates for this CSA are considerably higher than the county average but due to the small number of customers, the CSA struggles financially and has not been able to build a capital reserve fund. The geographic location of this CSA eliminates the option of consolidation. It is located on Cobb Mountain and not near any other systems that it could tie into. The CSA desperately needs a deeper well and a new trunk line installed.	15	7	$270,000	Yes	Yes	Implementable Project	High	Medium	23
202	City of Davis	Davis Manor Neighborhood Green Street Project	The Davis Manor Neighborhood Green Street Project proposes to retrofit the neighborhood with the following greening treatments: -Plant 90 new trees to sequester carbon and reduce energy consumption -Build 40 rain garden planters to serve as new wildlife habitat and capture stormwater-Convert 9,480 sq. ft. of impermeable surfaces into walkable green space to enhance the pedestrian experience -Transform 5,000 sq. ft. area of the neighborhood into the "Green Heart" toserve as a hub for resident gatherings -Replace 3,000 sq. ft. section of street parking area with a permeable surface strip -Replace 400 sq. ft. area of streetscape with new drought-tolerant landscaping -Install 15 curb ramps and widening sidewalks to improve accessibility -Renovate a dilapidated pocket park to increase community usage -Install interpretative signage to teach visitors and encourage replication	15	5	$1,526,450	Yes	Yes	Implementable Project	Medium	Low	2
85	Yolo County Flood Control and Water Conservation District	Abandoned Well Incentive Program	Development of a Regional 3 year Abandoned Well Incentive Program to properly abandon wells.	16	9	$2,200,000	Yes	No	Implementable Project	Medium	Medium	21
86	Yolo County Service Area #6	County Service Area (CSA) #6 Levee Repair Project	Non-urban levee repair project as part of the levee rehabilitation identified to restore the District levee to its authorized level of flood protection.	16	9	$3,222,450	Yes	Yes	Implementable Project	High	Medium	14
118	Yolo County Flood Control and Water Conservation District	Conjunctive Water Use Program	This conjunctive water use project envisions using a variety of methods (recharge/recovery, off-stream storage and canal system modernization) to effectively store and conjunctively use groundwater in the District's service area.	16	7	$8,000,000	No	Yes	Implementable Program	High	Medium	23
142	City of Vacaville	Centennial Park Riparian Forest Restoration and Loop Trail Development Project	This project proposes to restore riparian environment along two tributaries of Horse Creek by controlling invasive species and installing a diverse selection of native trees, shrubs and perennial forbs in a 140 foot by 2,400 foot long corridor along the middle tributary and a 185 foot wide by 2,950 foot long corridor along the northern tributary.	16	8	$1,248,027	Yes	No	Implementable Project	Medium	Medium	3
151	Yolo County Flood Control and Water Conservation District	Regional Drought Preparedness through Increased Groundwater Recharge	The District proposes to divert winter flows from Cache Creek into the canal system to increase groundwater recharge. Groundwater recharge and recovery is central to good conjunctive management of surface and groundwater resources. Currently, by District policy, 160 miles of surface water canals remain unlined, providing summertime groundwater recharge services that benefit the aquifer and riparian habitat. The recharged groundwater is used by farmers, individual well owners and business, cities, and small communities. Normally, the majority of canal recharge occurs in the summertime, during the irrigation season. This project proposes to divert wintertime water into the canal system which would require the installation of automated canal gates to replace manual gates. This project will improve local water supply reliability during times of drought and improve conjunctive use management overall. The District has been building and planning improvements to its conjunctive use system for many decades. The regionally supported groundwater monitoring program is extensive. The ag/urban partnership between the cities of Davis, Woodland, and Winters and the Water District is strong. Indeed, the Cities depend on the recharge activities of the District to maintain their water supplies. The disadvantaged communities (DAC) in the western half of the District also depend exclusively on groundwater. The installation of automated gates to make winter recharge possible will increase groundwater storage and will benefit the community for years to come.	16	7	$3.0 million	No	Yes	Implementable Project	High	Medium	23

Table D-3: Westside IRWM Plan Project Screening Results (sorted by Total Criteria Score)

Project No.	Lead Agency /Organization	Project Title	Planned Project/Program Types and Activities	Total Criteria Score	Readiness	Project Cost	Potential DWR Impl. Grants	Potentially Critical DAC Project	Project Type	Importance	Urgency	Primary Objective
152	Tuleyome, Inc.	Corona & Twin Peaks Mines Cleanup	The principle physical improvements that this project will implement include a novel, low-maintenance, in situ treatment system to reduce acidity and metals loadings from the Corona Drain Tunnel, consolidating mine waste, improving runoff controls, enhancing revegetation of waste rock and tailings at the Boiler House Adit and Twin Peaks Adit, and improving the existing infiltration trenches at the Boiler House Adit and Twin Peaks Adit. This project will address several key issues commonly associated with mine cleanup projects, including:· Physical hazards: Restricting access to the adits and infiltration trenches by people and wildlife· Chemical hazards: Treating mine drainage and site seepage/runoff to attain water quality standards· Legal liability: Protecting "Good Samaritans" who implement projects or manage lands for the good of society· Multiple goals: Seeking multiple benefits (public health & safety, wildlife habitat, cultural resources, etc.) while addressing competing interests· Limited funds: Minimizing remediation costs to encouraging similar efforts elsewhere.	16	5	$1.6 million	Yes	Yes	Implementable Project	High	Medium	19
190-YS	Madison CSD	Madison Farmer Field Stormwater Capture and Groundwater Recharge	Modify farmer fields around Madison, specifically those next to Highway 16 and those that will capture upstream flows. The two options considered include 1) 1,200 acres of farmer field modification for rainfall capture (8"-berm) and 2) modification of a farmer field near Cache Creek (maybe half of APN 049-060-017) for rainfall and storm water runoff capture a 3-' high storm water detention basin. This project will require farmer participation and advanced planning for field modification, and will depend on the storm intensity. The first option will only capture rainfall and the second option will capture rainfall and allow runoff to be collected into the detention basin. The second option will require more modification to the property, additional infrastructure for channeling runoff into the basin, and a pump if the water needs to be drained from the basin.	16	6	$100,000 - $400,000	Yes	Yes	Implementable Project	High	Medium	14
59	Lake County Water Resources Department	Middle Creek Flood Damage Reduction and Ecosystem Restoration Project	This project will eliminate flood risk to 18 residential structures, numerous outbuildings and approximately 1,650 acres of agricultural land and will restore damaged habitat and the water quality of the Clear Lake watershed. Reconnection of this large, previously reclaimed area, as a functional wetland is anticipated to have a significant affect on the watershed health and the water quality of Clear Lake. The project consists of purchasing the flood prone property "protected" by the substandard levee, mitigating flood impacts to roads and utilities, reconstructing historic channel patterns, and breaching the levee in numerous locations that allow Clear Lake to reflood the Project area.	17	6	$55,426,000	Yes	Yes	Implementable Project	High	Medium	14
84	Yolo County Flood Control and Water Conservation District	Winters Main Canal Modernization Project: Integrated Precision Water Mgmt.	Installation of automatic water control gates, pump flow meters and vegetated native grass canal banks, to improve irrigation efficiency. In addition, planting of native grasses to minimize erosion and decrease use of herbicides.	18	9	$2,175,000	Yes	Yes	Implementable Project	High	Medium	24
116	West Sacramento Area Flood Control Agency	Sacramento Bypass-Yolo Bypass Levee Repair Phase II	Correct deficiencies, protect against underseepage, and maintain the Sacramento Bypass and Yolo Bypass Levees to current standards for FEMA 100 yr and urban levee 200 year levels of flood protection.	18	9	$60,900,000	Yes	Yes	Implementable Project	High	Medium	14
52	Cache Creek Conservancy	Implementation of the Cache Creek Resources Management Plan	Implementation of projects wtihin the Cache Creek Resources Management Plan (CCRMP) area, located along 15 miles of lower Cache Creek from the Capay Dam to the town of Yolo. The proposed project consists of various phases of activities that meet specific grant requirements such as habitat restoration or enhancement, streambank stabilization, invasive plant removal, monitoring, and/or watershed stewardship through education, workshops, and outreach to landowners.	19	9	$300,000	Yes	Yes	Implementable Project	Medium	Medium	3
70	Mendocino National Forest	Lakeview Hazardous Fuels Reduction	The primary activities proposed under this project are vegetation and surface fuel treatments to reduce hazardous fuels and modify wildland fire behavior.	19	9	$1,250,000	Yes	Yes	Implementable Project	Medium	Medium	15
72	Napa County	Regional Collaborative Water Conservation Program	Expansion of the implementation of the Regional Water Conservation Education Program's conservation education and consumer incentive programs and build on regional water conservation initiatives.	19	9	$125,000	Yes	Yes	Implementable Project	Medium	Medium	11
114	West Sacramento Area Flood Control Agency	Sacramento River Levee Repair	Correct deficiencies, protect against underseepage, and maintain the Sacramento River Levees to current standards for FEMA 100 yr and SB 5 200 year levels of flood protection.	20	9	$250,000,000	Yes	Yes	Implementable Project	High	Medium	14
115	West Sacramento Area Flood Control Agency	Sacramento River Recreational Trail	Construct a continuous 13.1 mile, 192-acre recreation corridor along the entire length of the Sacramento River within City limits.	20	9	$80,000,000	Yes	Yes	Implementable Project	Medium	Low	13

Table D-4: Westside IRWM Plan Project Screening Results
(sorted by Lead Agency, then Project Type)

Project No.	Lead Agency /Organization	Project Title	Planned Project/Program Types and Activities	Project Cost	Project Type
52	Cache Creek Conservancy	Implementation of the Cache Creek Resources Management Plan	Implementation of projects wtihin the Cache Creek Resources Management Plan (CCRMP) area, located along 15 miles of lower Cache Creek from the Capay Dam to the town of Yolo. The proposed project consists of various phases of activities that meet specific grant requirements such as habitat restoration or enhancement, streambank stabilization, invasive plant removal, monitoring, and/or watershed stewardship through education, workshops, and outreach to landowners.	$300,000	Implementable Project
53	California Land Stewardship Institute	Invasive Plant Removal in Ulatis Creek	This project will first map out where the Arundo is present on the 17 mile channel of Ulatis Creek, then contact the landowners who own property with Arundo to educate them about the Arundo hazards; then, with their permission, eradicate the plant on their land, and lastly revegetate areas with native trees.	$500,000	Planning
44	City of Clearlake	City of Clearlake Stormwater Management Plan (SWMP), Storm Drainage and Flood Control Project Proposal	The City of Clearlake Stormwater Management Plan (SWMP) includes development of stormwater management program implementation strategies and actions.	$400,000	Planning
162	City of Davis	Drainage Channel Feasibility Study	Looking to study feasibility to enhance the five separate storm drain conveyance channels to improve evoptranspiration through design improvements. This feasibility study would provide specific ways to improve the design of the existing facilities to improve water quality for the discharges that occur from each channel. The facilities are located Citywide. The study may yield that only one channel is worthy of modification. In particular, the City would like to study the El Macero Drainage Channel in southeast Davis as it is believed to be the channel with that would benefit the most from design improvements. A map can be provided to aid in located each of these drainage channels. If project is developed an educational component can be added.	80,000 for feasibility study	Feasibility Study
163	City of Davis	Retention Pond Feasibility Study	Looking to study feasibility for design enhancements for the seven separate storm drain retention ponds to improve evoptranspiration and water quality in the City's discharge. This feasibility study would provide specific ways to improve the design of the existing facilities to improve water quality for the discharges that occur from each facility. The facilities are located Citywide, but all of the ponds are located north of I 80 in the northern two thirds of the City. The study may yield that only one pond is worthy of modification. In particular, the City would like to study the Core Area Pond in central Davis as it believed to be the pond that receives the most pollutants from its drainage shed. A map can be provided to aid in located each of these ponds. If project is developed an educational component can be added.	100,000 for feasibility study	Feasibility Study
174-YS	City of Davis	Feasibility Study for Stormwater Trash Control Measures	Feasibility study to assess options for stormwater trash control measures. This study will assess the best method(s) to help the City meet mandatory requirements for trash screening to prevent trash from entering waterways. One particular area of concern is Channel A. An option for this area is to install trash racks/debris cages in the Wildhorse Basin to address issues with trash flowing from the area directly into Channel A. There is currently no barrier between the stormwater from the basin and the channel. This study would provide an assessment of potential options to comply with the trash amendment requirements of the Small MS4 permit.	150,000 for feasibility study	Feasibility Study
160	City of Davis	Parks and Greenbelts Irrigation and Landscape Upgrades	The goal of the project is to increase water use efficiency and reduce overall water use in City parks and greenbelts. This will involve converting less used turf areas along greenbelts and in parks to lower water use plants to reduce irrigation needs, the conversion of irrigation in non-turf areas to drip, and the replacement of sprinkler heads and irrigation controllers to increase efficiency. The project will also include converting wells that are currently used for potable water uses to irrigation (non-potable) wells that will supply local parks and greenbelts. The project will also provide some stormwater quality benefits with less water runoff in areas that have been converted to drip irrigation.	$150,000	Implementable Project
161	City of Davis	Leak Detection Survey	Hire a consultant to use acoustical listening technology to survey water mains and laterals within the City of Davis water distribution area to detect and locate leaks. Prioritize leaks based on severity. Purchase leak detection equipment to install within distribution system to continuously monitor for potential leaks at key areas identified through the leak detection survey.	$150,000	Implementable Project
164	City of Davis	Russel Boulevard Demonstration LID Project	The project is to be located in front of City Hall (already proposed and working its way through the City's Parks and Community Services Department) along Russell Boulevard. Russel Boulevard is one of the City's prominent east-west arterials. The project is to create a vegetated swale to treat stromwater runoff on the north side of the roadway. The surface area it will treat is 8,000 square feet. It is proposed to treat drainage prior to discharge to the City's stormdrain system consistent with the standards of Section E.12 of the State's Small MS4 Phase II General Permit (Permit). A map can be provided to aid in the location of this project.	42,763 for construction	Implementable Project
167	City of Davis	Davis Greenbelts Landscape Conversions	One of the greatest assets to the Davis park system is the network of more than 60 miles of Green Belts with bike trails that connect parks and neighborhoods throughout the City. Each belt is typically between 100 to 200 feet across with an 8-foot bike path meandering through the middle. Most of the landscape consists of irrigated turf and shade trees. Large open turf areas are greatly appreciated as multi-use event areas for local neighbors, but a majority of the space is mostly utilized by the public as aesthetic while passing through on the bike path. It is these spaces that are great candidates to convert existing turf to a low water use, drought tolerant landscape with interpretive learning opportunities to show the general public ways of converting their landscapes at home.	$234,819 per acre converted	Implementable Project

Table D-4: Westside IRWM Plan Project Screening Results
(sorted by Lead Agency, then Project Type)

WESTSIDE SAC IRWM
Integrated Regional Water Management Plan

Project No.	Lead Agency /Organization	Project Title	Planned Project/Program Types and Activities	Project Cost	Project Type
169	City of Davis	Recycled Water Projects	The City is currently evaluating the feasibility of various uses of recycled water using WWTP effluent. The WWTP is being upgraded allowing the City to produce high quality recycled water meeting Title 22 Standards. This project would be to assist with funding implementation of the chosen recycled water use(s). These uses may include but are not limited to water for: habitat, Yolo County Landfill, City-owned lands south of the WWTP, agricultural users in the area, City municipal uses, and filling stations.	$4.5 million	Implementable Project
173-YS	City of Davis	Bike Tunnel Landscaping Redesign for Stormwater Quality Improvement	Redesign the current drainage and landscaping near greenbelt bike tunnels to prevent flooding from stormwater. Assess the top highly-trafficked tunnels with drainage issues within the greenbelt system. Improved drainage would include re-landscaping the areas surrounding these tunnels to prevent flood events and improve stormwater quality discharges through the use of different stormwater low impact design methods through infiltration, transpiration and evaporation. Each site could showcase a different method; signage near the tunnels would illustrate the project and highlight elements of the project design.	Estimate of $40,000 for site survey and initial project design	Implementable Project
186-YS	City of Davis	West Area Pond Redesign	Redesign the West Area Pond (detention basin) to utilize agricultural summer flows to enhance aquatic wildlife habitat and improve water quality. This proposal involves redirecting existing agricultural runoff through the Stonegate drainage pond and pumping it into the West Area Pond. This would enhance aquatic habitat while improving any water discharges through retention, enhancing opportunities for infiltration, transpiration and evaporation.	100,000 for feasibility study	Implementable Project
201	City of Davis	Davis Wetlands Public Access Improvements	Install user amenities at the Davis Wetlands to enhance educational and passive recreational access. Primary improvements include installation of a permanent vault toilet, observation tower with interpretive panels, and shaded picnic facility.	$150,000	Implementable Project
202	City of Davis	Davis Manor Neighborhood Green Street Project	The Davis Manor Neighborhood Green Street Project proposes to retrofit the neighborhood with the following greening treatments: -Plant 90 new trees to sequester carbon and reduce energy consumption -Build 40 rain garden planters to serve as new wildlife habitat and capture stormwater-Convert 9,480 sq. ft. of impermeable surfaces into walkable green space to enhance the pedestrian experience -Transform 5,000 sq. ft. area of the neighborhood into the "Green Heart" toserve as a hub for resident gatherings -Replace 3,000 sq. ft. section of street parking area with a permeable surface strip -Replace 400 sq. ft. area of streetscape with new drought-tolerant landscaping -Install 15 curb ramps and widening sidewalks to improve accessibility -Renovate a dilapidated pocket park to increase community usage -Install interpretative signage to teach visitors and encourage replication	$1,526,450	Implementable Project
203	City of Davis	Recycled Water Pump Station	With the completion of secondary and tertiary improvements, the City's Wastewater Treatment Plant is now capable of producing tertiary disinfected effluent that meets the requirements of Title 22 of the California Code of Regulations for recycled water. However, a final component of these upgrades is a means of delivering the recycled water produced at the WWTP to potential future customers. New infrastructure is necessary to convey recycled water from the WWTP to potential future customers or to send recycled water to locations within the WWTP property boundary for storage or disposal. This infrastructure, referred to as the “Phase 1 Recycled Water Facilities”, will include a new Recycled Water Pump Station and associated piping specifically for conveyance of recycled water to onsite storage ponds and the WWTP's overland flow (OLF) site. To allow for greater operational flexibility, the Recycled Water Pump Station will be designed for a target minimum flowrate of 2,500 gpm with one pump in operation. At this higher flowrate, the City will be able to operate the Recycled Water Pump Station for less than 24 hours per day and still meet the peak day diversion targets. The pump will also be equipped with a variable frequency drive (VFD), which further increases operational flexibility. The pump station will be sized to accommodate a second pump in the future. The Recycled Water Pump Station will draw disinfected tertiary recycled water from the effluent channel of the recently-constructed chlorine contact tank (CCT) and has been designed to deliver water to any of the following locations for disposal or beneficial reuse: · Zones 5 - 15 of the OLF · Recycled Water Pond 1 (formerly Aerated Pond 1) · The Return Channel that provides conveyance to the WWTP's former Oxidation Ponds · A future off-site recycled water storage tank located on the City's Howatt Ranch property	$1,025,800	Implementable Project
204	City of Davis	Sewer Lateral Replacement	The project would replace aging sewer laterals with corrosion and other issues to protect water quality and reduce the potential for accidental sanitary sewer discharges into the stormwater conveyance system. The project would occur City wide over 3 to 4 years.	$1,000,000	Implementable Project
182-YS	City of Davis	Site Survey for Converting Rocky Swales to Bioswales	In public greenbelts and parks, convert existing rocky drainage swales into bioswales to provide environmental benefits. Convert drainage in areas that currently use rocky swales, such as in Mace Ranch Park and the housing development behind Montgomery Elementary in South Davis, to bioswales. Converting the existing rocky swales to vegetative bioswales will encourage microhabitats, beneficial insects, infiltration, transpiration, and evaporation to better showcase stormwater retention techniques. Other possible sites include Evergreen Pond and North Star Park.	Estimate of $40,000 for site survey and initial project design	Planning

Table D-4: Westside IRWM Plan Project Screening Results
(sorted by Lead Agency, then Project Type)

Project No.	Lead Agency /Organization	Project Title	Planned Project/Program Types and Activities	Project Cost	Project Type
183-YS	City of Davis	Site Survey for Hardscape Conversion to Pervious Pavement	Survey public parking lots that currently have impervious surfacing to assess the practicality of converting these locations to pervious pavement when they are in need of resurfacing, maintenance or redesign. Portions of the pathways near the sites could potentially highlight permeable pavers in addition to the parking lots. Projects could be planned with improvements to incorporate bioswales, low water use plants, and other low-impact design measures into any landscape changes at the site. The projects would include signage on stormwater techniques implemented and information about water quality.	Estimate of $40,000 for site survey and initial project design	Planning
142	City of Vacaville	Centennial Park Riparian Forest Restoration and Loop Trail Development Project	This project proposes to restore riparian environment along two tributaries of Horse Creek by controlling invasive species and installing a diverse selection of native trees, shrubs and perennial forbs in a 140 foot by 2,400 foot long corridor along the middle tributary and a 185 foot wide by 2,950 foot long corridor along the northern tributary.	$1,248,027	Implementable Project
145	City of West Sacramento	Municipal Well at the George Kristoff Water Treatment Plant	Project includes environmental, design and construction of a new municipal well located at 400 N.Harbor Blvd in the City of West Sacramento. This well will augment City potable water supplies during drought conditions. This well in not intended to increase water production but allow upstream surface water diversions by as much as 4,500 acre feet annually.	$750,000	Implementable Project
159	City of Winters, CA	City of Winters Drinking Water Hexavalent Chromium (Cr6) Compliance Project	The City is under Notice of Violation with the SWRCB Division of Drinking Water to reduce Cr6 levels in four of its five wells (82% of the City's water supply) exceeding the new Cr6 Primary MCL. This is a new drinking water quality regulation approved by the State in July 2014 with enforcement beginning in August 2015 for urban water suppliers with sources in exceedance of the new Cr6 regulations. The City is requesting funds to design a cost-effective Cr6 compliance strategy for the community that meets the new Cr6 regulations within the State's compliance schedule.	$6-8 million (over 5 years)	Planning
180-YS	City of Woodland	North Regional Pond and Pump Station	The project involves the design and construction of an approximate 75 acre sedimentation pond and a pump station able to eventually accomodate a 120-cfs design flow.Project re-purposes an existing City evaporation pond that is no longer in use for any purpose. Currently the pond only receives nearby runoff.This project will add the NR Pond hydraulically into the City's storm drainage network and include:* Low flow training wall and inlet pipes from the Gibson Channel to the NR Pond* High flow weir from South Canal to the NR Pond* Outlet pipes from NR Pond to the South Canal* Pump station at the downstream terminus of the South Canal* Force main and outfall from the pump station to the outfall channel	$8,000,000	Implementable Project
193	City of Woodland	Well 31 ASR Project	The project involves the design and construction of a new municipal aquifer storage and recovery (ASR) well #31 near the site of the existing Well #6. The new ASR well will facilitate groundwater recharge by injecting treated surface water into the gravel layer approximately 500 feet below the surface when surplus Sacramento River water is available during winter months. The ASR well water would be pumped from the ASR well to supplement surface water during drought conditions and to meet peak summer demands. ASR also has long-term water quality benefits because injected water replaces native groundwater impaired by nitrate and naturally occurring metallic species, including arsenic, hexavalent chromium, manganese, and selenium, with better-quality water.The intent is to inject water into the ASR well each winter and build a large reservoir of treated surface water beneath the well and utilize the water primarily during drought years. The project removes a high capacity groundwater extraction well from the regional aquifer and replaces it with a well that will promote groundwater recharge and sustainability while improving Woodland's water supply reliability during a drought. The ASR program greatly reduces the need for Woodland to utilize native groundwater in the City's water system. The City recently completed construction of three ASR Wells. The testing completed to date has been a success and indicates that ASR technology is successful in Woodland. The extracted water retains the constituent characteristics of treated surface water. The new ASR well would include the ability to inject treated surface water at a rate of approximately 2,000 gpm and extract water at a rate of approximately 3,500 gpm. The new ASR well is considered a Categorical Exemption under CEQA as it is a replacement of an existing water supply facility. The EIR for the ASR program has been completed and all necessary permits have been secured. The existing well will be properly destroyed.	$6,250,000	Implementable Project
194	City of Woodland	Outfall Channel Culvert Replacement Project	City has a single stormwater discharge location. The outfall is limited by three (3) existing 36" diameter culvert pipes that penetrate a levee road. The existing culverts are limited in that: (a) they are in poor condition and their flap gates have fallen off and (b) within the next few years, based on development, they will be insufficient to handle the amount of City stormwater flows. Plan to the replace the three (3) existing 36" diameter culverts with five (5) 72" diameter ones to accommodate for full City build-out (2035)	$2.5 million	Implementable Project

Table D-4: Westside IRWM Plan Project Screening Results
(sorted by Lead Agency, then Project Type)

Project No.	Lead Agency /Organization	Project Title	Planned Project/Program Types and Activities	Project Cost	Project Type
195	City of Woodland	Woodland Recycled Water Utility Expansion Project (Phase II)	The City of Woodland currently has tertiary treated Title 22 effluent from the City's Water Pollution Control Facility (WPCF) providing a firm capacity of approximately 2,700 gpm for recycled water. Woodland has an existing recycled water utility serving 2 City parks and a large industrial user in the industrial area northwest of the Water Pollution Control Facility (WPCF). The City has planned for an expansion of the recycled water utility into the Spring Lake Area of the City and also to serve the planned Woodland Research & Technology Park. There are several existing large water users that would use the recycled water for irrigation of parks and roadside landscaping. Businesses in the Research Park would utilize recycled water for cooling buildings. In addition, recycled water would be available to extend into new development areas for landscape irrigation. Portions of recycled water pipelines in Spring Lake have already been constructed by development projects. Providing recycled water to these areas would reduce demands on the potable water distribution system and reduce the demand on the groundwater aquifer. The recycled water pipeline would be constructed in the City's existing right of way. The City has recently completed a Mitigated Negative Declaration for the project. The expected initial demand for recycled water would exceed 110 acre feet per year. The Capital Cost for the Project is approximately $2.5M.The recycled water project includes construction of approximately 10,000 feet of 8" diameter purple pipe and a 100,000 gallon storage tank. The project also provides recycled water for expansion (Phase III) to west of Highway 113.	$2,500,000	Implementable Project
196	City of Woodland	Woodland Recycled Water Utility Expansion Project (Phase III)	The City of Woodland currently has tertiary treated Title 22 effluent from the City's Water Pollution Control Facility (WPCF) providing a firm capacity of approximately 2,700 gpm for recycled water. Woodland has an existing recycled water utility serving 2 City parks and a large industrial user in the industrial area northwest of the Water Pollution Control Facility (WPCF). The City has planned for an expansion of the recycled water utility into the Sports Park Area of the City and also to serve the planned SP1B and SP1C areas in the City's General Plan. There are several existing large water users that would use the recycled water for irrigation of parks and roadside landscaping. In addition, recycled water would be available to extend into new development areas for landscape irrigation. Providing recycled water to these areas would reduce demands on the potable water distribution system and reduce the demand on the groundwater aquifer. The recycled water pipeline would be constructed in the City's existing right of way. The City has recently completed a Mitigated Negative Declaration for the project. The expected initial demand for recycled water would exceed 70 acre feet per year. The Capital Cost for the Project is approximately $925,000.The recycled water project includes construction of approximately 4,300 feet of 8" diameter purple pipe.	$925,000	Implementable Project
45	City of Woodland / floodSAFE Yolo Pilot Program	Lower Cache Creek Flood Risk Reduction Project	The primary purpose for the Project is to reduce the risk of flooding to the City of Woodland and adjacent land including the rural Town of Yolo and Interstate 5. The Project is in the initial phases of a feasibility study for which the City has executed a Federal cost share agreement with the USACE and CVFPB and a non-federal cost share agreement with the CVFPB.	$0	Feasibility Study
55	Clearlake Oaks County Water District	Plant Intake	Install a new water intake in the lake that is capable of drawing water from different depths, with installation of an amiad pre-filter at the pier where the intakes are located. This will allow a greater control of influent turbidity and pH by controlling what depth the intake will be drawing water from.	$0	Planning
46	Colusa County Resource Conservation District	Bear Creek Habitat Enhancement	The Bear Creek Habitat Enhancement project will be implemented in two phases. Phase I will provide for landowner/agency outreach activities and the development of a locally-driven plan to address tamarisk infestations and the re-establishment of native riparian species along Bear Creek in western Colusa County. Phase II will provide for habitat enhancement activities on a minimum of 3.5 miles of Bear Creek and .5 miles of Sulphur Creek.	$400,000	Planning
48	Crescent Bay Improvement Company	Crescent Bay Improvement Company	Crescent Bay improvement Company has been on a Boil Water Order since 1999. There are 3 objectives to this project:1) replace the 80-year old distribution lines which are leaking, 2) drill a well and replace our surface water source with ground water, and 3) explore the feasibility of and purchase a neighboring water company and develop an intertie with that system.	$1,000,000	Implementable Project
168	Davis Joint Unified School District	Harper Junior High Water Conservation Improvements	Frances Harper Junior High School presents a unique opportunity for water conservation through education and the creation of outdoor classrooms. The school serves over 600 students in grades 7 to 9. Located on East Covell Boulevard in Davis, the property is a 45-acre parcel with about 23 acres in active use. Primary improvements for water conservation are proposed to occur at the front and interior of the site. Current landscape at the front of the school includes 2.3 acres of turf that is primarily for the purpose of aesthetics. There are also interior courtyards with underutilized turf panels that total a little over one-third of an acre. Planned improvements for these areas include replacing the turf with drought tolerant plants, pollinator gardens, benches, bio swales and decomposed granite paths. Interpretive panels would be installed to inform students and visitors of the benefits of the water conservation improvements and the relative ecosystems for each environment. Interior improvements would also include capturing roof water from downspouts and directing the water to bio swales where it would be filtered before entering the storm drain system or simply percolate into the soil. Interior courtyard landscapes would also be laid out to accommodate a setting for outdoor classrooms.	$862,968 if full project implemented	Implementable Project

Table D-4: Westside IRWM Plan Project Screening Results
(sorted by Lead Agency, then Project Type)

Project No.	Lead Agency /Organization	Project Title	Planned Project/Program Types and Activities	Project Cost	Project Type
166	Department of State Hospital	Recycled Water Conversion projects	Napa State Hospital currently utilizes potable water supplied by the City of Napa for almost all irrigation needs (a limited area is currently served by recycled water). In 2011, NSD installed a recycled water main through NSH which included three metered turnouts. The project will connect to these turnouts, with the downstream improvements owned and operated by NSH. To convert the irrigation system, approximately 38,000 lineal feet of recycled water pipe will be installed, along with valves, and ancillary improvements to deliver water to 139 irrigation points of connection, The connections typically occur at existing irrigation back flow devices, which will be replaced. Existing improvements downstream of the back flow devices will remain in place. Signage and modifications to above ground irrigation valves in accordance with NSD requirements are also part of the project.	$6,133,900	Implementable Project
49	Dixon Regional Watershed Joint Powers Authority	Dixon Main Drain / V-drain Enlargement Project	The purpose of the project is to reduce local flooding caused by regional drainage flows that exceed the existing capacity of these channels by increasing the capacity of these constructed drainage facilities.	$3,100,000	Planning
50	Dixon Regional Watershed Joint Powers Authority	Eastside Drain	The Eastside Drain project will construct segments of new channels and enlarge existing channels. The Project will add an increment of 120 cfs to the Dixon Main Drain / V-drain Enlargement Project.	$5,251,000	Planning
51	Dixon Resource Conservation District	Storm Flow Reduction From Agricultural Lands North of Interstate 80	The Proposed Project is based on providing detention storage for a 10-year storm event.	$487,000	Planning
56	East Lake Resource Conservation District	Upper Putah CreekWatershed Management Plan	This project will produce a comprehensive Regional Watershed Management Plan for the Putah Creek Watershed located in Lake, Napa, Solano, and Yolo Counties. This will include conducting a thorough geomorphic study to better understand current conditions as related to water quality, water quantity, wildlife habitat, and socioeconomics. The project will assemble past studies and reports to identify data gaps, conduct on-the ground scientific investigations, and interview citizens and stakeholders through an education and outreach program. The result will be a management plan that identifies watershed related issues that will provide recommendations for implementation.	$500,000	Planning
170	Harbor View Mutual Water	Water Storage Tank Replacement Project	The community currently has two 50 year old redwood storage tanks that have started to leak a significant amount of water due to rot and age. One of the tanks is in the middle of the water system and can't be taken out of service for maintenance. Neither tank is seismically secured to the cement foundation under them. The company contracted Water Works Engineering to draft us a PER as to the best way to solve our water storage tank problems, it was determined that replacement of all three of our current tanks with two new bolted steel tanks would be the cheapest and easiest fix for the long term. The estimated replacement cost the entire project is 1.3 million.	$1,361,068	Implementable Project
96	Knights Landing Ridge Drainage District	Mid Valley, Knights Landing Repair Project	Subset of the Mid-Valley Area Levee Reconstruction Project currently underway through a partnership with ACOE and the Central Valley Flood Protection Board.	$6,883,000	Implementable Project
128	Lake Berryessa Resort Improvement District	Program to Prevent Wastewater Discharges	This project will repair or replace sections of sanitary sewer collection laterals and mains that are experiencing above normal levels of storm water inflow/infiltration (I/I).	$1,500,000	Implementable Project
87	Lake Berryessa Resort Improvement District	LBRID Wastewater Storage Pond and Disposal Improvements	This project will upgrade the wastewater storage ponds and disposal spray fields.	$3,000,000	Implementable Project
88	Lake Berryessa Resort Improvement District	Water Tank Replacement Project	The three existing potable storage tanks have reached the end of their useful life. The project will replace these three tanks to ensure a continuous water supply for the residents in the future.	$1,500,000	Implementable Project
153	Lake Berryessa Resort Improvements District	Sewer Lift Station Upgrades	A single six (6) inch asbestos cement sewer main installed in the mid 1960s conveys pumped raw sewage from the Lift Station A Collection Tank to remote Facultative Ponds and Sprayfields. Approximately 5,200 feet of the sewer trunk line is under high pressure due to a 231 foot change in elevation from the tank to terminus manhole and frictional headloss within the pipe. Combination of age (50 years), high working pressure (> 100 psi) and asbestos cement pipe properties have caused leaks and breaks prompting emergency repairs. The existing AC sewer main has inadequate hydraulic capacity to handle 100-year design storm inflows per requirements mandated by the Central Valley RWQCB. The project will replace 3,000 feet of sewer main and appurtenances from Lift Station A traversing below the Storage Pond access road.	$1,094,250	Implementable Project
154	Lake Berryessa Resort Improvements District	Sewer Lift Station Upgrades	Sewer Lift Stations B, C and D in the residential collection system have insufficient firm pumping capacity and to handle 100-year design storm inflows per requirements mandated by the Central Valley RWQCB. The project will replace progressive cavity style pumps with latest technology chopper pumps, renew yard piping plus appurtenances and upgrade the electrical systems.	$635,500	Implementable Project
89	Lake County Special Districts	Soda Bay Water System Improvements	This project will correct deficiencies caused by increased algae blooms in Clear Lake in the system that are required for public safety and regulatory requirements.	$1,500,000	Implementable Project

Table D-4: Westside IRWM Plan Project Screening Results
(sorted by Lead Agency, then Project Type)

Project No.	Lead Agency /Organization	Project Title	Planned Project/Program Types and Activities	Project Cost	Project Type
147	Lake County Special Districts	Paradise Vallev-Clearlake Oaks County Water Consolidation	Paradise Valley Water System, County Service Area 16 (CSA #16), serves 75 customers. The system does not have adequate source capacity in accordance with Section 64554, Chapter 16, Title 22 of the California Code of Regulations. CSA #16 has three wells that when combined do not produce the required source capacity. Attempts to drill a fourth well in 2012 were unsuccessful. The current drought has further reduced the wells ability to prod uce and the CSA is critically challenged to produce sufficient water for human consumption. The CSA is under an urgency ordinance and required to keep usage below 50 gpd per person. The option of building a surface water treatment plant is not desirable due to the poor water quality of Clear Lake and the costs would be prohibitive for the very small district. It has been determined that consolidating with Clearlake Oaks County Water System (CLOCWS) is the best option for resolving the lack of source capacity. Consolidation with CLOCWS would benefit both systems as it would resolve source capacity for CSA # 16 and would allow CLOCWS to expand their customer base and upgrade storage. Project will include the construction of a pipeline to distribute water to CSA # 16.	$1,500,000	Implementable Project
148	Lake County Special Districts	Spring Valley Water System Distribution Line Loop	Spring Valley, CSA #2 is a public water system serving 493 customers. CSA #2 draws water from Indian Valley Reservoir which is at a critically low level due to the drought. Storage for Indian Valley reservoir is currently 27,753 acre feet compared to 96,411 acre feet last year. Release of 10 cubic feet per second is required for fish habitat. This project would help preserve sufficient quantities of water for both human consumption and preservation of the fish habitat. The old and deteriorated distribution system is experiencing numerous leaks which are increasing the amount of water required for community consumption. In addition to the leaking pipes, the system has lines that "dead end" and must be flushed regularly to avoid a dangerous buildup of trihalomethanes. (a dangerous by-product of the treatment process) Flushing the lines also requires large quantities of water to be wasted.TSpring Valley, CSA #2 is a public water system serving 493 customers. CSA #2 draws water from Indian Valley Reservoir which is at a critically low level due to the drought. Storage for Indian Valley reservoir is currently 27,753 acre feet compared to 96,411 acre feet last year. Release of 10 cubic feet per second is required for fish habitat. This project would help preserve sufficient quantities of water for both human consumption and preservation of the fish habitat. The very old distribution system is experiencing numerous leaks which are increasing the amount of water required. Over 12,000,000 gallons of treated water is being lost per year through leaks. In addition to the leaking pipes, the system has lines that "dead end" and must be flushed regularly to avoid a dangerous buildup of trihalomethanes. (A dangerous by-product of the treatment process) Flushing the lines also requires large quantities of water to be wasted.The proposed project would resolve these two critical needs. Additional benefits would be improvements to the fire suppression abilities and a decrease on operating and maintenance costs. The extension of water lines for looping the system would allow installation of fire hydrants in areas that have not had access to water lines and are at risk of wild fires. This project would consist of the replacement of 7,500 feet and new installation of approximately 9,100 feet of C-900 water lines which will increase water supply reliability, water conservation and water use efficiency as well as improve drinking water quality and help alleviate fire danger. Up to 45% of the water drawn from the reservoir and treated is being lost due to the old deteriorated water lines and the need for frequent line flushing.	$1,260,000	Implementable Project
150	Lake County Special Districts	Mt. Hannah, CSA #22 Water System	Mt. Hannah, CSA #22 is a public water system serving 36 customers. CSA #22 relies on ground water for supply. Due to current drought conditions, the well level dropped 65% from January 2013 to January 2014. The well has lost the ability to recharge and can only be pumped for approximately 30 minutes and then must be allowed to recharge for 2 to 3 hours. Due to the well being overdrawn, turbidity issues have become a problem. Filtering for turbidity requires even more water that is not available. We are in the process of preparing to truck water to the community from outside the area. This will be very costly and an extreme financial burdon on the disadvantaged community.In addition to the loss of capacity, the system has a deteriorated trunk line that has severe leaks and is losing up to 45% of the water being pumped. The customers are economically disadvantaged. They have been conserving water and the average consumption for the CSA is approx. 35 gallons per day per person.Water rates for this CSA are considerably higher than the county average but due to the small number of customers, the CSA struggles financially and has not been able to build a capital reserve fund. The geographic location of this CSA eliminates the option of consolidation. It is located on Cobb Mountain and not near any other systems that it could tie into. The CSA desperately needs a deeper well and a new trunk line installed.	$270,000	Implementable Project
67	Lake County Water Resources Department	Cache Creek Flow Enhancement Project	This project will evaluate the removal and maintenance of the gravel bar at the Grigsby Riffle to reduce flow restrictions in the Cache Creek Outlet Channel.	$200,000	Feasibility Study
68	Lake County Water Resources Department	Assess stream channel hydrology and related riparian and aquatic habitats for restoration	This project will survey stream channels, especially in the level valleys in the lower elevations of the Upper Cache and Upper Putah Creek watersheds, and subsequent prioritization based on erosion hazard, potential for significant habitat improvement, and other factors.	$250,000	Feasibility Study
63	Lake County Water Resources Department	Develop and Implement a Comprehensive Watershed Monitoring Programs	Meeting of agencies, Tribes, and organizations currently monitoring water quality in the Clear Lake Watershed to coordinate monitoring activities and reduce overlap when possible.	$0	Implementable Program

Table D-4: Westside IRWM Plan Project Screening Results
(sorted by Lead Agency, then Project Type)

WESTSIDE SAC IRWM
Integrated Regional Water Management Plan

Project No.	Lead Agency /Organization	Project Title	Planned Project/Program Types and Activities	Project Cost	Project Type
94	Lake County Water Resources Department	Increase Cache and Putah Creek Watershed Education and Outreach	Develop and improve education programs that provide public with information on watershed programs and related proper management techniques.	$0	Implementable Program
57	Lake County Water Resources Department	Restore Native Fish Spawning Areas in Clear Lake Tributaries	This is a series of projects to eliminate some of the major barriers to fish passage. Projects include: Kelseyville Main Street check dam (Kelsey Creek); Decker Bridge (Scotts Creek); Rancheria Road Bridge (Middle Creek); Sewer Crossing (Seigler Canyon Creek); Clover Creek Diversion Channel; Creek Delta Diversity (multiple creeks).	$5,560,000	Implementable Project
59	Lake County Water Resources Department	Middle Creek Flood Damage Reduction and Ecosystem Restoration Project	This project will eliminate flood risk to 18 residential structures, numerous outbuildings and approximately 1,650 acres of agricultural land and will restore damaged habitat and the water quality of the Clear Lake watershed. Reconnection of this large, previously reclaimed area, as a functional wetland is anticipated to have a significant affect on the watershed health and the water quality of Clear Lake. The project consists of purchasing the flood prone property "protected" by the substandard levee, mitigating flood impacts to roads and utilities, reconstructing historic channel patterns, and breaching the levee in numerous locations that allow Clear Lake to reflood the Project area.	$55,426,000	Implementable Project
69	Lake County Water Resources Department	Adobe Creek Conjunctive Use Project	Addition of conjunctive use to the operation of Highland Creek Reservoir (Lake County), through the addition of sluice gates to the existing Principal Spillway structure at Highland Creek Dam.	$700,000	Implementable Project
58	Lake County Water Resources Department	Reduce Flood Damage	This project will reduce flood damage by structural and non-structural methods and will reduce flood risk to property owners in Lake County through 1) buyouts and relocations or floodproofing 2) implementation of the Middle Creek Flood Damage Reduction and Ecosystem Restoration Project 3) Upgrades of bridge and culvert capacities to reduce flooding 4) Implementation of the Cache Creek flow enhancement project 5) Implement channel and levee improvements to the Middle Creek Flood Control Project	$0	Planning
60	Lake County Water Resources Department	Improve Watershed Roads and Trails to Reduce Soil Erosion	Provide supplemental funding to government programs to survey road and trail conditions and maintain, upgrade, decommission, or re-route them as needed.	$0	Planning
61	Lake County Water Resources Department	Improve Water Dependent Recreation Opportunities	Development of a trail system within Lake County as described in the general plan.	$0	Planning
62	Lake County Water Resources Department	Identify, Protect and restore Important Wildlife Habitat Areas in Clear Lake	Development of a plant that provides for protection of important wildlife habitat areas within Clear Lake including bird nesting areas and shoreline wildlife preserves.	$0	Planning
64	Lake County Water Resources Department	Develop a Native Fish Management Plan	Conduct studies to identify and fill gaps in information and understanding of native fish populations with in Lake County. Use these studies to develop a Native Fish Management Plan.	$250,000	Planning
65	Lake County Water Resources Department	Collaborative Process to Update Clear Lake Integrated Watershed Management Plan	Update of CLIWM Plan.	$0	Planning
66	Lake County Water Resources Department	Clear Lake Water Quality Assessment	Planning/assessment project to assess the current limnological conditions and to identify and select measures necessary for Clear Lake to meet the water quality objectives as specified in the Basin Plan, as required by the Basin Plan amendment implementing the Nutrient TMDL for Clear Lake.	$540,000	Planning
97	Lake County Water Resources Department for RWMG	Form Task Force/Subcommittee to strategize and implement Watershed Education and Outreach	Support appointment of an Education Task Force/Subcommittee to prepare a Regional Watershed Education Plan for a 2-year implementation period.	$0	Planning
2	Lower Putah Creek Coord. Committee	505-East Channel Restoration	Restore 10 acres of riparian forest, 3/4 mile of river channel, remove 22 occurrences (2 net acres) of 6 primary invasive weeds; reconfigure one thousand feet of river channel, restore 100 feet of eroding stream bank, create 3/4 mile of south bank bench trail connecting Yolo Housing to the City of Winters at low flows.	$350,000	Feasibility Study
4	Lower Putah Creek Coord. Committee	Dry Creek Wildlife Migration Corridor Feasibility Study	Feasibility study to restore 2 miles of wildlife corridor from the confluence of Putah Creek along Dry Creek on the western boundary of Winters	$20,000	Feasibility Study
5	Lower Putah Creek Coord. Committee	Duncan-Giovannoni Channel Restoration Feasibility Study	Determine feasibility to restore 80 acres of riparian forest, reconfigure one mile of river channel, remove 96 occurrences (7 net acres) of 5 primary invasive weeds. Convert five acres of excess open water (gravel pit captured by the channel) to floodplain, restore natural meander form, pool-riffle sequence, functional floodplain elevations, salmon spawning habitat and native vegetation.	$35,000	Feasibility Study
6	Lower Putah Creek Coord. Committee	Glide Ranch Channel Restoration Feasibility Study	Feasibility study to restore 160 acres of riparian forest, reconfigure 11,250 feet of river channel, remove 128 occurrences (8 net acres) of 8 primary invasive weeds. Grade floodplain to functional elevation, convert 15 acres of excess open water to floodplain, restore natural meander form, pool-riffle sequence, salmon spawning habitat and native vegetation.	$30,000	Feasibility Study
8	Lower Putah Creek Coord. Committee	Lower McNamara Pool Channel Reconfiguration Feasibility Study	Determine feasibility to: restore 25 acres of riparian forest, reconfigure 3,150 feet of river channel, remove 25 occurrences (0.5 net acres) of 6 primary invasive weeds. Convert seven acres of excess open water (gravel pit captured by the channel) to floodplain, restore natural meander form, pool-riffle sequence, functional floodplain elevations, salmon spawning habitat and native vegetation.	$30,000	Feasibility Study

Table D-4: Westside IRWM Plan Project Screening Results
(sorted by Lead Agency, then Project Type)

Project No.	Lead Agency /Organization	Project Title	Planned Project/Program Types and Activities	Project Cost	Project Type
9	Lower Putah Creek Coord. Committee	MacQuiddy Channel Reconfiguration Feasibility Study	Determine feasibility to: restore 34 acres of riparian forest, reconfigure 3,800 feet of river channel, remove 44 occurrences (6 net acres) of 5 primary invasive weeds. Grade floodplain to functional elevation, restore natural meander form, pool-riffle sequence, salmon spawning habitat and native vegetation.	$25,000	Feasibility Study
10	Lower Putah Creek Coord. Committee	Mace to Road 106A Channel Restoration Feasibility Study	Feasibility study to restore 305 acres of riparian forest, reconfigure 2.7 miles of river channel, remove 124 occurrences (12.8 net acres) of 5 primary invasive weeds. Grade floodplain to functional elevation, convert 17 acres of excess open water to floodplain, restore natural meander form, pool-riffle sequence, salmon spawning habitat and native vegetation.	$40,000	Feasibility Study
11	Lower Putah Creek Coord. Committee	Nishikawa Channel Restoration Feasibility Study	Feasibility study to restore 37 acres of riparian forest, reconfigure 2,430 feet of river channel, remove 20 occurrences (1.36 net acres) of 6 primary invasive weeds. Grade floodplain to functional elevation, convert 3 acres of excess open water to floodplain, restore natural meander form, pool-riffle sequence, salmon spawning habitat and native vegetation.	$20,000	Feasibility Study
12	Lower Putah Creek Coord. Committee	Old Davis Road to Mace Channel Restoration Feasibility Study	Feasibility study to restore 190 acres of riparian forest, reconfigure 3.4 miles of river channel, remove 172 occurrences (5 net acres) of 9 primary invasive weeds. Grade floodplain to functional elevation, convert 27 acres of excess open water to floodplain, restore natural meander form, pool-riffle sequence, salmon spawning habitat and native vegetation.	$40,000	Feasibility Study
13	Lower Putah Creek Coord. Committee	Olmo-Hammond-UCD Channel Restoration Feasibility Study	Feasibility study to restore 109 acres of riparian forest, reconfigure 9,765 feet of river channel, remove 70 occurrences (2.5 net acres) of 9 primary invasive weeds. Grade floodplain to functional elevation, convert 17 acres of excess open water to floodplain, restore natural meander form, pool-riffle sequence, salmon spawning habitat and native vegetation.	$35,000	Feasibility Study
16	Lower Putah Creek Coord. Committee	Restoria Channel Restoration Feasibility Study	Feasibility study to restore 93 acres of riparian forest, reconfigure 4,300 feet of river channel, remove 46 occurrences (3.2 net acres) of 6 primary invasive weeds. Grade floodplain to functional elevation, convert 2 acres of excess open water to floodplain, restore natural meander form, pool-riffle sequence, salmon spawning habitat and native vegetation.	$25,000	Feasibility Study
17	Lower Putah Creek Coord. Committee	Road 106A to Yolo Bypass Channel Restoration Feasibility Study	Feasibility study to restore 52 acres of riparian forest, reconfigure 6,000 feet of river channel, remove 42 occurrences (8 net acres) of 6 primary invasive weeds. Grade floodplain to functional elevation, convert 11 acres of excess open water to floodplain, restore natural meander form, pool-riffle sequence, salmon spawning habitat and native vegetation.	$30,000	Feasibility Study
18	Lower Putah Creek Coord. Committee	Russell Ranch Channel Restoration Feasibility Study	Determine feasibility to: restore 50 acres of riparian forest, reconfigure 5,500 feet of river channel, remove 91 occurrences (2.75 net acres) of 8 primary invasive weeds. Grade floodplain to functional elevation, convert 7 acres of excess open water to floodplain, restore natural meander form, pool-riffle sequence, salmon spawning habitat and native vegetation.	$30,000	Feasibility Study
19	Lower Putah Creek Coord. Committee	Stevenson Bridge Channel Restoration Feasibility Study	Feasibility study to restore 22 acres of riparian forest, reconfigure 2,100 feet of river channel, remove 29 occurrences (0.5 net acres) of 6 primary invasive weeds. Grade floodplain to functional elevation, convert 1.5 acres of excess open water to floodplain, restore natural meander form, pool-riffle sequence, salmon spawning habitat and native vegetation.	$25,000	Feasibility Study
21	Lower Putah Creek Coord. Committee	Upper McNamara Pool Channel Reconfiguration Feasibility Study	Determine feasibility to restore 30 acres of riparian forest, reconfigure 3,300 feet of river channel, remove 52 occurrences (4 net acres) of 7 primary invasive weeds. Convert five acres of excess open water (gravel pit captured by the channel) to floodplain, restore natural meander form, pool-riffle sequence, functional floodplain elevations, salmon spawning habitat and native vegetation.	$30,000	Feasibility Study
3	Lower Putah Creek Coord. Committee	Apricot Draw Bank Stabilization	Restore 3,000 feet of Apricot Draw, stabilizing eroding banks, removing invasive weeds and planting native vegetation.	$120,000	Implementable Project
7	Lower Putah Creek Coord. Committee	Putah Creek Interdam Reach Invasive Weed Control	Remove 127 occurrences (8.6 net acres) of 11 primary invasive weeds from 6.5 river miles (400 acres) of riparian corridor between Monticello Dam and Putah Diversion Dam and install native vegetation where weeds are removed.	$150,000	Implementable Project
14	Lower Putah Creek Coord. Committee	Pleasant Creek Wildlife Migration Corridor Plan	Plan to restore 7,000 feet of wildlife corridor of Pleasant Creek to the confluence with Putah Creek, stabilizing eroding banks, removing invasive weeds and planting native vegetation.	$10,000	Implementable Project
15	Lower Putah Creek Coord. Committee	Pleasants Creek Bank Stabilization	Restores 84 acres of riparian habitat along 7 miles of Pleasants Creek, stabilizing eroding banks, removing 135 occurrences (13.4 acres) of invasive weeds and planting native vegetation.	$1,000,000	Implementable Project
20	Lower Putah Creek Coord. Committee	Thompson Canyon Bank Stabilization Design and Permits	This study provides plans, specifications and permits to restore 1.5 miles of Thompson Canyon at the confluence of Putah Creek, stabilizing a poorly engineered legacy road that annually degrade water quality and smother prime trout spawning habitat below Monticello Dam.	$100,000	Implementable Project
22	Lower Putah Creek Coord. Committee	Warren Weed Control	Restore 11 acres of riparian forest, 1,700 of river channel, remove 26 occurrences (2 net acres) of 8 primary invasive weeds. One of the densest thickets of eucalyptus with over 300 trees averaging 24 inches in diameter.	$175,000	Implementable Project
190-YS	Madison CSD	Madison Farmer Field Stormwater Capture and Groundwater Recharge	Modify farmer fields around Madison, specifically those next to Highway 16 and those that will capture upstream flows. The two options considered include 1) 1,200 acres of farmer field modification for rainfall capture (8''-berm) and 2) modification of a farmer field near Cache Creek (maybe half of APN 049-060-017) for rainfall and storm water runoff capture a 3-' high storm water detention basin. This project will require farmer participation and advanced planning for field modification, and will depend on the storm intensity. The first option will only capture rainfall and the second option will capture rainfall and allow runoff to be collected into the detention basin. The second option will require more modification to the property, additional infrastructure for channeling runoff into the basin, and a pump if the water needs to be drained from the basin.	$100,000 - $400,000	Implementable Project

Table D-4: Westside IRWM Plan Project Screening Results
(sorted by Lead Agency, then Project Type)

Project No.	Lead Agency /Organization	Project Title	Planned Project/Program Types and Activities	Project Cost	Project Type
191-YS	Madison CSD	Western Yolo Sloughs Citizen Science Program	Sloughs surrounding the Madison area are known to cause regular flooding in Madison and beyond. Namely, Cottonwood Slough, Lamb Valley Slough, the South Fork Willow Slough and the Madison Drain have been identified as sources of flooding in Madison in various studies and reports. It seems likely that mitigation upstream in these sloughs to remove water before the sloughs reach Madison and Esparto, and management of the sloughs to keep them free of debris could help in alleviating flooding in the area. However, none of these channels are monitored, therefore, it is unknown what capacity these sloughs have, when that capacity is reached (during or after a storm), or what type of mitigation would be most fitting for each slough. Additionally, it is not known if the Winters Canal is also full when sloughs are full, or if it may have capacity that could be used to alleviate the sloughs when they are over flowing. The Madison CSD with its partners will develop a citizen science program where Madison residents and residents from the nearby areas will visit sloughs and canals that carry water in and around Madison following rain events. The program members will record whether they see water flowing in the sloughs and canals at previously determined locations, and record observations such as whether the channels are successfully carrying the flows, appear to be obstructed, or are overflowing. The information will be compiled in an easy to use format so that members can easily share the information with Madison CSD and others. The information will initially be used until a flow monitoring network can be developed in the sloughs, and potentially beyond. The goal is to gain a better understanding of the slough flow patterns and information that can be used to plan for flood mitigation in Madison, while also engaging and educating the community.	$0	Planning
71	Mendocino National Forest	Hazardous Fuels Reduction in the Upper Lake Watershed	Management of 28,600 acres within the Upper Lake watershed, including hazardous fuels reduction on areas to be determined during the planning stage.	$0	Conceptual
70	Mendocino National Forest	Lakeview Hazardous Fuels Reduction	The primary activities proposed under this project are vegetation and surface fuel treatments to reduce hazardous fuels and modify wildland fire behavior.	$1,250,000	Implementable Project
90	Napa Berryessa Resort Improvement District	NBRID Water Treatment Plant Replacement	The existing water treatment plant will be replaced with a new more technically advanced water treatment plant.	$2,500,000	Implementable Project
91	Napa Berryessa Resort Improvement District	NBRID Wastewater Storage Pond and Disposal Improvements	This project will upgrade the wastewater storage ponds and disposal spray fields.	$3,000,000	Implementable Project
92	Napa Berryessa Resort Improvement District	NBRID Wastewater Treatment Plant Replacement	This project will upgrade the existing WWTP. The project will also repair or replace all the existing sewer lift stations.	$1,500,000	Implementable Project
72	Napa County	Regional Collaborative Water Conservation Program	Expansion of the implementation of the Regional Water Conservation Education Program's conservation education and consumer incentive programs and build on regional water conservation initiatives.	$125,000	Implementable Project
129	Putah Creek Council	Native Plant Nursery to Support Putah-Cache Ecotype Restoration	Putah Creek Council (PCC) will manage a native plant nursery to grow Putah Creek plants from wild-collected seeds and cuttings at a nursery at the LA Moran Reforestation Center, Davis.	$16,000	Implementable Project
130	Putah Creek Council	Pollution Prevention and Watershed Education Project	Putah Creek Council (PCC) will educate Winters students, residents, and visitors about storm water and urban runoff, watershed function, and wildlife habitat along Putah Creek via our “Pollution Prevention and Watershed Education” project.	$23,500	Implementable Project
136	Reclamation District 2035	Levee Repairs/Maintenance- Segments 150, 173 and 297	Complete geological analysis, engineering design required to identify and correct levee deficiencies and hazard mitigation recommendations contained in the URS levee evaluation report (2010) completed at the direction of the Department of Water Resources and additional geologic investigation analysis (to be completed) recommendations.	$0	Feasibility Study
139	Reclamation District 2035	Floodway Corridor Project	The project consists of three major phases/components: 1) acquisition of Conservation/Flowage Easements - Approx. 7,000 acres.2) New Sacramento River By Pass - A new bypass facility will be constructed to divert flows from the Sac River to the Yolo Bypass. During large storm evens flood flows would be diverted (Sac River) over a new weir to a new bypass channel that would deliver flows to the Yolo Bypass.3) Diverting additional flood flows in to the Yolo Bypass would increase flow and stages in the bypass downstream from the new bypass. To mitigate for potential flow increases, a portion of Conaway Ranch (outside of the Bypass), would be used to convey and store (transitory storage of over 66K acre feet) of flood water during large storm events.	$0	Feasibility Study
135	Reclamation District 2035	Tule Canal Habitat Enhancement & Sediment Removal	The project consists of: 1) securing an environmental easement that would protect valuable floodplain habitat and adjacent lands from other uses 2) construction of operational facilities for water control and fish passage and 3) regrading portions of the floodplain habitat to increase the quality of seasonally inundation based on managed flows from the Sacramento River.	$0	Implementable Project
140	Reclamation District 2035	Cross Bypass Canal Modernization	The project consists of piping (or lining) the Cross Bypass Canal and the installation of flow control and measurement devices to improve the conveyance system and increase water use efficiency.	$0	Implementable Project
137	Reclamation District 2035	Installation of Groundwater Wells	Engineer, design and install groundwater wells.	$0	Planning
138	Reclamation District 2035	Groundwater Studies	Reclamation District 2035's Ground Studies Project will consist of the identification and analysis of issues, if any, surrounding the quality and availability of groundwater.	$0	Planning
141	Reclamation District 2035	Conjunctive Use Study	The project consists of the study and analysis of the coordinated use of surface and groundwater that could benefit the agricultural, urban, and environmental interests within, nearby and downstream of Yolo County, especially the North Delta region.	$0	Planning
99	Reclamation District No. 2068	Agricultural Tail Water Reuse Program	This program proposes to develop an ag water recapture and reuse facility at strategic locations within the agency.	$50,000	Conceptual

Table D-4: Westside IRWM Plan Project Screening Results
(sorted by Lead Agency, then Project Type)

Project No.	Lead Agency /Organization	Project Title	Planned Project/Program Types and Activities	Project Cost	Project Type
102	Reclamation District No. 2068	SCADA Implementation	Install/coordinate local and regional SCADA system to monitor water diversions, pumping plant operations, flood water elevations, groundwater elevations, water distribution within the agency jurisdiction.	$250,000	Conceptual
100	Reclamation District No. 2068	Irrigation Billing / Irrigation Management System Improvements	The software for a unique water billing is in need of an update, including enhancements in the user interface, data management capability and software/hardware compatibility.	$50,000	Maintenance/Monitoring
73	Robinson Rancheria	The Restoration of the Clear Lake Hitch to Blue Lakes	Transfer of live hitch fry to the waters of the Blue Lakes in Lake County.	$0	Implementable Project
74	Robinson Rancheria	Spawning Hitch fish and reproduction loss correction measures for an artificial trap	Installation of a grate at the mouth of the manmade ditch along the Rodman Slough to prevent Hitch fatalities.	$0	Implementable Project
75	Rural Community Assistance Corporation	DAC Community Wastewater Management Project	RCAC will work with Lake County DACs and tribes to create and implement a septic inspection and monitoring program.	$108,322	Implementable Project
93	Rural Community Assistance Corporation	Rural Disadvantaged Community (DAC) Partnership Project	RCAC will manage the Prop 84 grant funds to address inadequate water supply and water quality in rural disadvantaged communities (DACs) in the Westside Sacramento IRWM region.	$127,753	Planning
40	RWMG with selected Lead Agency	Regional Invasive Plants, Aquatic and Terrestrial Weeds Management Plan	This project will include the formation of an Invasive Species Task Force/Subcommittee to prepare a Regional Invasive Species Management/Eradication Plan that documents the extent of invasive terrestrial and aquatic species within the Westside Region; evaluates existing programs to manage invasive species that could be leveraged, and identifies supplemental programs to be developed to fill gaps in existing programs to manage invasive species.	$0	Implementable Program
76	RWMG with selected Lead Agency	Regional Invasive Mussels Management Plan	This project will include the formation of an Invasive Species Task Force/Subcommittee to prepare a Regional Invasive Mussels Species Prevention Plan that evaluates existing programs to prevent invasive species that could be leveraged, and identifies supplemental programs to be developed to fill gaps in existing programs to manage invasive species. Special high priority emphasis will be placed on prevention of water body infestation by Quagga Mussels.	$0	Implementable Program
134	RWMG with selected Lead Agency	Climate Change Adaptation Study	Regional study to advance understanding of the effects of climate change and consider potential modifications to the water management system.	$0	Planning
143	RWMG with selected Lead Agency	Regional Capital Improvement Plan	Create Regional asset management plan to identify and prioritize key water management infrastructure.	$0	Planning
23	Solano County Water Agency	Aquatic Nuisance Vegetation Management	The goal of the Aquatic Nuisance Species Management Plan is to minimize the harmful ecological, economic, and social impact of aquatic nuisance species through prevention and management of introduction, population growth, and dispersal into, within, and from Solano County.	$0	Implementable Program
25	Solano County Water Agency	Gibson Canyon Creek Detention Basin	Provide increased flood protection up to 100-year with improved conveyance and containment of out of bank flows. Convert abandoned City wastewater pond to detention basin.	$10,000,000	Implementable Program
26	Solano County Water Agency	Improvements to Solano Project Facilities	Today, the Solano project provides irrigation and municipal water to over 400,000 people in Solano County. However, the Solano Project is 60 years old and is in need of upgrades, repairs, and modernization.	$0	Implementable Program
27	Solano County Water Agency	Invasive Plant Removal Program	Program would consist of reducing the geographic extent of invasive plant species (tamarisk, arundo, yellow star thistle, etc.) in riparian and wetland areas in Solano County.	$0	Implementable Program
28	Solano County Water Agency	Large Landscape Water Efficiency Program	This program will offer financial incentives to commercial customers (businesses, multi-family units) to encourage replacement and upgrade of selected irrigation equipment with new water-efficient irrigation equipment.	$200,000	Implementable Program
29	Solano County Water Agency	NBA Infrastructure and Capacity Improvements	The North Bay Aqueduct (NBA) is in need of infrastructure and capacity improvements to increase capacity and minimize WQ impacts, to ensure a reliable water supply for Napa and Solano counties.	$0	Implementable Program
30	Solano County Water Agency	North Bay Aqueduct Alternate Intake Project	The NBA AIP includes the construction and operation of a new intake and pumping plant on the Sacramento River, conveyance pipeline, and inline storage to divert and convey water from the Sacramento River connecting to the existing NBA pipeline near the North Bay Regional Water Treatment Plant in Fairfield.	$500,000,000	Implementable Project
31	Solano County Water Agency	Improve Solano Project SCADA infrastructure	This project is to install contiguous dedicated power and data lines from the top end of the Solano Project system to the bottom. This would allow monitoring of the entire system simultaneously from a central location and could allow automated remote control.	$4,000,000	Implementable Project
33	Solano County Water Agency	Research on Hydrodynamics and WQ Interactions in the Delta.	With large projects such as the Bay Delta Conservation Plan, restoration of thousands of acres of tidal marsh habitat as part of the Delta Biological Opinions, and others, there is a need to better understand the hydrodynamic and water quality interactions in the Delta.	$100,000	Implementable Project
34	Solano County Water Agency	Research on Improving Water Treatment for Delta Sources	The project would build upon past research done at the NBA Treatment Facility, and by other Delta users, to improve water treatment methods, reduce DBPs, and improve water treatment for Delta water users, including the SWP and CVP.	$100,000	Implementable Project

Table D-4: Westside IRWM Plan Project Screening Results
(sorted by Lead Agency, then Project Type)

Project No.	Lead Agency /Organization	Project Title	Planned Project/Program Types and Activities	Project Cost	Project Type
35	Solano County Water Agency	Risk Assessment of Delta Water Supplies	This project would entail a risk assessment of Delta Water supplies, and would look at the impacts of unforeseen circumstances such as: - Earthquakes - Delta levee failure - Sea level rise - and others as needed	$200,000	Implementable Project
36	Solano County Water Agency	Solano Subbasin Conjunctive Use	Project will improve knowledge on the potential for conjunctive use of groundwater and surface water in the Solano Subbasin. The project will focus on increasing the opportunities for conjunctive groundwater use as a means of increasing water supply and reliability.	$100,000	Implementable Project
37	Solano County Water Agency	Southwestern Sacramento Valley Basin/Solano Subbasin Groundwater-Surface Water Flow Model to Evaluate Recharge, Conjunctive Water Use, and Future Deep Zone Pumpage	The major goal of this project is to consider the potential effects of conjunctive water use scenarios on stakeholders in the greater Solano area, including the Sacramento River and other significant surface water courses in the model area. Another goal of this project is to evaluate the effects of developing new and/or redistributing deep pumpage either horizontally over a spatial area or vertically over different aquifer units with the goal of reducing drawdowns in the basal zone.	$250,000	Implementable Project
38	Solano County Water Agency	Source water protection for Delta water sources	This project consists of various improvements such as best management practices, source water protection, and others to reduce the impact of point and non-point sources that could negatively impact Delta water quality, with a particular emphasis on drinking water quality.	$100,000	Implementable Project
39	Solano County Water Agency	Source water protection for Putah Creek watershed	This project consists of various improvements such as best management practices, source water protection, reduction of in-channel erosion, improved stream channel geomorphology, remediation of historic mining and others to reduce the impact of point and non-point sources that could negatively impact the Putah Creek watershed, as well as the Yolo Bypass.	$20,000	Implementable Project
42	Solano County Water Agency	Ulatis Flood Control Channel Grade Control	This is a programmatic project to install rock cross-vanes at most remaining bridge crossings to arrest scour and promote some habitat diversity. There are approximately 20 location that would benefit from these installations.	$500,000	Implementable Project
43	Solano County Water Agency	Wetland Restoration Research and Impacts to Source Water Quality.	The project will consist of scientific study/research on wetland restoration, organic carbon generation, and other important areas of study, to determine the corresponding impacts on municipal source water quality.	$0	Implementable Project
155	Solano County Water Agency	Lower Putah Creek Restoration: Monticello Dam to Dry Creek	The project restores over 600 acres of riparian forest along nine river miles (30% of the length and area of the riparian corridor) from Monticello Dam to Dry Creek (see Figure 1) replacing 223 occurrences of invasive weeds (20 net acres) with weed resistant native vegetation, restoring natural channel form and function including meander form and pool-riffle-run sequence to 2,400 feet of channel, creating 12 new salmon spawning riffles, grading 45 acres of floodplain to functional elevation, converting 3 acres of excess open water to floodplain, lowering water temperatures and adding an acre of shaded riverine habitat.	$666,666	Implementable Project
156	Solano County Water Agency	Solano and Napa County Drought Relief Project	This project offers drought relief and long-term water savings in the form of a package of water conservation programs to improve water use efficiency throughout eastern Solano County and unincorporated Napa County. The programs include 1) Water-Efficient Landscape Rebates, 2) Weather-Based Irrigation Controller Rebates, 3) High-Efficiency Washer Rebates and 4) the installation of High-Efficiency Toilets and Urinals in commercial and multi-family buildings.	$500,000	Implementable Project
156	Solano County Water Agency	Solano and Napa County Drought Relief Project	This project offers drought relief and long-term water savings in the form of a package of water conservation programs to improve water use efficiency throughout eastern Solano County and unincorporated Napa County. The programs include 1) Water-Efficient Landscape Rebates, 2) Weather-Based Irrigation Controller Rebates, 3) High-Efficiency Washer Rebates and 4) the installation of High-Efficiency Toilets and Urinals in commercial and multi-family buildings.	$500,000	Implementable Project

Table D-4: Westside IRWM Plan Project Screening Results (sorted by Lead Agency, then Project Type)

Project No.	Lead Agency /Organization	Project Title	Planned Project/Program Types and Activities	Project Cost	Project Type
187-YS	Solano County Water Agency	Winters Bioswales Project and Habitat Enhancement	Stormwater from the town of Winters drains residential areas, business districts, and undeveloped lands into a culvert system that delivers contaminated runoff to Putah Creek and one of its major tributaries, Dry Creek. Eighteen discharge points exist, eight of which are connected directly to Putah Creek, the remaining to Dry Creek. Three main culvert delivery sites occur within the Winters Putah Creek Nature Park (WPCNP), draining approximately 200 acres of impervious lands. The stormwater network drains streets, parking lots, businesses and suburban lots, over-irrigated landscapes and disturbed lands, carrying sediment, petroleum products, fertilizers, pesticides, and bacteria into Putah Creek. We have assembled numerous stakeholders to begin addressing this water quality issue and are developing seasonal wetland (bioswale) water treatment projects within the WPCNP that will improve water quality, enhance floodplain function, restore wildlife habitat, and provide educational opportunities for the Winters community. By redirecting this stormwater runoff onto newly constructed floodplains of Putah Creek, water quality contaminants can be decreased through the breakdown action of sunlight, soil, plant roots and microorganisms. Moreover, the redirected water can assist in rehydrating portions of the floodplain during periods of drought and enhance riparian plant growth for the benefit of corridor wildlife. Each culvert outlet, along with the receiving floodplain landscape requires novel designs to redirect, capture, and infiltrate stormwater, all involving site-specific earthworks, specialized soil treatments, appropriate vegetation, monitoring, and post-installation management. We are conducting feasibility analyses and developing designs for the three major culvert networks within the park. We anticipate moving forward with implementation of our first site in Summer, 2018. Along with stormwater treatment and creekside improvements, we intend to develop a community outreach component that will educate people on “Upper Watershed” creek care within the suburban areas that comprise the stormwater drainage networks.	$195,328	Implementable Project
24	Solano County Water Agency	Commercial Washer Rebate Program	This program will offer financial incentives to commercial customers (businesses, multi-family units) who purchase or lease (five-year lease) select commercial washers for commercial laundry or common area multi-family installations.	$245,000	Planning
106	Solano Resource Conservation District	Waterway Management for Improved Water Quality and Wildlife Habitat	Solano Resource Conservation District will work with partners and landowners to demonstrate integrated waterway and levee management.	$500,000	Conceptual
105	Solano Resource Conservation District	Solano County Riparian Habitat Restoration and Enhancement Project	The project will work to improve riparian habitat and reduce noxious weed cover in Eastern Solano County creeks.	$750,000	Implementable Project
192	Solano Resource Conservation District	Barker Slough Water Quality and Habitat Restoration Project	Barker Slough is part of the North Bay Aqueduct (NBA), providing drinking water for up to 500,000 people in urban areas of Napa and Solano Counties. It is also a major tributary to Lindsey Slough, part of the Cache Slough complex of the Sacramento-San Joaquin River Delta. Nearly all of its length is ranched, and in many areas, cattle have free access to the slough. The water coming from the slough has been shown to have high amounts of organic carbon, bacterial coliform, turbidity and salts that exceed drinking water standards. Past projects have attempted to fence cattle off the slough and allow water quality to improve, but these have not been well maintained and cattle continue to degrade water quality. This project would install/repair fencing and off-stream cattle troughs at multiple project sites along Barker Slough, and install native riparian vegetation in this currently denuded watershed. A total of 5 stream miles will be fenced off from cattle and 5 acres of riparian habitat will be restored. In addition, a Barker Slough Watershed Management Plan will be created to bring ranchers, landowners, and urban water users together to identify priority projects that will improve and maintain water quality.	$300,000	Implementable Project
197	Solano Resource Conservation District	Cronin Ranch Habitat Corridor Project	This project aims to create habitat connectivity by planting native perennial grasses, trees and shrubs along more than 4 miles of irrigation and drainage canals that interlace the 2,200 acre Cronin Ranch. This project would connect other habitat restoration projects previously established by Solano RCD, and create over 35 acres of new riparian corridors in a landscape dominated by little more than irrigated pasture and hay fields. New fencing would be installed to exclude cattle from waterways, thereby reducing sediment loads and fecal contamination in waters that drain to the Lower Sacramento River. Native perennial grasses will filter out nutrients and sediment from irrigated pasture tailwater and reduce erosion and bank sloughing along waterways. The deep root systems of native grasses, shrubs and trees increase water infiltration and storage, while also sequestering carbon deep into the soil profile.	$592,000	Implementable Project

Table D-4: Westside IRWM Plan Project Screening Results
(sorted by Lead Agency, then Project Type)

Project No.	Lead Agency /Organization	Project Title	Planned Project/Program Types and Activities	Project Cost	Project Type
198	Solano Resource Conservation District	Ulatis Creek Riparian Floodplain Restoration Project	This proposed habitat restoration project would be a partnership between the landowner, SRCD and agency partners to control non-native weeds and restore 35 acres of unique riparian floodplain habitat to perennial grasses, forbs, trees and shrubs. The project will plant native species of plants that are well adapted to the local hydrology and soil conditions on 35 acres of Delta riparian floodplain. The project will result in the increase in diversity and richness of native species vegetation that would improve the habitat and attract a myriad of local wildlife throughout the year. This project is designed in such a way that the primary function of the channel as a flood control feature is not compromised. Water quality will be improved by maintaining perennial ground cover that will serve as erosion control and as a filter. Occasional grazing by livestock will be an important management tool for maintaining the site long term to reduce excessive thatch build-up and to manage the acceptable level of woody vegetation by the local managing flood control agencies. This project will remain part of the working agricultural landscape, managed long term by Emigh Livestock (landowner) following the operating and maintenance easement guidelines of the channel area by the Solano County Water Agency.	$350,000	Implementable Project
200	Solano Resource Conservation District	Centennial Park Pine Creek and Wetlands Habitat Restoration Project	This project will cleanup and restore wildlife habitat, while attenuating high flood events and filtering excessive eroded sediments at a 26 acre riparian creek and wetland complex located at the southern end of Centennial Park in Vacaville. Project activities include:-Removing all trash and concrete debris from 26 acres-Re-shaping and contouring the wetland area to promote plant diversity, natural wetland function, and diversity of wildlife habitat- Controlling invasive noxious weeds (including arundo, stinkwort and perennial pepperweed) on 26 acres- Planting 1,000 native trees/shrubs and seeding 10 acres of native grass and wildflowers along Pine Creek and its associated upland terraces, creating 2,000 feet of native riparian corridor.- Planting 500 native trees/shrubs and 20,000 native rush and sedge plugs in the wetland basin, creating 16 acres of native wetland marsh habitat.- Installing a 1,500 foot long asphalt walking trail and three interpretive panels along the north side of Pine Creek so that park visitors can experience and learn about riparian and wetland ecology	$600,000	Implementable Project
199	Solano Resource Conservation District	Solano County K-12 Watershed Education in the Sacramento River Watershed	Enhance and expand existing watershed education programming for K-12 students to support personal stewardship behavior and understanding of Sacramento River conservation and restoration goals. This program encompasses two place-based field trip programs: the Watershed Explorers program for third graders and the Solano County Biomonitoring program for high school students, as well as the multi-grade Solano Water Education Program that provides Project WET training and resources to teachers along with targeted water resource lessons, field trip opportunities and classroom supplies. Programming provides education about water conservation, proper used oil disposal, water quality assessment and protection, the Reduce-Reuse-Recycle ethic, native species protection, and the fun and health values of being outdoors in the watershed. By learning about watershed ecology, phenology, biomonitoring, resource conservation, and restoration work, participants understand the important relationship between science and the necessary environmental stewardship of the Sacramento River watershed. We work with Solano County, its cities, county and regional resource agencies, and local businesses to provide context and connection to ongoing local, regional and state environmental stewardship challenges. We formally assess student learning, and use the information we gain to refine and improve our programs.	$10,000	Planning
80	Tuleyome	Cache Creek Anadramous Fish Reintroduction Project	Conduct studies to look at the physical constraints such as temperature, flow regimes, and spawning opportunities, climate change impacts for the reintroduction of anadromous fish to Cache Creek, institutional issues including safe harbor for the YCFCWCD and stakeholder outreach.	$500,000	Feasibility Study
108	Tuleyome, Inc.	Sulphur Creek Mercury and Sediment Reduction Project	This project will: 1) Characterize mercury as required to enable erosion control work, 2) Hydrologically disconnect up to 23 miles of road networks that are currently contributing runoff and contaminated sediment to downstream waters, 3) Stabilize 2000 feet of eroding stream banks that are over-steepened and delivering methylmercury contaminated sediment into the stream system, 4) Treat 115 road-related erosion and sediment delivery sites and 5) Stabilize three major valley bottom headcuts that are resulting in serious valley fill erosion along the main stem Sulphur Creek, desiccating alkali wet-meadows and lowering the water table.	$900,000	Implementable Project
152	Tuleyome, Inc.	Corona & Twin Peaks Mines Cleanup	The principle physical improvements that this project will implement include a novel, low-maintenance, in situ treatment system to reduce acidity and metals loadings from the Corona Drain Tunnel, consolidating mine waste, improving runoff controls, enhancing revegetation of waste rock and tailings at the Boiler House Adit and Twin Peaks Adit, and improving the existing infiltration trenches at the Boiler House Adit and Twin Peaks Adit. This project will address several key issues commonly associated with mine cleanup projects, including:· Physical hazards: Restricting access to the adits and infiltration trenches by people and wildlife· Chemical hazards: Treating mine drainage and site seepage/runoff to attain water quality standards· Legal liability: Protecting “Good Samaritans” who implement projects or manage lands for the good of society· Multiple goals: Seeking multiple benefits (public health & safety, wildlife habitat, cultural resources, etc.) while addressing competing interests· Limited funds: Minimizing remediation costs to encouraging similar efforts elsewhere.	$1.6 million	Implementable Project

Table D-4: Westside IRWM Plan Project Screening Results
(sorted by Lead Agency, then Project Type)

Project No.	Lead Agency /Organization	Project Title	Planned Project/Program Types and Activities	Project Cost	Project Type
81	Tuleyome, Inc.	Comprehensive Mercury Assessment and Implementation for the Westside Region	This project will: 1) compile and georeference existing data pertinent to characterization of known and potential mercury priority areas in the Westside Region 2) monitor streambeds within the Putah Creek Watershed 3) upload relevant data into a regional or statewide on-line library 4) develop a summary 5) develop best management practices toolkit 6) identify 2-3 feasible priority projects and 7) develop implementation measures using the Toolkit and decision support tools.	$492,000	Planning
109	Tuleyome, Inc.	Elgin Mine Drainage Water Treatment Project	Compile existing maps, reports, water data, and other information about Elgin Mine in the IRWM region indicating location, ownership history, and mineral production. Address all regulatory requirements, Conduct baseline and post-project monitoring of downstream water, sediment, and biota. Design and construct a hot spring treatment system to minimize mercury loads downstream.	$1,500,000	Planning
171-YS	University of California, Davis	Agricultural Stormwater Improvements	Agricultural runoff currently enters the storm drain system directly. This projects would create retention basins and vegetated ditches to collect stormwater and irrigation runoff along edges of agricultural fields.	$250,000	Implementable Project
172-YS	University of California, Davis	Arboretum Waterway Wetland Restoration and Enhancement	UC Davis is proposing to enhance the Arboretum Waterway, which captures stormwater discharge from 900 acres of the UC Davis campus, by establishing a wetland area to treat stormwater discharge and recycled water prior to discharge to Putah Creek. This project will include establishing wetlands, increasing stormwater retention, slope stabilization, enhancing a recreation area for the public, utilization of recycled water for irrigation, and creating public education opportunities.	$4 million	Implementable Project
82	West Lake Resource Conservation District	Non-Native Invasive Weed Management Project	This project will maintain the existing weed management program currently being implemented by the Lake County Weed Management Area.	$0	Implementable Project
1	West Sacramento Area Flood Control Agency	Bees Lakes Preserve	Conserve and develop limited, low-impact pedestrian-only recreational access to a 23-acre open space area containing sensitive aquatic, riparian, emergent and upland habitats which are associated with the Sacramento River.	$1,000,000	Feasibility Study
83	West Sacramento Area Flood Control Agency	Lower Sacramento and Delta North Regional Flood Management Plan	Develop a lower Sacramento and Delta North Regional Flood Management Plan that follows the requirements outlined in the Central Valley Flood Protection Plan (CVFPP)	$1,734,907	Implementable Project
111	West Sacramento Area Flood Control Agency	Deep Water Ship Channel East Levee Repair	Correct deficiencies, protect against underseepage, and maintain the Port of West Sacramento levees to current standards for FEMA 100 yr and urban levee 200 year levels of flood protection.	$7,676,000	Implementable Project
112	West Sacramento Area Flood Control Agency	Deep Water Ship Canal Navigation Levee Repair	Correct deficiencies, protect against underseepage, and maintain the Deep Water Ship Canal Levees to current standards for FEMA 100 yr and urban levee 200 year levels of flood protection.	$181,018,000	Implementable Project
113	West Sacramento Area Flood Control Agency	Port of West Sacramento North and South Levee Repair	Correct deficiencies, protect against underseepage, and maintain the Port of West Sacramento levees to current standards for FEMA 100 yr and urban levee 200 year levels of flood protection.	$58,400,000	Implementable Project
114	West Sacramento Area Flood Control Agency	Sacramento River Levee Repair	Correct deficiencies, protect against underseepage, and maintain the Sacramento River Levees to current standards for FEMA 100 yr and SB 5 200 year levels of flood protection.	$250,000,000	Implementable Project
115	West Sacramento Area Flood Control Agency	Sacramento River Recreational Trail	Construct a continuous 13.1 mile, 192-acre recreation corridor along the entire length of the Sacramento River within City limits.	$80,000,000	Implementable Project
116	West Sacramento Area Flood Control Agency	Sacramento Bypass-Yolo Bypass Levee Repair Phase II	Correct deficiencies, protect against underseepage, and maintain the Sacramento Bypass and Yolo Bypass Levees to current standards for FEMA 100 yr and urban levee 200 year levels of flood protection.	$60,900,000	Implementable Project
117	West Sacramento Area Flood Control Agency	West Sacramento South Cross Levee Repair	Correct deficiencies, protect against underseepage, and maintain the West Sacramento South Cross Levee to current standards for FEMA 100 yr and urban levee 200 year levels of flood protection.	$14,605,000	Implementable Project
132	Yolo Basin Foundation	Lower Putah Creek Restoration from Toe Drain to Putah Creek Diversion Dam (Yolo Bypass Wildlife Area Element)	The project will enhance and restore 300-700 acres of tidal freshwater wetlands and create 5 miles of a new creek channel, entirely within the Yolo Bypass Wildlife Area.	$1,000,000	Implementable Project
133	Yolo Basin Foundation	Yolo Bypass Wildlife Area Public Use Improvements	This proposal would complete some of the tasks related to enhancement of public use infrastructure; including maintain and improve wildlife observation, angling and hunting.	$1,000,000	Implementable Project
131	Yolo Basin Foundation	Pacific Flyway Center/Delta Gateway	The Pacific Flyway Center (Center) is a proposed educational facility and site intended to serve the general public, Central Valley area school districts, various public sector agencies and special environmentally focused events and activities.	$13,000,000	Planning
123	Yolo County	Clarksburg Flood Protection Feasibility Study	The project involves conducting a feasibility study of alternatives to provide a 100-year level of flood protection to the Clarksburg region.	$200,000	Implementable Project
177-YS	Yolo County	Knights Landing Storm Drain Project	Design and construct a new storm drain or culvert in the vicinity of 4th and Railroad streets in the community of Knights Landing. KL has historically experience standing water (localized flooding) in the northern portions of town that can be as deep as 2 feet in wet years. The new storm drainage would convey storm water to the County's existing drainage system on the east side of Railroad Street. Design and construction are proposed to be completed by Public Works.	$100,000	Implementable Project

Table D-4: Westside IRWM Plan Project Screening Results
(sorted by Lead Agency, then Project Type)

Project No.	Lead Agency /Organization	Project Title	Planned Project/Program Types and Activities	Project Cost	Project Type
181-YS	Yolo County	Raise Highway 16 Out of Flood plain	This project was initially proposed by Caltrans as flooding of Highway 16 is a chronic problem. The project was not constructed because of concerns of some farmers about grades at farm road crossings. Raising Highway 16 creates a barrier that could be used to store storm water north of the highway in detention basins/recharge ponds. Increasing the capacity of Willow Slough south of Highway 16 west of Madison is needed so that flows can be conveyed to the detention basins. Willow Slough is the source of the majority of flooding in Madison. Cottonwood Slough contributes to occasional flooding (last time was 1996) in Madison. This project could be coordinated with the Madison Canals project as other upstream diversions could benefit this project and/or the planned detention basins could be coordinated.	To be determined	Implementable Project
120	Yolo County	Yolo County Airport Drainage Plan	In order for the airport to eliminate flooding of its facilities and to expand, a 2005 Drainage Plan engineered by Wood Rogers needs to be implemented.	$1,250,000	Planning
125	Yolo County	Methylmercury Impacts Analyses for the Yolo Bypass	Yolo County proposes to collect data and analyze changes in methyl mercury production and bioaccumulation that could result from (1) a proposed Bay Delta Conservation Plan (BDCP) project to enhance fisheries habitat in the Yolo Bypass; and (2) a Central Valley Flood Protection Plan proposal to expand the Yolo Bypass to improve flood capacity.	$100,000	Planning
184-YS	Yolo County FCWCD with Madison CSD	Upstream Flow Management to Prevent Madison Flooding and to Facilitate GW Recharge	The District proposes to manage high flows from Lamb Valley, Cottonwood and S. Fork Willow Sloughs using the existing canal system as well as other means such as upstream check dams. During storm events Willow Slough floods the Town of Madison. The Canal system can be used to convey water away from the Town of Madison and reduce flood levels while also managing peak flows through use of check dams, particularly in Lamb Valley Slough. Flow and water level monitoring could serve several purposes. GW recharge can be accomplished through canal bottoms and potential recharge/detention basins. P. 29 and 30 of the 2012 FIS describe some of the upstream channel capacity limitations and a review of FIRM maps shows several points of intersection between the sloughs and canals to be explored. This project can be coordinated with Raising Highway 16 project.	To be determined	Implementable Project
179-YS	Yolo County FCWCD with Madison CSD	Madison Drainage Study	This project would model new underground drainage facilities for the entire Town of Madison to determine location(s) for outfall (possibly Cache Creek, the South Fork Willow Slough or Cottonwood Slough). Preliminarily it is estimated that the underground drainage facilities would be sized for 110 cfs of storm flows and the system outfall would need to be sized accordingly to prevent backup of the system. Outfall locations would also need to be evaluated to determine if the downstream capacity would be sufficient to convey this additional flow during storm events. LID strategies will be used to ensure discharge water quality does not negatively impact downstream water quality.	$100,000	Planning
118	Yolo County Flood Control and Water Conservation District	Conjunctive Water Use Program	This conjunctive water use project envisions using a variety of methods (recharge/recovery, off-stream storage and canal system modernization) to effectively store and conjunctively use groundwater in the District's service area.	$8,000,000	Implementable Program
84	Yolo County Flood Control and Water Conservation District	Winters Main Canal Modernization Project: Integrated Precision Water Mgmt.	Installation of automatic water control gates, pump flow meters and vegetated native grass canal banks, to improve irrigation efficiency. In addition, planting of native grasses to minimize erosion and decrease use of herbicides.	$2,175,000	Implementable Project
85	Yolo County Flood Control and Water Conservation District	Abandoned Well Incentive Program	Development of a Regional 3 year Abandoned Well Incentive Program to properly abandon wells.	$2,200,000	Implementable Project
119	Yolo County Flood Control and Water Conservation District	Moore Siphon Reliability/Restoration Project	Due to the age and exposure of the 72" corrugated metal pipe, as well as Cache Creek erosion issues at both ends of the siphon, the siphon well either need to be replaced or rehabilitated in the near future.	$1,000,000	Implementable Project
151	Yolo County Flood Control and Water Conservation District	Regional Drought Preparedness through Increased Groundwater Recharge	The District proposes to divert winter flows from Cache Creek into the canal system to increase groundwater recharge. Groundwater recharge and recovery is central to good conjunctive management of surface and groundwater resources. Currently, by District policy, 160 miles of surface water canals remain unlined, providing summertime groundwater recharge services that benefit the aquifer and riparian habitat. The recharged groundwater is used by farmers, individual well owners and business, cities, and small communities. Normally, the majority of canal recharge occurs in the summertime, during the irrigation season. This project proposes to divert wintertime water into the canal system which would require the installation of automated canal gates to replace manual gates. This project will improve local water supply reliability during times of drought and improve conjunctive use management overall. The District has been building and planning improvements to its conjunctive use system for many decades. The regionally supported groundwater monitoring program is extensive. The ag/urban partnership between the cities of Davis, Woodland, and Winters and the Water District is strong. Indeed, the Cities depend on the recharge activities of the District to maintain their water supplies. The disadvantaged communities (DAC) in the western half of the District also depend exclusively on groundwater. The installation of automated gates to make winter recharge possible will increase groundwater storage and will benefit the community for years to come.	$3.0 million	Implementable Project
175-YS	Yolo County Flood Control and Water Conservation District	Flood Monitoring Network Project	Project installs flow monitoring stations at canals and sloughs in order to optimize conveyance capacity for both agricultural operations or during rain events, which could occur at the same time. It is not known how much flow sloughs contribute to the canal systems during rain events.	$0	Implementable Project

Table D-4: Westside IRWM Plan Project Screening Results
(sorted by Lead Agency, then Project Type)

Project No.	Lead Agency /Organization	Project Title	Planned Project/Program Types and Activities	Project Cost	Project Type
176-YS	Yolo County Flood Control and Water Conservation District	Forbes Ranch Regulating Pond	Develop and construct a 200 acre-feet regulating pond to reduce drainage and flood waters through the town of Madison and District canal system. Divert stormwater flows to the pond through the existing conveyance. The regulating pond would provide storm water retention during the winter and would allow for groundwater recharge in the spring and summer when capacity and water is available. The regulating pond would provide water quality benefits by allowing the sediments in the runoff to settle and lessening the transfer of pollutants and chemicals downstream. The surrounding area would have native vegetation that would promote benefits for wildlife habitat, and the property would allow for groups to visit and learn about the multi-functional project. Similar to the District's Chapman Reservoir, we would install automated gates and monitoring devices at the regulating pond that would be connected to the District's SCADA system for real-time management.	$700,000	Implementable Project
185-YS	Yolo County Flood Control and Water Conservation District	West Adams Canal Renovation and China Slough Rehabilitation Project	Enlargement and improvement of the Yolo County Flood Control & Water Conservation District's (District) West Adams, East Adams, and Acacia Canal system, and rehabilitation and improvement of China Slough (a natural storm drainage channel). The District's canal system would need to be modernized to allow for a "demand" system and to ensure no spills. China Slough would need to be cleaned, an operating road constructed, and installation of about eight check structures. Improvements to the canals and slough would be implemented to convey 10,000 acre-feet of surface water per year through China Slough to farmers in the Yolo-Zamora region (~4,200 acres).	2017$ (15,671,929)	Implementable Project
188-YS	Yolo County Flood Control and Water Conservation District	Winters North Area Stormwater Pond	Develop and construct a 5,000 acre-feet stormwater retention pond in the north area of Winters to reduce drainage and flood waters from the Chickahominy Slough. The retention pond would also be used for groundwater recharge in times when the capacity and water was available. The retention pond would provide water quality benefits by allowing the sediments in the runoff to settle and lessening the transfer of pollutants and chemicals downstream. The surrounding area would have native vegetation that would promote benefits for wildlife habitat, and the property would allow for groups to visit and learn about the multi-beneficial, multi-agency partnership. Similar to the District's Chapman Reservoir, we would install automated gates and monitoring devices at the retention pond that would be connected to the District's SCADA system for real-time management.	$0	Implementable Project
189-YS	Yolo County Flood Control and Water Conservation District	Yolo County Drains and Sloughs -- Governance and Maintenance Study	Plan that will identify governing bodies and maintenance responsibilities involved in the County's drains, canals, and sloughs. The District and County will work together to develop a governance and maintenance study that will assist in providing effective rural storm water management responsibilities based on the defined governing bodies. Plan/investigation will initiate a legitimate storm water management program in Yolo County.	$150,000	Planning
126	Yolo County Resource Conservation District	Implementation of the Cache Creek Watershed Invasive Weed Management Plan	The newly completed Cache Creek Watershed Invasive Weed Management Plan (CCW-IWMP), a living document, identifies specific invasive plants for either eradication, containment or monitoring and prioritizes weeds within those categories. Starting in the upper watershed and working downstream we will use weed mapping information to eradicate those which can be eradicated, contain the edges of those identified in that category, and monitor so as to continually update the plan and re-prioritize and implement vegetation management actions.	$250,000	Implementable Project
127	Yolo County Resource Conservation District	Agricultural Drain, Slough and Canal Riparian Habitat Enhancement	Control of invasive weeds, site preparation, installation of native trees, shrubs, grasses and/or forbs as appropriate to the site, and 2 years of vegetation management/ maintenance post-plant along natural and man-made waterways, with focus on Cottonwood, Union School, Willow and Chickahominy sloughs; and main irrigation supply canals in western Yolo County.	$750,000	Implementable Project
86	Yolo County Service Area #6	County Service Area (CSA) #6 Levee Repair Project	Non-urban levee repair project as part of the levee rehabilitation identified to restore the District levee to its authorized level of flood protection.	$3,222,450	Implementable Project
122	Yolo County, Natural Resources Division	Cache Creek Parkway Plan	Once complete the Plan will result in a comprehensive planning document that will guide the restoration and ultimate uses of County owned lands within the Cache Creek Area Plan boundary.	$300,000	Implementable Project
178-YS	Yolo County/	Knights Landing Underground Drainage Study	This project would model new underground drainage facilities for the entire Town of Knights Landing to determine location(s) for outfall to the Sacramento River or Ridge Cut Slough. Preliminarily it is estimated that the underground drainage facilities would be sized for 30-50 cfs of storm flows and the system outfall would need to be sized accordingly to prevent backup of the system. Outfall locations would also need to be evaluated to determine if the downstream capacity would be sufficient to convey this additional flow during storm events. LID strategies will be used to ensure discharge water quality does not impact the Sacramento River or Ridge Cut Slough water quality.	$100,000	Planning

Table D-5: Westside IRWM Plan Project Screening Results (sorted by Project Location by Planning Area)

Project No.	Lead Agency /Organization	Project Title	Planned Project/Program Types and Activities	Potentially Critical DAC Project	Project Type	Importance	Urgency	Primary Objective	Planning Area
40	RWMG with selected Lead Agency	Regional Invasive Plants, Aquatic and Terrestrial Weeds Management Plan	This project will include the formation of an Invasive Species Task Force/Subcommittee to prepare a Regional Invasive Species Management/Eradication Plan that documents the extent of invasive terrestrial and aquatic species within the Westside Region; evaluates existing programs to manage invasive species that could be leveraged, and identifies supplemental programs to be developed to fill gaps in existing programs to manage invasive species.	Yes	Implementable Program	High	High	8	Region Wide
76	RWMG with selected Lead Agency	Regional Invasive Mussels Management Plan	This project will include the formation of an Invasive Species Task Force/Subcommittee to prepare a Regional Invasive Mussels Species Prevention Plan that evaluates existing programs to prevent invasive species that could be leveraged, and identifies supplemental programs to be developed to fill gaps in existing programs to manage invasive species. Special high priority emphasis will be placed on prevention of water body infestation by Quagga Mussels.	Yes	Implementable Program	High	High	7	Region Wide
143	RWMG with selected Lead Agency	Regional Capital Improvement Plan	Create Regional asset management plan to identify and prioritize key water management infrastructure.	No	Planning	Medium	Low	10	Region Wide
44	City of Clearlake	City of Clearlake Stormwater Management Plan (SWMP), Storm Drainage and Flood Control Project Proposal	The City of Clearlake Stormwater Management Plan (SWMP) includes development of stormwater management program implementation strategies and actions.	Yes	Planning	High	Medium	19	Upper Cache Creek Area
46	Colusa County Resource Conservation District	Bear Creek Habitat Enhancement	The Bear Creek Habitat Enhancement project will be implemented in two phases. Phase I will provide for landowner/agency outreach activities and the development of a locally-driven plan to address tamarisk infestations and the re-establishment of native riparian species along Bear Creek in western Colusa County. Phase II will provide for habitat enhancement activities on a minimum of 3.5 miles of Bear Creek and .5 miles of Sulphur Creek.	No	Planning	Medium	Medium	8	Upper Cache Creek Area
48	Crescent Bay Improvement Company	Crescent Bay Improvement Company	Crescent Bay improvement Company has been on a Boil Water Order since 1999. There are 3 objectives to this project:1) replace the 80-year old distribution lines which are leaking, 2) drill a well and replace our surface water source with ground water, and 3) explore the feasibility of and purchase a neighboring water company and develop an intertie with that system.	Yes	Implementable Project	High	High	22	Upper Cache Creek Area
55	Clearlake Oaks County Water District	Plant Intake	Install a new water intake in the lake that is capable of drawing water from different depths, with installation of an amiad pre-filter at the pier where the intakes are located. This will allow a greater control of influent turbidity and pH by controlling what depth the intake will be drawing water from.	Yes	Planning	High	High	22	Upper Cache Creek Area
57	Lake County Water Resources Department	Restore Native Fish Spawning Areas in Clear Lake Tributaries	This is a series of projects to eliminate some of the major barriers to fish passage. Projects include: Kelseyville Main Street check dam (Kelsey Creek); Decker Bridge (Scotts Creek); Rancheria Road Bridge (Middle Creek); Sewer Crossing (Seigler Canyon Creek); Clover Creek Diversion Channel; Creek Delta Diversity (multiple creeks).	Yes	Implementable Project	High	Medium	6	Upper Cache Creek Area
58	Lake County Water Resources Department	Reduce Flood Damage	This project will reduce flood damage by structural and non-structural methods and will reduce flood risk to property owners in Lake County through 1) buyouts and relocations or floodproofing 2) implementation of the Middle Creek Flood Damage Reduction and Ecosystem Restoration Project 3) Upgrades of bridge and culvert capacities to reduce flooding 4) Implementation of the Cache Creek flow enhancement project 5) Implement channel and levee improvements to the Middle Creek Flood Control Project	Yes	Planning	High	Medium	14	Upper Cache Creek Area
59	Lake County Water Resources Department	Middle Creek Flood Damage Reduction and Ecosystem Restoration Project	This project will eliminate flood risk to 18 residential structures, numerous outbuildings and approximately 1,650 acres of agricultural land and will restore damaged habitat and the water quality of the Clear Lake watershed. Reconnection of this large, previously reclaimed area, as a functional wetland is anticipated to have a significant affect on the watershed health and the water quality of Clear Lake. The project consists of purchasing the flood prone property "protected" by the substandard levee, mitigating flood impacts to roads and utilities, reconstructing historic channel patterns, and breaching the levee in numerous locations that allow Clear Lake to reflood the Project area.	Yes	Implementable Project	High	Medium	14	Upper Cache Creek Area
60	Lake County Water Resources Department	Improve Watershed Roads and Trails to Reduce Soil Erosion	Provide supplemental funding to government programs to survey road and trail conditions and maintain, upgrade, decommission, or re-route them as needed.	Yes	Planning	Medium	Medium	15	Upper Cache Creek Area
61	Lake County Water Resources Department	Improve Water Dependent Recreation Opportunities	Development of a trail system within Lake County as described in the general plan.	Yes	Planning	Medium	Low	13	Upper Cache Creek Area
62	Lake County Water Resources Department	Identify, Protect and restore Important Wildlife Habitat Areas in Clear Lake	Development of a plant that provides for protection of important wildlife habitat areas within Clear Lake including bird nesting areas and shoreline wildlife preserves.	Yes	Planning	Medium	Medium	3	Upper Cache Creek Area
63	Lake County Water Resources Department	Develop and Implement a Comprehensive Watershed Monitoring Programs	Meeting of agencies, Tribes, and organizations currently monitoring water quality in the Clear Lake Watershed to coordinate monitoring activities and reduce overlap when possible.	Yes	Implementable Program	High	Medium	18	Upper Cache Creek Area
64	Lake County Water Resources Department	Develop a Native Fish Management Plan	Conduct studies to identify and fill gaps in information and understanding of native fish populations with in Lake County. Use these studies to develop a Native Fish Management Plan.	Yes	Planning	High	Medium	5	Upper Cache Creek Area
65	Lake County Water Resources Department	Collaborative Process to Update Clear Lake Integrated Watershed Management Plan	Update of CLIWM Plan.	Yes	Planning	Medium	Medium	3	Upper Cache Creek Area
66	Lake County Water Resources Department	Clear Lake Water Quality Assessment	Planning/assessment project to assess the current limnological conditions and to identify and select measures necessary for Clear Lake to meet the water quality objectives as specified in the Basin Plan, as required by the Basin Plan amendment implementing the Nutrient TMDL for Clear Lake.	Yes	Planning	High	Medium	19	Upper Cache Creek Area
67	Lake County Water Resources Department	Cache Creek Flow Enhancement Project	This project will evaluate the removal and maintenance of the gravel bar at the Grigsby Riffle to reduce flow restrictions in the Cache Creek Outlet Channel.	Yes	Feasibility Study	High	Medium	23	Upper Cache Creek Area
68	Lake County Water Resources Department	Assess stream channel hydrology and related riparian and aquatic habitats for restoration	This project will survey stream channels, especially in the level valleys in the lower elevations of the Upper Cache and Upper Putah Creek watersheds, and subsequent prioritization based on erosion hazard, potential for significant habitat improvement, and other factors.	Yes	Feasibility Study	Medium	Medium	3	Upper Cache Creek Area
69	Lake County Water Resources Department	Adobe Creek Conjunctive Use Project	Addition of conjunctive use to the operation of Highland Creek Reservoir (Lake County), through the addition of sluice gates to the existing Principal Spillway structure at Highland Creek Dam.	Yes	Implementable Project	High	Medium	22	Upper Cache Creek Area
70	Mendocino National Forest	Lakeview Hazardous Fuels Reduction	The primary activities proposed under this project are vegetation and surface fuel treatments to reduce hazardous fuels and modify wildland fire behavior.	Yes	Implementable Project	Medium	Medium	15	Upper Cache Creek Area

Table D-5: Westside IRWM Plan Project Screening Results (sorted by Project Location by Planning Area)

Project No.	Lead Agency /Organization	Project Title	Planned Project/Program Types and Activities	Potentially Critical DAC Project	Project Type	Importance	Urgency	Primary Objective	Planning Area
71	Mendocino National Forest	Hazardous Fuels Reduction in the Upper Lake Watershed	Management of 28,600 acres within the Upper Lake watershed, including hazardous fuels reduction on areas to be determined during the planning stage.	Yes	Conceptual	Medium	Medium	15	Upper Cache Creek Area
73	Robinson Rancheria	The Restoration of the Clear Lake Hitch to Blue Lakes	Transfer of live hitch fry to the waters of the Blue Lakes in Lake County.	Yes	Implementable Project	High	Medium	6	Upper Cache Creek Area
74	Robinson Rancheria	Spawning Hitch fish and reproduction loss correction measures for an artificial trap	Installation of a grate at the mouth of the manmade ditch along the Rodman Slough to prevent Hitch fatalities.	Yes	Implementable Project	High	Medium	6	Upper Cache Creek Area
75	Rural Community Assistance Corporation	DAC Community Wastewater Management Project	RCAC will work with Lake County DACs and tribes to create and implement a septic inspection and monitoring program.	Yes	Implementable Project	High	Medium	18	Upper Cache Creek Area
82	West Lake Resource Conservation District	Non-Native Invasive Weed Management Project	This project will maintain the existing weed management program currently being implemented by the Lake County Weed Management Area.	Yes	Implementable Project	Medium	Medium	9	Upper Cache Creek Area
89	Lake County Special Districts	Soda Bay Water System Improvements	This project will correct deficiencies caused by increased algae blooms in Clear Lake in the system that are required for public safety and regulatory requirements.	Yes	Implementable Project	Medium	Medium	21	Upper Cache Creek Area
94	Lake County Water Resources Department	Increase Cache and Putah Creek Watershed Education and Outreach	Develop and improve education programs that provide public with information on watershed programs and related proper management techniques.	Yes	Implementable Program	Medium	Low	2	Upper Cache Creek Area
108	Tuleyome, Inc.	Sulphur Creek Mercury and Sediment Reduction Project	This project will: 1) Characterize mercury as required to enable erosion control work, 2) Hydrologically disconnect up to 23 miles of road networks that are currently contributing runoff and contaminated sediment to downstream waters, 3) Stabilize 2000 feet of eroding stream banks that are over-steepened and delivering methylmercury contaminated sediment into the stream system, 4) Treat 115 road-related erosion and sediment delivery sites and 5) Stabilize three major valley bottom headcuts that are resulting in serious valley fill erosion along the main stem Sulphur Creek, desiccating alkali wet-meadows and lowering the water table.	Yes	Implementable Project	High	Medium	19	Upper Cache Creek Area
109	Tuleyome, Inc.	Elgin Mine Drainage Water Treatment Project	Compile existing maps, reports, water data, and other information about Elgin Mine in the IRWM region indicating location, ownership history, and mineral production. Address all regulatory requirements, Conduct baseline and post-project monitoring of downstream water, sediment, and biota. Design and construct a hot spring treatment system to minimize mercury loads downstream.	Yes	Planning	High	Medium	19	Upper Cache Creek Area
126	Yolo County Resource Conservation District	Implementation of the Cache Creek Watershed Invasive Weed Management Plan	The newly completed Cache Creek Watershed Invasive Weed Management Plan (CCW-IWMP), a living document, identifies specific invasive plants for either eradication, containment or monitoring and prioritizes weeds within those categories. Starting in the upper watershed and working downstream we will use weed mapping information to eradicate those which can be eradicated, contain the edges of those identified in that category, and monitor so as to continually update the plan and re-prioritize and implement vegetation management actions.	No	Implementable Project	Medium	Medium	9	Upper Cache Creek Area
147	Lake County Special Districts	Paradise Vallev-Clearlake Oaks County Water Consolidation	Paradise Valley Water System, County Service Area 16 (CSA #16), serves 75 customers. The system does not have adequate source capacity in accordance with Section 64554, Chapter 16, Title 22 of the California Code of Regulations. CSA #16 has three wells that when combined do not produce the required source capacity. Attempts to drill a fourth well in 2012 were unsuccessful. The current drought has further reduced the wells ability to prod uce and the CSA is critically challenged to produce sufficient water for human consumption. The CSA is under an urgency ordinance and required to keep usage below 50 gpd per person. The option of building a surface water treatment plant is not desirable due to the poor water quality of Clear Lake and the costs would be prohibitive for the very small district. It has been determined that consolidating with Clearlake Oaks County Water System (CLOCWS) is the best option for resolving the lack of source capacity. Consolidation with CLOCWS would benefit both systems as it would resolve source capacity for CSA # 16 and would allow CLOCWS to expand their customer base and upgrade storage. Project will include the construction of a pipeline to distribute water to CSA # 16.	No	Implementable Project	High	Medium	23	Upper Cache Creek Area
148	Lake County Special Districts	Spring Valley Water System Distribution Line Loop	Spring Valley, CSA #2 is a public water system serving 493 customers. CSA #2 draws water from Indian Valley Reservoir which is at a critically low level due to the drought. Storage for Indian Valley reservoir is currently 27,753 acre feet compared to 96,411 acre feet last year. Release of 10 cubic feet per second is required for fish habitat. This project would help preserve sufficient quantities of water for both human consumption and preservation of the fish habitat. The old and deteriorated distribution system is experiencing numerous leaks which are increasing the amount of water required for community consumption. In addition to the leaking pipes, the system has lines that “dead end” and must be flushed regularly to avoid a dangerous buildup of trihalomethanes. (a dangerous by-product of the treatment process) Flushing the lines also requires large quantities of water to be wasted.TSpring Valley, CSA #2 is a public water system serving 493 customers. CSA #2 draws water from Indian Valley Reservoir which is at a critically low level due to the drought. Storage for Indian Valley reservoir is currently 27,753 acre feet compared to 96,411 acre feet last year. Release of 10 cubic feet per second is required for fish habitat. This project would help preserve sufficient quantities of water for both human consumption and preservation of the fish habitat. The very old distribution system is experiencing numerous leaks which are increasing the amount of water required. Over 12,000,000 gallons of treated water is being lost per year through leaks. In addition to the leaking pipes, the system has lines that “dead end” and must be flushed regularly to avoid a dangerous buildup of trihalomethanes. (A dangerous by-product of the treatment process) Flushing the lines also requires large quantities of water to be wasted.The proposed project would resolve these two critical needs. Additional benefits would be improvements to the fire suppression abilities and a decrease on operating and maintenance costs. The extension of water lines for looping the system would allow installation of fire hydrants in areas that have not had access to water lines and are at risk of wild fires. This project would consist of the replacement of 7,500 feet and new installation of approximately 9,100 feet of C-900 water lines which will increase water supply reliability, water conservation and water use efficiency as well as improve drinking water quality and help alleviate fire danger. Up to 45% of the water drawn from the reservoir and treated is being lost due to the old deteriorated water lines and the need for frequent line flushing.	Yes	Implementable Project	High	Medium	23	Upper Cache Creek Area

Table D-5: Westside IRWM Plan Project Screening Results (sorted by Project Location by Planning Area)

Project No.	Lead Agency /Organization	Project Title	Planned Project/Program Types and Activities	Potentially Critical DAC Project	Project Type	Importance	Urgency	Primary Objective	Planning Area
150	Lake County Special Districts	Mt. Hannah, CSA #22 Water System	Mt. Hannah, CSA #22 is a public water system serving 36 customers. CSA #22 relies on ground water for supply. Due to current drought conditions, the well level dropped 65% from January 2013 to January 2014. The well has lost the ability to recharge and can only be pumped for approximately 30 minutes and then must be allowed to recharge for 2 to 3 hours. Due to the well being overdrawn, turbidity issues have become a problem. Filtering for turbidity requires even more water that is not available. We are in the process of preparing to truck water to the community from outside the area. This will be very costly and an extreme financial burdon on the disadvantaged community.In addition to the loss of capacity, the system has a deteriorated trunk line that has severe leaks and is losing up to 45% of the water being pumped. The customers are economically disadvantaged. They have been conserving water and the average consumption for the CSA is approx. 35 gallons per day per person.Water rates for this CSA are considerably higher than the county average but due to the small number of customers, the CSA struggles financially and has not been able to build a capital reserve fund. The geographic location of this CSA eliminates the option of consolidation. It is located on Cobb Mountain and not near any other systems that it could tie into. The CSA desperately needs a deeper well and a new trunk line installed.	Yes	Implementable Project	High	Medium	23	Upper Cache Creek Area
170	Harbor View Mutual Water	Water Storage Tank Replacement Project	The community currently has two 50 year old redwood storage tanks that have started to leak a significant amount of water due to rot and age. One of the tanks is in the middle of the water system and can't be taken out of service for maintenance. Neither tank is seismically secured to the cement foundation under them. The company contracted Water Works Engineering to draft us a PER as to the best way to solve our water storage tank problems, it was determined that replacement of all three of our current tanks with two new bolted steel tanks would be the cheapest and easiest fix for the long term. The estimated replacement cost the entire project is 1.3 million.	No	Implementable Project	High	Medium	23	Upper Cache Creek Area
39	Solano County Water Agency	Source water protection for Putah Creek watershed	This project consists of various improvements such as best management practices, source water protection, reduction of in-channel erosion, improved stream channel geomorphology, remediation of historic mining and others to reduce the impact of point and non-point sources that could negatively impact the Putah Creek watershed, as well as the Yolo Bypass.	No	Implementable Project	High	Medium	19	Upper Putah Creek Area
56	East Lake Resource Conservation District	Upper Putah CreekWatershed Management Plan	This project will produce a comprehensive Regional Watershed Management Plan for the Putah Creek Watershed located in Lake, Napa, Solano, and Yolo Counties. This will include conducting a thorough geomorphic study to better understand current conditions as related to water quality, water quantity, wildlife habitat, and socioeconomics. The project will assemble past studies and reports to identify data gaps, conduct on-the ground scientific investigations, and interview citizens and stakeholders through an education and outreach program. The result will be a management plan that identifies watershed related issues that will provide recommendations for implementation.	Yes	Planning	Medium	Medium	3	Upper Putah Creek Area
72	Napa County	Regional Collaborative Water Conservation Program	Expansion of the implementation of the Regional Water Conservation Education Program's conservation education and consumer incentive programs and build on regional water conservation initiatives.	Yes	Implementable Project	Medium	Medium	11	Upper Putah Creek Area
81	Tuleyome, Inc.	Comprehensive Mercury Assessment and Implementation for the Westside Region	This project will: 1) compile and georeference existing data pertinent to characterization of known and potential mercury priority areas in the Westside Region 2) monitor streambeds within the Putah Creek Watershed 3) upload relevant data into a regional or statewide on-line library 4) develop a summary 5) develop best management practices toolkit 6) identify 2-3 feasible priority projects and 7) develop implementation measures using the Toolkit and decision support tools.	Yes	Planning	High	Medium	19	Upper Putah Creek Area
87	Lake Berryessa Resort Improvement District	LBRID Wastewater Storage Pond and Disposal Improvements	This project will upgrade the wastewater storage ponds and disposal spray fields.	Yes	Implementable Project	High	High	22	Upper Putah Creek Area
88	Lake Berryessa Resort Improvement District	Water Tank Replacement Project	The three existing potable storage tanks have reached the end of their useful life. The project will replace these three tanks to ensure a continuous water supply for the residents in the future.	Yes	Implementable Project	High	Medium	23	Upper Putah Creek Area
90	Napa Berryessa Resort Improvement District	NBRID Water Treatment Plant Replacement	The existing water treatment plant will be replaced with a new more technically advanced water treatment plant.	No	Implementable Project	High	High	22	Upper Putah Creek Area
91	Napa Berryessa Resort Improvement District	NBRID Wastewater Storage Pond and Disposal Improvements	This project will upgrade the wastewater storage ponds and disposal spray fields.	No	Implementable Project	Medium	Medium	20	Upper Putah Creek Area
92	Napa Berryessa Resort Improvement District	NBRID Wastewater Treatment Plant Replacement	This project will upgrade the existing WWTP. The project will also repair or replace all the existing sewer lift stations.	No	Implementable Project	High	High	22	Upper Putah Creek Area
128	Lake Berryessa Resort Improvement District	Program to Prevent Wastewater Discharges	This project will repair or replace sections of sanitary sewer collection laterals and mains that are experiencing above normal levels of storm water inflow/infiltration (I/I).	Yes	Implementable Project	Medium	Medium	20	Upper Putah Creek Area
153	Lake Berryessa Resort Improvements District	Sewer Lift Station Upgrades	A single six (6) inch asbestos cement sewer main installed in the mid 1960s conveys pumped raw sewage from the Lift Station A Collection Tank to remote Facultative Ponds and Sprayfields. Approximately 5,200 feet of the sewer trunk line is under high pressure due to a 231 foot change in elevation from the tank to terminus manhole and frictional headloss within the pipe. Combination of age (50 years), high working pressure (> 100 psi) and asbestos cement pipe properties have caused leaks and breaks prompting emergency repairs. The existing AC sewer main has inadequate hydraulic capacity to handle 100-year design storm inflows per requirements mandated by the Central Valley RWQCB. The project will replace 3,000 feet of sewer main and appurtenances from Lift Station A traversing below the Storage Pond access road.	Yes	Implementable Project	Medium	Medium	20	Upper Putah Creek Area
154	Lake Berryessa Resort Improvements District	Sewer Lift Station Upgrades	Sewer Lift Stations B, C and D in the residential collection system have insufficient firm pumping capacity and to handle 100-year design storm inflows per requirements mandated by the Central Valley RWQCB. The project will replace progressive cavity style pumps with latest technology chopper pumps, renew yard piping plus appurtenances and upgrade the electrical systems.	Yes	Implementable Project	Medium	Medium	20	Upper Putah Creek Area

Table D-5: Westside IRWM Plan Project Screening Results (sorted by Project Location by Planning Area)

Project No.	Lead Agency /Organization	Project Title	Planned Project/Program Types and Activities	Potentially Critical DAC Project	Project Type	Importance	Urgency	Primary Objective	Planning Area
166	Department of State Hospital	Recycled Water Conversion projects	Napa State Hospital currently utilizes potable water supplied by the City of Napa for almost all irrigation needs (a limited area is currently served by recycled water). In 2011, NSD installed a recycled water main through NSH which included three metered turnouts. The project will connect to these turnouts, with the downstream improvements owned and operated by NSH. To convert the irrigation system, approximately 38,000 lineal feet of recycled water pipe will be installed, along with valves, and ancillary improvements to deliver water to 139 irrigation points of connection, The connections typically occur at existing irrigation back flow devices, which will be replaced. Existing improvements downstream of the back flow devices will remain in place. Signage and modifications to above ground irrigation valves in accordance with NSD requirements are also part of the project.	No	Implementable Project	High	Medium	23	Upper Putah Creek Area
1	West Sacramento Area Flood Control Agency	Bees Lakes Preserve	Conserve and develop limited, low-impact pedestrian-only recreational access to a 23-acre open space area containing sensitive aquatic, riparian, emergent and upland habitats which are associated with the Sacramento River.	No	Feasibility Study	Medium	Low	13	Valley Floor
2	Lower Putah Creek Coord. Committee	505-East Channel Restoration	Restore 10 acres of riparian forest, 3/4 mile of river channel, remove 22 occurrences (2 net acres) of 6 primary invasive weeds; reconfigure one thousand feet of river channel, restore 100 feet of eroding stream bank, create 3/4 mile of south bank bench trail connecting Yolo Housing to the City of Winters at low flows.	No	Feasibility Study	Medium	Medium	3	Valley Floor
3	Lower Putah Creek Coord. Committee	Apricot Draw Bank Stabilization	Restore 3,000 feet of Apricot Draw, stabilizing eroding banks, removing invasive weeds and planting native vegetation.	No	Implementable Project	Medium	Medium	3	Valley Floor
4	Lower Putah Creek Coord. Committee	Dry Creek Wildlife Migration Corridor Feasibility Study	Feasibility study to restore 2 miles of wildlife corridor from the confluence of Putah Creek along Dry Creek on the western boundary of Winters	No	Feasibility Study	Medium	Medium	3	Valley Floor
5	Lower Putah Creek Coord. Committee	Duncan-Giovannoni Channel Restoration Feasibility Study	Determine feasibility to restore 80 acres of riparian forest, reconfigure one mile of river channel, remove 96 occurrences (7 net acres) of 5 primary invasive weeds. Convert five acres of excess open water (gravel pit captured by the channel) to floodplain, restore natural meander form, pool-riffle sequence, functional floodplain elevations, salmon spawning habitat and native vegetation.	No	Feasibility Study	Medium	Medium	3	Valley Floor
6	Lower Putah Creek Coord. Committee	Glide Ranch Channel Restoration Feasibility Study	Feasibility study to restore 160 acres of riparian forest, reconfigure 11,250 feet of river channel, remove 128 occurrences (8 net acres) of 8 primary invasive weeds. Grade floodplain to functional elevation, convert 15 acres of excess open water to floodplain, restore natural meander form, pool-riffle sequence, salmon spawning habitat and native vegetation.	No	Feasibility Study	Medium	Medium	3	Valley Floor
7	Lower Putah Creek Coord. Committee	Putah Creek Interdam Reach Invasive Weed Control	Remove 127 occurrences (8.6 net acres) of 11 primary invasive weeds from 6.5 river miles (400 acres) of riparian corridor between Monticello Dam and Putah Diversion Dam and install native vegetation where weeds are removed.	No	Implementable Project	Medium	Medium	3	Valley Floor
8	Lower Putah Creek Coord. Committee	Lower McNamara Pool Channel Reconfiguration Feasibility Study	Determine feasibility to: restore 25 acres of riparian forest, reconfigure 3,150 feet of river channel, remove 25 occurrences (0.5 net acres) of 6 primary invasive weeds. Convert seven acres of excess open water (gravel pit captured by the channel) to floodplain, restore natural meander form, pool-riffle sequence, functional floodplain elevations, salmon spawning habitat and native vegetation.	No	Feasibility Study	Medium	Medium	3	Valley Floor
9	Lower Putah Creek Coord. Committee	MacQuiddy Channel Reconfiguration Feasibility Study	Determine feasibility to: restore 34 acres of riparian forest, reconfigure 3,800 feet of river channel, remove 44 occurrences (6 net acres) of 5 primary invasive weeds. Grade floodplain to functional elevation, restore natural meander form, pool-riffle sequence, salmon spawning habitat and native vegetation.	No	Feasibility Study	Medium	Medium	3	Valley Floor
10	Lower Putah Creek Coord. Committee	Mace to Road 106A Channel Restoration Feasibility Study	Feasibility study to restore 305 acres of riparian forest, reconfigure 2.7 miles of river channel, remove 124 occurrences (12.8 net acres) of 5 primary invasive weeds. Grade floodplain to functional elevation, convert 17 acres of excess open water to floodplain, restore natural meander form, pool-riffle sequence, salmon spawning habitat and native vegetation.	No	Feasibility Study	Medium	Medium	3	Valley Floor
11	Lower Putah Creek Coord. Committee	Nishikawa Channel Restoration Feasibility Study	Feasibility study to restore 37 acres of riparian forest, reconfigure 2,430 feet of river channel, remove 20 occurrences (1.36 net acres) of 6 primary invasive weeds. Grade floodplain to functional elevation, convert 3 acres of excess open water to floodplain, restore natural meander form, pool-riffle sequence, salmon spawning habitat and native vegetation.	No	Feasibility Study	Medium	Medium	3	Valley Floor
12	Lower Putah Creek Coord. Committee	Old Davis Road to Mace Channel Restoration Feasibility Study	Feasibility study to restore 190 acres of riparian forest, reconfigure 3.4 miles of river channel, remove 172 occurrences (5 net acres) of 9 primary invasive weeds. Grade floodplain to functional elevation, convert 27 acres of excess open water to floodplain, restore natural meander form, pool-riffle sequence, salmon spawning habitat and native vegetation.	No	Feasibility Study	Medium	Medium	3	Valley Floor
13	Lower Putah Creek Coord. Committee	Olmo-Hammond-UCD Channel Restoration Feasibility Study	Feasibility study to restore 109 acres of riparian forest, reconfigure 9,765 feet of river channel, remove 70 occurrences (2.5 net acres) of 9 primary invasive weeds. Grade floodplain to functional elevation, convert 17 acres of excess open water to floodplain, restore natural meander form, pool-riffle sequence, salmon spawning habitat and native vegetation.	No	Feasibility Study	Medium	Medium	3	Valley Floor
14	Lower Putah Creek Coord. Committee	Pleasant Creek Wildlife Migration Corridor Plan	Plan to restore 7,000 feet of wildlife corridor of Pleasant Creek to the confluence with Putah Creek, stabilizing eroding banks, removing invasive weeds and planting native vegetation.	No	Implementable Project	Medium	Medium	3	Valley Floor
15	Lower Putah Creek Coord. Committee	Pleasants Creek Bank Stabilization	Restores 84 acres of riparian habitat along 7 miles of Pleasants Creek, stabilizing eroding banks, removing 135 occurrences (13.4 acres) of invasive weeds and planting native vegetation.	No	Implementable Project	Medium	Medium	3	Valley Floor
16	Lower Putah Creek Coord. Committee	Restoria Channel Restoration Feasibility Study	Feasibility study to restore 93 acres of riparian forest, reconfigure 4,300 feet of river channel, remove 46 occurrences (3.2 net acres) of 6 primary invasive weeds. Grade floodplain to functional elevation, convert 2 acres of excess open water to floodplain, restore natural meander form, pool-riffle sequence, salmon spawning habitat and native vegetation.	No	Feasibility Study	Medium	Medium	3	Valley Floor
17	Lower Putah Creek Coord. Committee	Road 106A to Yolo Bypass Channel Restoration Feasibility Study	Feasibility study to restore 52 acres of riparian forest, reconfigure 6,000 feet of river channel, remove 42 occurrences (8 net acres) of 6 primary invasive weeds. Grade floodplain to functional elevation, convert 11 acres of excess open water to floodplain, restore natural meander form, pool-riffle sequence, salmon spawning habitat and native vegetation.	No	Feasibility Study	Medium	Medium	3	Valley Floor
18	Lower Putah Creek Coord. Committee	Russell Ranch Channel Restoration Feasibility Study	Determine feasibility to: restore 50 acres of riparian forest, reconfigure 5,500 feet of river channel, remove 91 occurrences (2.75 net acres) of 8 primary invasive weeds. Grade floodplain to functional elevation, convert 7 acres of excess open water to floodplain, restore natural meander form, pool-riffle sequence, salmon spawning habitat and native vegetation.	No	Feasibility Study	Medium	Medium	3	Valley Floor

Table D-5: Westside IRWM Plan Project Screening Results (sorted by Project Location by Planning Area)

Project No.	Lead Agency /Organization	Project Title	Planned Project/Program Types and Activities	Potentially Critical DAC Project	Project Type	Importance	Urgency	Primary Objective	Planning Area
19	Lower Putah Creek Coord. Committee	Stevenson Bridge Channel Restoration Feasibility Study	Feasibility study to restore 22 acres of riparian forest, reconfigure 2,100 feet of river channel, remove 29 occurrences (0.5 net acres) of 6 primary invasive weeds. Grade floodplain to functional elevation, convert 1.5 acres of excess open water to floodplain, restore natural meander form, pool-riffle sequence, salmon spawning habitat and native vegetation.	No	Feasibility Study	Medium	Medium	3	Valley Floor
20	Lower Putah Creek Coord. Committee	Thompson Canyon Bank Stabilization Design and Permits	This study provides plans, specifications and permits to restore 1.5 miles of Thompson Canyon at the confluence of Putah Creek, stabilizing a poorly engineered legacy road that annually degrade water quality and smother prime trout spawning habitat below Monticello Dam.	No	Implementable Project	Medium	Medium	3	Valley Floor
21	Lower Putah Creek Coord. Committee	Upper McNamara Pool Channel Reconfiguration Feasibility Study	Determine feasibility to restore 30 acres of riparian forest, reconfigure 3,300 feet of river channel, remove 52 occurrences (4 net acres) of 7 primary invasive weeds. Convert five acres of excess open water (gravel pit captured by the channel) to floodplain, restore natural meander form, pool-riffle sequence, functional floodplain elevations, salmon spawning habitat and native vegetation.	No	Feasibility Study	Medium	Medium	3	Valley Floor
22	Lower Putah Creek Coord. Committee	Warren Weed Control	Restore 11 acres of riparian forest, 1,700 of river channel, remove 26 occurrences (2 net acres) of 8 primary invasive weeds. One of the densest thickets of eucalyptus with over 300 trees averaging 24 inches in diameter.	No	Implementable Project	Medium	Medium	3	Valley Floor
23	Solano County Water Agency	Aquatic Nuisance Vegetation Management	The goal of the Aquatic Nuisance Species Management Plan is to minimize the harmful ecological, economic, and social impact of aquatic nuisance species through prevention and management of introduction, population growth, and dispersal into, within, and from Solano County.	No	Implementable Program	High	High	7	Valley Floor
24	Solano County Water Agency	Commercial Washer Rebate Program	This program will offer financial incentives to commercial customers (businesses, multi-family units) who purchase or lease (five-year lease) select commercial washers for commercial laundry or common area multi-family installations.	Yes	Planning	Medium	Medium	11	Valley Floor
25	Solano County Water Agency	Gibson Canyon Creek Detention Basin	Provide increased flood protection up to 100-year with improved conveyance and containment of out of bank flows. Convert abandoned City wastewater pond to detention basin.	No	Implementable Program	High	Medium	14	Valley Floor
26	Solano County Water Agency	Improvements to Solano Project Facilities	Today, the Solano project provides irrigation and municipal water to over 400,000 people in Solano County. However, the Solano Project is 60 years old and is in need of upgrades, repairs, and modernization.	No	Implementable Program	Medium	Low	10	Valley Floor
27	Solano County Water Agency	Invasive Plant Removal Program	Program would consist of reducing the geographic extent of invasive plant species (tamarisk, arundo, yellow star thistle, etc.) in riparian and wetland areas in Solano County.	No	Implementable Program	Medium	Medium	8	Valley Floor
28	Solano County Water Agency	Large Landscape Water Efficiency Program	This program will offer financial incentives to commercial customers (businesses, multi-family units) to encourage replacement and upgrade of selected irrigation equipment with new water-efficient irrigation equipment.	No	Implementable Program	Medium	Medium	11	Valley Floor
29	Solano County Water Agency	NBA Infrastructure and Capacity Improvements	The North Bay Aqueduct (NBA) is in need of infrastructure and capacity improvements to increase capacity and minimize WQ impacts, to ensure a reliable water supply for Napa and Solano counties.	No	Implementable Program	Medium	Low	10	Valley Floor
30	Solano County Water Agency	North Bay Aqueduct Alternate Intake Project	The NBA AIP includes the construction and operation of a new intake and pumping plant on the Sacramento River, conveyance pipeline, and inline storage to divert and convey water from the Sacramento River connecting to the existing NBA pipeline near the North Bay Regional Water Treatment Plant in Fairfield.	No	Implementable Project	High	Medium	23	Valley Floor
31	Solano County Water Agency	Improve Solano Project SCADA infrastructure	This project is to install contiguous dedicated power and data lines from the top end of the Solano Project system to the bottom. This would allow monitoring of the entire system simultaneously from a central location and could allow automated remote control.	No	Implementable Project	High	Medium	18	Valley Floor
33	Solano County Water Agency	Research on Hydrodynamics and WQ Interactions in the Delta.	With large projects such as the Bay Delta Conservation Plan, restoration of thousands of acres of tidal marsh habitat as part of the Delta Biological Opinions, and others, there is a need to better understand the hydrodynamic and water quality interactions in the Delta.	No	Implementable Project	Medium	High	16	Valley Floor
34	Solano County Water Agency	Research on Improving Water Treatment for Delta Sources	The project would build upon past research done at the NBA Treatment Facility, and by other Delta users, to improve water treatment methods, reduce DBPs, and improve water treatment for Delta water users, including the SWP and CVP.	No	Implementable Project	High	High	22	Valley Floor
35	Solano County Water Agency	Risk Assessment of Delta Water Supplies	This project would entail a risk assessment of Delta Water supplies, and would look at the impacts of unforeseen circumstances such as: - Earthquakes - Delta levee failure - Sea level rise - and others as needed	No	Implementable Project	Medium	Low	10	Valley Floor
36	Solano County Water Agency	Solano Subbasin Conjunctive Use	Project will improve knowledge on the potential for conjunctive use of groundwater and surface water in the Solano Subbasin. The project will focus on increasing the opportunities for conjunctive groundwater use as a means of increasing water supply and reliability.	No	Implementable Project	High	Low	17	Valley Floor
37	Solano County Water Agency	Southwestern Sacramento Valley Basin/Solano Subbasin Groundwater-Surface Water Flow Model to Evaluate Recharge, Conjunctive Water Use, and Future Deep Zone Pumpage	The major goal of this project is to consider the potential effects of conjunctive water use scenarios on stakeholders in the greater Solano area, including the Sacramento River and other significant surface water courses in the model area. Another goal of this project is to evaluate the effects of developing new and/or redistributing deep pumpage either horizontally over a spatial area or vertically over different aquifer units with the goal of reducing drawdowns in the basal zone.	No	Implementable Project	High	Low	17	Valley Floor
38	Solano County Water Agency	Source water protection for Delta water sources	This project consists of various improvements such as best management practices, source water protection, and others to reduce the impact of point and non-point sources that could negatively impact Delta water quality, with a particular emphasis on drinking water quality.	No	Implementable Project	Medium	Medium	21	Valley Floor
42	Solano County Water Agency	Ulatis Flood Control Channel Grade Control	This is a programmatic project to install rock cross-vanes at most remaining bridge crossings to arrest scour and promote some habitat diversity. There are approximately 20 location that would benefit from these installations.	No	Implementable Project	High	Medium	14	Valley Floor
43	Solano County Water Agency	Wetland Restoration Research and Impacts to Source Water Quality.	The project will consist of scientific study/research on wetland restoration, organic carbon generation, and other important areas of study, to determine the corresponding impacts on municipal source water quality.	No	Implementable Project	Medium	Medium	21	Valley Floor

Table D-5: Westside IRWM Plan Project Screening Results (sorted by Project Location by Planning Area)

Project No.	Lead Agency /Organization	Project Title	Planned Project/Program Types and Activities	Potentially Critical DAC Project	Project Type	Importance	Urgency	Primary Objective	Planning Area
45	City of Woodland / floodSAFE Yolo Pilot Program	Lower Cache Creek Flood Risk Reduction Project	The primary purpose for the Project is to reduce the risk of flooding to the City of Woodland and adjacent land including the rural Town of Yolo and Interstate 5. The Project is in the initial phases of a feasibility study for which the City has executed a Federal cost share agreement with the USACE and CVFPB and a non-federal cost share agreement with the CVFPB.	No	Feasibility Study	High	Medium	14	Valley Floor
49	Dixon Regional Watershed Joint Powers Authority	Dixon Main Drain / V-drain Enlargement Project	The purpose of the project is to reduce local flooding caused by regional drainage flows that exceed the existing capacity of these channels by increasing the capacity of these constructed drainage facilities.	No	Planning	High	Medium	14	Valley Floor
50	Dixon Regional Watershed Joint Powers Authority	Eastside Drain	The Eastside Drain project will construct segments of new channels and enlarge existing channels. The Project will add an increment of 120 cfs to the Dixon Main Drain / V-drain Enlargement Project.	No	Planning	High	Medium	14	Valley Floor
51	Dixon Resource Conservation District	Storm Flow Reduction From Agricultural Lands North of Interstate 80	The Proposed Project is based on providing detention storage for a 10-year storm event.	No	Planning	High	Medium	14	Valley Floor
52	Cache Creek Conservancy	Implementation of the Cache Creek Resources Management Plan	Implementation of projects wtihin the Cache Creek Resources Management Plan (CCRMP) area, located along 15 miles of lower Cache Creek from the Capay Dam to the town of Yolo. The proposed project consists of various phases of activities that meet specific grant requirements such as habitat restoration or enhancement, streambank stabilization, invasive plant removal, monitoring, and/or watershed stewardship through education, workshops, and outreach to landowners.	Yes	Implementable Project	Medium	Medium	3	Valley Floor
53	California Land Stewardship Institute	Invasive Plant Removal in Ulatis Creek	This project will first map out where the Arundo is present on the 17 mile channel of Ulatis Creek, then contact the landowners who own property with Arundo to educate them about the Arundo hazards; then, with their permission, eradicate the plant on their land, and lastly revegetate areas with native trees.	Yes	Planning	Medium	Medium	8	Valley Floor
80	Tuleyome	Cache Creek Anadramous Fish Reintroduction Project	Conduct studies to look at the physical constraints such as temperature, flow regimes, and spawning opportunities, climate change impacts for the reintroduction of anadromous fish to Cache Creek, institutional issues including safe harbor for the YCFCWCD and stakeholder outreach.	Yes	Feasibility Study	High	Medium	6	Valley Floor
83	West Sacramento Area Flood Control Agency	Lower Sacramento and Delta North Regional Flood Management Plan	Develop a lower Sacramento and Delta North Regional Flood Management Plan that follows the requirements outlined in the Central Valley Flood Protection Plan (CVFPP)	Yes	Implementable Project	High	Medium	14	Valley Floor
84	Yolo County Flood Control and Water Conservation District	Winters Main Canal Modernization Project: Integrated Precision Water Mgmt.	Installation of automatic water control gates, pump flow meters and vegetated native grass canal banks, to improve irrigation efficiency. In addition, planting of native grasses to minimize erosion and decrease use of herbicides.	Yes	Implementable Project	High	Medium	24	Valley Floor
85	Yolo County Flood Control and Water Conservation District	Abandoned Well Incentive Program	Development of a Regional 3 year Abandoned Well Incentive Program to properly abandon wells.	No	Implementable Project	Medium	Medium	21	Valley Floor
86	Yolo County Service Area #6	County Service Area (CSA) #6 Levee Repair Project	Non-urban levee repair project as part of the levee rehabilitation identified to restore the District levee to its authorized level of flood protection.	Yes	Implementable Project	High	Medium	14	Valley Floor
93	Rural Community Assistance Corporation	Rural Disadvantaged Community (DAC) Partnership Project	RCAC will manage the Prop 84 grant funds to address inadequate water supply and water quality in rural disadvantaged communities (DACs) in the Westside Sacramento IRWM region.	Yes	Planning	High	High	22	Valley Floor
96	Knights Landing Ridge Drainage District	Mid Valley, Knights Landing Repair Project	Subset of the Mid-Valley Area Levee Reconstruction Project currently underway through a partnership with ACOE and the Central Valley Flood Protection Board.	No	Implementable Project	High	Medium	14	Valley Floor
97	Lake County Water Resources Department for RWMG	Form Task Force/Subcommittee to strategize and implement Watershed Education and Outreach	Support appointment of an Education Task Force/Subcommittee to prepare a Regional Watershed Education Plan for a 2-year implementation period.	Yes	Planning	Medium	Low	1	Valley Floor
99	Reclamation District No. 2068	Agricultural Tail Water Reuse Program	This program proposes to develop an ag water recapture and reuse facility at strategic locations within the agency.	No	Conceptual	Medium	Medium	12	Valley Floor
100	Reclamation District No. 2068	Irrigation Billing / Irrigation Management System Improvements	The software for a unique water billing is in need of an update, including enhancements in the user interface, data management capability and software/hardware compatibility.	No	Maintenance/Monitoring	Medium	Medium	12	Valley Floor
102	Reclamation District No. 2068	SCADA Implementation	Install/coordinate local and regional SCADA system to monitor water diversions, pumping plant operations, flood water elevations, groundwater elevations, water distribution within the agency jurisdiction.	No	Conceptual	High	Medium	18	Valley Floor
105	Solano Resource Conservation District	Solano County Riparian Habitat Restoration and Enhancement Project	The project will work to improve riparian habitat and reduce noxious weed cover in Eastern Solano County creeks.	No	Implementable Project	Medium	Medium	9	Valley Floor
106	Solano Resource Conservation District	Waterway Management for Improved Water Quality and Wildlife Habitat	Solano Resource Conservation District will work with partners and landowners to demonstrate integrated waterway and levee management.	No	Conceptual	Medium	Low	2	Valley Floor
111	West Sacramento Area Flood Control Agency	Deep Water Ship Channel East Levee Repair	Correct deficiencies, protect against underseepage, and maintain the Port of West Sacramento levees to current standards for FEMA 100 yr and urban levee 200 year levels of flood protection.	No	Implementable Project	High	Medium	14	Valley Floor
112	West Sacramento Area Flood Control Agency	Deep Water Ship Canal Navigation Levee Repair	Correct deficiencies, protect against underseepage, and maintain the Deep Water Ship Canal Levees to current standards for FEMA 100 yr and urban levee 200 year levels of flood protection.	No	Implementable Project	High	Medium	14	Valley Floor
113	West Sacramento Area Flood Control Agency	Port of West Sacramento North and South Levee Repair	Correct deficiencies, protect against underseepage, and maintain the Port of West Sacramento levees to current standards for FEMA 100 yr and urban levee 200 year levels of flood protection.	No	Implementable Project	High	Medium	14	Valley Floor
114	West Sacramento Area Flood Control Agency	Sacramento River Levee Repair	Correct deficiencies, protect against underseepage, and maintain the Sacramento River Levees to current standards for FEMA 100 yr and SB 5 200 year levels of flood protection.	Yes	Implementable Project	High	Medium	14	Valley Floor
115	West Sacramento Area Flood Control Agency	Sacramento River Recreational Trail	Construct a continuous 13.1 mile, 192-acre recreation corridor along the entire length of the Sacramento River within City limits.	Yes	Implementable Project	Medium	Low	13	Valley Floor
116	West Sacramento Area Flood Control Agency	Sacramento Bypass-Yolo Bypass Levee Repair Phase II	Correct deficiencies, protect against underseepage, and maintain the Sacramento Bypass and Yolo Bypass Levees to current standards for FEMA 100 yr and urban levee 200 year levels of flood protection.	Yes	Implementable Project	High	Medium	14	Valley Floor
117	West Sacramento Area Flood Control Agency	West Sacramento South Cross Levee Repair	Correct deficiencies, protect against underseepage, and maintain the West Sacramento South Cross Levee to current standards for FEMA 100 yr and urban levee 200 year levels of flood protection.	No	Implementable Project	High	Medium	14	Valley Floor
118	Yolo County Flood Control and Water Conservation District	Conjunctive Water Use Program	This conjunctive water use project envisions using a variety of methods (recharge/recovery, off-stream storage and canal system modernization) to effectively store and conjunctively use groundwater in the District's service area.	Yes	Implementable Program	High	Medium	23	Valley Floor
119	Yolo County Flood Control and Water Conservation District	Moore Siphon Reliability/Restoration Project	Due to the age and exposure of the 72" corrugated metal pipe, as well as Cache Creek erosion issues at both ends of the siphon, the siphon well either need to be replaced or rehabilitated in the near future.	Yes	Implementable Project	Medium	Low	10	Valley Floor

Table D-5: Westside IRWM Plan Project Screening Results (sorted by Project Location by Planning Area)

Project No.	Lead Agency /Organization	Project Title	Planned Project/Program Types and Activities	Potentially Critical DAC Project	Project Type	Importance	Urgency	Primary Objective	Planning Area
120	Yolo County	Yolo County Airport Drainage Plan	In order for the airport to eliminate flooding of its facilities and to expand, a 2005 Drainage Plan engineered by Wood Rogers needs to be implemented.	No	Planning	High	Medium	14	Valley Floor
122	Yolo County, Natural Resources Division	Cache Creek Parkway Plan	Once complete the Plan will result in a comprehensive planning document that will guide the restoration and ultimate uses of County owned lands within the Cache Creek Area Plan boundary.	No	Implementable Project	Medium	Medium	3	Valley Floor
123	Yolo County	Clarksburg Flood Protection Feasibility Study	The project involves conducting a feasibility study of alternatives to provide a 100-year level of flood protection to the Clarksburg region.	No	Implementable Project	High	Medium	14	Valley Floor
125	Yolo County	Methylmercury Impacts Analyses for the Yolo Bypass	Yolo County proposes to collect data and analyze changes in methyl mercury production and bioaccumulation that could result from (1) a proposed Bay Delta Conservation Plan (BDCP) project to enhance fisheries habitat in the Yolo Bypass; and (2) a Central Valley Flood Protection Plan proposal to expand the Yolo Bypass to improve flood capacity.	No	Planning	High	Medium	18	Valley Floor
127	Yolo County Resource Conservation District	Agricultural Drain, Slough and Canal Riparian Habitat Enhancement	Control of invasive weeds, site preparation, installation of native trees, shrubs, grasses and/or forbs as appropriate to the site, and 2 years of vegetation management/ maintenance post-plant along natural and man-made waterways, with focus on Cottonwood, Union School, Willow and Chickahominy sloughs; and main irrigation supply canals in western Yolo County.	No	Implementable Project	Medium	Medium	3	Valley Floor
129	Putah Creek Council	Native Plant Nursery to Support Putah-Cache Ecotype Restoration	Putah Creek Council (PCC) will manage a native plant nursery to grow Putah Creek plants from wild-collected seeds and cuttings at a nursery at the LA Moran Reforestation Center, Davis.	No	Implementable Project	Medium	Medium	3	Valley Floor
130	Putah Creek Council	Pollution Prevention and Watershed Education Project	Putah Creek Council (PCC) will educate Winters students, residents, and visitors about storm water and urban runoff, watershed function, and wildlife habitat along Putah Creek via our “Pollution Prevention and Watershed Education” project.	No	Implementable Project	Medium	Low	2	Valley Floor
131	Yolo Basin Foundation	Pacific Flyway Center/Delta Gateway	The Pacific Flyway Center (Center) is a proposed educational facility and site intended to serve the general public, Central Valley area school districts, various public sector agencies and special environmentally focused events and activities.	No	Planning	Medium	Low	2	Valley Floor
132	Yolo Basin Foundation	Lower Putah Creek Restoration from Toe Drain to Putah Creek Diversion Dam (Yolo Bypass Wildlife Area Element)	The project will enhance and restore 300-700 acres of tidal freshwater wetlands and create 5 miles of a new creek channel, entirely within the Yolo Bypass Wildlife Area.	No	Implementable Project	High	Medium	6	Valley Floor
133	Yolo Basin Foundation	Yolo Bypass Wildlife Area Public Use Improvements	This proposal would complete some of the tasks related to enhancement of public use infrastructure; including maintain and improve wildlife observation, angling and hunting.	No	Implementable Project	Medium	Low	13	Valley Floor
134	RWMG with selected Lead Agency	Climate Change Adaptation Study	Regional study to advance understanding of the effects of climate change and consider potential modifications to the water management system.	No	Planning	High	Medium	14	Valley Floor
135	Reclamation District 2035	Tule Canal Habitat Enhancement & Sediment Removal	The project consists of: 1) securing an environmental easement that would protect valuable floodplain habitat and adjacent lands from other uses 2) construction of operational facilities for water control and fish passage and 3) regrading portions of the floodplain habitat to increase the quality of seasonally inundation based on managed flows from the Sacramento River.	No	Implementable Project	High	Medium	6	Valley Floor
136	Reclamation District 2035	Levee Repairs/Maintenance- Segments 150, 173 and 297	Complete geological analysis, engineering design required to identify and correct levee deficiencies and hazard mitigation recommendations contained in the URS levee evaluation report (2010) completed at the direction of the Department of Water Resources and additional geologic investigation analysis (to be completed) recommendations.	No	Feasibility Study	High	Medium	14	Valley Floor
137	Reclamation District 2035	Installation of Groundwater Wells	Engineer, design and install groundwater wells.	No	Planning	Medium	Low	10	Valley Floor
138	Reclamation District 2035	Groundwater Studies	Reclamation District 2035's Ground Studies Project will consist of the identification and analysis of issues, if any, surrounding the quality and availability of groundwater.	No	Planning	High	Low	17	Valley Floor
139	Reclamation District 2035	Floodway Corridor Project	The project consists of three major phases/components: 1) acquisition of Conservation/Flowage Easements - Approx. 7,000 acres.2) New Sacramento River By Pass - A new bypass facility will be constructed to divert flows from the Sac River to the Yolo Bypass. During large storm evens flood flows would be diverted (Sac River) over a new weir to a new bypass channel that would deliver flows to the Yolo Bypass.3) Diverting additional flood flows in to the Yolo Bypass would increase flow and stages in the bypass downstream from the new bypass. To mitigate for potential flow increases, a portion of Conaway Ranch (outside of the Bypass), would be used to convey and store (transitory storage of over 66K acre feet) of flood water during large storm events.	No	Feasibility Study	High	Medium	14	Valley Floor
140	Reclamation District 2035	Cross Bypass Canal Modernization	The project consists of piping (or lining) the Cross Bypass Canal and the installation of flow control and measurement devices to improve the conveyance system and increase water use efficiency.	No	Implementable Project	Medium	Low	10	Valley Floor
141	Reclamation District 2035	Conjunctive Use Study	The project consists of the study and analysis of the coordinated use of surface and groundwater that could benefit the agricultural, urban, and environmental interests within, nearby and downstream of Yolo County, especially the North Delta region.	No	Planning	High	Medium	24	Valley Floor
142	City of Vacaville	Centennial Park Riparian Forest Restoration and Loop Trail Development Project	This project proposes to restore riparian environment along two tributaries of Horse Creek by controlling invasive species and installing a diverse selection of native trees, shrubs and perennial forbs in a 140 foot by 2,400 foot long corridor along the middle tributary and a 185 foot wide by 2,950 foot long corridor along the northern tributary.	No	Implementable Project	Medium	Medium	3	Valley Floor
145	City of West Sacramento	Municipal Well at the George Kristoff Water Treatment Plant	Project includes environmental, design and construction of a new municipal well located at 400 N.Harbor Blvd in the City of West Sacramento. This well will augment City potable water supplies during drought conditions. This well in not intended to increase water production but allow upstream surface water diversions by as much as 4,500 acre feet annually.	No	Implementable Project	High	Medium	23	Valley Floor

Table D-5: Westside IRWM Plan Project Screening Results (sorted by Project Location by Planning Area)

Project No.	Lead Agency /Organization	Project Title	Planned Project/Program Types and Activities	Potentially Critical DAC Project	Project Type	Importance	Urgency	Primary Objective	Planning Area
151	Yolo County Flood Control and Water Conservation District	Regional Drought Preparedness through Increased Groundwater Recharge	The District proposes to divert winter flows from Cache Creek into the canal system to increase groundwater recharge. Groundwater recharge and recovery is central to good conjunctive management of surface and groundwater resources. Currently, by District policy, 160 miles of surface water canals remain unlined, providing summertime groundwater recharge services that benefit the aquifer and riparian habitat. The recharged groundwater is used by farmers, individual well owners and business, cities, and small communities. Normally, the majority of canal recharge occurs in the summertime, during the irrigation season. This project proposes to divert wintertime water into the canal system which would require the installation of automated canal gates to replace manual gates. This project will improve local water supply reliability during times of drought and improve conjunctive use management overall. The District has been building and planning improvements to its conjunctive use system for many decades. The regionally supported groundwater monitoring program is extensive. The ag/urban partnership between the cities of Davis, Woodland, and Winters and the Water District is strong. Indeed, the Cities depend on the recharge activities of the District to maintain their water supplies. The disadvantaged communities (DAC) in the western half of the District also depend exclusively on groundwater. The installation of automated gates to make winter recharge possible will increase groundwater storage and will benefit the community for years to come.	Yes	Implementable Project	High	Medium	23	Valley Floor
152	Tuleyome, Inc.	Corona & Twin Peaks Mines Cleanup	The principle physical improvements that this project will implement include a novel, low-maintenance, in situ treatment system to reduce acidity and metals loadings from the Corona Drain Tunnel, consolidating mine waste, improving runoff controls, enhancing revegetation of waste rock and tailings at the Boiler House Adit and Twin Peaks Adit, and improving the existing infiltration trenches at the Boiler House Adit and Twin Peaks Adit. This project will address several key issues commonly associated with mine cleanup projects, including:· Physical hazards: Restricting access to the adits and infiltration trenches by people and wildlife· Chemical hazards: Treating mine drainage and site seepage/runoff to attain water quality standards· Legal liability: Protecting “Good Samaritans” who implement projects or manage lands for the good of society· Multiple goals: Seeking multiple benefits (public health & safety, wildlife habitat, cultural resources, etc.) while addressing competing interests· Limited funds: Minimizing remediation costs to encouraging similar efforts elsewhere.	Yes	Implementable Project	High	Medium	19	Valley Floor
155	Solano County Water Agency	Lower Putah Creek Restoration: Monticello Dam to Dry Creek	The project restores over 600 acres of riparian forest along nine river miles (30% of the length and area of the riparian corridor) from Monticello Dam to Dry Creek (see Figure 1) replacing 223 occurrences of invasive weeds (20 net acres) with weed resistant native vegetation, restoring natural channel form and function including meander form and pool-riffle-run sequence to 2,400 feet of channel, creating 12 new salmon spawning riffles, grading 45 acres of floodplain to functional elevation, converting 3 acres of excess open water to floodplain, lowering water temperatures and adding an acre of shaded riverine habitat.	No	Implementable Project	Medium	Medium	3	Valley Floor
156	Solano County Water Agency	Solano and Napa County Drought Relief Project	This project offers drought relief and long-term water savings in the form of a package of water conservation programs to improve water use efficiency throughout eastern Solano County and unicorporated Napa County. The programs include 1) Water-Efficient Landscape Rebates, 2) Weather-Based Irrigation Controller Rebates, 3) High-Efficiency Washer Rebates and 4) the installation of High-Efficiency Toilets and Urinals in commercial and multi-family buildings.	No	Implementable Project	Medium	Medium	11	Valley Floor
159	City of Winters, CA	City of Winters Drinking Water Hexavalent Chromium (Cr6) Compliance Project	The City is under Notice of Violation with the SWRCB Division of Drinking Water to reduce Cr6 levels in four of its five wells (82% of the City's water supply) exceeding the new Cr6 Primary MCL. This is a new drinking water quality regulation approved by the State in July 2014 with enforcement beginning in August 2015 for urban water suppliers with sources in exceedance of the new Cr6 regulations. The City is requesting funds to design a cost-effective Cr6 compliance strategy for the community that meets the new Cr6 regulations within the State's compliance schedule.	Yes	Planning	Medium	Medium	21	Valley Floor
160	City of Davis	Parks and Greenbelts Irrigation and Landscape Upgrades	The goal of the project is to increase water use efficiency and reduce overall water use in City parks and greenbelts. This will involve converting less used turf areas along greenbelts and in parks to lower water use plants to reduce irrigation needs, the conversion of irrigation in non-turf areas to drip, and the replacement of sprinkler heads and irrigation controllers to increase efficiency. The project will also include converting wells that are currently used for potable water uses to irrigation (non-potable) wells that will supply local parks and greenbelts. The project will also provide some stormwater quality benefits with less water runoff in areas that have been converted to drip irrigation.	No	Implementable Project	Medium	Medium	11	Valley Floor
161	City of Davis	Leak Detection Survey	Hire a consultant to use acoustical listening technology to survey water mains and laterals within the City of Davis water distribution area to detect and locate leaks. Prioritize leaks based on severity. Purchase leak detection equipment to install within distribution system to continuously monitor for potential leaks at key areas identified through the leak detection survey.	No	Implementable Project	Medium	Medium	11	Valley Floor
162	City of Davis	Drainage Channel Feasibility Study	Looking to study feasibility to enhance the five separate storm drain conveyance channels to improve evoptranspiration through design improvements. This feasibility study would provide specific ways to improve the design of the existing facilities to improve water quality for the discharges that occur from each channel. The facilities are located Citywide. The study may yield that only one channel is worthy of modification. In particular, the City would like to study the El Macero Drainage Channel in southeast Davis as it is believed to be the channel with that would benefit the most from design improvements. A map can be provided to aid in located each of these drainage channels. If project is developed an educational component can be added.	Yes	Feasibility Study	High	Medium	14	Valley Floor
163	City of Davis	Retention Pond Feasibility Study	Looking to study feasibility for design enhancements for the seven separate storm drain retention ponds to improve evoptranspiration and water quality in the City's discharge. This feasibility study would provide specific ways to improve the design of the existing facilities to improve water quality for the discharges that occur from each facility. The facilities are located Citywide, but all of the ponds are located north of I 80 in the northern two thirds of the City. The study may yield that only one pond is worthy of modification. In particular, the City would like to study the Core Area Pond in central Davis as it believed to be the pond that receives the most pollutants from its drainage shed. A map can be provided to aid in located each of these ponds. If project is developed an educational component can be added.	Yes	Feasibility Study	High	Medium	19	Valley Floor

Table D-5: Westside IRWM Plan Project Screening Results (sorted by Project Location by Planning Area)

Project No.	Lead Agency /Organization	Project Title	Planned Project/Program Types and Activities	Potentially Critical DAC Project	Project Type	Importance	Urgency	Primary Objective	Planning Area
164	City of Davis	Russel Boulevard Demonstration LID Project	The project is to be located in front of City Hall (already proposed and working its way through the City's Parks and Community Services Department) along Russell Boulevard. Russel Boulevard is one of the City's prominent east-west arterials. The project is to create a vegetated swale to treat stromwater runoff on the north side of the roadway. The surface area it will treat is 8,000 square feet. It is proposed to treat drainage prior to discharge to the City's stormdrain system consistent with the standards of Section E.12 of the State's Small MS4 Phase II General Permit (Permit). A map can be provided to aid in the location of this project.	Yes	Implementable Project	High	Medium	14	Valley Floor
167	City of Davis	Davis Greenbelts Landscape Conversions	One of the greatest assets to the Davis park system is the network of more than 60 miles of Green Belts with bike trails that connect parks and neighborhoods throughout the City. Each belt is typically between 100 to 200 feet across with an 8-foot bike path meandering through the middle. Most of the landscape consists of irrigated turf and shade trees. Large open turf areas are greatly appreciated as multi-use event areas for local neighbors, but a majority of the space is mostly utilized by the public as aesthetic while passing through on the bike path. It is these spaces that are great candidates to convert existing turf to a low water use, drought tolerant landscape with interpretive learning opportunities to show the general public ways of converting their landscapes at home.	No	Implementable Project	Medium	Medium	11	Valley Floor
168	Davis Joint Unified School District	Harper Junior High Water Conservation Improvements	Frances Harper Junior High School presents a unique opportunity for water conservation through education and the creation of outdoor classrooms. The school serves over 600 students in grades 7 to 9. Located on East Covell Boulevard in Davis, the property is a 45-acre parcel with about 23 acres in active use. Primary improvements for water conservation are proposed to occur at the front and interior of the site. Current landscape at the front of the school includes 2.3 acres of turf that is primarily for the purpose of aesthetics. There are also interior courtyards with underutilized turf panels that total a little over one-third of an acre. Planned improvements for these areas include replacing the turf with drought tolerant plants, pollinator gardens, benches, bio swales and decomposed granite paths. Interpretive panels would be installed to inform students and visitors of the benefits of the water conservation improvements and the relative ecosystems for each environment. Interior improvements would also include capturing roof water from downspouts and directing the water to bio swales where it would be filtered before entering the storm drain system or simply percolate into the soil. Interior courtyard landscapes would also be laid out to accommodate a setting for outdoor classrooms.	No	Implementable Project	Medium	Medium	11	Valley Floor
169	City of Davis	Recycled Water Projects	The City is currently evaluating the feasibility of various uses of recycled water using WWTP effluent. The WWTP is being upgraded allowing the City to produce high quality recycled water meeting Title 22 Standards. This project would be to assist with funding implementation of the chosen recycled water use(s). These uses may include but are not limited to water for: habitat, Yolo County Landfill, City-owned lands south of the WWTP, agricultural users in the area, City municipal uses, and filling stations.	No	Implementable Project	High	Medium	23	Valley Floor
171-YS	University of California, Davis	Agricultural Stormwater Improvements	Agricultural runoff currently enters the strom drain system directly. This projects would create retention basins and vegetated ditches to collect stormwater and irrigation runoff along edges of agricultural fields.	No	Implementable Project	High	Medium	19	Valley Floor
172-YS	University of California, Davis	Arboretum Waterway Wetland Restoration and Enhancement	UC Davis is proposing to enhance the Arboretum Waterway, which captures stormwater discharge from 900 acres of the UC Davis campus, by establishing a wetland area to treat stormwater discharge and recycled water prior to discharge to Putah Creek. This project will include establishing wetlands, increasing stormwater retention, slope stabilization, enhancing a recreation area for the public, utilization of recycled water for irrigation, and creating public education opportunities.	No	Implementable Project	Medium	Medium	3	Valley Floor
173-YS	City of Davis	Bike Tunnel Landscaping Redesign for Stormwater Quality Improvement	Redesign the current drainage and landscaping near greenbelt bike tunnels to prevent flooding from stormwater. Assess the top highly-trafficked tunnels with drainage issues within the greenbelt system. Improved drainage would include re-landscaping the areas surrounding these tunnels to prevent flood events and improve stormwater quality discharges through the use of different stormwater low impact design methods through infiltration, transpiration and evaporation. Each site could showcase a different method; signage near the tunnels would illustrate the project and highlight elements of the project design.	Yes	Implementable Project	High	Medium	14	Valley Floor
174-YS	City of Davis	Feasibility Study for Stormwater Trash Control Measures	Feasibility study to assess options for stormwater trash control measures. This study will assess the best method(s) to help the City meet mandatory requirements for trash screening to prevent trash from entering waterways. One particular area of concern is Channel A. An option for this area is to install trash racks/debris cages in the Wildhorse Basin to address issues with trash flowing from the area directly into Channel A. There is currently no barrier between the stormwater from the basin and the channel. This study would provide an assessment of potential options to comply with the trash amendment requirements of the Small MS4 permit.	Yes	Feasibility Study	High	Medium	19	Valley Floor
175-YS	Yolo County Flood Control and Water Conservation District	Flood Monitoring Network Project	Project installs flow monitoring stations at canals and sloughs in order to optimize conveyance capacity for both agricultural operations or during rain events, which could occur at the same time. It is not known how much flow sloughs contribute to the canal systems during rain events.	No	Implementable Project	High	Medium	18	Valley Floor
176-YS	Yolo County Flood Control and Water Conservation District	Forbes Ranch Regulating Pond	Develop and construct a 200 acre-feet regulating pond to reduce drainage and flood waters through the town of Madison and District canal system. Divert stormwater flows to the pond through the existing conveyance. The regulating pond would provide storm water retention during the winter and would allow for groundwater recharge in the spring and summer when capacity and water is available. The regulating pond would provide water quality benefits by allowing the sediments in the runoff to settle and lessening the transfer of pollutants and chemicals downstream. The surrounding area would have native vegetation that would promote benefits for wildlife habitat, and the property would allow for groups to visit and learn about the multi-functional project. Similar to the District's Chapman Reservoir, we would install automated gates and monitoring devices at the regulating pond that would be connected to the District's SCADA system for real-time management.	Yes	Implementable Project	High	Medium	14	Valley Floor
177-YS	Yolo County	Knights Landing Storm Drain Project	Design and construct a new storm drain or culvert in the vicinity of 4th and Railroad streets in the community of Knights Landing. KL has historically experience standing water (localized flooding) in the northern portions of town that can be as deep as 2 feet in wet years. The new storm drainage would convey storm water to the County's existing drainage system on the east side of Railroad Street. Design and construction are proposed to be completed by Public Works.	Yes	Implementable Project	High	Medium	14	Valley Floor

Table D-5: Westside IRWM Plan Project Screening Results (sorted by Project Location by Planning Area)

Project No.	Lead Agency /Organization	Project Title	Planned Project/Program Types and Activities	Potentially Critical DAC Project	Project Type	Importance	Urgency	Primary Objective	Planning Area
178-YS	Yolo County/	Knights Landing Underground Drainage Study	This project would model new underground drainage facilities for the entire Town of Knights Landing to determine location(s) for outfall to the Sacramento River or Ridge Cut Slough. Preliminarily it is estimated that the underground drainage facilities would be sized for 30-50 cfs of storm flows and the system outfall would need to be sized accordingly to prevent backup of the system. Outfall locations would also need to be evaluated to determine if the downstream capacity would be sufficient to convey this additional flow during storm events. LID strategies will be used to ensure discharge water quality does not impact the Sacramento River or Ridge Cut Slough water quality.	Yes	Planning	High	Medium	14	Valley Floor
179-YS	Yolo County FCWCD with Madison CSD	Madison Drainage Study	This project would model new underground drainage facilities for the entire Town of Madison to determine location(s) for outfall (possibly Cache Creek, the South Fork Willow Slough or Cottonwood Slough). Preliminarily it is estimated that the underground drainage facilities would be sized for 110 cfs of storm flows and the system outfall would need to be sized accordingly to prevent backup of the system. Outfall locations would also need to be evaluated to determine if the downstream capacity would be sufficient to convey this additional flow during storm events. LID strategies will be used to ensure discharge water quality does not negatively impact downstream water quality.	Yes	Planning	High	Medium	14	Valley Floor
180-YS	City of Woodland	North Regional Pond and Pump Station	The project involves the design and construction of an approximate 75 acre sedimentation pond and a pump station able to eventually accomodate a 120-cfs design flow.Project re-purposes an existing City evaporation pond that is no longer in use for any purpose. Currently the pond only receives nearby runoff.This project will add the NR Pond hydraulically into the City's storm drainage network and include:* Low flow training wall and inlet pipes from the Gibson Channel to the NR Pond* High flow weir from South Canal to the NR Pond* Outlet pipes from NR Pond to the South Canal* Pump station at the downstream terminus of the South Canal* Force main and outfall from the pump station to the outfall channel	No	Implementable Project	High	Medium	14	Valley Floor
181-YS	Yolo County	Raise Highway 16 Out of Flood plain	This project was initially proposed by Caltrans as flooding of Highway 16 is a chronic problem. The project was not constructed because of concerns of some farmers about grades at farm road crossings. Raising Highway 16 creates a barrier that could be used to store storm water north of the highway in detention basins/recharge ponds. Increasing the capacity of Willow Slough south of Highway 16 west of Madison is needed so that flows can be conveyed to the detention basins. Willow Slough is the source of the majority of flooding in Madison. Cottonwood Slough contributes to occasional flooding (last time was 1996) in Madison. This project could be coordinated with the Madison Canals project as other upstream diversions could benefit this project and/or the planned detention basins could be coordinated.	Yes	Implementable Project	High	Medium	14	Valley Floor
182-YS	City of Davis	Site Survey for Converting Rocky Swales to Bioswales	In public greenbelts and parks, convert existing rocky drainage swales into bioswales to provide environmental benefits. Convert drainage in areas that currently use rocky swales, such as in Mace Ranch Park and the housing development behind Montgomery Elementary in South Davis, to bioswales. Converting the existing rocky swales to vegetative bioswales will encourage microhabitats, beneficial insects, infiltration, transpiration, and evaporation to better showcase stormwater retention techniques. Other possible sites include Evergreen Pond and North Star Park.	Yes	Planning	Medium	Medium	3	Valley Floor
183-YS	City of Davis	Site Survey for Hardscape Conversion to Pervious Pavement	Survey public parking lots that currently have impervious surfacing to assess the practicality of converting these locations to pervious pavement when they are in need of resurfacing, maintenance or redesign. Portions of the pathways near the sites could potentially highlight permeable pavers in addition to the parking lots. Projects could be planned with improvements to incorporate bioswales, low water use plants, and other low-impact design measures into any landscape changes at the site. The projects would include signage on stormwater techniques implemented and information about water quality.	Yes	Planning	High	Medium	14	Valley Floor
184-YS	Yolo County FCWCD with Madison CSD	Upstream Flow Management to Prevent Madison Flooding and to Facilitate GW Recharge	The District proposes to manage high flows from Lamb Valley, Cottonwood and S. Fork Willow Sloughs using the existing canal system as well as other means such as upstream check dams. During storm events Willow Slough floods the Town of Madison. The Canal system can be used to convey water away from the Town of Madison and reduce flood levels while also managing peak flows through use of check dams, particularly in Lamb Valley Slough. Flow and water level monitoring could serve several purposes. GW recharge can be accomplished through canal bottoms and potential recharge/detention basins. P. 29 and 30 of the 2012 FIS describe some of the upstream channel capacity limitations and a review of FIRM maps shows several points of intersection between the sloughs and canals to be explored. This project can be coordinated with Raising Highway 16 project.	Yes	Implementable Project	High	Medium	14	Valley Floor
185-YS	Yolo County Flood Control and Water Conservation District	West Adams Canal Renovation and China Slough Rehabilitation Project	Enlargement and improvement of the Yolo County Flood Control & Water Conservation District's (District) West Adams, East Adams, and Acacia Canal system, and rehabilitation and improvement of China Slough (a natural storm drainage channel). The District's canal system would need to be modernized to allow for a "demand" system and to ensure no spills. China Slough would need to be cleaned, an operating road constructed, and installation of about eight check structures. Improvements to the canals and slough would be implemented to convey 10,000 acre-feet of surface water per year through China Slough to farmers in the Yolo-Zamora region (~4,200 acres).	No	Implementable Project	High	Medium	24	Valley Floor
186-YS	City of Davis	West Area Pond Redesign	Redesign the West Area Pond (detention basin) to utilize agricultural summer flows to enhance aquatic wildlife habitat and improve water quality. This proposal involves redirecting existing agricultural runoff through the Stonegate drainage pond and pumping it into the West Area Pond. This would enhance aquatic habitat while improving any water discharges through retention, enhancing opportunities for infiltration, transpiration and evaporation.	Yes	Implementable Project	Medium	Medium	3	Valley Floor

Table D-5: Westside IRWM Plan Project Screening Results (sorted by Project Location by Planning Area)

Project No.	Lead Agency /Organization	Project Title	Planned Project/Program Types and Activities	Potentially Critical DAC Project	Project Type	Importance	Urgency	Primary Objective	Planning Area
187-YS	Solano County Water Agency	Winters Bioswales Project and Habitat Enhancement	Stormwater from the town of Winters drains residential areas, business districts, and undeveloped lands into a culvert system that delivers contaminated runoff to Putah Creek and one of its major tributaries, Dry Creek. Eighteen discharge points exist, eight of which are connected directly to Putah Creek, the remaining to Dry Creek. Three main culvert delivery sites occur within the Winters Putah Creek Nature Park (WPCNP), draining approximately 200 acres of impervious lands. The stormwater network drains streets, parking lots, businesses and suburban lots, over-irrigated landscapes and disturbed lands, carrying sediment, petroleum products, fertilizers, pesticides, and bacteria into Putah Creek. We have assembled numerous stakeholders to begin addressing this water quality issue and are developing seasonal wetland (bioswale) water treatment projects within the WPCNP that will improve water quality, enhance floodplain function, restore wildlife habitat, and provide educational opportunities for the Winters community. By redirecting this stormwater runoff onto newly constructed floodplains of Putah Creek, water quality contaminants can be decreased through the breakdown action of sunlight, soil, plant roots and microorganisms. Moreover, the redirected water can assist in rehydrating portions of the floodplain during periods of drought and enhance riparian plant growth for the benefit of corridor wildlife. Each culvert outlet, along with the receiving floodplain landscape requires novel designs to redirect, capture, and infiltrate stormwater, all involving site-specific earthworks, specialized soil treatments, appropriate vegetation, monitoring, and post-installation management. We are conducting feasibility analyses and developing designs for the three major culvert networks within the park. We anticipate moving forward with implementation of our first site in Summer, 2018. Along with stormwater treatment and creekside improvements, we intend to develop a community outreach component that will educate people on "Upper Watershed" creek care within the suburban areas that comprise the stormwater drainage networks.	No	Implementable Project	Medium	Medium	3	Valley Floor
188-YS	Yolo County Flood Control and Water Conservation District	Winters North Area Stormwater Pond	Develop and construct a 5,000 acre-feet stormwater retention pond in the north area of Winters to reduce drainage and flood waters from the Chickahominy Slough. The retention pond would also be used for groundwater recharge in times when the capacity and water was available. The retention pond would provide water quality benefits by allowing the sediments in the runoff to settle and lessening the transfer of pollutants and chemicals downstream. The surrounding area would have native vegetation that would promote benefits for wildlife habitat, and the property would allow for groups to visit and learn about the multi-beneficial, multi-agency partnership. Similar to the District's Chapman Reservoir, we would install automated gates and monitoring devices at the retention pond that would be connected to the District's SCADA system for real-time management.	Yes	Implementable Project	High	Medium	14	Valley Floor
189-YS	Yolo County Flood Control and Water Conservation District	Yolo County Drains and Sloughs -- Governance and Maintenance Study	Plan that will identify governing bodies and maintenance responsibilities involved in the County's drains, canals, and sloughs. The District and County will work together to develop a governance and maintenance study that will assist in providing effective rural storm water management responsibilities based on the defined governing bodies. Plan/investigation will initiate a legitimate storm water management program in Yolo County.	Yes	Planning	High	Medium	14	Valley Floor
190-YS	Madison CSD	Madison Farmer Field Stormwater Capture and Groundwater Recharge	Modify farmer fields around Madison, specifically those next to Highway 16 and those that will capture upstream flows. The two options considered include 1) 1,200 acres of farmer field modification for rainfall capture (8"-berm) and 2) modification of a farmer field near Cache Creek (maybe half of APN 049-060-017) for rainfall and storm water runoff capture a 3-' high storm water detention basin. This project will require farmer participation and advanced planning for field modification, and will depend on the storm intensity. The first option will only capture rainfall and the second option will capture rainfall and allow runoff to be collected into the detention basin. The second option will require more modification to the property, additional infrastructure for channeling runoff into the basin, and a pump if the water needs to be drained from the basin.	Yes	Implementable Project	High	Medium	14	Valley Floor
191-YS	Madison CSD	Western Yolo Sloughs Citizen Science Program	Sloughs surrounding the Madison area are known to cause regular flooding in Madison and beyond. Namely, Cottonwood Slough, Lamb Valley Slough, the South Fork Willow Slough and the Madison Drain have been identified as sources of flooding in Madison in various studies and reports. It seems likely that mitigation upstream in these sloughs to remove water before the sloughs reach Madison and Esparto, and management of the sloughs to keep them free of debris could help in alleviating flooding in the area. However, none of these channels are monitored, therefore, it is unknown what capacity these sloughs have, when that capacity is reached (during or after a storm), or what type of mitigation would be most fitting for each slough. Additionally, it is not known if the Winters Canal is also full when sloughs are full, or if it may have capacity that could be used to alleviate the sloughs when they are over flowing. The Madison CSD with its partners will develop a citizen science program where Madison residents and residents from the nearby areas will visit sloughs and canals that carry water in and around Madison following rain events. The program members will record whether they see water flowing in the sloughs and canals at previously determined locations, and record observations such as whether the channels are successfully carrying the flows, appear to be obstructed, or are overflowing. The information will be compiled in an easy to use format so that members can easily share the information with Madison CSD and others. The information will initially be used until a flow monitoring network can be developed in the sloughs, and potentially beyond. The goal is to gain a better understanding of the slough flow patterns and information that can be used to plan for flood mitigation in Madison, while also engaging and educating the community.	Yes	Planning	High	Medium	14	Valley Floor
192	Solano Resource Conservation District	Barker Slough Water Quality and Habitat Restoration Project	Barker Slough is part of the North Bay Aqueduct (NBA), providing drinking water for up to 500,000 people in urban areas of Napa and Solano Counties. It is also a major tributary to Lindsey Slough, part of the Cache Slough complex of the Sacramento-San Joaquin River Delta. Nearly all of its length is ranched, and in many areas, cattle have free access to the slough. The water coming from the slough has been shown to have high amounts of organic carbon, bacterial coliform, turbidity and salts that exceed drinking water standards. Past projects have attempted to fence cattle off the slough and allow water quality to improve, but these have not been well maintained and cattle continue to degrade water quality. This project would install/repair fencing and off-stream cattle troughs at multiple project sites along Barker Slough, and install native riparian vegetation in this currently denuded watershed. A total of 5 stream miles will be fenced off from cattle and 5 acres of riparian habitat will be restored. In addition, a Barker Slough Watershed Management Plan will be created to bring ranchers, landowners, and urban water users together to identify priority projects that will improve and maintain water quality.	No	Implementable Project	High	Medium	19	Valley Floor

Table D-5: Westside IRWM Plan Project Screening Results (sorted by Project Location by Planning Area)

Project No.	Lead Agency /Organization	Project Title	Planned Project/Program Types and Activities	Potentially Critical DAC Project	Project Type	Importance	Urgency	Primary Objective	Planning Area
193	City of Woodland	Well 31 ASR Project	The project involves the design and construction of a new municipal aquifer storage and recovery (ASR) well #31 near the site of the existing Well #6. The new ASR well will facilitate groundwater recharge by injecting treated surface water into the gravel layer approximately 500 feet below the surface when surplus Sacramento River water is available during winter months. The ASR well water would be pumped from the ASR well to supplement surface water during drought conditions and to meet peak summer demands. ASR also has long-term water quality benefits because injected water replaces native groundwater impaired by nitrate and naturally occurring metallic species, including arsenic, hexavalent chromium, manganese, and selenium, with better-quality water.The intent is to inject water into the ASR well each winter and build a large reservoir of treated surface water beneath the well and utilize the water primarily during drought years. The project removes a high capacity groundwater extraction well from the regional aquifer and replaces it with a well that will promote groundwater recharge and sustainability while improving Woodland's water supply reliability during a drought. The ASR program greatly reduces the need for Woodland to utilize native groundwater in the City's water system. The City recently completed construction of three ASR Wells. The testing completed to date has been a success and indicates that ASR technology is successful in Woodland. The extracted water retains the constituent characteristics of treated surface water. The new ASR well would include the ability to inject treated surface water at a rate of approximately 2,000 gpm and extract water at a rate of approximately 3,500 gpm. The new ASR well is considered a Categorical Exemption under CEQA as it is a replacement of an existing water supply facility. The EIR for the ASR program has been completed and all necessary permits have been secured. The existing well will be properly destroyed.	No	Implementable Project	High	Medium	23	Valley Floor
194	City of Woodland	Outfall Channel Culvert Replacement Project	City has a single stormwater discharge location. The outfall is limited by three (3) existing 36" diameter culvert pipes that penetrate a levee road. The existing culverts are limited in that: (a) they are in poor condition and their flap gates have fallen off and (b) within the next few years, based on development, they will be insufficient to handle the amount of City stormwater flows. Plan to the replace the three (3) existing 36" diameter culverts with five (5) 72" diameter ones to accommodate for full City build-out (2035)	No	Implementable Project	High	Medium	14	Valley Floor
195	City of Woodland	Woodland Recycled Water Utility Expansion Project (Phase II)	The City of Woodland currently has tertiary treated Title 22 effluent from the City's Water Pollution Control Facility (WPCF) providing a firm capacity of approximately 2,700 gpm for recycled water. Woodland has an existing recycled water utility serving 2 City parks and a large industrial user in the industrial area northwest of the Water Pollution Control Facility (WPCF). The City has planned for an expansion of the recycled water utility into the Spring Lake Area of the City and also to serve the planned Woodland Research & Technology Park. There are several existing large water users that would use the recycled water for irrigation of parks and roadside landscaping. Businesses in the Research Park would utilize recycled water for cooling buildings. In addition, recycled water would be available to extend into new development areas for landscape irrigation. Portions of recycled water pipelines in Spring Lake have already been constructed by development projects. Providing recycled water to these areas would reduce demands on the potable water distribution system and reduce the demand on the groundwater aquifer. The recycled water pipeline would be constructed in the City's existing right of way. The City has recently completed a Mitigated Negative Declaration for the project. The expected initial demand for recycled water would exceed 110 acre feet per year. The Capital Cost for the Project is approximately $2.5M.The recycled water project includes construction of approximately 10,000 feet of 8" diameter purple pipe and a 100,000 gallon storage tank. The project also provides recycled water for expansion (Phase III) to west of Highway 113.	No	Implementable Project	High	Medium	23	Valley Floor
196	City of Woodland	Woodland Recycled Water Utility Expansion Project (Phase III)	The City of Woodland currently has tertiary treated Title 22 effluent from the City's Water Pollution Control Facility (WPCF) providing a firm capacity of approximately 2,700 gpm for recycled water. Woodland has an existing recycled water utility serving 2 City parks and a large industrial user in the industrial area northwest of the Water Pollution Control Facility (WPCF). The City has planned for an expansion of the recycled water utility into the Sports Park Area of the City and also to serve the planned SP1B and SP1C areas in the City's General Plan. There are several existing large water users that would use the recycled water for irrigation of parks and roadside landscaping. In addition, recycled water would be available to extend into new development areas for landscape irrigation. Providing recycled water to these areas would reduce demands on the potable water distribution system and reduce the demand on the groundwater aquifer. The recycled water pipeline would be constructed in the City's existing right of way. The City has recently completed a Mitigated Negative Declaration for the project. The expected initial demand for recycled water would exceed 70 acre feet per year. The Capital Cost for the Project is approximately $925,000.The recycled water project includes construction of approximately 4,300 feet of 8" diameter purple pipe.	No	Implementable Project	High	Medium	23	Valley Floor
197	Solano Resource Conservation District	Cronin Ranch Habitat Corridor Project	This project aims to create habitat connectivity by planting native perennial grasses, trees and shrubs along more than 4 miles of irrigation and drainage canals that interlace the 2,200 acre Cronin Ranch. This project would connect other habitat restoration projects previously established by Solano RCD, and create over 35 acres of new riparian corridors in a landscape dominated by little more than irrigated pasture and hay fields. New fencing would be installed to exclude cattle from waterways, thereby reducing sediment loads and fecal contamination in waters that drain to the Lower Sacramento River. Native perennial grasses will filter out nutrients and sediment from irrigated pasture tailwater and reduce erosion and bank sloughing along waterways. The deep root systems of native grasses, shrubs and trees increase water infiltration and storage, while also sequestering carbon deep into the soil profile.	Yes	Implementable Project	Medium	Medium	3	Valley Floor

Table D-5: Westside IRWM Plan Project Screening Results (sorted by Project Location by Planning Area)

Project No.	Lead Agency /Organization	Project Title	Planned Project/Program Types and Activities	Potentially Critical DAC Project	Project Type	Importance	Urgency	Primary Objective	Planning Area
198	Solano Resource Conservation District	Ulatis Creek Riparian Floodplain Restoration Project	This proposed habitat restoration project would be a partnership between the landowner, SRCD and agency partners to control non-native weeds and restore 35 acres of unique riparian floodplain habitat to perennial grasses, forbs, trees and shrubs. The project will plant native species of plants that are well adapted to the local hydrology and soil conditions on 35 acres of Delta riparian floodplain. The project will result in the increase in diversity and richness of native species vegetation that would improve the habitat and attract a myriad of local wildlife throughout the year. This project is designed in such a way that the primary function of the channel as a flood control feature is not compromised. Water quality will be improved by maintaining perennial ground cover that will serve as erosion control and as a filter. Occasional grazing by livestock will be an important management tool for maintaining the site long term to reduce excessive thatch build-up and to manage the acceptable level of woody vegetation by the local managing flood control agencies. This project will remain part of the working agricultural landscape, managed long term by Emigh Livestock (landowner) following the operating and maintenance easement guidelines of the channel area by the Solano County Water Agency.	No	Implementable Project	Medium	Medium	3	Valley Floor
199	Solano Resource Conservation District	Solano County K-12 Watershed Education in the Sacramento River Watershed	Enhance and expand existing watershed education programming for K-12 students to support personal stewardship behavior and understanding of Sacramento River conservation and restoration goals. This program encompasses two place-based field trip programs: the Watershed Explorers program for third graders and the Solano County Biomonitoring program for high school students, as well as the multi-grade Solano Water Education Program that provides Project WET training and resources to teachers along with targeted water resource lessons, field trip opportunities and classroom supplies. Programming provides education about water conservation, proper used oil disposal, water quality assessment and protection, the Reduce-Reuse-Recycle ethic, native species protection, and the fun and health values of being outdoors in the watershed. By learning about watershed ecology, phenology, biomonitoring, resource conservation, and restoration work, participants understand the important relationship between science and the necessary environmental stewardship of the Sacramento River watershed. We work with Solano County, its cities, county and regional resource agencies, and local businesses to provide context and connection to ongoing local, regional and state environmental stewardship challenges. We formally assess student learning, and use the information we gain to refine and improve our programs.	Yes	Planning	Medium	Low	1	Valley Floor
200	Solano Resource Conservation District	Centennial Park Pine Creek and Wetlands Habitat Restoration Project	This project will cleanup and restore wildlife habitat, while attenuating high flood events and filtering excessive eroded sediments at a 26 acre riparian creek and wetland complex located at the southern end of Centennial Park in Vacaville. Project activities include:-Removing all trash and concrete debris from 26 acres-Re-shaping and contouring the wetland area to promote plant diversity, natural wetland function, and diversity of wildlife habitat- Controlling invasive noxious weeds (including arundo, stinkwort and perennial pepperweed) on 26 acres- Planting 1,000 native trees/shrubs and seeding 10 acres of native grass and wildflowers along Pine Creek and its associated upland terraces, creating 2,000 feet of native riparian corridor.- Planting 500 native trees/shrubs and 20,000 native rush and sedge plugs in the wetland basin, creating 16 acres of native wetland marsh habitat.- Installing a 1,500 foot long asphalt walking trail and three interpretive panels along the north side of Pine Creek so that park visitors can experience and learn about riparian and wetland ecology	Yes	Implementable Project	Medium	Medium	3	Valley Floor
201	City of Davis	Davis Wetlands Public Access Improvements	Install user amenities at the Davis Wetlands to enhance educational and passive recreational access. Primary improvements include installation of a permanent vault toilet, observation tower with interpretive panels, and shaded picnic facility.	No	Implementable Project	Medium	Low	13	Valley Floor
202	City of Davis	Davis Manor Neighborhood Green Street Project	The Davis Manor Neighborhood Green Street Project proposes to retrofit the neighborhood with the following greening treatments: -Plant 90 new trees to sequester carbon and reduce energy consumption -Build 40 rain garden planters to serve as new wildlife habitat and capture stormwater-Convert 9,480 sq. ft. of impermeable surfaces into walkable green space to enhance the pedestrian experience -Transform 5,000 sq. ft. area of the neighborhood into the "Green Heart" toserve as a hub for resident gatherings -Replace 3,000 sq. ft. section of street parking area with a permeable surface strip -Replace 400 sq. ft. area of streetscape with new drought-tolerant landscaping -Install 15 curb ramps and widening sidewalks to improve accessibility -Renovate a dilapidated pocket park to increase community usage -Install interpretative signage to teach visitors and encourage replication	Yes	Implementable Project	Medium	Low	2	Valley Floor

Table D-5: Westside IRWM Plan Project Screening Results (sorted by Project Location by Planning Area)

Project No.	Lead Agency /Organization	Project Title	Planned Project/Program Types and Activities	Potentially Critical DAC Project	Project Type	Importance	Urgency	Primary Objective	Planning Area
203	City of Davis	Recycled Water Pump Station	With the completion of secondary and tertiary improvements, the City's Wastewater Treatment Plant is now capable of producing tertiary disinfected effluent that meets the requirements of Title 22 of the California Code of Regulations for recycled water. However, a final component of these upgrades is a means of delivering the recycled water produced at the WWTP to potential future customers. New infrastructure is necessary to convey recycled water from the WWTP to potential future customers or to send recycled water to locations within the WWTP property boundary for storage or disposal. This infrastructure, referred to as the “Phase 1 Recycled Water Facilities”, will include a new Recycled Water Pump Station and associated piping specifically for conveyance of recycled water to onsite storage ponds and the WWTP's overland flow (OLF) site. To allow for greater operational flexibility, the Recycled Water Pump Station will be designed for a target minimum flowrate of 2,500 gpm with one pump in operation. At this higher flowrate, the City will be able to operate the Recycled Water Pump Station for less than 24 hours per day and still meet the peak day diversion targets. The pump will also be equipped with a variable frequency drive (VFD), which further increases operational flexibility. The pump station will be sized to accommodate a second pump in the future. The Recycled Water Pump Station will draw disinfected tertiary recycled water from the effluent channel of the recently-constructed chlorine contact tank (CCT) and has been designed to deliver water to any of the following locations for disposal or beneficial reuse: · Zones 5 - 15 of the OLF · Recycled Water Pond 1 (formerly Aerated Pond 1) · The Return Channel that provides conveyance to the WWTP's former Oxidation Ponds · A future off-site recycled water storage tank located on the City's Howatt Ranch property	No	Implementable Project	High	Medium	23	Valley Floor
204	City of Davis	Sewer Lateral Replacement	The project would replace aging sewer laterals with corrosion and other issues to protect water quality and reduce the potential for accidental sanitary sewer discharges into the stormwater conveyance system. The project would occur City wide over 3 to 4 years.	No	Implementable Project	Medium	Medium	20	Valley Floor
156	Solano County Water Agency	Solano and Napa County Drought Relief Project	This project offers drought relief and long-term water savings in the form of a package of water conservation programs to improve water use efficiency throughout eastern Solano County and unincorporated Napa County. The programs include 1) Water-Efficient Landscape Rebates, 2) Weather-Based Irrigation Controller Rebates, 3) High-Efficiency Washer Rebates and 4) the installation of High-Efficiency Toilets and Urinals in commercial and multi-family buildings.	No	Implementable Project	Medium	Medium	11	

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Table D-6: Westside IRWM Plan Project Screening Results (sorted by Importance then Urgency)

WESTSIDE SAC IRWM
Integrated Regional Water Management Plan

Project No.	Lead Agency /Organization	Project Title	Planned Project/Program Types and Activities	Total Criteria Score	Readiness	Potentially Critical DAC Project	Project Type	Importance	Urgency	Primary Objective
23	Solano County Water Agency	Aquatic Nuisance Vegetation Management	The goal of the Aquatic Nuisance Species Management Plan is to minimize the harmful ecological, economic, and social impact of aquatic nuisance species through prevention and management of introduction, population growth, and dispersal into, within, and from Solano County.	11	6	No	Implementable Program	High	High	7
34	Solano County Water Agency	Research on Improving Water Treatment for Delta Sources	The project would build upon past research done at the NBA Treatment Facility, and by other Delta users, to improve water treatment methods, reduce DBPs, and improve water treatment for Delta water users, including the SWP and CVP.	6	4	No	Implementable Project	High	High	22
40	RWMG with selected Lead Agency	Regional Invasive Plants, Aquatic and Terrestrial Weeds Management Plan	This project will include the formation of an Invasive Species Task Force/Subcommittee to prepare a Regional Invasive Species Management/Eradication Plan that documents the extent of invasive terrestrial and aquatic species within the Westside Region; evaluates existing programs to manage invasive species that could be leveraged, and identifies supplemental programs to be developed to fill gaps in existing programs to manage invasive species.	13	3	Yes	Implementable Program	High	High	8
48	Crescent Bay Improvement Company	Crescent Bay Improvement Company	Crescent Bay improvement Company has been on a Boil Water Order since 1999. There are 3 objectives to this project:1) replace the 80-year old distribution lines which are leaking, 2) drill a well and replace our surface water source with ground water, and 3) explore the feasibility of and purchase a neighboring water company and develop an intertie with that system.	11	3	Yes	Implementable Project	High	High	22
55	Clearlake Oaks County Water District	Plant Intake	Install a new water intake in the lake that is capable of drawing water from different depths, with installation of an amiad pre-filter at the pier where the intakes are located. This will allow a greater control of influent turbidity and pH by controlling what depth the intake will be drawing water from.	11	3	Yes	Planning	High	High	22
76	RWMG with selected Lead Agency	Regional Invasive Mussels Management Plan	This project will include the formation of an Invasive Species Task Force/Subcommittee to prepare a Regional Invasive Mussels Species Prevention Plan that evaluates existing programs to prevent invasive species that could be leveraged, and identifies supplemental programs to be developed to fill gaps in existing programs to manage invasive species. Special high priority emphasis will be placed on prevention of water body infestation by Quagga Mussels.	13	3	Yes	Implementable Program	High	High	7
87	Lake Berryessa Resort Improvement District	LBRID Wastewater Storage Pond and Disposal Improvements	This project will upgrade the wastewater storage ponds and disposal spray fields.	13	6	Yes	Implementable Project	High	High	22
90	Napa Berryessa Resort Improvement District	NBRID Water Treatment Plant Replacement	The existing water treatment plant will be replaced with a new more technically advanced water treatment plant.	14	9	No	Implementable Project	High	High	22
92	Napa Berryessa Resort Improvement District	NBRID Wastewater Treatment Plant Replacement	This project will upgrade the existing WWTP. The project will also repair or replace all the existing sewer lift stations.	14	9	No	Implementable Project	High	High	22
93	Rural Community Assistance Corporation	Rural Disadvantaged Community (DAC) Partnership Project	RCAC will manage the Prop 84 grant funds to address inadequate water supply and water quality in rural disadvantaged communities (DACs) in the Westside Sacramento IRWM region.	15	7	Yes	Planning	High	High	22
25	Solano County Water Agency	Gibson Canyon Creek Detention Basin	Provide increased flood protection up to 100-year with improved conveyance and containment of out of bank flows. Convert abandoned City wastewater pond to detention basin.	7	5	No	Implementable Program	High	Medium	14
30	Solano County Water Agency	North Bay Aqueduct Alternate Intake Project	The NBA AIP includes the construction and operation of a new intake and pumping plant on the Sacramento River, conveyance pipeline, and inline storage to divert and convey water from the Sacramento River connecting to the existing NBA pipeline near the North Bay Regional Water Treatment Plant in Fairfield.	11	5	No	Implementable Project	High	Medium	23
31	Solano County Water Agency	Improve Solano Project SCADA infrastructure	This project is to install contiguous dedicated power and data lines from the top end of the Solano Project system to the bottom. This would allow monitoring of the entire system simultaneously from a central location and could allow automated remote control.	8	6	No	Implementable Project	High	Medium	18
39	Solano County Water Agency	Source water protection for Putah Creek watershed	This project consists of various improvements such as best management practices, source water protection, reduction of in-channel erosion, improved stream channel geomorphology, remediation of historic mining and others to reduce the impact of point and non-point sources that could negatively impact the Putah Creek watershed, as well as the Yolo Bypass.	7	4	No	Implementable Project	High	Medium	19
42	Solano County Water Agency	Ulatis Flood Control Channel Grade Control	This is a programmatic project to install rock cross-vanes at most remaining bridge crossings to arrest scour and promote some habitat diversity. There are approximately 20 location that would benefit from these installations.	11	6	No	Implementable Project	High	Medium	14
44	City of Clearlake	City of Clearlake Stormwater Management Plan (SWMP), Storm Drainage and Flood Control Project Proposal	The City of Clearlake Stormwater Management Plan (SWMP) includes development of stormwater management program implementation strategies and actions.	13	3	Yes	Planning	High	Medium	19
45	City of Woodland / floodSAFE Yolo Pilot Program	Lower Cache Creek Flood Risk Reduction Project	The primary purpose for the Project is to reduce the risk of flooding to the City of Woodland and adjacent land including the rural Town of Yolo and Interstate 5. The Project is in the initial phases of a feasibility study for which the City has executed a Federal cost share agreement with the USACE and CVFPB and a non-federal cost share agreement with the CVFPB.	8	3	No	Feasibility Study	High	Medium	14
49	Dixon Regional Watershed Joint Powers Authority	Dixon Main Drain / V-drain Enlargement Project	The purpose of the project is to reduce local flooding caused by regional drainage flows that exceed the existing capacity of these channels by increasing the capacity of these constructed drainage facilities.	15	1	No	Planning	High	Medium	14
50	Dixon Regional Watershed Joint Powers Authority	Eastside Drain	The Eastside Drain project will construct segments of new channels and enlarge existing channels. The Project will add an increment of 120 cfs to the Dixon Main Drain / V-drain Enlargement Project.	11	1	No	Planning	High	Medium	14
51	Dixon Resource Conservation District	Storm Flow Reduction From Agricultural Lands North of Interstate 80	The Proposed Project is based on providing detention storage for a 10-year storm event.	8	1	No	Planning	High	Medium	14
57	Lake County Water Resources Department	Restore Native Fish Spawning Areas in Clear Lake Tributaries	This is a series of projects to eliminate some of the major barriers to fish passage. Projects include: Kelseyville Main Street check dam (Kelsey Creek); Decker Bridge (Scotts Creek); Rancheria Road Bridge (Middle Creek); Sewer Crossing (Seigler Canyon Creek); Clover Creek Diversion Channel; Creek Delta Diversity (multiple creeks).	9	3	Yes	Implementable Project	High	Medium	6
58	Lake County Water Resources Department	Reduce Flood Damage	This project will reduce flood damage by structural and non-structural methods and will reduce flood risk to property owners in Lake County through 1) buyouts and relocations or floodproofing 2) implementation of the Middle Creek Flood Damage Reduction and Ecosystem Restoration Project 3) Upgrades of bridge and culvert capacities to reduce flooding 4) Implementation of the Cache Creek flow enhancement project 5) Implement channel and levee improvements to the Middle Creek Flood Control Project	9	3	Yes	Planning	High	Medium	14
59	Lake County Water Resources Department	Middle Creek Flood Damage Reduction and Ecosystem Restoration Project	This project will eliminate flood risk to 18 residential structures, numerous outbuildings and approximately 1,650 acres of agricultural land and will restore damaged habitat and the water quality of the Clear Lake watershed. Reconnection of this large, previously reclaimed area, as a functional wetland is anticipated to have a significant affect on the watershed health and the water quality of Clear Lake. The project consists of purchasing the flood prone property "protected" by the substandard levee, mitigating flood impacts to roads and utilities, reconstructing historic channel patterns, and breaching the levee in numerous locations that allow Clear Lake to reflood the Project area.	17	6	Yes	Implementable Project	High	Medium	14
63	Lake County Water Resources Department	Develop and Implement a Comprehensive Watershed Monitoring Programs	Meeting of agencies, Tribes, and organizations currently monitoring water quality in the Clear Lake Watershed to coordinate monitoring activities and reduce overlap when possible.	14	2	Yes	Implementable Program	High	Medium	18

WESTSIDE SAC IRWM
Integrated Regional Water Management Plan

Table D-6: Westside IRWM Plan Project Screening Results (sorted by Importance then Urgency)

Project No.	Lead Agency /Organization	Project Title	Planned Project/Program Types and Activities	Total Criteria Score	Readiness	Potentially Critical DAC Project	Project Type	Importance	Urgency	Primary Objective
64	Lake County Water Resources Department	Develop a Native Fish Management Plan	Conduct studies to identify and fill gaps in information and understanding of native fish populations with in Lake County. Use these studies to develop a Native Fish Management Plan.	10	3	Yes	Planning	High	Medium	5
66	Lake County Water Resources Department	Clear Lake Water Quality Assessment	Planning/assessment project to assess the current limnological conditions and to identify and select measures necessary for Clear Lake to meet the water quality objectives as specified in the Basin Plan, as required by the Basin Plan amendment implementing the Nutrient TMDL for Clear Lake.	11	4	Yes	Planning	High	Medium	19
67	Lake County Water Resources Department	Cache Creek Flow Enhancement Project	This project will evaluate the removal and maintenance of the gravel bar at the Grigsby Riffle to reduce flow restrictions in the Cache Creek Outlet Channel.	11	3	Yes	Feasibility Study	High	Medium	23
69	Lake County Water Resources Department	Adobe Creek Conjunctive Use Project	Addition of conjunctive use to the operation of Highland Creek Reservoir (Lake County), through the addition of sluice gates to the existing Principal Spillway structure at Highland Creek Dam.	12	3	Yes	Implementable Project	High	Medium	22
73	Robinson Rancheria	The Restoration of the Clear Lake Hitch to Blue Lakes	Transfer of live hitch fry to the waters of the Blue Lakes in Lake County.	8	6	Yes	Implementable Project	High	Medium	6
74	Robinson Rancheria	Spawning Hitch fish and reproduction loss correction measures for an artificial trap	Installation of a grate at the mouth of the manmade ditch along the Rodman Slough to prevent Hitch fatalities.	5	1	Yes	Implementable Project	High	Medium	6
75	Rural Community Assistance Corporation	DAC Community Wastewater Management Project	RCAC will work with Lake County DACs and tribes to create and implement a septic inspection and monitoring program.	15	0	Yes	Implementable Project	High	Medium	18
80	Tuleyome	Cache Creek Anadramous Fish Reintroduction Project	Conduct studies to look at the physical constraints such as temperature, flow regimes, and spawning opportunities, climate change impacts for the reintroduction of anadromous fish to Cache Creek, institutional issues including safe harbor for the YCFCWCD and stakeholder outreach.	7	1	Yes	Feasibility Study	High	Medium	6
81	Tuleyome, Inc.	Comprehensive Mercury Assessment and Implementation for the Westside Region	This project will: 1) compile and georeference existing data pertinent to characterization of known and potential mercury priority areas in the Westside Region 2) monitor streambeds within the Putah Creek Watershed 3) upload relevant data into a regional or statewide on-line library 4) develop a summary 5) develop best management practices toolkit 6) identify 2-3 feasible priority projects and 7) develop implementation measures using the Toolkit and decision support tools.	11	4	Yes	Planning	High	Medium	19
83	West Sacramento Area Flood Control Agency	Lower Sacramento and Delta North Regional Flood Management Plan	Develop a lower Sacramento and Delta North Regional Flood Management Plan that follows the requirements outlined in the Central Valley Flood Protection Plan (CVFPP)	13	6	Yes	Implementable Project	High	Medium	14
84	Yolo County Flood Control and Water Conservation District	Winters Main Canal Modernization Project: Integrated Precision Water Mgmt.	Installation of automatic water control gates, pump flow meters and vegetated native grass canal banks, to improve irrigation efficiency. In addition, planting of native grasses to minimize erosion and decrease use of herbicides.	18	9	Yes	Implementable Project	High	Medium	24
86	Yolo County Service Area #6	County Service Area (CSA) #6 Levee Repair Project	Non-urban levee repair project as part of the levee rehabilitation identified to restore the District levee to its authorized level of flood protection.	16	9	Yes	Implementable Project	High	Medium	14
88	Lake Berryessa Resort Improvement District	Water Tank Replacement Project	The three existing potable storage tanks have reached the end of their useful life. The project will replace these three tanks to ensure a continuous water supply for the residents in the future.	15	9	Yes	Implementable Project	High	Medium	23
96	Knights Landing Ridge Drainage District	Mid Valley, Knights Landing Repair Project	Subset of the Mid-Valley Area Levee Reconstruction Project currently underway through a partnership with ACOE and the Central Valley Flood Protection Board.	13	9	No	Implementable Project	High	Medium	14
102	Reclamation District No. 2068	SCADA Implementation	Install/coordinate local and regional SCADA system to monitor water diversions, pumping plant operations, flood water elevations, groundwater elevations, water distribution within the agency jurisdiction.	11	2	No	Conceptual	High	Medium	18
108	Tuleyome, Inc.	Sulphur Creek Mercury and Sediment Reduction Project	This project will: 1) Characterize mercury as required to enable erosion control work, 2) Hydrologically disconnect up to 23 miles of road networks that are currently contributing runoff and contaminated sediment to downstream waters, 3) Stabilize 2000 feet of eroding stream banks that are over-steepened and delivering methylmercury contaminated sediment into the stream system, 4) Treat 115 road-related erosion and sediment delivery sites and 5) Stabilize three major valley bottom headcuts that are resulting in serious valley fill erosion along the main stem Sulphur Creek, desiccating alkali wet-meadows and lowering the water table.	12	3	Yes	Implementable Project	High	Medium	19
109	Tuleyome, Inc.	Elgin Mine Drainage Water Treatment Project	Compile existing maps, reports, water data, and other information about Elgin Mine in the IRWM region indicating location, ownership history, and mineral production. Address all regulatory requirements, Conduct baseline and post-project monitoring of downstream water, sediment, and biota. Design and construct a hot spring treatment system to minimize mercury loads downstream.	7	1	Yes	Planning	High	Medium	19
111	West Sacramento Area Flood Control Agency	Deep Water Ship Channel East Levee Repair	Correct deficiencies, protect against underseepage, and maintain the Port of West Sacramento levees to current standards for FEMA 100 yr and urban levee 200 year levels of flood protection.	11	8	No	Implementable Project	High	Medium	14
112	West Sacramento Area Flood Control Agency	Deep Water Ship Canal Navigation Levee Repair	Correct deficiencies, protect against underseepage, and maintain the Deep Water Ship Canal Levees to current standards for FEMA 100 yr and urban levee 200 year levels of flood protection.	10	4	No	Implementable Project	High	Medium	14
113	West Sacramento Area Flood Control Agency	Port of West Sacramento North and South Levee Repair	Correct deficiencies, protect against underseepage, and maintain the Port of West Sacramento levees to current standards for FEMA 100 yr and urban levee 200 year levels of flood protection.	11	4	No	Implementable Project	High	Medium	14
114	West Sacramento Area Flood Control Agency	Sacramento River Levee Repair	Correct deficiencies, protect against underseepage, and maintain the Sacramento River Levees to current standards for FEMA 100 yr and SB 5 200 year levels of flood protection.	20	9	Yes	Implementable Project	High	Medium	14
116	West Sacramento Area Flood Control Agency	Sacramento Bypass-Yolo Bypass Levee Repair Phase II	Correct deficiencies, protect against underseepage, and maintain the Sacramento Bypass and Yolo Bypass Levees to current standards for FEMA 100 yr and urban levee 200 year levels of flood protection.	18	9	Yes	Implementable Project	High	Medium	14
117	West Sacramento Area Flood Control Agency	West Sacramento South Cross Levee Repair	Correct deficiencies, protect against underseepage, and maintain the West Sacramento South Cross Levee to current standards for FEMA 100 yr and urban levee 200 year levels of flood protection.	10	4	No	Implementable Project	High	Medium	14
118	Yolo County Flood Control and Water Conservation District	Conjunctive Water Use Program	This conjunctive water use project envisions using a variety of methods (recharge/recovery, off-stream storage and canal system modernization) to effectively store and conjunctively use groundwater in the District's service area.	16	7	Yes	Implementable Program	High	Medium	23
120	Yolo County	Yolo County Airport Drainage Plan	In order for the airport to eliminate flooding of its facilities and to expand, a 2005 Drainage Plan engineered by Wood Rogers needs to be implemented.	7	3	No	Planning	High	Medium	14
123	Yolo County	Clarksburg Flood Protection Feasibility Study	The project involves conducting a feasibility study of alternatives to provide a 100-year level of flood protection to the Clarksburg region.	6	6	No	Implementable Project	High	Medium	14
125	Yolo County	Methylmercury Impacts Analyses for the Yolo Bypass	Yolo County proposes to collect data and analyze changes in methyl mercury production and bioaccumulation that could result from (1) a proposed Bay Delta Conservation Plan (BDCP) project to enhance fisheries habitat in the Yolo Bypass; and (2) a Central Valley Flood Protection Plan proposal to expand the Yolo Bypass to improve flood capacity.	7	1	No	Planning	High	Medium	18
132	Yolo Basin Foundation	Lower Putah Creek Restoration from Toe Drain to Putah Creek Diversion Dam (Yolo Bypass Wildlife Area Element)	The project will enhance and restore 300-700 acres of tidal freshwater wetlands and create 5 miles of a new creek channel, entirely within the Yolo Bypass Wildlife Area.	10	7	No	Implementable Project	High	Medium	6

Table D-6: Westside IRWM Plan Project Screening Results (sorted by Importance then Urgency)

Project No.	Lead Agency /Organization	Project Title	Planned Project/Program Types and Activities	Total Criteria Score	Readiness	Potentially Critical DAC Project	Project Type	Importance	Urgency	Primary Objective
134	RWMG with selected Lead Agency	Climate Change Adaptation Study	Regional study to advance understanding of the effects of climate change and consider potential modifications to the water management system.	11	2	No	Planning	High	Medium	14
135	Reclamation District 2035	Tule Canal Habitat Enhancement & Sediment Removal	The project consists of: 1) securing an environmental easement that would protect valuable floodplain habitat and adjacent lands from other uses 2) construction of operational facilities for water control and fish passage and 3) regrading portions of the floodplain habitat to increase the quality of seasonally inundation based on managed flows from the Sacramento River.	9	2	No	Implementable Project	High	Medium	6
136	Reclamation District 2035	Levee Repairs/Maintenance- Segments 150, 173 and 297	Complete geological analysis, engineering design required to identify and correct levee deficiencies and hazard mitigation recommendations contained in the URS levee evaluation report (2010) completed at the direction of the Department of Water Resources and additional geologic investigation analysis (to be completed) recommendations.	10	3	No	Feasibility Study	High	Medium	14
139	Reclamation District 2035	Floodway Corridor Project	The project consists of three major phases/components: 1) acquisition of Conservation/Flowage Easements - Approx. 7,000 acres.2) New Sacramento River By Pass - A new bypass facility will be constructed to divert flows from the Sac River to the Yolo Bypass. During large storm evens flood flows would be diverted (Sac River) over a new weir to a new bypass channel that would deliver flows to the Yolo Bypass.3) Diverting additional flood flows in to the Yolo Bypass would increase flow and stages in the bypass downstream from the new bypass. To mitigate for potential flow increases, a portion of Conaway Ranch (outside of the Bypass), would be used to convey and store (transitory storage of over 66K acre feet) of flood water during large storm events.	9	2	No	Feasibility Study	High	Medium	14
141	Reclamation District 2035	Conjunctive Use Study	The project consists of the study and analysis of the coordinated use of surface and groundwater that could benefit the agricultural, urban, and environmental interests within, nearby and downstream of Yolo County, especially the North Delta region.	11	2	No	Planning	High	Medium	24
145	City of West Sacramento	Municipal Well at the George Kristoff Water Treatment Plant	Project includes environmental, design and construction of a new municipal well located at 400 N.Harbor Blvd in the City of West Sacramento. This well will augment City potable water supplies during drought conditions. This well in not intended to increase water production but allow upstream surface water diversions by as much as 4,500 acre feet annually.	7	3	No	Implementable Project	High	Medium	23
147	Lake County Special Districts	Paradise Vallev-Clearlake Oaks County Water Consolidation	Paradise Valley Water System, County Service Area 16 (CSA #16), serves 75 customers. The system does not have adequate source capacity in accordance with Section 64554, Chapter 16, Title 22 of the California Code of Regulations. CSA #16 has three wells that when combined do not produce the required source capacity. Attempts to drill a fourth well in 2012 were unsuccessful. The current drought has further reduced the wells ability to prod uce and the CSA is critically challenged to produce sufficient water for human consumption. The CSA is under an urgency ordinance and required to keep usage below 50 gpd per person. The option of building a surface water treatment plant is not desirable due to the poor water quality of Clear Lake and the costs would be prohibitive for the very small district. It has been determined that consolidating with Clearlake Oaks County Water System (CLOCWS) is the best option for resolving the lack of source capacity. Consolidation with CLOCWS would benefit both systems as it would resolve source capacity for CSA # 16 and would allow CLOCWS to expand their customer base and upgrade storage. Project will include the construction of a pipeline to distribute water to CSA # 16.	14	7	No	Implementable Project	High	Medium	23
148	Lake County Special Districts	Spring Valley Water System Distribution Line Loop	at a critically low level due to the drought. Storage for Indian Valley reservoir is currently 27,753 acre feet compared to 96,411 acre feet last year. Release of 10 cubic feet per second is required for fish habitat. This project would help preserve sufficient quantities of water for both human consumption and preservation of the fish habitat. The old and deteriorated distribution system is experiencing numerous leaks which are increasing the amount of water required for community consumption. In addition to the leaking pipes, the system has lines that “dead end” and must be flushed regularly to avoid a dangerous buildup of trihalomethanes. (a dangerous by-product of the treatment process) Flushing the lines also requires large quantities of water to be wasted.TSpring Valley, CSA #2 is a public water system serving 493 customers. CSA #2 draws water from Indian Valley Reservoir which is at a critically low level due to the drought. Storage for Indian Valley reservoir is currently 27,753 acre feet compared to 96,411 acre feet last year. Release of 10 cubic feet per second is required for fish habitat. This project would help preserve sufficient quantities of water for both human consumption and preservation of the fish habitat. The very old distribution system is experiencing numerous leaks which are increasing the amount of water required. Over 12,000,000 gallons of treated water is being lost per year through leaks. In addition to the leaking pipes, the system has lines that “dead end” and must be flushed regularly to avoid a dangerous buildup of trihalomethanes. (A dangerous by-product of the treatment process) Flushing the lines also requires large quantities of water to be wasted.The proposed project would resolve these two critical needs. Additional benefits would be improvements to the fire suppression abilities and a decrease on operating and maintenance costs. The extension of water lines for looping the system would allow installation of fire hydrants in areas that have not had access to water lines and are at risk of wild fires. This project would consist of the replacement of 7,500 feet and new installation of approximately 9,100 feet of C-900 water lines which will increase water supply reliability, water conservation and water use efficiency as well as improve drinking water quality and help alleviate fire danger. Up to 45% of the water drawn from the reservoir and treated is being lost due to the old deteriorated water lines and the need for frequent line flushing.	15	7	Yes	Implementable Project	High	Medium	23
150	Lake County Special Districts	Mt. Hannah, CSA #22 Water System	Mt. Hannah, CSA #22 is a public water system serving 30 customers. CSA #22 relies on ground water for supply. Due to current drought conditions, the well level dropped 65% from January 2013 to January 2014. The well has lost the ability to recharge and can only be pumped for approximately 30 minutes and then must be allowed to recharge for 2 to 3 hours. Due to the well being overdrawn, turbidity issues have become a problem. Filtering for turbidity requires even more water that is not available. We are in the process of preparing to truck water to the community from outside the area. This will be very costly and an extreme financial burdon on the disadvantaged community.In addition to the loss of capacity, the system has a deteriorated trunk line that has severe leaks and is losing up to 45% of the water being pumped. The customers are economically disadvantaged. They have been conserving water and the average consumption for the CSA is approx. 35 gallons per day per person.Water rates for this CSA are considerably higher than the county average but due to the small number of customers, the CSA struggles financially and has not been able to build a capital reserve fund. The geographic location of this CSA eliminates the option of consolidation. It is located on Cobb Mountain and not near any other systems that it could tie into. The CSA desperately needs a deeper well and a new trunk line installed.	15	7	Yes	Implementable Project	High	Medium	23

Table D-6: Westside IRWM Plan Project Screening Results (sorted by Importance then Urgency)

Project No.	Lead Agency /Organization	Project Title	Planned Project/Program Types and Activities	Total Criteria Score	Readiness	Potentially Critical DAC Project	Project Type	Importance	Urgency	Primary Objective
151	Yolo County Flood Control and Water Conservation District	Regional Drought Preparedness through Increased Groundwater Recharge	The District proposes to divert winter flows from Cache Creek into the canal system to increase groundwater recharge. Groundwater recharge and recovery is central to good conjunctive management of surface and groundwater resources. Currently, by District policy, 160 miles of surface water canals remain unlined, providing summertime groundwater recharge services that benefit the aquifer and riparian habitat. The recharged groundwater is used by farmers, individual well owners and business, cities, and small communities. Normally, the majority of canal recharge occurs in the summertime, during the irrigation season. This project proposes to divert wintertime water into the canal system which would require the installation of automated canal gates to replace manual gates. This project will improve local water supply reliability during times of drought and improve conjunctive use management overall. The District has been building and planning improvements to its conjunctive use system for many decades. The regionally supported groundwater monitoring program is extensive. The ag/urban partnership between the cities of Davis, Woodland, and Winters and the Water District is strong. Indeed, the Cities depend on the recharge activities of the District to maintain their water supplies. The disadvantaged communities (DAC) in the western half of the District also depend exclusively on groundwater. The installation of automated gates to make winter recharge possible will increase groundwater storage and will benefit the community for years to come.	16	7	Yes	Implementable Project	High	Medium	23
152	Tuleyome, Inc.	Corona & Twin Peaks Mines Cleanup	The principle physical improvements that this project will implement include a novel, low-maintenance, in situ treatment system to reduce acidity and metals loadings from the Corona Drain Tunnel, consolidating mine waste, improving runoff controls, enhancing revegetation of waste rock and tailings at the Boiler House Adit and Twin Peaks Adit, and improving the existing infiltration trenches at the Boiler House Adit and Twin Peaks Adit. This project will address several key issues commonly associated with mine cleanup projects, including:· Physical hazards: Restricting access to the adits and infiltration trenches by people and wildlife· Chemical hazards: Treating mine drainage and site seepage/runoff to attain water quality standards· Legal liability: Protecting "Good Samaritans" who implement projects or manage lands for the good of society· Multiple goals: Seeking multiple benefits (public health & safety, wildlife habitat, cultural resources, etc.) while addressing competing interests· Limited funds: Minimizing remediation costs to encouraging similar efforts elsewhere.	16	5	Yes	Implementable Project	High	Medium	19
162	City of Davis	Drainage Channel Feasibility Study	Looking to study feasibility to enhance the five separate storm drain conveyance channels to improve evoptranspiration through design improvements. This feasibility study would provide specific ways to improve the design of the existing facilities to improve water quality for the discharges that occur from each channel. The facilities are located Citywide. The study may yield that only one channel is worthy of modification. In particular, the City would like to study the El Macero Drainage Channel in southeast Davis as it is believed to be the channel with that would benefit the most from design improvements. A map can be provided to aid in located each of these drainage channels. If project is developed an educational component can be added.	11	4	Yes	Feasibility Study	High	Medium	14
163	City of Davis	Retention Pond Feasibility Study	Looking to study feasibility for design enhancements for the seven separate storm drain retention ponds to improve evoptranspiration and water quality in the City's discharge. This feasibility study would provide specific ways to improve the design of the existing facilities to improve water quality for the discharges that occur from each facility. The facilities are located Citywide, but all of the ponds are located north of I 80 in the northern two thirds of the City. The study may yield that only one pond is worthy of modification. In particular, the City would like to study the Core Area Pond in central Davis as it believed to be the pond that receives the most pollutants from its drainage shed. A map can be provided to aid in located each of these ponds. If project is developed an educational component can be added.	11	5	Yes	Feasibility Study	High	Medium	19
164	City of Davis	Russel Boulevard Demonstration LID Project	The project is to be located in front of City Hall (already proposed and working its way through the City's Parks and Community Services Department) along Russell Boulevard. Russel Boulevard is one of the City's prominent east-west arterials. The project is to create a vegetated swale to treat stromwater runoff on the north side of the roadway. The surface area it will treat is 8,000 square feet. It is proposed to treat drainage prior to discharge to the City's stormdrain system consistent with the standards of Section E.12 of the State's Small MS4 Phase II General Permit (Permit). A map can be provided to aid in the location of this project.	12	7	Yes	Implementable Project	High	Medium	14
166	Department of State Hospital	Recycled Water Conversion projects	Napa State Hospital currently utilizes potable water supplied by the City of Napa for almost all irrigation needs (a limited area is currently served by recycled water). In 2011, NSD installed a recycled water main through NSH which included three metered turnouts. The project will connect to these turnouts, with the downstream improvements owned and operated by NSH. To convert the irrigation system, approximately 38,000 lineal feet of recycled water pipe will be installed, along with valves, and ancillary improvements to deliver water to 139 irrigation points of connection, The connections typically occur at existing irrigation back flow devices, which will be replaced. Existing improvements downstream of the back flow devices will remain in place. Signage and modifications to above ground irrigation valves in accordance with NSD requirements are also part of the project.	13	4	No	Implementable Project	High	Medium	23
169	City of Davis	Recycled Water Projects	The City is currently evaluating the feasibility of various uses of recycled water using WWTP effluent. The WWTP is being upgraded allowing the City to produce high quality recycled water meeting Title 22 Standards. This project would be to assist with funding implementation of the chosen recycled water use(s). These uses may include but are not limited to water for: habitat, Yolo County Landfill, City-owned lands south of the WWTP, agricultural users in the area, City municipal uses, and filling stations.	10	3	No	Implementable Project	High	Medium	23
170	Harbor View Mutual Water	Water Storage Tank Replacement Project	The community currently has two 50 year old redwood storage tanks that have started to leak a significant amount of water due to rot and age. One of the tanks is in the middle of the water system and can't be taken out of service for maintenance. Neither tank is seismically secured to the cement foundation under them. The company contracted Water Works Engineering to draft us a PER as to the best way to solve our water storage tank problems, it was determined that replacement of all three of our current tanks with two new bolted steel tanks would be the cheapest and easiest fix for the long term. The estimated replacement cost the entire project is 1.3 million.	10	6	No	Implementable Project	High	Medium	23
171-YS	University of California, Davis	Agricultural Stormwater Improvements	Agricultural runoff currently enters the storm drain system directly. This projects would create retention basins and vegetated ditches to collect stormwater and irrigation runoff along edges of agricultural fields.	9	2	No	Implementable Project	High	Medium	19
173-YS	City of Davis	Bike Tunnel Landscaping Redesign for Stormwater Quality Improvement	Redesign the current drainage and landscaping near greenbelt bike tunnels to prevent flooding from stormwater. Assess the top highly-trafficked tunnels with drainage issues within the greenbelt system. Improved drainage would include re-landscaping the areas surrounding these tunnels to prevent flood events and improve stormwater quality discharges through the use of different stormwater low impact design methods through infiltration, transpiration and evaporation. Each site could showcase a different method; signage near the tunnels would illustrate the project and highlight elements of the project design.	11	2	Yes	Implementable Project	High	Medium	14

Table D-6: Westside IRWM Plan Project Screening Results (sorted by Importance then Urgency)

WESTSIDE SAC IRWM
Integrated Regional Water Management Plan

Project No.	Lead Agency /Organization	Project Title	Planned Project/Program Types and Activities	Total Criteria Score	Readiness	Potentially Critical DAC Project	Project Type	Importance	Urgency	Primary Objective
174-YS	City of Davis	Feasibility Study for Stormwater Trash Control Measures	Feasibility study to assess options for stormwater trash control measures. This study will assess the best method(s) to help the City meet mandatory requirements for trash screening to prevent trash from entering waterways. One particular area of concern is Channel A. An option for this area is to install trash racks/debris cages in the Wildhorse Basin to address issues with trash flowing from the area directly into Channel A. There is currently no barrier between the stormwater from the basin and the channel. This study would provide an assessment of potential options to comply with the trash amendment requirements of the Small MS4 permit.	10	3	Yes	Feasibility Study	High	Medium	19
175-YS	Yolo County Flood Control and Water Conservation District	Flood Monitoring Network Project	Project installs flow monitoring stations at canals and sloughs in order to optimize conveyance capacity for both agricultural operations or during rain events, which could occur at the same time. It is not known how much flow sloughs contribute to the canal systems during rain events.	7	3	No	Implementable Project	High	Medium	18
176-YS	Yolo County Flood Control and Water Conservation District	Forbes Ranch Regulating Pond	Develop and construct a 200 acre-feet regulating pond to reduce drainage and flood waters through the town of Madison and District canal system. Divert stormwater flows to the pond through the existing conveyance. The regulating pond would provide storm water retention during the winter and would allow for groundwater recharge in the spring and summer when capacity and water is available. The regulating pond would provide water quality benefits by allowing the sediments in the runoff to settle and lessening the transfer of pollutants and chemicals downstream. The surrounding area would have native vegetation that would promote benefits for wildlife habitat, and the property would allow for groups to visit and learn about the multi-functional project. Similar to the District's Chapman Reservoir, we would install automated gates and monitoring devices at the regulating pond that would be connected to the District's SCADA system for real-time management.	12	3	Yes	Implementable Project	High	Medium	14
177-YS	Yolo County	Knights Landing Storm Drain Project	Design and construct a new storm drain or culvert in the vicinity of 4th and Railroad streets in the community of Knights Landing. KL has historically experience standing water (localized flooding) in the northern portions of town that can be as deep as 2 feet in wet years. The new storm drainage would convey storm water to the County's existing drainage system on the east side of Railroad Street. Design and construction are proposed to be completed by Public Works.	10	2	Yes	Implementable Project	High	Medium	14
178-YS	Yolo County/	Knights Landing Underground Drainage Study	This project would model new underground drainage facilities for the entire Town of Knights Landing to determine location(s) for outfall to the Sacramento River or Ridge Cut Slough. Preliminarily it is estimated that the underground drainage facilities would be sized for 30-50 cfs of storm flows and the system outfall would need to be sized accordingly to prevent backup of the system. Outfall locations would also need to be evaluated to determine if the downstream capacity would be sufficient to convey this additional flow during storm events. LID strategies will be used to ensure discharge water quality does not impact the Sacramento River or Ridge Cut Slough water quality.	10	3	Yes	Planning	High	Medium	14
179-YS	Yolo County FCWCD with Madison CSD	Madison Drainage Study	This project would model new underground drainage facilities for the entire Town of Madison to determine location(s) for outfall (possibly Cache Creek, the South Fork Willow Slough or Cottonwood Slough). Preliminarily it is estimated that the underground drainage facilities would be sized for 110 cfs of storm flows and the system outfall would need to be sized accordingly to prevent backup of the system. Outfall locations would also need to be evaluated to determine if the downstream capacity would be sufficient to convey this additional flow during storm events. LID strategies will be used to ensure discharge water quality does not negatively impact downstream water quality.	10	3	Yes	Planning	High	Medium	14
180-YS	City of Woodland	North Regional Pond and Pump Station	The project involves the design and construction of an approximate 75 acre sedimentation pond and a pump station able to eventually accomodate a 120-cfs design flow.Project re-purposes an existing City evaporation pond that is no longer in use for any purpose. Currently the pond only receives nearby runoff.This project will add the NR Pond hydraulically into the City's storm drainage network and include:* Low flow training wall and inlet pipes from the Gibson Channel to the NR Pond* High flow weir from South Canal to the NR Pond* Outlet pipes from NR Pond to the South Canal* Pump station at the downstream terminus of the South Canal* Force main and outfall from the pump station to the outfall channel	13	5	No	Implementable Project	High	Medium	14
181-YS	Yolo County	Raise Highway 16 Out of Flood plain	This project was initially proposed by Caltrans as flooding of Highway 16 is a chronic problem. The project was not constructed because of concerns of some farmers about grades at farm road crossings. Raising Highway 16 creates a barrier that could be used to store storm water north of the highway in detention basins/recharge ponds. Increasing the capacity of Willow Slough south of Highway 16 west of Madison is needed so that flows can be conveyed to the detention basins. Willow Slough is the source of the majority of flooding in Madison. Cottonwood Slough contributes to occasional flooding (last time was 1996) in Madison. This project could be coordinated with the Madison Canals project as other upstream diversions could benefit this project and/or the planned detention basins could be coordinated.	13	4	Yes	Implementable Project	High	Medium	14
183-YS	City of Davis	Site Survey for Hardscape Conversion to Pervious Pavement	Survey public parking lots that currently have impervious surfacing to assess the practicality of converting these locations to pervious pavement when they are in need of resurfacing, maintenance or redesign. Portions of the pathways near the sites could potentially highlight permeable pavers in addition to the parking lots. Projects could be planned with improvements to incorporate bioswales, low water use plants, and other low-impact design measures into any landscape changes at the site. The projects would include signage on stormwater techniques implemented and information about water quality.	10	2	Yes	Planning	High	Medium	14
184-YS	Yolo County FCWCD with Madison CSD	Upstream Flow Management to Prevent Madison Flooding and to Facilitate GW Recharge	The District proposes to manage high flows from Lamb Valley, Cottonwood and S. Fork Willow Sloughs using the existing canal system as well as other means such as upstream check dams. During storm events Willow Slough floods the Town of Madison. The Canal system can be used to convey water away from the Town of Madison and reduce flood levels while also managing peak flows through use of check dams, particularly in Lamb Valley Slough. Flow and water level monitoring could serve several purposes. GW recharge can be accomplished through canal bottoms and potential recharge/detention basins. P. 29 and 30 of the 2012 FIS describe some of the upstream channel capacity limitations and a review of FIRM maps shows several points of intersection between the sloughs and canals to be explored. This project can be coordinated with Raising Highway 16 project.	12	1	Yes	Implementable Project	High	Medium	14
185-YS	Yolo County Flood Control and Water Conservation District	West Adams Canal Renovation and China Slough Rehabilitation Project	Enlargement and improvement of the Yolo County Flood Control & Water Conservation District's (District) West Adams, East Adams, and Acacia Canal system, and rehabilitation and improvement of China Slough (a natural storm drainage channel). The District's canal system would need to be modernized to allow for a "demand" system and to ensure no spills. China Slough would need to be cleaned, an operating road constructed, and installation of about eight check structures. Improvements to the canals and slough would be implemented to convey 10,000 acre-feet of surface water per year through China Slough to farmers in the Yolo-Zamora region (~4,200 acres).	11	2	No	Implementable Project	High	Medium	24

Table D-6: Westside IRWM Plan Project Screening Results (sorted by Importance then Urgency)

WESTSIDE SAC IRWM
Integrated Regional Water Management Plan

Project No.	Lead Agency /Organization	Project Title	Planned Project/Program Types and Activities	Total Criteria Score	Readiness	Potentially Critical DAC Project	Project Type	Importance	Urgency	Primary Objective
188-YS	Yolo County Flood Control and Water Conservation District	Winters North Area Stormwater Pond	Develop and construct a 5,000 acre-feet stormwater retention pond in the north area of Winters to reduce drainage and flood waters from the Chickahominy Slough. The retention pond would also be used for groundwater recharge in times when the capacity and water was available. The retention pond would provide water quality benefits by allowing the sediments in the runoff to settle and lessening the transfer of pollutants and chemicals downstream. The surrounding area would have native vegetation that would promote benefits for wildlife habitat, and the property would allow for groups to visit and learn about the multi-beneficial, multi-agency partnership. Similar to the District's Chapman Reservoir, we would install automated gates and monitoring devices at the retention pond that would be connected to the District's SCADA system for real-time management.	13	3	Yes	Implementable Project	High	Medium	14
189-YS	Yolo County Flood Control and Water Conservation District	Yolo County Drains and Sloughs -- Governance and Maintenance Study	Plan that will identify governing bodies and maintenance responsibilities involved in the County's drains, canals, and sloughs. The District and County will work together to develop a governance and maintenance study that will assist in providing effective rural storm water management responsibilities based on the defined governing bodies. Plan/investigation will initiate a legitimate storm water management program in Yolo County.	12	3	Yes	Planning	High	Medium	14
190-YS	Madison CSD	Madison Farmer Field Stormwater Capture and Groundwater Recharge	Modify farmer fields around Madison, specifically those next to Highway 16 and those that will capture upstream flows. The two options considered include 1) 1,200 acres of farmer field modification for rainfall capture (8"-berm) and 2) modification of a farmer field near Cache Creek (maybe half of APN 049-060-017) for rainfall and storm water runoff capture a 3-' high storm water detention basin. This project will require farmer participation and advanced planning for field modification, and will depend on the storm intensity. The first option will only capture rainfall and the second option will capture rainfall and allow runoff to be collected into the detention basin. The second option will require more modification to the property, additional infrastructure for channeling runoff into the basin, and a pump if the water needs to be drained from the basin.	16	6	Yes	Implementable Project	High	Medium	14
191-YS	Madison CSD	Western Yolo Sloughs Citizen Science Program	Sloughs surrounding the Madison area are known to cause regular flooding in Madison and beyond. Namely, Cottonwood Slough, Lamb Valley Slough, the South Fork Willow Slough and the Madison Drain have been identified as sources of flooding in Madison in various studies and reports. It seems likely that mitigation upstream in these sloughs to remove water before the sloughs reach Madison and Esparto, and management of the sloughs to keep them free of debris could help in alleviating flooding in the area. However, none of these channels are monitored, therefore, it is unknown what capacity these sloughs have, when that capacity is reached (during or after a storm), or what type of mitigation would be most fitting for each slough. Additionally, it is not known if the Winters Canal is also full when sloughs are full, or if it may have capacity that could be used to alleviate the sloughs when they are over flowing. The Madison CSD with its partners will develop a citizen science program where Madison residents and residents from the nearby areas will visit sloughs and canals that carry water in and around Madison following rain events. The program members will record whether they see water flowing in the sloughs and canals at previously determined locations, and record observations such as whether the channels are successfully carrying the flows, appear to be obstructed, or are overflowing. The information will be compiled in an easy to use format so that members can easily share the information with Madison CSD and others. The information will initially be used until a flow monitoring network can be developed in the sloughs, and potentially beyond. The goal is to gain a better understanding of the slough flow patterns and information that can be used to plan for flood mitigation in Madison, while also engaging and educating the community.	10	2	Yes	Planning	High	Medium	14
192	Solano Resource Conservation District	Barker Slough Water Quality and Habitat Restoration Project	Barker Slough is part of the North Bay Aqueduct (NBA), providing drinking water for up to 500,000 people in urban areas of Napa and Solano Counties. It is also a major tributary to Lindsey Slough, part of the Cache Slough complex of the Sacramento-San Joaquin River Delta. Nearly all of its length is ranched, and in many areas, cattle have free access to the slough. The water coming from the slough has been shown to have high amounts of organic carbon, bacterial coliform, turbidity and salts that exceed drinking water standards. Past projects have attempted to fence cattle off the slough and allow water quality to improve, but these have not been well maintained and cattle continue to degrade water quality. This project would install/repair fencing and off-stream cattle troughs at multiple project sites along Barker Slough, and install native riparian vegetation in this currently denuded watershed. A total of 5 stream miles will be fenced off from cattle and 5 acres of riparian habitat will be restored. In addition, a Barker Slough Watershed Management Plan will be created to bring ranchers, landowners, and urban water users together to identify priority projects that will improve and maintain water quality.	11	2	No	Implementable Project	High	Medium	19
193	City of Woodland	Well 31 ASR Project	The project involves the design and construction of a new municipal aquifer storage and recovery (ASR) well #31 near the site of the existing Well #6. The new ASR well will facilitate groundwater recharge by injecting treated surface water into the gravel layer approximately 500 feet below the surface when surplus Sacramento River water is available during winter months. The ASR well water would be pumped from the ASR well to supplement surface water during drought conditions and to meet peak summer demands. ASR also has long-term water quality benefits because injected water replaces native groundwater impaired by nitrate and naturally occurring metallic species, including arsenic, hexavalent chromium, manganese, and selenium, with better-quality water.The intent is to inject water into the ASR well each winter and build a large reservoir of treated surface water beneath the well and utilize the water primarily during drought years. The project removes a high capacity groundwater extraction well from the regional aquifer and replaces it with a well that will promote groundwater recharge and sustainability while improving Woodland's water supply reliability during a drought. The ASR program greatly reduces the need for Woodland to utilize native groundwater in the City's water system. The City recently completed construction of three ASR Wells. The testing completed to date has been a success and indicates that ASR technology is successful in Woodland. The extracted water retains the constituent characteristics of treated surface water. The new ASR well would include the ability to inject treated surface water at a rate of approximately 2,000 gpm and extract water at a rate of approximately 3,500 gpm. The new ASR well is considered a Categorical Exemption under CEQA as it is a replacement of an existing water supply facility. The EIR for the ASR program has been completed and all necessary permits have been secured. The existing well will be properly destroyed.	13	6	No	Implementable Project	High	Medium	23
194	City of Woodland	Outfall Channel Culvert Replacement Project	City has a single stormwater discharge location. The outfall is limited by three (3) existing 36" diameter culvert pipes that penetrate a levee road. The existing culverts are limited in that: (a) they are in poor condition and their flap gates have fallen off and (b) within the next few years, based on development, they will be insufficient to handle the amount of City stormwater flows. Plan to the replace the three (3) existing 36" diameter culverts with five (5) 72" diameter ones to accommodate for full City build-out (2035)	9	3	No	Implementable Project	High	Medium	14

WESTSIDE SAC IRWM
Integrated Regional Water Management Plan

Table D-6: Westside IRWM Plan Project Screening Results (sorted by Importance then Urgency)

Project No.	Lead Agency /Organization	Project Title	Planned Project/Program Types and Activities	Total Criteria Score	Readiness	Potentially Critical DAC Project	Project Type	Importance	Urgency	Primary Objective
195	City of Woodland	Woodland Recycled Water Utility Expansion Project (Phase II)	The City of Woodland currently has tertiary treated Title 22 effluent from the City's Water Pollution Control Facility (WPCF) providing a firm capacity of approximately 2,700 gpm for recycled water. Woodland has an existing recycled water utility serving 2 City parks and a large industrial user in the industrial area northwest of the Water Pollution Control Facility (WPCF). The City has planned for an expansion of the recycled water utility into the Spring Lake Area of the City and also to serve the planned Woodland Research & Technology Park. There are several existing large water users that would use the recycled water for irrigation of parks and roadside landscaping. Businesses in the Research Park would utilize recycled water for cooling buildings. In addition, recycled water would be available to extend into new development areas for landscape irrigation. Portions of recycled water pipelines in Spring Lake have already been constructed by development projects. Providing recycled water to these areas would reduce demands on the potable water distribution system and reduce the demand on the groundwater aquifer. The recycled water pipeline would be constructed in the City's existing right of way. The City has recently completed a Mitigated Negative Declaration for the project. The expected initial demand for recycled water would exceed 110 acre feet per year. The Capital Cost for the Project is approximately $2.5M.The recycled water project includes construction of approximately 10,000 feet of 8" diameter purple pipe and a 100,000 gallon storage tank. The project also provides recycled water for expansion (Phase III) to west of Highway 113.	11	4	No	Implementable Project	High	Medium	23
196	City of Woodland	Woodland Recycled Water Utility Expansion Project (Phase III)	The City of Woodland currently has tertiary treated Title 22 effluent from the City's Water Pollution Control Facility (WPCF) providing a firm capacity of approximately 2,700 gpm for recycled water. Woodland has an existing recycled water utility serving 2 City parks and a large industrial user in the industrial area northwest of the Water Pollution Control Facility (WPCF). The City has planned for an expansion of the recycled water utility into the Sports Park Area of the City and also to serve the planned SP1B and SP1C areas in the City's General Plan. There are several existing large water users that would use the recycled water for irrigation of parks and roadside landscaping. In addition, recycled water would be available to extend into new development areas for landscape irrigation. Providing recycled water to these areas would reduce demands on the potable water distribution system and reduce the demand on the groundwater aquifer. The recycled water pipeline would be constructed in the City's existing right of way. The City has recently completed a Mitigated Negative Declaration for the project. The expected initial demand for recycled water would exceed 70 acre feet per year. The Capital Cost for the Project is approximately $925,000.The recycled water project includes construction of approximately 4,300 feet of 8" diameter purple pipe.	11	4	No	Implementable Project	High	Medium	23
203	City of Davis	Recycled Water Pump Station	With the completion of secondary and tertiary improvements, the City's Wastewater Treatment Plant is now capable of producing tertiary disinfected effluent that meets the requirements of Title 22 of the California Code of Regulations for recycled water. However, a final component of these upgrades is a means of delivering the recycled water produced at the WWTP to potential future customers. New infrastructure is necessary to convey recycled water from the WWTP to potential future customers or to send recycled water to locations within the WWTP property boundary for storage or disposal. This infrastructure, referred to as the "Phase 1 Recycled Water Facilities", will include a new Recycled Water Pump Station and associated piping specifically for conveyance of recycled water to onsite storage ponds and the WWTP's overland flow (OLF) site. To allow for greater operational flexibility, the Recycled Water Pump Station will be designed for a target minimum flowrate of 2,500 gpm with one pump in operation. At this higher flowrate, the City will be able to operate the Recycled Water Pump Station for less than 24 hours per day and still meet the peak day diversion targets. The pump will also be equipped with a variable frequency drive (VFD), which further increases operational flexibility. The pump station will be sized to accommodate a second pump in the future. The Recycled Water Pump Station will draw disinfected tertiary recycled water from the effluent channel of the recently-constructed chlorine contact tank (CCT) and has been designed to deliver water to any of the following locations for disposal or beneficial reuse: · Zones 5 - 15 of the OLF · Recycled Water Pond 1 (formerly Aerated Pond 1) · The Return Channel that provides conveyance to the WWTP's former Oxidation Ponds · A future off-site recycled water storage tank located on the City's Howatt Ranch property	14	8	No	Implementable Project	High	Medium	23
36	Solano County Water Agency	Solano Subbasin Conjunctive Use	Project will improve knowledge on the potential for conjunctive use of groundwater and surface water in the Solano Subbasin. The project will focus on increasing the opportunities for conjunctive groundwater use as a means of increasing water supply and reliability.	8	5	No	Implementable Project	High	Low	17
37	Solano County Water Agency	Southwestern Sacramento Valley Basin/Solano Subbasin Groundwater-Surface Water Flow Model to Evaluate Recharge, Conjunctive Water Use, and Future Deep Zone Pumpage	The major goal of this project is to consider the potential effects of conjunctive water use scenarios on stakeholders in the greater Solano area, including the Sacramento River and other significant surface water courses in the model area. Another goal of this project is to evaluate the effects of developing new and/or redistributing deep pumpage either horizontally over a spatial area or vertically over different aquifer units with the goal of reducing drawdowns in the basal zone.	10	5	No	Implementable Project	High	Low	17
138	Reclamation District 2035	Groundwater Studies	Reclamation District 2035's Ground Studies Project will consist of the identification and analysis of issues, if any, surrounding the quality and availability of groundwater.	10	3	No	Planning	High	Low	17
33	Solano County Water Agency	Research on Hydrodynamics and WQ Interactions in the Delta.	With large projects such as the Bay Delta Conservation Plan, restoration of thousands of acres of tidal marsh habitat as part of the Delta Biological Opinions, and others, there is a need to better understand the hydrodynamic and water quality interactions in the Delta.	7	4	No	Implementable Project	Medium	High	16
2	Lower Putah Creek Coord. Committee	505-East Channel Restoration	Restore 10 acres of riparian forest, 3/4 mile of river channel, remove 22 occurrences (2 net acres) of 6 primary invasive weeds; reconfigure one thousand feet of river channel, restore 100 feet of eroding stream bank, create 3/4 mile of south bank bench trail connecting Yolo Housing to the City of Winters at low flows.	14	7	No	Feasibility Study	Medium	Medium	3
3	Lower Putah Creek Coord. Committee	Apricot Draw Bank Stabilization	Restore 3,000 feet of Apricot Draw, stabilizing eroding banks, removing invasive weeds and planting native vegetation.	14	7	No	Implementable Project	Medium	Medium	3
4	Lower Putah Creek Coord. Committee	Dry Creek Wildlife Migration Corridor Feasibility Study	Feasibility study to restore 2 miles of wildlife corridor from the confluence of Putah Creek along Dry Creek on the western boundary of Winters	11	4	No	Feasibility Study	Medium	Medium	3

Table D-6: Westside IRWM Plan Project Screening Results (sorted by Importance then Urgency)

Project No.	Lead Agency /Organization	Project Title	Planned Project/Program Types and Activities	Total Criteria Score	Readiness	Potentially Critical DAC Project	Project Type	Importance	Urgency	Primary Objective
5	Lower Putah Creek Coord. Committee	Duncan-Giovannoni Channel Restoration Feasibility Study	Determine feasibility to restore 80 acres of riparian forest, reconfigure one mile of river channel, remove 96 occurrences (7 net acres) of 5 primary invasive weeds. Convert five acres of excess open water (gravel pit captured by the channel) to floodplain, restore natural meander form, pool-riffle sequence, functional floodplain elevations, salmon spawning habitat and native vegetation.	11	4	No	Feasibility Study	Medium	Medium	3
6	Lower Putah Creek Coord. Committee	Glide Ranch Channel Restoration Feasibility Study	Feasibility study to restore 160 acres of riparian forest, reconfigure 11,250 feet of river channel, remove 128 occurrences (8 net acres) of 8 primary invasive weeds. Grade floodplain to functional elevation, convert 15 acres of excess open water to floodplain, restore natural meander form, pool-riffle sequence, salmon spawning habitat and native vegetation.	11	4	No	Feasibility Study	Medium	Medium	3
7	Lower Putah Creek Coord. Committee	Putah Creek Interdam Reach Invasive Weed Control	Remove 127 occurrences (8.6 net acres) of 11 primary invasive weeds from 6.5 river miles (400 acres) of riparian corridor between Monticello Dam and Putah Diversion Dam and install native vegetation where weeds are removed.	14	7	No	Implementable Project	Medium	Medium	3
8	Lower Putah Creek Coord. Committee	Lower McNamara Pool Channel Reconfiguration Feasibility Study	Determine feasibility to: restore 25 acres of riparian forest, reconfigure 3,150 feet of river channel, remove 25 occurrences (0.5 net acres) of 6 primary invasive weeds. Convert seven acres of excess open water (gravel pit captured by the channel) to floodplain, restore natural meander form, pool-riffle sequence, functional floodplain elevations, salmon spawning habitat and native vegetation.	11	4	No	Feasibility Study	Medium	Medium	3
9	Lower Putah Creek Coord. Committee	MacQuiddy Channel Reconfiguration Feasibility Study	Determine feasibility to: restore 34 acres of riparian forest, reconfigure 3,800 feet of river channel, remove 44 occurrences (6 net acres) of 5 primary invasive weeds. Grade floodplain to functional elevation, restore natural meander form, pool-riffle sequence, salmon spawning habitat and native vegetation.	11	4	No	Feasibility Study	Medium	Medium	3
10	Lower Putah Creek Coord. Committee	Mace to Road 106A Channel Restoration Feasibility Study	Feasibility study to restore 305 acres of riparian forest, reconfigure 2.7 miles of river channel, remove 124 occurrences (12.8 net acres) of 5 primary invasive weeds. Grade floodplain to functional elevation, convert 17 acres of excess open water to floodplain, restore natural meander form, pool-riffle sequence, salmon spawning habitat and native vegetation.	11	4	No	Feasibility Study	Medium	Medium	3
11	Lower Putah Creek Coord. Committee	Nishikawa Channel Restoration Feasibility Study	Feasibility study to restore 37 acres of riparian forest, reconfigure 2,430 feet of river channel, remove 20 occurrences (1.36 net acres) of 6 primary invasive weeds. Grade floodplain to functional elevation, convert 3 acres of excess open water to floodplain, restore natural meander form, pool-riffle sequence, salmon spawning habitat and native vegetation.	11	4	No	Feasibility Study	Medium	Medium	3
12	Lower Putah Creek Coord. Committee	Old Davis Road to Mace Channel Restoration Feasibility Study	Feasibility study to restore 190 acres of riparian forest, reconfigure 3.4 miles of river channel, remove 172 occurrences (5 net acres) of 9 primary invasive weeds. Grade floodplain to functional elevation, convert 27 acres of excess open water to floodplain, restore natural meander form, pool-riffle sequence, salmon spawning habitat and native vegetation.	11	4	No	Feasibility Study	Medium	Medium	3
13	Lower Putah Creek Coord. Committee	Olmo-Hammond-UCD Channel Restoration Feasibility Study	Feasibility study to restore 109 acres of riparian forest, reconfigure 9,765 feet of river channel, remove 70 occurrences (2.5 net acres) of 9 primary invasive weeds. Grade floodplain to functional elevation, convert 17 acres of excess open water to floodplain, restore natural meander form, pool-riffle sequence, salmon spawning habitat and native vegetation.	11	4	No	Feasibility Study	Medium	Medium	3
14	Lower Putah Creek Coord. Committee	Pleasant Creek Wildlife Migration Corridor Plan	Plan to restore 7,000 feet of wildlife corridor of Pleasant Creek to the confluence with Putah Creek, stabilizing eroding banks, removing invasive weeds and planting native vegetation.	13	6	No	Implementable Project	Medium	Medium	3
15	Lower Putah Creek Coord. Committee	Pleasants Creek Bank Stabilization	Restores 84 acres of riparian habitat along 7 miles of Pleasants Creek, stabilizing eroding banks, removing 135 occurrences (13.4 acres) of invasive weeds and planting native vegetation.	15	8	No	Implementable Project	Medium	Medium	3
16	Lower Putah Creek Coord. Committee	Restoria Channel Restoration Feasibility Study	Feasibility study to restore 93 acres of riparian forest, reconfigure 4,300 feet of river channel, remove 46 occurrences (3.2 net acres) of 6 primary invasive weeds. Grade floodplain to functional elevation, convert 2 acres of excess open water to floodplain, restore natural meander form, pool-riffle sequence, salmon spawning habitat and native vegetation.	11	4	No	Feasibility Study	Medium	Medium	3
17	Lower Putah Creek Coord. Committee	Road 106A to Yolo Bypass Channel Restoration Feasibility Study	Feasibility study to restore 52 acres of riparian forest, reconfigure 6,000 feet of river channel, remove 42 occurrences (8 net acres) of 6 primary invasive weeds. Grade floodplain to functional elevation, convert 11 acres of excess open water to floodplain, restore natural meander form, pool-riffle sequence, salmon spawning habitat and native vegetation.	11	4	No	Feasibility Study	Medium	Medium	3
18	Lower Putah Creek Coord. Committee	Russell Ranch Channel Restoration Feasibility Study	Determine feasibility to: restore 50 acres of riparian forest, reconfigure 5,500 feet of river channel, remove 91 occurrences (2.75 net acres) of 8 primary invasive weeds. Grade floodplain to functional elevation, convert 7 acres of excess open water to floodplain, restore natural meander form, pool-riffle sequence, salmon spawning habitat and native vegetation.	11	4	No	Feasibility Study	Medium	Medium	3
19	Lower Putah Creek Coord. Committee	Stevenson Bridge Channel Restoration Feasibility Study	Feasibility study to restore 22 acres of riparian forest, reconfigure 2,100 feet of river channel, remove 29 occurrences (0.5 net acres) of 6 primary invasive weeds. Grade floodplain to functional elevation, convert 1.5 acres of excess open water to floodplain, restore natural meander form, pool-riffle sequence, salmon spawning habitat and native vegetation.	11	4	No	Feasibility Study	Medium	Medium	3
20	Lower Putah Creek Coord. Committee	Thompson Canyon Bank Stabilization Design and Permits	This study provides plans, specifications and permits to restore 1.5 miles of Thompson Canyon at the confluence of Putah Creek, stabilizing a poorly engineered legacy road that annually degrade water quality and smother prime trout spawning habitat below Monticello Dam.	12	5	No	Implementable Project	Medium	Medium	3
21	Lower Putah Creek Coord. Committee	Upper McNamara Pool Channel Reconfiguration Feasibility Study	Determine feasibility to restore 30 acres of riparian forest, reconfigure 3,300 feet of river channel, remove 52 occurrences (4 net acres) of 7 primary invasive weeds. Convert five acres of excess open water (gravel pit captured by the channel) to floodplain, restore natural meander form, pool-riffle sequence, functional floodplain elevations, salmon spawning habitat and native vegetation.	11	4	No	Feasibility Study	Medium	Medium	3
22	Lower Putah Creek Coord. Committee	Warren Weed Control	Restore 11 acres of riparian forest, 1,700 of river channel, remove 26 occurrences (2 net acres) of 8 primary invasive weeds. One of the densest thickets of eucalyptus with over 300 trees averaging 24 inches in diameter.	11	5	No	Implementable Project	Medium	Medium	3
24	Solano County Water Agency	Commercial Washer Rebate Program	This program will offer financial incentives to commercial customers (businesses, multi-family units) who purchase or lease (five-year lease) select commercial washers for commercial laundry or common area multi-family installations.	11	4	Yes	Planning	Medium	Medium	11
27	Solano County Water Agency	Invasive Plant Removal Program	Program would consist of reducing the geographic extent of invasive plant species (tamarisk, arundo, yellow star thistle, etc.) in riparian and wetland areas in Solano County.	5	5	No	Implementable Program	Medium	Medium	8
28	Solano County Water Agency	Large Landscape Water Efficiency Program	This program will offer financial incentives to commercial customers (businesses, multi-family units) to encourage replacement and upgrade of selected irrigation equipment with new water-efficient irrigation equipment.	7	5	No	Implementable Program	Medium	Medium	11
38	Solano County Water Agency	Source water protection for Delta water sources	This project consists of various improvements such as best management practices, source water protection, and others to reduce the impact of point and non-point sources that could negatively impact Delta water quality, with a particular emphasis on drinking water quality.	8	4	No	Implementable Project	Medium	Medium	21
43	Solano County Water Agency	Wetland Restoration Research and Impacts to Source Water Quality.	The project will consist of scientific study/research on wetland restoration, organic carbon generation, and other important areas of study, to determine the corresponding impacts on municipal source water quality.	7	4	No	Implementable Project	Medium	Medium	21
46	Colusa County Resource Conservation District	Bear Creek Habitat Enhancement	The Bear Creek Habitat Enhancement project will be implemented in two phases. Phase I will provide for landowner/agency outreach activities and the development of a locally-driven plan to address tamarisk infestations and the re-establishment of native riparian species along Bear Creek in western Colusa County. Phase II will provide for habitat enhancement activities on a minimum of 3.5 miles of Bear Creek and .5 miles of Sulphur Creek.	9	4	No	Planning	Medium	Medium	8

Table D-6: Westside IRWM Plan Project Screening Results (sorted by Importance then Urgency)

Project No.	Lead Agency /Organization	Project Title	Planned Project/Program Types and Activities	Total Criteria Score	Readiness	Potentially Critical DAC Project	Project Type	Importance	Urgency	Primary Objective
52	Cache Creek Conservancy	Implementation of the Cache Creek Resources Management Plan	Implementation of projects wtihin the Cache Creek Resources Management Plan (CCRMP) area, located along 15 miles of lower Cache Creek from the Capay Dam to the town of Yolo. The proposed project consists of various phases of activities that meet specific grant requirements such as habitat restoration or enhancement, streambank stabilization, invasive plant removal, monitoring, and/or watershed stewardship through education, workshops, and outreach to landowners.	19	9	Yes	Implementable Project	Medium	Medium	3
53	California Land Stewardship Institute	Invasive Plant Removal in Ulatis Creek	This project will first map out where the Arundo is present on the 17 mile channel of Ulatis Creek, then contact the landowners who own property with Arundo to educate them about the Arundo hazards; then, with their permission, eradicate the plant on their land, and lastly revegetate areas with native trees.	13	4	Yes	Planning	Medium	Medium	8
56	East Lake Resource Conservation District	Upper Putah CreekWatershed Management Plan	This project will produce a comprehensive Regional Watershed Management Plan for the Putah Creek Watershed located in Lake, Napa, Solano, and Yolo Counties. This will include conducting a thorough geomorphic study to better understand current conditions as related to water quality, water quantity, wildlife habitat, and socioeconomics. The project will assemble past studies and reports to identify data gaps, conduct on-the ground scientific investigations, and interview citizens and stakeholders through an education and outreach program. The result will be a management plan that identifies watershed related issues that will provide recommendations for implementation.	13	5	Yes	Planning	Medium	Medium	3
60	Lake County Water Resources Department	Improve Watershed Roads and Trails to Reduce Soil Erosion	Provide supplemental funding to government programs to survey road and trail conditions and maintain, upgrade, decommission, or re-route them as needed.	9	2	Yes	Planning	Medium	Medium	15
62	Lake County Water Resources Department	Identify, Protect and restore Important Wildlife Habitat Areas in Clear Lake	Development of a plant that provides for protection of important wildlife habitat areas within Clear Lake including bird nesting areas and shoreline wildlife preserves.	9	3	Yes	Planning	Medium	Medium	3
65	Lake County Water Resources Department	Collaborative Process to Update Clear Lake Integrated Watershed Management Plan	Update of CLIWM Plan.	14	4	Yes	Planning	Medium	Medium	3
68	Lake County Water Resources Department	Assess stream channel hydrology and related riparian and aquatic habitats for restoration	This project will survey stream channels, especially in the level valleys in the lower elevations of the Upper Cache and Upper Putah Creek watersheds, and subsequent prioritization based on erosion hazard, potential for significant habitat improvement, and other factors.	13	3	Yes	Feasibility Study	Medium	Medium	3
70	Mendocino National Forest	Lakeview Hazardous Fuels Reduction	The primary activities proposed under this project are vegetation and surface fuel treatments to reduce hazardous fuels and modify wildland fire behavior.	19	9	Yes	Implementable Project	Medium	Medium	15
71	Mendocino National Forest	Hazardous Fuels Reduction in the Upper Lake Watershed	Management of 28,600 acres within the Upper Lake watershed, including hazardous fuels reduction on areas to be determined during the planning stage.	11	3	Yes	Conceptual	Medium	Medium	15
72	Napa County	Regional Collaborative Water Conservation Program	Expansion of the implementation of the Regional Water Conservation Education Program's conservation education and consumer incentive programs and build on regional water conservation initiatives.	19	9	Yes	Implementable Project	Medium	Medium	11
82	West Lake Resource Conservation District	Non-Native Invasive Weed Management Project	This project will maintain the existing weed management program currently being implemented by the Lake County Weed Management Area.	9	6	Yes	Implementable Project	Medium	Medium	9
85	Yolo County Flood Control and Water Conservation District	Abandoned Well Incentive Program	Development of a Regional 3 year Abandoned Well Incentive Program to properly abandon wells.	16	9	No	Implementable Project	Medium	Medium	21
89	Lake County Special Districts	Soda Bay Water System Improvements	This project will correct deficiencies caused by increased algae blooms in Clear Lake in the system that are required for public safety and regulatory requirements.	15	8	Yes	Implementable Project	Medium	Medium	21
91	Napa Berryessa Resort Improvement District	NBRID Wastewater Storage Pond and Disposal Improvements	This project will upgrade the wastewater storage ponds and disposal spray fields.	14	9	No	Implementable Project	Medium	Medium	20
99	Reclamation District No. 2068	Agricultural Tail Water Reuse Program	This program proposes to develop an ag water recapture and reuse facility at strategic locations within the agency.	7	1	No	Conceptual	Medium	Medium	12
100	Reclamation District No. 2068	Irrigation Billing / Irrigation Management System Improvements	The software for a unique water billing is in need of an update, including enhancements in the user interface, data management capability and software/hardware compatibility.	12	3	No	Maintenance/Monitoring	Medium	Medium	12
105	Solano Resource Conservation District	Solano County Riparian Habitat Restoration and Enhancement Project	The project will work to improve riparian habitat and reduce noxious weed cover in Eastern Solano County creeks.	7	9	No	Implementable Project	Medium	Medium	9
122	Yolo County, Natural Resources Division	Cache Creek Parkway Plan	Once complete the Plan will result in a comprehensive planning document that will guide the restoration and ultimate uses of County owned lands within the Cache Creek Area Plan boundary.	11	8	No	Implementable Project	Medium	Medium	3
126	Yolo County Resource Conservation District	Implementation of the Cache Creek Watershed Invasive Weed Management Plan	The newly completed Cache Creek Watershed Invasive Weed Management Plan (CCW-IWMP), a living document, identifies specific invasive plants for either eradication, containment or monitoring and prioritizes weeds within those categories. Starting in the upper watershed and working downstream we will use weed mapping information to eradicate those which can be eradicated, contain the edges of those identified in that category, and monitor so as to continually update the plan and re-prioritize and implement vegetation management actions.	10	7	No	Implementable Project	Medium	Medium	9
127	Yolo County Resource Conservation District	Agricultural Drain, Slough and Canal Riparian Habitat Enhancement	Control of invasive weeds, site preparation, installation of native trees, shrubs, grasses and/or forbs as appropriate to the site, and 2 years of vegetation management/ maintenance post-plant along natural and man-made waterways, with focus on Cottonwood, Union School, Willow and Chickahominy sloughs; and main irrigation supply canals in western Yolo County.	14	7	No	Implementable Project	Medium	Medium	3
128	Lake Berryessa Resort Improvement District	Program to Prevent Wastewater Discharges	This project will repair or replace sections of sanitary sewer collection laterals and mains that are experiencing above normal levels of storm water inflow/infiltration (I/I).	14	8	Yes	Implementable Project	Medium	Medium	20
129	Putah Creek Council	Native Plant Nursery to Support Putah-Cache Ecotype Restoration	Putah Creek Council (PCC) will manage a native plant nursery to grow Putah Creek plants from wild-collected seeds and cuttings at a nursery at the LA Moran Reforestation Center, Davis.	11	6	No	Implementable Project	Medium	Medium	3
142	City of Vacaville	Centennial Park Riparian Forest Restoration and Loop Trail Development Project	This project proposes to restore riparian environment along two tributaries of Horse Creek by controlling invasive species and installing a diverse selection of native trees, shrubs and perennial forbs in a 140 foot by 2,400 foot long corridor along the middle tributary and a 185 foot wide by 2,950 foot long corridor along the northern tributary.	16	8	No	Implementable Project	Medium	Medium	3
153	Lake Berryessa Resort Improvements District	Sewer Lift Station Upgrades	A single six (6) inch asbestos cement sewer main installed in the mid 1960s conveys pumped raw sewage from the Lift Station A Collection Tank to remote Facultative Ponds and Sprayfields. Approximately 5,200 feet of the sewer trunk line is under high pressure due to a 231 foot change in elevation from the tank to terminus manhole and frictional headloss within the pipe. Combination of age (50 years), high working pressure (> 100 psi) and asbestos cement pipe properties have caused leaks and breaks prompting emergency repairs. The existing AC sewer main has inadequate hydraulic capacity to handle 100-year design storm inflows per requirements mandated by the Central Valley RWQCB. The project will replace 3,000 feet of sewer main and appurtenances from Lift Station A traversing below the Storage Pond access road.	10	8	Yes	Implementable Project	Medium	Medium	20
154	Lake Berryessa Resort Improvements District	Sewer Lift Station Upgrades	Sewer Lift Stations B, C and D in the residential collection system have insufficient firm pumping capacity and to handle 100-year design storm inflows per requirements mandated by the Central Valley RWQCB. The project will replace progressive cavity style pumps with latest technology chopper pumps, renew yard piping plus appurtenances and upgrade the electrical systems.	11	8	Yes	Implementable Project	Medium	Medium	20

Table D-6: Westside IRWM Plan Project Screening Results (sorted by Importance then Urgency)

Project No.	Lead Agency /Organization	Project Title	Planned Project/Program Types and Activities	Total Criteria Score	Readiness	Potentially Critical DAC Project	Project Type	Importance	Urgency	Primary Objective
155	Solano County Water Agency	Lower Putah Creek Restoration: Monticello Dam to Dry Creek	The project restores over 600 acres of riparian forest along nine river miles (30% of the length and area of the riparian corridor) from Monticello Dam to Dry Creek (see Figure 1) replacing 223 occurrences of invasive weeds (20 net acres) with weed resistant native vegetation, restoring natural channel form and function including meander form and pool-riffle-run sequence to 2,400 feet of channel, creating 12 new salmon spawning riffles, grading 45 acres of floodplain to functional elevation, converting 3 acres of excess open water to floodplain, lowering water temperatures and adding an acre of shaded riverine habitat.	12	7	No	Implementable Project	Medium	Medium	3
156	Solano County Water Agency	Solano and Napa County Drought Relief Project	This project offers drought relief and long-term water savings in the form of a package of water conservation programs to improve water use efficiency throughout eastern Solano County and unicorporated Napa County. The programs include 1) Water-Efficient Landscape Rebates, 2) Weather-Based Irrigation Controller Rebates, 3) High-Efficiency Washer Rebates and 4) the installation of High-Efficiency Toilets and Urinals in commercial and multi-family buildings.	11	8	No	Implementable Project	Medium	Medium	11
156	Solano County Water Agency	Solano and Napa County Drought Relief Project	This project offers drought relief and long-term water savings in the form of a package of water conservation programs to improve water use efficiency throughout eastern Solano County and unicorporated Napa County. The programs include 1) Water-Efficient Landscape Rebates, 2) Weather-Based Irrigation Controller Rebates, 3) High-Efficiency Washer Rebates and 4) the installation of High-Efficiency Toilets and Urinals in commercial and multi-family buildings.	11	8	No	Implementable Project	Medium	Medium	11
159	City of Winters, CA	City of Winters Drinking Water Hexavalent Chromium (Cr6) Compliance Project	The City is under Notice of Violation with the SWRCB Division of Drinking Water to reduce Cr6 levels in four of its five wells (82% of the City's water supply) exceeding the new Cr6 Primary MCL. This is a new drinking water quality regulation approved by the State in July 2014 with enforcement beginning in August 2015 for urban water suppliers with sources in exceedance of the new Cr6 regulations. The City is requesting funds to design a cost-effective Cr6 compliance strategy for the community that meets the new Cr6 regulations within the State's compliance schedule.	13	4	Yes	Planning	Medium	Medium	21
160	City of Davis	Parks and Greenbelts Irrigation and Landscape Upgrades	The goal of the project is to increase water use efficiency and reduce overall water use in City parks and greenbelts. This will involve converting less used turf areas along greenbelts and in parks to lower water use plants to reduce irrigation needs, the conversion of irrigation in non-turf areas to drip, and the replacement of sprinkler heads and irrigation controllers to increase efficiency. The project will also include converting wells that are currently used for potable water uses to irrigation (non-potable) wells that will supply local parks and greenbelts. The project will also provide some stormwater quality benefits with less water runoff in areas that have been converted to drip irrigation.	14	8	No	Implementable Project	Medium	Medium	11
161	City of Davis	Leak Detection Survey	Hire a consultant to use acoustical listening technology to survey water mains and laterals within the City of Davis water distribution area to detect and locate leaks. Prioritize leaks based on severity. Purchase leak detection equipment to install within distribution system to continuously monitor for potential leaks at key areas identified through the leak detection survey.	12	7	No	Implementable Project	Medium	Medium	11
167	City of Davis	Davis Greenbelts Landscape Conversions	One of the greatest assets to the Davis park system is the network of more than 60 miles of Green Belts with bike trails that connect parks and neighborhoods throughout the City. Each belt is typically between 100 to 200 feet across with an 8-foot bike path meandering through the middle. Most of the landscape consists of irrigated turf and shade trees. Large open turf areas are greatly appreciated as multi-use event areas for local neighbors, but a majority of the space is mostly utilized by the public as aesthetic while passing through on the bike path. It is these spaces that are great candidates to convert existing turf to a low water use, drought tolerant landscape with interpretive learning opportunities to show the general public ways of converting their landscapes at home.	10	5	No	Implementable Project	Medium	Medium	11
168	Davis Joint Unified School District	Harper Junior High Water Conservation Improvements	Frances Harper Junior High School presents a unique opportunity for water conservation through education and the creation of outdoor classrooms. The school serves over 600 students in grades 7 to 9. Located on East Covell Boulevard in Davis, the property is a 45-acre parcel with about 23 acres in active use. Primary improvements for water conservation are proposed to occur at the front and interior of the site. Current landscape at the front of the school includes 2.3 acres of turf that is primarily for the purpose of aesthetics. There are also interior courtyards with underutilized turf panels that total a little over one-third of an acre. Planned improvements for these areas include replacing the turf with drought tolerant plants, pollinator gardens, benches, bio swales and decomposed granite paths. Interpretive panels would be installed to inform students and visitors of the benefits of the water conservation improvements and the relative ecosystems for each environment. Interior improvements would also include capturing roof water from downspouts and directing the water to bio swales where it would be filtered before entering the storm drain system or simply percolate into the soil. Interior courtyard landscapes would also be laid out to accommodate a setting for outdoor classrooms.	11	4	No	Implementable Project	Medium	Medium	11
172-YS	University of California, Davis	Arboretum Waterway Wetland Restoration and Enhancement	UC Davis is proposing to enhance the Arboretum Waterway, which captures stormwater discharge from 900 acres of the UC Davis campus, by establishing a wetland area to treat stormwater discharge and recycled water prior to discharge to Putah Creek. This project will include establishing wetlands, increasing stormwater retention, slope stabilization, enhancing a recreation area for the public, utilization of recycled water for irrigation, and creating public education opportunities.	12	3	No	Implementable Project	Medium	Medium	3
182-YS	City of Davis	Site Survey for Converting Rocky Swales to Bioswales	In public greenbelts and parks, convert existing rocky drainage swales into bioswales to provide environmental benefits. Convert drainage in areas that currently use rocky swales, such as in Mace Ranch Park and the housing development behind Montgomery Elementary in South Davis, to bioswales. Converting the existing rocky swales to vegetative bioswales will encourage microhabitats, beneficial insects, infiltration, transpiration, and evaporation to better showcase stormwater retention techniques. Other possible sites include Evergreen Pond and North Star Park.	10	2	Yes	Planning	Medium	Medium	3
186-YS	City of Davis	West Area Pond Redesign	Redesign the West Area Pond (detention basin) to utilize agricultural summer flows to enhance aquatic wildlife habitat and improve water quality. This proposal involves redirecting existing agricultural runoff through the Stonegate drainage pond and pumping it into the West Area Pond. This would enhance aquatic habitat while improving any water discharges through retention, enhancing opportunities for infiltration, transpiration and evaporation.	12	3	Yes	Implementable Project	Medium	Medium	3

Table D-6: Westside IRWM Plan Project Screening Results (sorted by Importance then Urgency)

Project No.	Lead Agency /Organization	Project Title	Planned Project/Program Types and Activities	Total Criteria Score	Readiness	Potentially Critical DAC Project	Project Type	Importance	Urgency	Primary Objective
187-YS	Solano County Water Agency	Winters Bioswales Project and Habitat Enhancement	Stormwater from the town of Winters drains residential areas, business districts, and undeveloped lands into a culvert system that delivers contaminated runoff to Putah Creek and one of its major tributaries, Dry Creek. Eighteen discharge points exist, eight of which are connected directly to Putah Creek, the remaining to Dry Creek. Three main culvert delivery sites occur within the Winters Putah Creek Nature Park (WPCNP), draining approximately 200 acres of impervious lands. The stormwater network drains streets, parking lots, businesses and suburban lots, over-irrigated landscapes and disturbed lands, carrying sediment, petroleum products, fertilizers, pesticides, and bacteria into Putah Creek. We have assembled numerous stakeholders to begin addressing this water quality issue and are developing seasonal wetland (bioswale) water treatment projects within the WPCNP that will improve water quality, enhance floodplain function, restore wildlife habitat, and provide educational opportunities for the Winters community. By redirecting this stormwater runoff onto newly constructed floodplains of Putah Creek, water quality contaminants can be decreased through the breakdown action of sunlight, soil, plant roots and microorganisms. Moreover, the redirected water can assist in rehydrating portions of the floodplain during periods of drought and enhance riparian plant growth for the benefit of corridor wildlife. Each culvert outlet, along with the receiving floodplain landscape requires novel designs to redirect, capture, and infiltrate stormwater, all involving site-specific earthworks, specialized soil treatments, appropriate vegetation, monitoring, and post-installation management. We are conducting feasibility analyses and developing designs for the three major culvert networks within the park. We anticipate moving forward with implementation of our first site in Summer, 2018. Along with stormwater treatment and creekside improvements, we intend to develop a community outreach component that will educate people on "Upper Watershed" creek care within the suburban areas that comprise the stormwater drainage networks.	14	7	No	Implementable Project	Medium	Medium	3
197	Solano Resource Conservation District	Cronin Ranch Habitat Corridor Project	This project aims to create habitat connectivity by planting native perennial grasses, trees and shrubs along more than 4 miles of irrigation and drainage canals that interlace the 2,200 acre Cronin Ranch. This project would connect other habitat restoration projects previously established by Solano RCD, and create over 35 acres of new riparian corridors in a landscape dominated by little more than irrigated pasture and hay fields. New fencing would be installed to exclude cattle from waterways, thereby reducing sediment loads and fecal contamination in waters that drain to the Lower Sacramento River. Native perennial grasses will filter out nutrients and sediment from irrigated pasture tailwater and reduce erosion and bank sloughing along waterways. The deep root systems of native grasses, shrubs and trees increase water infiltration and storage, while also sequestering carbon deep into the soil profile.	12	2	Yes	Implementable Project	Medium	Medium	3
198	Solano Resource Conservation District	Ulatis Creek Riparian Floodplain Restoration Project	This proposed habitat restoration project would be a partnership between the landowner, SRCD and agency partners to control non-native weeds and restore 35 acres of unique riparian floodplain habitat to perennial grasses, forbs, trees and shrubs. The project will plant native species of plants that are well adapted to the local hydrology and soil conditions on 35 acres of Delta riparian floodplain. The project will result in the increase in diversity and richness of native species vegetation that would improve the habitat and attract a myriad of local wildlife throughout the year. This project is designed in such a way that the primary function of the channel as a flood control feature is not compromised. Water quality will be improved by maintaining perennial ground cover that will serve as erosion control and as a filter. Occasional grazing by livestock will be an important management tool for maintaining the site long term to reduce excessive thatch build-up and to manage the acceptable level of woody vegetation by the local managing flood control agencies. This project will remain part of the working agricultural landscape, managed long term by Emigh Livestock (landowner) following the operating and maintenance easement guidelines of the channel area by the Solano County Water Agency.	11	2	No	Implementable Project	Medium	Medium	3
200	Solano Resource Conservation District	Centennial Park Pine Creek and Wetlands Habitat Restoration Project	This project will cleanup and restore wildlife habitat, while attenuating high flood events and filtering excessive eroded sediments at a 26 acre riparian creek and wetland complex located at the southern end of Centennial Park in Vacaville. Project activities include:- Removing all trash and concrete debris from 26 acres-Re-shaping and contouring the wetland area to promote plant diversity, natural wetland function, and diversity of wildlife habitat- Controlling invasive noxious weeds (including arundo, stinkwort and perennial pepperweed) on 26 acres- Planting 1,000 native trees/shrubs and seeding 10 acres of native grass and wildflowers along Pine Creek and its associated upland terraces, creating 2,000 feet of native riparian corridor.- Planting 500 native trees/shrubs and 20,000 native rush and sedge plugs in the wetland basin, creating 16 acres of native wetland marsh habitat.- Installing a 1,500 foot long asphalt walking trail and three interpretive panels along the north side of Pine Creek so that park visitors can experience and learn about riparian and wetland ecology	12	2	Yes	Implementable Project	Medium	Medium	3
204	City of Davis	Sewer Lateral Replacement	The project would replace aging sewer laterals with corrosion and other issues to protect water quality and reduce the potential for accidental sanitary sewer discharges into the stormwater conveyance system. The project would occur City wide over 3 to 4 years.	7	3	No	Implementable Project	Medium	Medium	20
1	West Sacramento Area Flood Control Agency	Bees Lakes Preserve	Conserve and develop limited, low-impact pedestrian-only recreational access to a 23-acre open space area containing sensitive aquatic, riparian, emergent and upland habitats which are associated with the Sacramento River.	10	3	No	Feasibility Study	Medium	Low	13
26	Solano County Water Agency	Improvements to Solano Project Facilities	Today, the Solano project provides irrigation and municipal water to over 400,000 people in Solano County. However, the Solano Project is 60 years old and is in need of upgrades, repairs, and modernization.	8	5	No	Implementable Program	Medium	Low	10
29	Solano County Water Agency	NBA Infrastructure and Capacity Improvements	The North Bay Aqueduct (NBA) is in need of infrastructure and capacity improvements to increase capacity and minimize WQ impacts, to ensure a reliable water supply for Napa and Solano counties.	8	5	No	Implementable Program	Medium	Low	10
35	Solano County Water Agency	Risk Assessment of Delta Water Supplies	This project would entail a risk assessment of Delta Water supplies, and would look at the impacts of unforeseen circumstances such as: - Earthquakes - Delta levee failure - Sea level rise - and others as needed	8	4	No	Implementable Project	Medium	Low	10
61	Lake County Water Resources Department	Improve Water Dependent Recreation Opportunities	Development of a trail system within Lake County as described in the general plan.	6	3	Yes	Planning	Medium	Low	13
94	Lake County Water Resources Department	Increase Cache and Putah Creek Watershed Education and Outreach	Develop and improve education programs that provide public with information on watershed programs and related proper management techniques.	14	3	Yes	Implementable Program	Medium	Low	2
97	Lake County Water Resources Department for RWMG	Form Task Force/Subcommittee to strategize and implement Watershed Education and Outreach	Support appointment of an Education Task Force/Subcommittee to prepare a Regional Watershed Education Plan for a 2-year implementation period.	14	4	Yes	Planning	Medium	Low	1

Table D-6: Westside IRWM Plan Project Screening Results (sorted by Importance then Urgency)

WESTSIDE SAC IRWM
Integrated Regional Water Management Plan

Project No.	Lead Agency /Organization	Project Title	Planned Project/Program Types and Activities	Total Criteria Score	Readiness	Potentially Critical DAC Project	Project Type	Importance	Urgency	Primary Objective
106	Solano Resource Conservation District	Waterway Management for Improved Water Quality and Wildlife Habitat	Solano Resource Conservation District will work with partners and landowners to demonstrate integrated waterway and levee management.	8	4	No	Conceptual	Medium	Low	2
115	West Sacramento Area Flood Control Agency	Sacramento River Recreational Trail	Construct a continuous 13.1 mile, 192-acre recreation corridor along the entire length of the Sacramento River within City limits.	20	9	Yes	Implementable Project	Medium	Low	13
119	Yolo County Flood Control and Water Conservation District	Moore Siphon Reliability/Restoration Project	Due to the age and exposure of the 72" corrugated metal pipe, as well as Cache Creek erosion issues at both ends of the siphon, the siphon well either need to be replaced or rehabilitated in the near future.	12	5	Yes	Implementable Project	Medium	Low	10
130	Putah Creek Council	Pollution Prevention and Watershed Education Project	Putah Creek Council (PCC) will educate Winters students, residents, and visitors about storm water and urban runoff, watershed function, and wildlife habitat along Putah Creek via our "Pollution Prevention and Watershed Education" project.	12	6	No	Implementable Project	Medium	Low	2
131	Yolo Basin Foundation	Pacific Flyway Center/Delta Gateway	The Pacific Flyway Center (Center) is a proposed educational facility and site intended to serve the general public, Central Valley area school districts, various public sector agencies and special environmentally focused events and activities.	9	2	No	Planning	Medium	Low	2
133	Yolo Basin Foundation	Yolo Bypass Wildlife Area Public Use Improvements	This proposal would complete some of the tasks related to enhancement of public use infrastructure; including maintain and improve wildlife observation, angling and hunting.	10	4	No	Implementable Project	Medium	Low	13
137	Reclamation District 2035	Installation of Groundwater Wells	Engineer, design and install groundwater wells.	8	2	No	Planning	Medium	Low	10
140	Reclamation District 2035	Cross Bypass Canal Modernization	The project consists of piping (or lining) the Cross Bypass Canal and the installation of flow control and measurement devices to improve the conveyance system and increase water use efficiency.	10	2	No	Implementable Project	Medium	Low	10
143	RWMG with selected Lead Agency	Regional Capital Improvement Plan	Create Regional asset management plan to identify and prioritize key water management infrastructure.	5	2	No	Planning	Medium	Low	10
199	Solano Resource Conservation District	Solano County K-12 Watershed Education in the Sacramento River Watershed	Enhance and expand existing watershed education programming for K-12 students to support personal stewardship behavior and understanding of Sacramento River conservation and restoration goals. This program encompasses two place-based field trip programs: the Watershed Explorers program for third graders and the Solano County Biomonitoring program for high school students, as well as the multi-grade Solano Water Education Program that provides Project WET training and resources to teachers along with targeted water resource lessons, field trip opportunities and classroom supplies. Programming provides education about water conservation, proper used oil disposal, water quality assessment and protection, the Reduce-Reuse-Recycle ethic, native species protection, and the fun and health values of being outdoors in the watershed. By learning about watershed ecology, phenology, biomonitoring, resource conservation, and restoration work, participants understand the important relationship between science and the necessary environmental stewardship of the Sacramento River watershed. We work with Solano County, its cities, county and regional resource agencies, and local businesses to provide context and connection to ongoing local, regional and state environmental stewardship challenges. We formally assess student learning, and use the information we gain to refine and improve our programs.	13	4	Yes	Planning	Medium	Low	1
201	City of Davis	Davis Wetlands Public Access Improvements	Install user amenities at the Davis Wetlands to enhance educational and passive recreational access. Primary improvements include installation of a permanent vault toilet, observation tower with interpretive panels, and shaded picnic facility.	12	3	No	Implementable Project	Medium	Low	13
202	City of Davis	Davis Manor Neighborhood Green Street Project	The Davis Manor Neighborhood Green Street Project proposes to retrofit the neighborhood with the following greening treatments: -Plant 90 new trees to sequester carbon and reduce energy consumption -Build 40 rain garden planters to serve as new wildlife habitat and capture stormwater-Convert 9,480 sq. ft. of impermeable surfaces into walkable green space to enhance the pedestrian experience -Transform 5,000 sq. ft. area of the neighborhood into the "Green Heart" toserve as a hub for resident gatherings -Replace 3,000 sq. ft. section of street parking area with a permeable surface strip -Replace 400 sq. ft. area of streetscape with new drought-tolerant landscaping -Install 15 curb ramps and widening sidewalks to improve accessibility -Renovate a dilapidated pocket park to increase community usage -Install interpretative signage to teach visitors and encourage replication	15	5	Yes	Implementable Project	Medium	Low	2

Conditional Formatting

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Table D-7: Westside IRWM Plan Project Screening Results (sorted by Primary Objective)

WESTSIDE SAC IRWM
Integrated Regional Water Management Plan

Project No.	Lead Agency /Organization	Project Title	Planned Project/Program Types and Activities	Total Criteria Score	Readiness	Potentially Critical DAC Project	Project Type	Importance	Urgency	Primary Objective
97	Lake County Water Resources Department for RWMG	Form Task Force/Subcommittee to strategize and implement Watershed Education and Outreach	Support appointment of an Education Task Force/Subcommittee to prepare a Regional Watershed Education Plan for a 2-year implementation period.	14	4	Yes	Planning	Medium	Low	1
199	Solano Resource Conservation District	Solano County K-12 Watershed Education in the Sacramento River Watershed	understanding of Sacramento River conservation and restoration goals. This program encompasses two place-based field trip programs: the Watershed Explorers program for third graders and the Solano County Biomonitoring program for high school students, as well as the multi-grade Solano Water Education Program that provides Project WET training and resources to teachers along with targeted water resource lessons, field trip opportunities and classroom supplies. Programming provides education about water conservation, proper used oil disposal, water quality assessment and protection, the Reduce-Reuse-Recycle ethic, native species protection, and the fun and health values of being outdoors in the watershed. By learning about watershed ecology, phenology, biomonitoring, resource conservation, and restoration work, participants understand the important relationship between science and the necessary environmental stewardship of the Sacramento River watershed. We work with Solano County, its cities, county and regional resource agencies, and local businesses to provide context and connection to ongoing local, regional and state environmental stewardship challenges. We formally assess student learning, and use the information we gain to refine and improve our programs.	13	4	Yes	Planning	Medium	Low	1
94	Lake County Water Resources Department	Increase Cache and Putah Creek Watershed Education and Outreach	Develop and improve education programs that provide public with information on watershed programs and related proper management techniques.	14	3	Yes	Implementable Program	Medium	Low	2
106	Solano Resource Conservation District	Waterway Management for Improved Water Quality and Wildlife Habitat	Solano Resource Conservation District will work with partners and landowners to demonstrate integrated waterway and levee management.	8	4	No	Conceptual	Medium	Low	2
130	Putah Creek Council	Pollution Prevention and Watershed Education Project	Putah Creek Council (PCC) will educate Winters students, residents, and visitors about storm water and urban runoff, watershed function, and wildlife habitat along Putah Creek via our "Pollution Prevention and Watershed Education" project.	12	6	No	Implementable Project	Medium	Low	2
131	Yolo Basin Foundation	Pacific Flyway Center/Delta Gateway	The Pacific Flyway Center (Center) is a proposed educational facility and site intended to serve the general public, Central Valley area school districts, various public sector agencies and special environmentally focused events and activities.	9	2	No	Planning	Medium	Low	2
202	City of Davis	Davis Manor Neighborhood Green Street Project	The Davis Manor Neighborhood Green Street Project proposes to retrofit the neighborhood with the following greening treatments: -Plant 90 new trees to sequester carbon and reduce energy consumption -Build 40 rain garden planters to serve as new wildlife habitat and capture stormwater-Convert 9,480 sq. ft. of impermeable surfaces into walkable green space to enhance the pedestrian experience -Transform 5,000 sq. ft. area of the neighborhood into the "Green Heart" toserve as a hub for resident gatherings -Replace 3,000 sq. ft. section of street parking area with a permeable surface strip -Replace 400 sq. ft. area of streetscape with new drought-tolerant landscaping -Install 15 curb ramps and widening sidewalks to improve accessibility -Renovate a dilapidated pocket park to increase community usage -Install interpretative signage to teach visitors and encourage replication	15	5	Yes	Implementable Project	Medium	Low	2
2	Lower Putah Creek Coord. Committee	505-East Channel Restoration	Restore 10 acres of riparian forest, 3/4 mile of river channel, remove 22 occurrences (2 net acres) of 6 primary invasive weeds; reconfigure one thousand feet of river channel, restore 100 feet of eroding stream bank, create 3/4 mile of south bank bench trail connecting Yolo Housing to the City of Winters at low flows.	14	7	No	Feasibility Study	Medium	Medium	3
3	Lower Putah Creek Coord. Committee	Apricot Draw Bank Stabilization	Restore 3,000 feet of Apricot Draw, stabilizing eroding banks, removing invasive weeds and planting native vegetation.	14	7	No	Implementable Project	Medium	Medium	3
4	Lower Putah Creek Coord. Committee	Dry Creek Wildlife Migration Corridor Feasibility Study	Feasibility study to restore 2 miles of wildlife corridor from the confluence of Putah Creek along Dry Creek on the western boundary of Winters	11	4	No	Feasibility Study	Medium	Medium	3
5	Lower Putah Creek Coord. Committee	Duncan-Giovannoni Channel Restoration Feasibility Study	Determine feasibility to restore 80 acres of riparian forest, reconfigure one mile of river channel, remove 96 occurrences (7 net acres) of 5 primary invasive weeds. Convert five acres of excess open water (gravel pit captured by the channel) to floodplain, restore natural meander form, pool-riffle sequence, functional floodplain elevations, salmon spawning habitat and native vegetation.	11	4	No	Feasibility Study	Medium	Medium	3
6	Lower Putah Creek Coord. Committee	Glide Ranch Channel Restoration Feasibility Study	Feasibility study to restore 160 acres of riparian forest, reconfigure 11,250 feet of river channel, remove 128 occurrences (8 net acres) of 8 primary invasive weeds. Grade floodplain to functional elevation, convert 15 acres of excess open water to floodplain, restore natural meander form, pool-riffle sequence, salmon spawning habitat and native vegetation.	11	4	No	Feasibility Study	Medium	Medium	3
7	Lower Putah Creek Coord. Committee	Putah Creek Interdam Reach Invasive Weed Control	Remove 127 occurrences (8.6 net acres) of 11 primary invasive weeds from 6.5 river miles (400 acres) of riparian corridor between Monticello Dam and Putah Diversion Dam and install native vegetation where weeds are removed.	14	7	No	Implementable Project	Medium	Medium	3
8	Lower Putah Creek Coord. Committee	Lower McNamara Pool Channel Reconfiguration Feasibility Study	Determine feasibility to: restore 25 acres of riparian forest, reconfigure 3,150 feet of river channel, remove 25 occurrences (0.5 net acres) of 6 primary invasive weeds. Convert seven acres of excess open water (gravel pit captured by the channel) to floodplain, restore natural meander form, pool-riffle sequence, functional floodplain elevations, salmon spawning habitat and native vegetation.	11	4	No	Feasibility Study	Medium	Medium	3
9	Lower Putah Creek Coord. Committee	MacQuiddy Channel Reconfiguration Feasibility Study	Determine feasibility to: restore 34 acres of riparian forest, reconfigure 3,800 feet of river channel, remove 44 occurrences (6 net acres) of 5 primary invasive weeds. Grade floodplain to functional elevation, restore natural meander form, pool-riffle sequence, salmon spawning habitat and native vegetation.	11	4	No	Feasibility Study	Medium	Medium	3
10	Lower Putah Creek Coord. Committee	Mace to Road 106A Channel Restoration Feasibility Study	Feasibility study to restore 305 acres of riparian forest, reconfigure 2.7 miles of river channel, remove 124 occurrences (12.8 net acres) of 5 primary invasive weeds. Grade floodplain to functional elevation, convert 17 acres of excess open water to floodplain, restore natural meander form, pool-riffle sequence, salmon spawning habitat and native vegetation.	11	4	No	Feasibility Study	Medium	Medium	3
11	Lower Putah Creek Coord. Committee	Nishikawa Channel Restoration Feasibility Study	Feasibility study to restore 37 acres of riparian forest, reconfigure 2,430 feet of river channel, remove 20 occurrences (1.36 net acres) of 6 primary invasive weeds. Grade floodplain to functional elevation, convert 3 acres of excess open water to floodplain, restore natural meander form, pool-riffle sequence, salmon spawning habitat and native vegetation.	11	4	No	Feasibility Study	Medium	Medium	3
12	Lower Putah Creek Coord. Committee	Old Davis Road to Mace Channel Restoration Feasibility Study	Feasibility study to restore 190 acres of riparian forest, reconfigure 3.4 miles of river channel, remove 172 occurrences (5 net acres) of 9 primary invasive weeds. Grade floodplain to functional elevation, convert 27 acres of excess open water to floodplain, restore natural meander form, pool-riffle sequence, salmon spawning habitat and native vegetation.	11	4	No	Feasibility Study	Medium	Medium	3

Table D-7: Westside IRWM Plan Project Screening Results (sorted by Primary Objective)

Project No.	Lead Agency /Organization	Project Title	Planned Project/Program Types and Activities	Total Criteria Score	Readiness	Potentially Critical DAC Project	Project Type	Importance	Urgency	Primary Objective
13	Lower Putah Creek Coord. Committee	Olmo-Hammond-UCD Channel Restoration Feasibility Study	Feasibility study to restore 109 acres of riparian forest, reconfigure 9,765 feet of river channel, remove 70 occurrences (2.5 net acres) of 9 primary invasive weeds. Grade floodplain to functional elevation, convert 17 acres of excess open water to floodplain, restore natural meander form, pool-riffle sequence, salmon spawning habitat and native vegetation.	11	4	No	Feasibility Study	Medium	Medium	3
14	Lower Putah Creek Coord. Committee	Pleasant Creek Wildlife Migration Corridor Plan	Plan to restore 7,000 feet of wildlife corridor of Pleasant Creek to the confluence with Putah Creek, stabilizing eroding banks, removing invasive weeds and planting native vegetation.	13	6	No	Implementable Project	Medium	Medium	3
15	Lower Putah Creek Coord. Committee	Pleasants Creek Bank Stabilization	Restores 84 acres of riparian habitat along 7 miles of Pleasants Creek, stabilizing eroding banks, removing 135 occurrences (13.4 acres) of invasive weeds and planting native vegetation.	15	8	No	Implementable Project	Medium	Medium	3
16	Lower Putah Creek Coord. Committee	Restoria Channel Restoration Feasibility Study	Feasibility study to restore 93 acres of riparian forest, reconfigure 4,300 feet of river channel, remove 46 occurrences (3.2 net acres) of 6 primary invasive weeds. Grade floodplain to functional elevation, convert 2 acres of excess open water to floodplain, restore natural meander form, pool-riffle sequence, salmon spawning habitat and native vegetation.	11	4	No	Feasibility Study	Medium	Medium	3
17	Lower Putah Creek Coord. Committee	Road 106A to Yolo Bypass Channel Restoration Feasibility Study	Feasibility study to restore 52 acres of riparian forest, reconfigure 6,000 feet of river channel, remove 42 occurrences (8 net acres) of 6 primary invasive weeds. Grade floodplain to functional elevation, convert 11 acres of excess open water to floodplain, restore natural meander form, pool-riffle sequence, salmon spawning habitat and native vegetation.	11	4	No	Feasibility Study	Medium	Medium	3
18	Lower Putah Creek Coord. Committee	Russell Ranch Channel Restoration Feasibility Study	Determine feasibility to: restore 50 acres of riparian forest, reconfigure 5,500 feet of river channel, remove 91 occurrences (2.75 net acres) of 8 primary invasive weeds. Grade floodplain to functional elevation, convert 7 acres of excess open water to floodplain, restore natural meander form, pool-riffle sequence, salmon spawning habitat and native vegetation.	11	4	No	Feasibility Study	Medium	Medium	3
19	Lower Putah Creek Coord. Committee	Stevenson Bridge Channel Restoration Feasibility Study	Feasibility study to restore 22 acres of riparian forest, reconfigure 2,100 feet of river channel, remove 29 occurrences (0.5 net acres) of 6 primary invasive weeds. Grade floodplain to functional elevation, convert 1.5 acres of excess open water to floodplain, restore natural meander form, pool-riffle sequence, salmon spawning habitat and native vegetation.	11	4	No	Feasibility Study	Medium	Medium	3
20	Lower Putah Creek Coord. Committee	Thompson Canyon Bank Stabilization Design and Permits	This study provides plans, specifications and permits to restore 1.5 miles of Thompson Canyon at the confluence of Putah Creek, stabilizing a poorly engineered legacy road that annually degrade water quality and smother prime trout spawning habitat below Monticello Dam.	12	5	No	Implementable Project	Medium	Medium	3
21	Lower Putah Creek Coord. Committee	Upper McNamara Pool Channel Reconfiguration Feasibility Study	Determine feasibility to restore 30 acres of riparian forest, reconfigure 3,300 feet of river channel, remove 52 occurrences (4 net acres) of 7 primary invasive weeds. Convert five acres of excess open water (gravel pit captured by the channel) to floodplain, restore natural meander form, pool-riffle sequence, functional floodplain elevations, salmon spawning habitat and native vegetation.	11	4	No	Feasibility Study	Medium	Medium	3
22	Lower Putah Creek Coord. Committee	Warren Weed Control	Restore 11 acres of riparian forest, 1,700 of river channel, remove 26 occurrences (2 net acres) of 8 primary invasive weeds. One of the densest thickets of eucalyptus with over 300 trees averaging 24 inches in diameter.	11	5	No	Implementable Project	Medium	Medium	3
52	Cache Creek Conservancy	Implementation of the Cache Creek Resources Management Plan	Implementation of projects wtihin the Cache Creek Resources Management Plan (CCRMP) area, located along 15 miles of lower Cache Creek from the Capay Dam to the town of Yolo. The proposed project consists of various phases of activities that meet specific grant requirements such as habitat restoration or enhancement, streambank stabilization, invasive plant removal, monitoring, and/or watershed stewardship through education, workshops, and outreach to landowners.	19	9	Yes	Implementable Project	Medium	Medium	3
56	East Lake Resource Conservation District	Upper Putah CreekWatershed Management Plan	This project will produce a comprehensive Regional Watershed Management Plan for the Putah Creek Watershed located in Lake, Napa, Solano, and Yolo Counties. This will include conducting a thorough geomorphic study to better understand current conditions as related to water quality, water quantity, wildlife habitat, and socioeconomics. The project will assemble past studies and reports to identify data gaps, conduct on-the ground scientific investigations, and interview citizens and stakeholders through an education and outreach program. The result will be a management plan that identifies watershed related issues that will provide recommendations for implementation.	13	5	Yes	Planning	Medium	Medium	3
62	Lake County Water Resources Department	Identify, Protect and restore Important Wildlife Habitat Areas in Clear Lake	Development of a plant that provides for protection of important wildlife habitat areas within Clear Lake including bird nesting areas and shoreline wildlife preserves.	9	3	Yes	Planning	Medium	Medium	3
65	Lake County Water Resources Department	Collaborative Process to Update Clear Lake Integrated Watershed Management Plan	Update of CLIWM Plan.	14	4	Yes	Planning	Medium	Medium	3
68	Lake County Water Resources Department	Assess stream channel hydrology and related riparian and aquatic habitats for restoration	This project will survey stream channels, especially in the level valleys in the lower elevations of the Upper Cache and Upper Putah Creek watersheds, and subsequent prioritization based on erosion hazard, potential for significant habitat improvement, and other factors.	13	3	Yes	Feasibility Study	Medium	Medium	3
122	Yolo County, Natural Resources Division	Cache Creek Parkway Plan	Once complete the Plan will result in a comprehensive planning document that will guide the restoration and ultimate uses of County owned lands within the Cache Creek Area Plan boundary.	11	8	No	Implementable Project	Medium	Medium	3
127	Yolo County Resource Conservation District	Agricultural Drain, Slough and Canal Riparian Habitat Enhancement	Control of invasive weeds, site preparation, installation of native trees, shrubs, grasses and/or forbs as appropriate to the site, and 2 years of vegetation management/ maintenance post-plant along natural and man-made waterways, with focus on Cottonwood, Union School, Willow and Chickahominy sloughs; and main irrigation supply canals in western Yolo County.	14	7	No	Implementable Project	Medium	Medium	3
129	Putah Creek Council	Native Plant Nursery to Support Putah-Cache Ecotype Restoration	Putah Creek Council (PCC) will manage a native plant nursery to grow Putah Creek plants from wild-collected seeds and cuttings at a nursery at the LA Moran Reforestation Center, Davis.	11	6	No	Implementable Project	Medium	Medium	3
142	City of Vacaville	Centennial Park Riparian Forest Restoration and Loop Trail Development Project	This project proposes to restore riparian environment along two tributaries of Horse Creek by controlling invasive species and installing a diverse selection of native trees, shrubs and perennial forbs in a 140 foot by 2,400 foot long corridor along the middle tributary and a 185 foot wide by 2,950 foot long corridor along the northern tributary.	16	8	No	Implementable Project	Medium	Medium	3
155	Solano County Water Agency	Lower Putah Creek Restoration: Monticello Dam to Dry Creek	The project restores over 600 acres of riparian forest along nine river miles (30% of the length and area of the riparian corridor) from Monticello Dam to Dry Creek (see Figure 1) replacing 223 occurrences of invasive weeds (20 net acres) with weed resistant native vegetation, restoring natural channel form and function including meander form and pool-riffle-run sequence to 2,400 feet of channel, creating 12 new salmon spawning riffles, grading 45 acres of floodplain to functional elevation, converting 3 acres of excess open water to floodplain, lowering water temperatures and adding an acre of shaded riverine habitat.	12	7	No	Implementable Project	Medium	Medium	3
172-YS	University of California, Davis	Arboretum Waterway Wetland Restoration and Enhancement	UC Davis is proposing to enhance the Arboretum Waterway, which captures stormwater discharge from 900 acres of the UC Davis campus, by establishing a wetland area to treat stormwater discharge and recycled water prior to discharge to Putah Creek. This project will include establishing wetlands, increasing stormwater retention, slope stabilization, enhancing a recreation area for the public, utilization of recycled water for irrigation, and creating public education opportunities.	12	3	No	Implementable Project	Medium	Medium	3

Table D-7: Westside IRWM Plan Project Screening Results (sorted by Primary Objective)

Project No.	Lead Agency /Organization	Project Title	Planned Project/Program Types and Activities	Total Criteria Score	Readiness	Potentially Critical DAC Project	Project Type	Importance	Urgency	Primary Objective
182-YS	City of Davis	Site Survey for Converting Rocky Swales to Bioswales	In public greenbelts and parks, convert existing rocky drainage swales into bioswales to provide environmental benefits. Convert drainage in areas that currently use rocky swales, such as in Mace Ranch Park and the housing development behind Montgomery Elementary in South Davis, to bioswales. Converting the existing rocky swales to vegetative bioswales will encourage microhabitats, beneficial insects, infiltration, transpiration, and evaporation to better showcase stormwater retention techniques. Other possible sites include Evergreen Pond and North Star Park.	10	2	Yes	Planning	Medium	Medium	3
186-YS	City of Davis	West Area Pond Redesign	Redesign the West Area Pond (detention basin) to utilize agricultural summer flows to enhance aquatic wildlife habitat and improve water quality. This proposal involves redirecting existing agricultural runoff through the Stonegate drainage pond and pumping it into the West Area Pond. This would enhance aquatic habitat while improving any water discharges through retention, enhancing opportunities for infiltration, transpiration and evaporation.	12	3	Yes	Implementable Project	Medium	Medium	3
187-YS	Solano County Water Agency	Winters Bioswales Project and Habitat Enhancement	Stormwater from the town of Winters drains residential areas, business districts, and undeveloped lands into a culvert system that delivers contaminated runoff to Putah Creek and one of its major tributaries, Dry Creek. Eighteen discharge points exist, eight of which are connected directly to Putah Creek, the remaining to Dry Creek. Three main culvert delivery sites occur within the Winters Putah Creek Nature Park (WPCNP), draining approximately 200 acres of impervious lands. The stormwater network drains streets, parking lots, businesses and suburban lots, over-irrigated landscapes and disturbed lands, carrying sediment, petroleum products, fertilizers, pesticides, and bacteria into Putah Creek. We have assembled numerous stakeholders to begin addressing this water quality issue and are developing seasonal wetland (bioswale) water treatment projects within the WPCNP that will improve water quality, enhance floodplain function, restore wildlife habitat, and provide educational opportunities for the Winters community. By redirecting this stormwater runoff onto newly constructed floodplains of Putah Creek, water quality contaminants can be decreased through the breakdown action of sunlight, soil, plant roots and microorganisms. Moreover, the redirected water can assist in rehydrating portions of the floodplain during periods of drought and enhance riparian plant growth for the benefit of corridor wildlife. Each culvert outlet, along with the receiving floodplain landscape requires novel designs to redirect, capture, and infiltrate stormwater, all involving site-specific earthworks, specialized soil treatments, appropriate vegetation, monitoring, and post-installation management. We are conducting feasibility analyses and developing designs for the three major culvert networks within the park. We anticipate moving forward with implementation of our first site in Summer, 2018. Along with stormwater treatment and creekside improvements, we intend to develop a community outreach component that will educate people on "Upper Watershed" creek care within the suburban areas that comprise the stormwater drainage networks.	14	7	No	Implementable Project	Medium	Medium	3
197	Solano Resource Conservation District	Cronin Ranch Habitat Corridor Project	This project aims to create habitat connectivity by planting native perennial grasses, trees and shrubs along more than 4 miles of irrigation and drainage canals that interlace the 2,200 acre Cronin Ranch. This project would connect other habitat restoration projects previously established by Solano RCD, and create over 35 acres of new riparian corridors in a landscape dominated by little more than irrigated pasture and hay fields. New fencing would be installed to exclude cattle from waterways, thereby reducing sediment loads and fecal contamination in waters that drain to the Lower Sacramento River. Native perennial grasses will filter out nutrients and sediment from irrigated pasture tailwater and reduce erosion and bank sloughing along waterways. The deep root systems of native grasses, shrubs and trees increase water infiltration and storage, while also sequestering carbon deep into the soil profile.	12	2	Yes	Implementable Project	Medium	Medium	3
198	Solano Resource Conservation District	Ulatis Creek Riparian Floodplain Restoration Project	This proposed habitat restoration project would be a partnership between the landowner, SRCD and agency partners to control non-native weeds and restore 35 acres of unique riparian floodplain habitat to perennial grasses, forbs, trees and shrubs. The project will plant native species of plants that are well adapted to the local hydrology and soil conditions on 35 acres of Delta riparian floodplain. The project will result in the increase in diversity and richness of native species vegetation that would improve the habitat and attract a myriad of local wildlife throughout the year. This project is designed in such a way that the primary function of the channel as a flood control feature is not compromised. Water quality will be improved by maintaining perennial ground cover that will serve as erosion control and as a filter. Occasional grazing by livestock will be an important management tool for maintaining the site long term to reduce excessive thatch build-up and to manage the acceptable level of woody vegetation by the local managing flood control agencies. This project will remain part of the working agricultural landscape, managed long term by Emigh Livestock (landowner) following the operating and maintenance easement guidelines of the channel area by the Solano County Water Agency.	11	2	No	Implementable Project	Medium	Medium	3
200	Solano Resource Conservation District	Centennial Park Pine Creek and Wetlands Habitat Restoration Project	This project will cleanup and restore wildlife habitat, while attenuating high flood events and filtering excessive eroded sediments at a 26 acre riparian creek and wetland complex located at the southern end of Centennial Park in Vacaville. Project activities include:- Removing all trash and concrete debris from 26 acres-Re-shaping and contouring the wetland area to promote plant diversity, natural wetland function, and diversity of wildlife habitat- Controlling invasive noxious weeds (including arundo, stinkwort and perennial pepperweed) on 26 acres- Planting 1,000 native trees/shrubs and seeding 10 acres of native grass and wildflowers along Pine Creek and its associated upland terraces, creating 2,000 feet of native riparian corridor.- Planting 500 native trees/shrubs and 20,000 native rush and sedge plugs in the wetland basin, creating 16 acres of native wetland marsh habitat.- Installing a 1,500 foot long asphalt walking trail and three interpretive panels along the north side of Pine Creek so that park visitors can experience and learn about riparian and wetland ecology	12	2	Yes	Implementable Project	Medium	Medium	3
64	Lake County Water Resources Department	Develop a Native Fish Management Plan	Conduct studies to identify and fill gaps in information and understanding of native fish populations with in Lake County. Use these studies to develop a Native Fish Management Plan.	10	3	Yes	Planning	High	Medium	5
57	Lake County Water Resources Department	Restore Native Fish Spawning Areas in Clear Lake Tributaries	This is a series of projects to eliminate some of the major barriers to fish passage. Projects include: Kelseyville Main Street check dam (Kelsey Creek); Decker Bridge (Scotts Creek); Rancheria Road Bridge (Middle Creek); Sewer Crossing (Seigler Canyon Creek); Clover Creek Diversion Channel; Creek Delta Diversity (multiple creeks).	9	3	Yes	Implementable Project	High	Medium	6
73	Robinson Rancheria	The Restoration of the Clear Lake Hitch to Blue Lakes	Transfer of live hitch fry to the waters of the Blue Lakes in Lake County.	8	6	Yes	Implementable Project	High	Medium	6
74	Robinson Rancheria	Spawning Hitch fish and reproduction loss correction measures for an artificial trap	Installation of a grate at the mouth of the manmade ditch along the Rodman Slough to prevent Hitch fatalities.	5	1	Yes	Implementable Project	High	Medium	6

Table D-7: Westside IRWM Plan Project Screening Results (sorted by Primary Objective)

Project No.	Lead Agency /Organization	Project Title	Planned Project/Program Types and Activities	Total Criteria Score	Readiness	Potentially Critical DAC Project	Project Type	Importance	Urgency	Primary Objective
80	Tuleyome	Cache Creek Anadramous Fish Reintroduction Project	Conduct studies to look at the physical constraints such as temperature, flow regimes, and spawning opportunities, climate change impacts for the reintroduction of anadromous fish to Cache Creek, institutional issues including safe harbor for the YCFCWCD and stakeholder outreach.	7	1	Yes	Feasibility Study	High	Medium	6
132	Yolo Basin Foundation	Lower Putah Creek Restoration from Toe Drain to Putah Creek Diversion Dam (Yolo Bypass Wildlife Area Element)	The project will enhance and restore 300-700 acres of tidal freshwater wetlands and create 5 miles of a new creek channel, entirely within the Yolo Bypass Wildlife Area.	10	7	No	Implementable Project	High	Medium	6
135	Reclamation District 2035	Tule Canal Habitat Enhancement & Sediment Removal	The project consists of: 1) securing an environmental easement that would protect valuable floodplain habitat and adjacent lands from other uses 2) construction of operational facilities for water control and fish passage and 3) regrading portions of the floodplain habitat to increase the quality of seasonally inundation based on managed flows from the Sacramento River.	9	2	No	Implementable Project	High	Medium	6
23	Solano County Water Agency	Aquatic Nuisance Vegetation Management	The goal of the Aquatic Nuisance Species Management Plan is to minimize the harmful ecological, economic, and social impact of aquatic nuisance species through prevention and management of introduction, population growth, and dispersal into, within, and from Solano County.	11	6	No	Implementable Program	High	High	7
76	RWMG with selected Lead Agency	Regional Invasive Mussels Management Plan	This project will include the formation of an Invasive Species Task Force/Subcommittee to prepare a Regional Invasive Mussels Species Prevention Plan that evaluates existing programs to prevent invasive species that could be leveraged, and identifies supplemental programs to be developed to fill gaps in existing programs to manage invasive species. Special high priority emphasis will be placed on prevention of water body infestation by Quagga Mussels.	13	3	Yes	Implementable Program	High	High	7
27	Solano County Water Agency	Invasive Plant Removal Program	Program would consist of reducing the geographic extent of invasive plant species (tamarisk, arundo, yellow star thistle, etc.) in riparian and wetland areas in Solano County.	5	5	No	Implementable Program	Medium	Medium	8
40	RWMG with selected Lead Agency	Regional Invasive Plants, Aquatic and Terrestrial Weeds Management Plan	This project will include the formation of an Invasive Species Task Force/Subcommittee to prepare a Regional Invasive Species Management/Eradication Plan that documents the extent of invasive terrestrial and aquatic species within the Westside Region; evaluates existing programs to manage invasive species that could be leveraged, and identifies supplemental programs to be developed to fill gaps in existing programs to manage invasive species.	13	3	Yes	Implementable Program	High	High	8
46	Colusa County Resource Conservation District	Bear Creek Habitat Enhancement	The Bear Creek Habitat Enhancement project will be implemented in two phases. Phase I will provide for landowner/agency outreach activities and the development of a locally-driven plan to address tamarisk infestations and the re-establishment of native riparian species along Bear Creek in western Colusa County. Phase II will provide for habitat enhancement activities on a minimum of 3.5 miles of Bear Creek and .5 miles of Sulphur Creek.	9	4	No	Planning	Medium	Medium	8
53	California Land Stewardship Institute	Invasive Plant Removal in Ulatis Creek	This project will first map out where the Arundo is present on the 17 mile channel of Ulatis Creek, then contact the landowners who own property with Arundo to educate them about the Arundo hazards; then, with their permission, eradicate the plant on their land, and lastly revegetate areas with native trees.	13	4	Yes	Planning	Medium	Medium	8
82	West Lake Resource Conservation District	Non-Native Invasive Weed Management Project	This project will maintain the existing weed management program currently being implemented by the Lake County Weed Management Area.	9	6	Yes	Implementable Project	Medium	Medium	9
105	Solano Resource Conservation District	Solano County Riparian Habitat Restoration and Enhancement Project	The project will work to improve riparian habitat and reduce noxious weed cover in Eastern Solano County creeks.	7	9	No	Implementable Project	Medium	Medium	9
126	Yolo County Resource Conservation District	Implementation of the Cache Creek Watershed Invasive Weed Management Plan	The newly completed Cache Creek Watershed Invasive Weed Management Plan (CCW-IWMP), a living document, identifies specific invasive plants for either eradication, containment or monitoring and prioritizes weeds within those categories. Starting in the upper watershed and working downstream we will use weed mapping information to eradicate those which can be eradicated, contain the edges of those identified in that category, and monitor so as to continually update the plan and re-prioritize and implement vegetation management actions.	10	7	No	Implementable Project	Medium	Medium	9
26	Solano County Water Agency	Improvements to Solano Project Facilities	Today, the Solano project provides irrigation and municipal water to over 400,000 people in Solano County. However, the Solano Project is 60 years old and is in need of upgrades, repairs, and modernization.	8	5	No	Implementable Program	Medium	Low	10
29	Solano County Water Agency	NBA Infrastructure and Capacity Improvements	The North Bay Aqueduct (NBA) is in need of infrastructure and capacity improvements to increase capacity and minimize WQ impacts, to ensure a reliable water supply for Napa and Solano counties.	8	5	No	Implementable Program	Medium	Low	10
35	Solano County Water Agency	Risk Assessment of Delta Water Supplies	This project would entail a risk assessment of Delta Water supplies, and would look at the impacts of unforeseen circumstances such as: - Earthquakes - Delta levee failure - Sea level rise - and others as needed	8	4	No	Implementable Project	Medium	Low	10
119	Yolo County Flood Control and Water Conservation District	Moore Siphon Reliability/Restoration Project	Due to the age and exposure of the 72" corrugated metal pipe, as well as Cache Creek erosion issues at both ends of the siphon, the siphon well either need to be replaced or rehabilitated in the near future.	12	5	Yes	Implementable Project	Medium	Low	10
137	Reclamation District 2035	Installation of Groundwater Wells	Engineer, design and install groundwater wells.	8	2	No	Planning	Medium	Low	10
140	Reclamation District 2035	Cross Bypass Canal Modernization	The project consists of piping (or lining) the Cross Bypass Canal and the installation of flow control and measurement devices to improve the conveyance system and increase water use efficiency.	10	2	No	Implementable Project	Medium	Low	10
143	RWMG with selected Lead Agency	Regional Capital Improvement Plan	Create Regional asset management plan to identify and prioritize key water management infrastructure.	5	2	No	Planning	Medium	Low	10
24	Solano County Water Agency	Commercial Washer Rebate Program	This program will offer financial incentives to commercial customers (businesses, multi-family units) who purchase or lease (five-year lease) select commercial washers for commercial laundry or common area multi-family installations.	11	4	Yes	Planning	Medium	Medium	11
28	Solano County Water Agency	Large Landscape Water Efficiency Program	This program will offer financial incentives to commercial customers (businesses, multi-family units) to encourage replacement and upgrade of selected irrigation equipment with new water-efficient irrigation equipment.	7	5	No	Implementable Program	Medium	Medium	11
72	Napa County	Regional Collaborative Water Conservation Program	Expansion of the implementation of the Regional Water Conservation Education Program's conservation education and consumer incentive programs and build on regional water conservation initiatives.	19	9	Yes	Implementable Project	Medium	Medium	11
156	Solano County Water Agency	Solano and Napa County Drought Relief Project	This project offers drought relief and long-term water savings in the form of a package of water conservation programs to improve water use efficiency throughout eastern Solano County and unicorporated Napa County. The programs include 1) Water-Efficient Landscape Rebates, 2) Weather-Based Irrigation Controller Rebates, 3) High-Efficiency Washer Rebates and 4) the installation of High-Efficiency Toilets and Urinals in commercial and multi-family buildings.	11	8	No	Implementable Project	Medium	Medium	11

WESTSIDE SAC IRWM
Integrated Regional Water Management Plan

Table D-7: Westside IRWM Plan Project Screening Results (sorted by Primary Objective)

Project No.	Lead Agency /Organization	Project Title	Planned Project/Program Types and Activities	Total Criteria Score	Readiness	Potentially Critical DAC Project	Project Type	Importance	Urgency	Primary Objective
156	Solano County Water Agency	Solano and Napa County Drought Relief Project	This project offers drought relief and long-term water savings in the form of a package of water conservation programs to improve water use efficiency throughout eastern Solano County and unicorporated Napa County. The programs include 1) Water-Efficient Landscape Rebates, 2) Weather-Based Irrigation Controller Rebates, 3) High-Efficiency Washer Rebates and 4) the installation of High-Efficiency Toilets and Urinals in commercial and multi-family buildings.	11	8	No	Implementable Project	Medium	Medium	11
160	City of Davis	Parks and Greenbelts Irrigation and Landscape Upgrades	The goal of the project is to increase water use efficiency and reduce overall water use in City parks and greenbelts. This will involve converting less used turf areas along greenbelts and in parks to lower water use plants to reduce irrigation needs, the conversion of irrigation in non-turf areas to drip, and the replacement of sprinkler heads and irrigation controllers to increase efficiency. The project will also include converting wells that are currently used for potable water uses to irrigation (non-potable) wells that will supply local parks and greenbelts. The project will also provide some stormwater quality benefits with less water runoff in areas that have been converted to drip irrigation.	14	8	No	Implementable Project	Medium	Medium	11
161	City of Davis	Leak Detection Survey	Hire a consultant to use acoustical listening technology to survey water mains and laterals within the City of Davis water distribution area to detect and locate leaks. Prioritize leaks based on severity. Purchase leak detection equipment to install within distribution system to continuously monitor for potential leaks at key areas identified through the leak detection survey.	12	7	No	Implementable Project	Medium	Medium	11
167	City of Davis	Davis Greenbelts Landscape Conversions	One of the greatest assets to the Davis park system is the network of more than 60 miles of Green Belts with bike trails that connect parks and neighborhoods throughout the City. Each belt is typically between 100 to 200 feet across with an 8-foot bike path meandering through the middle. Most of the landscape consists of irrigated turf and shade trees. Large open turf areas are greatly appreciated as multi-use event areas for local neighbors, but a majority of the space is mostly utilized by the public as aesthetic while passing through on the bike path. It is these spaces that are great candidates to convert existing turf to a low water use, drought tolerant landscape with interpretive learning opportunities to show the general public ways of converting their landscapes at home.	10	5	No	Implementable Project	Medium	Medium	11
168	Davis Joint Unified School District	Harper Junior High Water Conservation Improvements	Frances Harper Junior High School presents a unique opportunity for water conservation through education and the creation of outdoor classrooms. The school serves over 600 students in grades 7 to 9. Located on East Covell Boulevard in Davis, the property is a 45-acre parcel with about 23 acres in active use. Primary improvements for water conservation are proposed to occur at the front and interior of the site. Current landscape at the front of the school includes 2.3 acres of turf that is primarily for the purpose of aesthetics. There are also interior courtyards with underutilized turf panels that total a little over one-third of an acre. Planned improvements for these areas include replacing the turf with drought tolerant plants, pollinator gardens, benches, bio swales and decomposed granite paths. Interpretive panels would be installed to inform students and visitors of the benefits of the water conservation improvements and the relative ecosystems for each environment. Interior improvements would also include capturing roof water from downspouts and directing the water to bio swales where it would be filtered before entering the storm drain system or simply percolate into the soil. Interior courtyard landscapes would also be laid out to accommodate a setting for outdoor classrooms.	11	4	No	Implementable Project	Medium	Medium	11
99	Reclamation District No. 2068	Agricultural Tail Water Reuse Program	This program proposes to develop an ag water recapture and reuse facility at strategic locations within the agency.	7	1	No	Conceptual	Medium	Medium	12
100	Reclamation District No. 2068	Irrigation Billing / Irrigation Management System Improvements	The software for a unique water billing is in need of an update, including enhancements in the user interface, data management capability and software/hardware compatibility.	12	3	No	Maintenance/Monitoring	Medium	Medium	12
1	West Sacramento Area Flood Control Agency	Bees Lakes Preserve	Conserve and develop limited, low-impact pedestrian-only recreational access to a 23-acre open space area containing sensitive aquatic, riparian, emergent and upland habitats which are associated with the Sacramento River.	10	3	No	Feasibility Study	Medium	Low	13
61	Lake County Water Resources Department	Improve Water Dependent Recreation Opportunities	Development of a trail system within Lake County as described in the general plan.	6	3	Yes	Planning	Medium	Low	13
115	West Sacramento Area Flood Control Agency	Sacramento River Recreational Trail	Construct a continuous 13.1 mile, 192-acre recreation corridor along the entire length of the Sacramento River within City limits.	20	9	Yes	Implementable Project	Medium	Low	13
133	Yolo Basin Foundation	Yolo Bypass Wildlife Area Public Use Improvements	This proposal would complete some of the tasks related to enhancement of public use infrastructure; including maintain and improve wildlife observation, angling and hunting.	10	4	No	Implementable Project	Medium	Low	13
201	City of Davis	Davis Wetlands Public Access Improvements	Install user amenities at the Davis Wetlands to enhance educational and passive recreational access. Primary improvements include installation of a permanent vault toilet, observation tower with interpretive panels, and shaded picnic facility.	12	3	No	Implementable Project	Medium	Low	13
25	Solano County Water Agency	Gibson Canyon Creek Detention Basin	Provide increased flood protection up to 100-year with improved conveyance and containment of out of bank flows. Convert abandoned City wastewater pond to detention basin.	7	5	No	Implementable Program	High	Medium	14
42	Solano County Water Agency	Ulatis Flood Control Channel Grade Control	This is a programmatic project to install rock cross-vanes at most remaining bridge crossings to arrest scour and promote some habitat diversity. There are approximately 20 location that would benefit from these installations.	11	6	No	Implementable Project	High	Medium	14
45	City of Woodland / floodSAFE Yolo Pilot Program	Lower Cache Creek Flood Risk Reduction Project	The primary purpose for the Project is to reduce the risk of flooding to the City of Woodland and adjacent land including the rural Town of Yolo and Interstate 5. The Project is in the initial phases of a feasibility study for which the City has executed a Federal cost share agreement with the USACE and CVFPB and a non-federal cost share agreement with the CVFPB.	8	3	No	Feasibility Study	High	Medium	14
49	Dixon Regional Watershed Joint Powers Authority	Dixon Main Drain / V-drain Enlargement Project	The purpose of the project is to reduce local flooding caused by regional drainage flows that exceed the existing capacity of these channels by increasing the capacity of these constructed drainage facilities.	15	1	No	Planning	High	Medium	14
50	Dixon Regional Watershed Joint Powers Authority	Eastside Drain	The Eastside Drain project will construct segments of new channels and enlarge existing channels. The Project will add an increment of 120 cfs to the Dixon Main Drain / V-drain Enlargement Project.	11	1	No	Planning	High	Medium	14
51	Dixon Resource Conservation District	Storm Flow Reduction From Agricultural Lands North of Interstate 80	The Proposed Project is based on providing detention storage for a 10-year storm event.	8	1	No	Planning	High	Medium	14
58	Lake County Water Resources Department	Reduce Flood Damage	This project will reduce flood damage by structural and non-structural methods and will reduce flood risk to property owners in Lake County through 1) buyouts and relocations or floodproofing 2) implementation of the Middle Creek Flood Damage Reduction and Ecosystem Restoration Project 3) Upgrades of bridge and culvert capacities to reduce flooding 4) Implementation of the Cache Creek flow enhancement project 5) Implement channel and levee improvements to the Middle Creek Flood Control Project	9	3	Yes	Planning	High	Medium	14

Table D-7: Westside IRWM Plan Project Screening Results (sorted by Primary Objective)

WESTSIDE SAC IRWM Integrated Regional Water Management Plan

Project No.	Lead Agency /Organization	Project Title	Planned Project/Program Types and Activities	Total Criteria Score	Readiness	Potentially Critical DAC Project	Project Type	Importance	Urgency	Primary Objective
59	Lake County Water Resources Department	Middle Creek Flood Damage Reduction and Ecosystem Restoration Project	This project will eliminate flood risk to 18 residential structures, numerous outbuildings and approximately 1,650 acres of agricultural land and will restore damaged habitat and the water quality of the Clear Lake watershed. Reconnection of this large, previously reclaimed area, as a functional wetland is anticipated to have a significant affect on the watershed health and the water quality of Clear Lake. The project consists of purchasing the flood prone property "protected" by the substandard levee, mitigating flood impacts to roads and utilities, reconstructing historic channel patterns, and breaching the levee in numerous locations that allow Clear Lake to reflood the Project area.	17	6	Yes	Implementable Project	High	Medium	14
83	West Sacramento Area Flood Control Agency	Lower Sacramento and Delta North Regional Flood Management Plan	Develop a lower Sacramento and Delta North Regional Flood Management Plan that follows the requirements outlined in the Central Valley Flood Protection Plan (CVFPP)	13	6	Yes	Implementable Project	High	Medium	14
86	Yolo County Service Area #6	County Service Area (CSA) #6 Levee Repair Project	Non-urban levee repair project as part of the levee rehabilitation identified to restore the District levee to its authorized level of flood protection.	16	9	Yes	Implementable Project	High	Medium	14
96	Knights Landing Ridge Drainage District	Mid Valley, Knights Landing Repair Project	Subset of the Mid-Valley Area Levee Reconstruction Project currently underway through a partnership with ACOE and the Central Valley Flood Protection Board.	13	9	No	Implementable Project	High	Medium	14
111	West Sacramento Area Flood Control Agency	Deep Water Ship Channel East Levee Repair	Correct deficiencies, protect against underseepage, and maintain the Port of West Sacramento levees to current standards for FEMA 100 yr and urban levee 200 year levels of flood protection.	11	8	No	Implementable Project	High	Medium	14
112	West Sacramento Area Flood Control Agency	Deep Water Ship Canal Navigation Levee Repair	Correct deficiencies, protect against underseepage, and maintain the Deep Water Ship Canal Levees to current standards for FEMA 100 yr and urban levee 200 year levels of flood protection.	10	4	No	Implementable Project	High	Medium	14
113	West Sacramento Area Flood Control Agency	Port of West Sacramento North and South Levee Repair	Correct deficiencies, protect against underseepage, and maintain the Port of West Sacramento levees to current standards for FEMA 100 yr and urban levee 200 year levels of flood protection.	11	4	No	Implementable Project	High	Medium	14
114	West Sacramento Area Flood Control Agency	Sacramento River Levee Repair	Correct deficiencies, protect against underseepage, and maintain the Sacramento River Levees to current standards for FEMA 100 yr and SB 5 200 year levels of flood protection.	20	9	Yes	Implementable Project	High	Medium	14
116	West Sacramento Area Flood Control Agency	Sacramento Bypass-Yolo Bypass Levee Repair Phase II	Correct deficiencies, protect against underseepage, and maintain the Sacramento Bypass and Yolo Bypass Levees to current standards for FEMA 100 yr and urban levee 200 year levels of flood protection.	18	9	Yes	Implementable Project	High	Medium	14
117	West Sacramento Area Flood Control Agency	West Sacramento South Cross Levee Repair	Correct deficiencies, protect against underseepage, and maintain the West Sacramento South Cross Levee to current standards for FEMA 100 yr and urban levee 200 year levels of flood protection.	10	4	No	Implementable Project	High	Medium	14
120	Yolo County	Yolo County Airport Drainage Plan	In order for the airport to eliminate flooding of its facilities and to expand, a 2005 Drainage Plan engineered by Wood Rogers needs to be implemented.	7	3	No	Planning	High	Medium	14
123	Yolo County	Clarksburg Flood Protection Feasibility Study	The project involves conducting a feasibility study of alternatives to provide a 100-year level of flood protection to the Clarksburg region.	6	6	No	Implementable Project	High	Medium	14
134	RWMG with selected Lead Agency	Climate Change Adaptation Study	Regional study to advance understanding of the effects of climate change and consider potential modifications to the water management system.	11	2	No	Planning	High	Medium	14
136	Reclamation District 2035	Levee Repairs/Maintenance- Segments 150, 173 and 297	Complete geological analysis, engineering design required to identify and correct levee deficiencies and hazard mitigation recommendations contained in the URS levee evaluation report (2010) completed at the direction of the Department of Water Resources and additional geologic investigation analysis (to be completed) recommendations.	10	3	No	Feasibility Study	High	Medium	14
139	Reclamation District 2035	Floodway Corridor Project	The project consists of three major phases/components: 1) acquisition of Conservation/Flowage Easements - Approx. 7,000 acres.2) New Sacramento River By Pass - A new bypass facility will be constructed to divert flows from the Sac River to the Yolo Bypass. During large storm evens flood flows would be diverted (Sac River) over a new weir to a new bypass channel that would deliver flows to the Yolo Bypass.3) Diverting additional flood flows in to the Yolo Bypass would increase flow and stages in the bypass downstream from the new bypass. To mitigate for potential flow increases, a portion of Conaway Ranch (outside of the Bypass), would be used to convey and store (transitory storage of over 66K acre feet) of flood water during large storm events.	9	2	No	Feasibility Study	High	Medium	14
162	City of Davis	Drainage Channel Feasibility Study	Looking to study feasibility to enhance the five separate storm drain conveyance channels to improve evoptranspiration through design improvements. This feasibility study would provide specific ways to improve the design of the existing facilities to improve water quality for the discharges that occur from each channel. The facilities are located Citywide. The study may yield that only one channel is worthy of modification. In particular, the City would like to study the El Macero Drainage Channel in southeast Davis as it is believed to be the channel with that would benefit the most from design improvements. A map can be provided to aid in located each of these drainage channels. If project is developed an educational component can be added.	11	4	Yes	Feasibility Study	High	Medium	14
164	City of Davis	Russel Boulevard Demonstration LID Project	The project is to be located in front of City Hall (already proposed and working its way through the City's Parks and Community Services Department) along Russell Boulevard. Russel Boulevard is one of the City's prominent east-west arterials. The project is to create a vegetated swale to treat stormwater runoff on the north side of the roadway. The surface area it will treat is 8,000 square feet. It is proposed to treat drainage prior to discharge to the City's stormdrain system consistent with the standards of Section E.12 of the State's Small MS4 Phase II General Permit (Permit). A map can be provided to aid in the location of this project.	12	7	Yes	Implementable Project	High	Medium	14
173-YS	City of Davis	Bike Tunnel Landscaping Redesign for Stormwater Quality Improvement	Redesign the current drainage and landscaping near greenbelt bike tunnels to prevent flooding from stormwater. Assess the top highly-trafficked tunnels with drainage issues within the greenbelt system. Improved drainage would include re-landscaping the areas surrounding these tunnels to prevent flood events and improve stormwater quality discharges through the use of different stormwater low impact design methods through infiltration, transpiration and evaporation. Each site could showcase a different method; signage near the tunnels would illustrate the project and highlight elements of the project design.	11	2	Yes	Implementable Project	High	Medium	14
176-YS	Yolo County Flood Control and Water Conservation District	Forbes Ranch Regulating Pond	Develop and construct a 200 acre-feet regulating pond to reduce drainage and flood waters through the town of Madison and District canal system. Divert stormwater flows to the pond through the existing conveyance. The regulating pond would provide storm water retention during the winter and would allow for groundwater recharge in the spring and summer when capacity and water is available. The regulating pond would provide water quality benefits by allowing the sediments in the runoff to settle and lessening the transfer of pollutants and chemicals downstream. The surrounding area would have native vegetation that would promote benefits for wildlife habitat, and the property would allow for groups to visit and learn about the multi-functional project. Similar to the District's Chapman Reservoir, we would install automated gates and monitoring devices at the regulating pond that would be connected to the District's SCADA system for real-time management.	12	3	Yes	Implementable Project	High	Medium	14

Table D-7: Westside IRWM Plan Project Screening Results (sorted by Primary Objective)

Project No.	Lead Agency /Organization	Project Title	Planned Project/Program Types and Activities	Total Criteria Score	Readiness	Potentially Critical DAC Project	Project Type	Importance	Urgency	Primary Objective
177-YS	Yolo County	Knights Landing Storm Drain Project	Design and construct a new storm drain or culvert in the vicinity of 4th and Railroad streets in the community of Knights Landing. KL has historically experience standing water (localized flooding) in the northern portions of town that can be as deep as 2 feet in wet years. The new storm drainage would convey storm water to the County's existing drainage system on the east side of Railroad Street. Design and construction are proposed to be completed by Public Works.	10	2	Yes	Implementable Project	High	Medium	14
178-YS	Yolo County/	Knights Landing Underground Drainage Study	This project would model new underground drainage facilities for the entire Town of Knights Landing to determine location(s) for outfall to the Sacramento River or Ridge Cut Slough. Preliminarily it is estimated that the underground drainage facilities would be sized for 30-50 cfs of storm flows and the system outfall would need to be sized accordingly to prevent backup of the system. Outfall locations would also need to be evaluated to determine if the downstream capacity would be sufficient to convey this additional flow during storm events. LID strategies will be used to ensure discharge water quality does not impact the Sacramento River or Ridge Cut Slough water quality.	10	3	Yes	Planning	High	Medium	14
179-YS	Yolo County FCWCD with Madison CSD	Madison Drainage Study	This project would model new underground drainage facilities for the entire Town of Madison to determine location(s) for outfall (possibly Cache Creek, the South Fork Willow Slough or Cottonwood Slough). Preliminarily it is estimated that the underground drainage facilities would be sized for 110 cfs of storm flows and the system outfall would need to be sized accordingly to prevent backup of the system. Outfall locations would also need to be evaluated to determine if the downstream capacity would be sufficient to convey this additional flow during storm events. LID strategies will be used to ensure discharge water quality does not negatively impact downstream water quality.	10	3	Yes	Planning	High	Medium	14
180-YS	City of Woodland	North Regional Pond and Pump Station	The project involves the design and construction of an approximate 75 acre sedimentation pond and a pump station able to eventually accomodate a 120-cfs design flow.Project re-purposes an existing City evaporation pond that is no longer in use for any purpose. Currently the pond only receives nearby runoff.This project will add the NR Pond hydraulically into the City's storm drainage network and include:* Low flow training wall and inlet pipes from the Gibson Channel to the NR Pond* High flow weir from South Canal to the NR Pond* Outlet pipes from NR Pond to the South Canal* Pump station at the downstream terminus of the South Canal* Force main and outfall from the pump station to the outfall channel	13	5	No	Implementable Project	High	Medium	14
181-YS	Yolo County	Raise Highway 16 Out of Flood plain	This project was initially proposed by Caltrans as flooding of Highway 16 is a chronic problem. The project was not constructed because of concerns of some farmers about grades at farm road crossings. Raising Highway 16 creates a barrier that could be used to store storm water north of the highway in detention basins/recharge ponds. Increasing the capacity of Willow Slough south of Highway 16 west of Madison is needed so that flows can be conveyed to the detention basins. Willow Slough is the source of the majority of flooding in Madison. Cottonwood Slough contributes to occasional flooding (last time was 1996) in Madison. This project could be coordinated with the Madison Canals project as other upstream diversions could benefit this project and/or the planned detention basins could be coordinated.	13	4	Yes	Implementable Project	High	Medium	14
183-YS	City of Davis	Site Survey for Hardscape Conversion to Pervious Pavement	Survey public parking lots that currently have impervious surfacing to assess the practicality of converting these locations to pervious pavement when they are in need of resurfacing, maintenance or redesign. Portions of the pathways near the sites could potentially highlight permeable pavers in addition to the parking lots. Projects could be planned with improvements to incorporate bioswales, low water use plants, and other low-impact design measures into any landscape changes at the site. The projects would include signage on stormwater techniques implemented and information about water quality.	10	2	Yes	Planning	High	Medium	14
184-YS	Yolo County FCWCD with Madison CSD	Upstream Flow Management to Prevent Madison Flooding and to Facilitate GW Recharge	The District proposes to manage high flows from Lamb Valley, Cottonwood and S. Fork Willow Sloughs using the existing canal system as well as other means such as upstream check dams. During storm events Willow Slough floods the Town of Madison. The Canal system can be used to convey water away from the Town of Madison and reduce flood levels while also managing peak flows through use of check dams, particularly in Lamb Valley Slough. Flow and water level monitoring could serve several purposes. GW recharge can be accomplished through canal bottoms and potential recharge/detention basins. P. 29 and 30 of the 2012 FIS describe some of the upstream channel capacity limitations and a review of FIRM maps shows several points of intersection between the sloughs and canals to be explored. This project can be coordinated with Raising Highway 16 project.	12	1	Yes	Implementable Project	High	Medium	14
188-YS	Yolo County Flood Control and Water Conservation District	Winters North Area Stormwater Pond	Develop and construct a 5,000 acre-feet stormwater retention pond in the north area of Winters to reduce drainage and flood waters from the Chickahominy Slough. The retention pond would also be used for groundwater recharge in times when the capacity and water was available. The retention pond would provide water quality benefits by allowing the sediments in the runoff to settle and lessening the transfer of pollutants and chemicals downstream. The surrounding area would have native vegetation that would promote benefits for wildlife habitat, and the property would allow for groups to visit and learn about the multi-beneficial, multi-agency partnership. Similar to the District's Chapman Reservoir, we would install automated gates and monitoring devices at the retention pond that would be connected to the District's SCADA system for real-time management.	13	3	Yes	Implementable Project	High	Medium	14
189-YS	Yolo County Flood Control and Water Conservation District	Yolo County Drains and Sloughs -- Governance and Maintenance Study	Plan that will identify governing bodies and maintenance responsibilities involved in the County's drains, canals, and sloughs. The District and County will work together to develop a governance and maintenance study that will assist in providing effective rural storm water management responsibilities based on the defined governing bodies. Plan/investigation will initiate a legitimate storm water management program in Yolo County.	12	3	Yes	Planning	High	Medium	14
190-YS	Madison CSD	Madison Farmer Field Stormwater Capture and Groundwater Recharge	Modify farmer fields around Madison, specifically those next to Highway 16 and those that will capture upstream flows. The two options considered include 1) 1,200 acres of farmer field modification for rainfall capture (8"-berm) and 2) modification of a farmer field near Cache Creek (maybe half of APN 049-060-017) for rainfall and storm water runoff capture a 3-' high storm water detention basin. This project will require farmer participation and advanced planning for field modification, and will depend on the storm intensity. The first option will only capture rainfall and the second option will capture rainfall and allow runoff to be collected into the detention basin. The second option will require more modification to the property, additional infrastructure for channeling runoff into the basin, and a pump if the water needs to be drained from the basin.	16	6	Yes	Implementable Project	High	Medium	14

Table D-7: Westside IRWM Plan Project Screening Results (sorted by Primary Objective)

Project No.	Lead Agency /Organization	Project Title	Planned Project/Program Types and Activities	Total Criteria Score	Readiness	Potentially Critical DAC Project	Project Type	Importance	Urgency	Primary Objective
191-YS	Madison CSD	Western Yolo Sloughs Citizen Science Program	Lamb Valley Slough, the South Fork Willow Slough and the Madison Drain have been identified as sources of flooding in Madison in various studies and reports. It seems likely that mitigation upstream in these sloughs to remove water before the sloughs reach Madison and Esparto, and management of the sloughs to keep them free of debris could help in alleviating flooding in the area. However, none of these channels are monitored, therefore, it is unknown what capacity these sloughs have, when that capacity is reached (during or after a storm), or what type of mitigation would be most fitting for each slough. Additionally, it is not known if the Winters Canal is also full when sloughs are full, or if it may have capacity that could be used to alleviate the sloughs when they are over flowing. The Madison CSD with its partners will develop a citizen science program where Madison residents and residents from the nearby areas will visit sloughs and canals that carry water in and around Madison following rain events. The program members will record whether they see water flowing in the sloughs and canals at previously determined locations, and record observations such as whether the channels are successfully carrying the flows, appear to be obstructed, or are overflowing. The information will be compiled in an easy to use format so that members can easily share the information with Madison CSD and others. The information will initially be used until a flow monitoring network can be developed in the sloughs, and potentially beyond. The goal is to gain a better understanding of the slough flow patterns and information that can be used to plan for flood mitigation in Madison, while also engaging and educating the community.	10	2	Yes	Planning	High	Medium	14
194	City of Woodland	Outfall Channel Culvert Replacement Project	City has a single stormwater discharge location. The outfall is limited by three (3) existing 36" diameter culvert pipes that penetrate a levee road. The existing culverts are limited in that: (a) they are in poor condition and their flap gates have fallen off and (b) within the next few years, based on development, they will be insufficient to handle the amount of City stormwater flows. Plan to the replace the three (3) existing 36" diameter culverts with five (5) 72" diameter ones to accommodate for full City build-out (2035)	9	3	No	Implementable Project	High	Medium	14
60	Lake County Water Resources Department	Improve Watershed Roads and Trails to Reduce Soil Erosion	Provide supplemental funding to government programs to survey road and trail conditions and maintain, upgrade, decommission, or re-route them as needed.	9	2	Yes	Planning	Medium	Medium	15
70	Mendocino National Forest	Lakeview Hazardous Fuels Reduction	The primary activities proposed under this project are vegetation and surface fuel treatments to reduce hazardous fuels and modify wildland fire behavior.	19	9	Yes	Implementable Project	Medium	Medium	15
71	Mendocino National Forest	Hazardous Fuels Reduction in the Upper Lake Watershed	Management of 28,600 acres within the Upper Lake watershed, including hazardous fuels reduction on areas to be determined during the planning stage.	11	3	Yes	Conceptual	Medium	Medium	15
33	Solano County Water Agency	Research on Hydrodynamics and WQ Interactions in the Delta.	With large projects such as the Bay Delta Conservation Plan, restoration of thousands of acres of tidal marsh habitat as part of the Delta Biological Opinions, and others, there is a need to better understand the hydrodynamic and water quality interactions in the Delta.	7	4	No	Implementable Project	Medium	High	16
36	Solano County Water Agency	Solano Subbasin Conjunctive Use	Project will improve knowledge on the potential for conjunctive use of groundwater and surface water in the Solano Subbasin. The project will focus on increasing the opportunities for conjunctive groundwater use as a means of increasing water supply and reliability.	8	5	No	Implementable Project	High	Low	17
37	Solano County Water Agency	Southwestern Sacramento Valley Basin/Solano Subbasin Groundwater-Surface Water Flow Model to Evaluate Recharge, Conjunctive Water Use, and Future Deep Zone Pumpage	The major goal of this project is to consider the potential effects of conjunctive water use scenarios on stakeholders in the greater Solano area, including the Sacramento River and other significant surface water courses in the model area. Another goal of this project is to evaluate the effects of developing new and/or redistributing deep pumpage either horizontally over a spatial area or vertically over different aquifer units with the goal of reducing drawdowns in the basal zone.	10	5	No	Implementable Project	High	Low	17
138	Reclamation District 2035	Groundwater Studies	Reclamation District 2035's Ground Studies Project will consist of the identification and analysis of issues, if any, surrounding the quality and availability of groundwater.	10	3	No	Planning	High	Low	17
31	Solano County Water Agency	Improve Solano Project SCADA infrastructure	This project is to install contiguous dedicated power and data lines from the top end of the Solano Project system to the bottom. This would allow monitoring of the entire system simultaneously from a central location and could allow automated remote control.	8	6	No	Implementable Project	High	Medium	18
63	Lake County Water Resources Department	Develop and Implement a Comprehensive Watershed Monitoring Programs	Meeting of agencies, Tribes, and organizations currently monitoring water quality in the Clear Lake Watershed to coordinate monitoring activities and reduce overlap when possible.	14	2	Yes	Implementable Program	High	Medium	18
75	Rural Community Assistance Corporation	DAC Community Wastewater Management Project	RCAC will work with Lake County DACs and tribes to create and implement a septic inspection and monitoring program.	15	0	Yes	Implementable Project	High	Medium	18
102	Reclamation District No. 2068	SCADA Implementation	Install/coordinate local and regional SCADA system to monitor water diversions, pumping plant operations, flood water elevations, groundwater elevations, water distribution within the agency jurisdiction.	11	2	No	Conceptual	High	Medium	18
125	Yolo County	Methylmercury Impacts Analyses for the Yolo Bypass	Yolo County proposes to collect data and analyze changes in methyl mercury production and bioaccumulation that could result from (1) a proposed Bay Delta Conservation Plan (BDCP) project to enhance fisheries habitat in the Yolo Bypass; and (2) a Central Valley Flood Protection Plan proposal to expand the Yolo Bypass to improve flood capacity.	7	1	No	Planning	High	Medium	18
175-YS	Yolo County Flood Control and Water Conservation District	Flood Monitoring Network Project	Project installs flow monitoring stations at canals and sloughs in order to optimize conveyance capacity for both agricultural operations or during rain events, which could occur at the same time. It is not known how much flow sloughs contribute to the canal systems during rain events.	7	3	No	Implementable Project	High	Medium	18
39	Solano County Water Agency	Source water protection for Putah Creek watershed	This project consists of various improvements such as best management practices, source water protection, reduction of in-channel erosion, improved stream channel geomorphology, remediation of historic mining and others to reduce the impact of point and non-point sources that could negatively impact the Putah Creek watershed, as well as the Yolo Bypass.	7	4	No	Implementable Project	High	Medium	19
44	City of Clearlake	City of Clearlake Stormwater Management Plan (SWMP), Storm Drainage and Flood Control Project Proposal	The City of Clearlake Stormwater Management Plan (SWMP) includes development of stormwater management program implementation strategies and actions.	13	3	Yes	Planning	High	Medium	19
66	Lake County Water Resources Department	Clear Lake Water Quality Assessment	Planning/assessment project to assess the current limnological conditions and to identify and select measures necessary for Clear Lake to meet the water quality objectives as specified in the Basin Plan, as required by the Basin Plan amendment implementing the Nutrient TMDL for Clear Lake.	11	4	Yes	Planning	High	Medium	19

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Project No.	Lead Agency /Organization	Project Title	Planned Project/Program Types and Activities	Total Criteria Score	Readiness	Potentially Critical DAC Project	Project Type	Importance	Urgency	Primary Objective
81	Tuleyome, Inc.	Comprehensive Mercury Assessment and Implementation for the Westside Region	This project will: 1) compile and georeference existing data pertinent to characterization of known and potential mercury priority areas in the Westside Region 2) monitor streambeds within the Putah Creek Watershed 3) upload relevant data into a regional or statewide on-line library 4) develop a summary 5) develop best management practices toolkit 6) identify 2-3 feasible priority projects and 7) develop implementation measures using the Toolkit and decision support tools.	11	4	Yes	Planning	High	Medium	19
108	Tuleyome, Inc.	Sulphur Creek Mercury and Sediment Reduction Project	This project will: 1) Characterize mercury as required to enable erosion control work, 2) Hydrologically disconnect up to 23 miles of road networks that are currently contributing runoff and contaminated sediment to downstream waters, 3) Stabilize 2000 feet of eroding stream banks that are over-steepened and delivering methylmercury contaminated sediment into the stream system, 4) Treat 115 road-related erosion and sediment delivery sites and 5) Stabilize three major valley bottom headcuts that are resulting in serious valley fill erosion along the main stem Sulphur Creek, desiccating alkali wet-meadows and lowering the water table.	12	3	Yes	Implementable Project	High	Medium	19
109	Tuleyome, Inc.	Elgin Mine Drainage Water Treatment Project	Compile existing maps, reports, water data, and other information about Elgin Mine in the IRWM region indicating location, ownership history, and mineral production. Address all regulatory requirements, Conduct baseline and post-project monitoring of downstream water, sediment, and biota. Design and construct a hot spring treatment system to minimize mercury loads downstream.	7	1	Yes	Planning	High	Medium	19
152	Tuleyome, Inc.	Corona & Twin Peaks Mines Cleanup	The principle physical improvements that this project will implement include a novel, low-maintenance, in situ treatment system to reduce acidity and metals loadings from the Corona Drain Tunnel, consolidating mine waste, improving runoff controls, enhancing revegetation of waste rock and tailings at the Boiler House Adit and Twin Peaks Adit, and improving the existing infiltration trenches at the Boiler House Adit and Twin Peaks Adit. This project will address several key issues commonly associated with mine cleanup projects, including:· Physical hazards: Restricting access to the adits and infiltration trenches by people and wildlife· Chemical hazards: Treating mine drainage and site seepage/runoff to attain water quality standards· Legal liability: Protecting "Good Samaritans" who implement projects or manage lands for the good of society· Multiple goals: Seeking multiple benefits (public health & safety, wildlife habitat, cultural resources, etc.) while addressing competing interests· Limited funds: Minimizing remediation costs to encouraging similar efforts elsewhere.	16	5	Yes	Implementable Project	High	Medium	19
163	City of Davis	Retention Pond Feasibility Study	Looking to study feasibility for design enhancements for the seven separate storm drain retention ponds to improve evoptranspiration and water quality in the City's discharge. This feasibility study would provide specific ways to improve the design of the existing facilities to improve water quality for the discharges that occur from each facility. The facilities are located Citywide, but all of the ponds are located north of I 80 in the northern two thirds of the City. The study may yield that only one pond is worthy of modification. In particular, the City would like to study the Core Area Pond in central Davis as it believed to be the pond that receives the most pollutants from its drainage shed. A map can be provided to aid in located each of these ponds. If project is developed an educational component can be added.	11	5	Yes	Feasibility Study	High	Medium	19
171-YS	University of California, Davis	Agricultural Stormwater Improvements	Agricultural runoff currently enters the storm drain system directly. This projects would create retention basins and vegetated ditches to collect stormwater and irrigation runoff along edges of agricultural fields.	9	2	No	Implementable Project	High	Medium	19
174-YS	City of Davis	Feasibility Study for Stormwater Trash Control Measures	Feasibility study to assess options for stormwater trash control measures. This study will assess the best method(s) to help the City meet mandatory requirements for trash screening to prevent trash from entering waterways. One particular area of concern is Channel A. An option for this area is to install trash racks/debris cages in the Wildhorse Basin to address issues with trash flowing from the area directly into Channel A. There is currently no barrier between the stormwater from the basin and the channel. This study would provide an assessment of potential options to comply with the trash amendment requirements of the Small MS4 permit.	10	3	Yes	Feasibility Study	High	Medium	19
192	Solano Resource Conservation District	Barker Slough Water Quality and Habitat Restoration Project	Barker Slough is part of the North Bay Aqueduct (NBA), providing drinking water for up to 500,000 people in urban areas of Napa and Solano Counties. It is also a major tributary to Lindsey Slough, part of the Cache Slough complex of the Sacramento-San Joaquin River Delta. Nearly all of its length is ranched, and in many areas, cattle have free access to the slough. The water coming from the slough has been shown to have high amounts of organic carbon, bacterial coliform, turbidity and salts that exceed drinking water standards. Past projects have attempted to fence cattle off the slough and allow water quality to improve, but these have not been well maintained and cattle continue to degrade water quality. This project would install/repair fencing and off-stream cattle troughs at multiple project sites along Barker Slough, and install native riparian vegetation in this currently denuded watershed. A total of 5 stream miles will be fenced off from cattle and 5 acres of riparian habitat will be restored. In addition, a Barker Slough Watershed Management Plan will be created to bring ranchers, landowners, and urban water users together to identify priority projects that will improve and maintain water quality.	11	2	No	Implementable Project	High	Medium	19
91	Napa Berryessa Resort Improvement District	NBRID Wastewater Storage Pond and Disposal Improvements	This project will upgrade the wastewater storage ponds and disposal spray fields.	14	9	No	Implementable Project	Medium	Medium	20
128	Lake Berryessa Resort Improvement District	Program to Prevent Wastewater Discharges	This project will repair or replace sections of sanitary sewer collection laterals and mains that are experiencing above normal levels of storm water inflow/infiltration (I/I).	14	8	Yes	Implementable Project	Medium	Medium	20
153	Lake Berryessa Resort Improvements District	Sewer Lift Station Upgrades	A single six (6) inch asbestos cement sewer main installed in the mid 1960s conveys pumped raw sewage from the Lift Station A Collection Tank to remote Facultative Ponds and Sprayfields. Approximately 5,200 feet of the sewer trunk line is under high pressure due to a 231 foot change in elevation from the tank to terminus manhole and frictional headloss within the pipe. Combination of age (50 years), high working pressure (> 100 psi) and asbestos cement pipe properties have caused leaks and breaks prompting emergency repairs. The existing AC sewer main has inadequate hydraulic capacity to handle 100-year design storm inflows per requirements mandated by the Central Valley RWQCB. The project will replace 3,000 feet of sewer main and appurtenances from Lift Station A traversing below the Storage Pond access road.	10	8	Yes	Implementable Project	Medium	Medium	20
154	Lake Berryessa Resort Improvements District	Sewer Lift Station Upgrades	Sewer Lift Stations B, C and D in the residential collection system have insufficient firm pumping capacity and to handle 100-year design storm inflows per requirements mandated by the Central Valley RWQCB. The project will replace progressive cavity style pumps with latest technology chopper pumps, renew yard piping plus appurtenances and upgrade the electrical systems.	11	8	Yes	Implementable Project	Medium	Medium	20
204	City of Davis	Sewer Lateral Replacement	The project would replace aging sewer laterals with corrosion and other issues to protect water quality and reduce the potential for accidental sanitary sewer discharges into the stormwater conveyance system. The project would occur City wide over 3 to 4 years.	7	3	No	Implementable Project	Medium	Medium	20

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Project No.	Lead Agency /Organization	Project Title	Planned Project/Program Types and Activities	Total Criteria Score	Readiness	Potentially Critical DAC Project	Project Type	Importance	Urgency	Primary Objective
38	Solano County Water Agency	Source water protection for Delta water sources	This project consists of various improvements such as best management practices, source water protection, and others to reduce the impact of point and non-point sources that could negatively impact Delta water quality, with a particular emphasis on drinking water quality.	8	4	No	Implementable Project	Medium	Medium	21
43	Solano County Water Agency	Wetland Restoration Research and Impacts to Source Water Quality.	The project will consist of scientific study/research on wetland restoration, organic carbon generation, and other important areas of study, to determine the corresponding impacts on municipal source water quality.	7	4	No	Implementable Project	Medium	Medium	21
85	Yolo County Flood Control and Water Conservation District	Abandoned Well Incentive Program	Development of a Regional 3 year Abandoned Well Incentive Program to properly abandon wells.	16	9	No	Implementable Project	Medium	Medium	21
89	Lake County Special Districts	Soda Bay Water System Improvements	This project will correct deficiencies caused by increased algae blooms in Clear Lake in the system that are required for public safety and regulatory requirements.	15	8	Yes	Implementable Project	Medium	Medium	21
159	City of Winters, CA	City of Winters Drinking Water Hexavalent Chromium (Cr6) Compliance Project	The City is under Notice of Violation with the SWRCB Division of Drinking Water to reduce Cr6 levels in four of its five wells (82% of the City's water supply) exceeding the new Cr6 Primary MCL. This is a new drinking water quality regulation approved by the State in July 2014 with enforcement beginning in August 2015 for urban water suppliers with sources in exceedance of the new Cr6 regulations. The City is requesting funds to design a cost-effective Cr6 compliance strategy for the community that meets the new Cr6 regulations within the State's compliance schedule.	13	4	Yes	Planning	Medium	Medium	21
34	Solano County Water Agency	Research on Improving Water Treatment for Delta Sources	The project would build upon past research done at the NBA Treatment Facility, and by other Delta users, to improve water treatment methods, reduce DBPs, and improve water treatment for Delta water users, including the SWP and CVP.	6	4	No	Implementable Project	High	High	22
48	Crescent Bay Improvement Company	Crescent Bay Improvement Company	Crescent Bay improvement Company has been on a Boil Water Order since 1999. There are 3 objectives to this project:1) replace the 80-year old distribution lines which are leaking, 2) drill a well and replace our surface water source with ground water, and 3) explore the feasibility of and purchase a neighboring water company and develop an intertie with that system.	11	3	Yes	Implementable Project	High	High	22
55	Clearlake Oaks County Water District	Plant Intake	Install a new water intake in the lake that is capable of drawing water from different depths, with installation of an amiad pre-filter at the pier where the intakes are located. This will allow a greater control of influent turbidity and pH by controlling what depth the intake will be drawing water from.	11	3	Yes	Planning	High	High	22
69	Lake County Water Resources Department	Adobe Creek Conjunctive Use Project	Addition of conjunctive use to the operation of Highland Creek Reservoir (Lake County), through the addition of sluice gates to the existing Principal Spillway structure at Highland Creek Dam.	12	3	Yes	Implementable Project	High	Medium	22
87	Lake Berryessa Resort Improvement District	LBRID Wastewater Storage Pond and Disposal Improvements	This project will upgrade the wastewater storage ponds and disposal spray fields.	13	6	Yes	Implementable Project	High	High	22
90	Napa Berryessa Resort Improvement District	NBRID Water Treatment Plant Replacement	The existing water treatment plant will be replaced with a new more technically advanced water treatment plant.	14	9	No	Implementable Project	High	High	22
92	Napa Berryessa Resort Improvement District	NBRID Wastewater Treatment Plant Replacement	This project will upgrade the existing WWTP. The project will also repair or replace all the existing sewer lift stations.	14	9	No	Implementable Project	High	High	22
93	Rural Community Assistance Corporation	Rural Disadvantaged Community (DAC) Partnership Project	RCAC will manage the Prop 84 grant funds to address inadequate water supply and water quality in rural disadvantaged communities (DACs) in the Westside Sacramento IRWM region.	15	7	Yes	Planning	High	High	22
30	Solano County Water Agency	North Bay Aqueduct Alternate Intake Project	The NBA AIP includes the construction and operation of a new intake and pumping plant on the Sacramento River, conveyance pipeline, and inline storage to divert and convey water from the Sacramento River connecting to the existing NBA pipeline near the North Bay Regional Water Treatment Plant in Fairfield.	11	5	No	Implementable Project	High	Medium	23
67	Lake County Water Resources Department	Cache Creek Flow Enhancement Project	This project will evaluate the removal and maintenance of the gravel bar at the Grigsby Riffle to reduce flow restrictions in the Cache Creek Outlet Channel.	11	3	Yes	Feasibility Study	High	Medium	23
88	Lake Berryessa Resort Improvement District	Water Tank Replacement Project	The three existing potable storage tanks have reached the end of their useful life. The project will replace these three tanks to ensure a continuous water supply for the residents in the future.	15	9	Yes	Implementable Project	High	Medium	23
118	Yolo County Flood Control and Water Conservation District	Conjunctive Water Use Program	This conjunctive water use project envisions using a variety of methods (recharge/recovery, off-stream storage and canal system modernization) to effectively store and conjunctively use groundwater in the District's service area.	16	7	Yes	Implementable Program	High	Medium	23
145	City of West Sacramento	Municipal Well at the George Kristoff Water Treatment Plant	Project includes environmental, design and construction of a new municipal well located at 400 N.Harbor Blvd in the City of West Sacramento. This well will augment City potable water supplies during drought conditions. This well in not intended to increase water production but allow upstream surface water diversions by as much as 4,500 acre feet annually.	7	3	No	Implementable Project	High	Medium	23
147	Lake County Special Districts	Paradise Vallev-Clearlake Oaks County Water Consolidation	Paradise Valley Water System, County Service Area 16 (CSA #16), serves 73 customers. The system does not have adequate source capacity in accordance with Section 64554, Chapter 16, Title 22 of the California Code of Regulations. CSA #16 has three wells that when combined do not produce the required source capacity. Attempts to drill a fourth well in 2012 were unsuccessful. The current drought has further reduced the wells ability to prod uce and the CSA is critically challenged to produce sufficient water for human consumption. The CSA is under an urgency ordinance and required to keep usage below 50 gpd per person. The option of building a surface water treatment plant is not desirable due to the poor water quality of Clear Lake and the costs would be prohibitive for the very small district. It has been determined that consolidating with Clearlake Oaks County Water System (CLOCWS) is the best option for resolving the lack of source capacity. Consolidation with CLOCWS would benefit both systems as it would resolve source capacity for CSA # 16 and would allow CLOCWS to expand their customer base and upgrade storage. Project will include the construction of a pipeline to distribute water to CSA # 16.	14	7	No	Implementable Project	High	Medium	23

Table D-7: Westside IRWM Plan Project Screening Results (sorted by Primary Objective)

WESTSIDE SAC IRWM
Integrated Regional Water Management Plan

Project No.	Lead Agency /Organization	Project Title	Planned Project/Program Types and Activities	Total Criteria Score	Readiness	Potentially Critical DAC Project	Project Type	Importance	Urgency	Primary Objective
148	Lake County Special Districts	Spring Valley Water System Distribution Line Loop	Spring Valley, CSA #2 is a public water system serving 493 customers. CSA #2 draws water from Indian Valley Reservoir which is at a critically low level due to the drought. Storage for Indian Valley reservoir is currently 27,753 acre feet compared to 96,411 acre feet last year. Release of 10 cubic feet per second is required for fish habitat. This project would help preserve sufficient quantities of water for both human consumption and preservation of the fish habitat. The old and deteriorated distribution system is experiencing numerous leaks which are increasing the amount of water required for community consumption. In addition to the leaking pipes, the system has lines that “dead end” and must be flushed regularly to avoid a dangerous buildup of trihalomethanes. (a dangerous by-product of the treatment process) Flushing the lines also requires large quantities of water to be wasted.TSpring Valley, CSA #2 is a public water system serving 493 customers. CSA #2 draws water from Indian Valley Reservoir which is at a critically low level due to the drought. Storage for Indian Valley reservoir is currently 27,753 acre feet compared to 96,411 acre feet last year. Release of 10 cubic feet per second is required for fish habitat. This project would help preserve sufficient quantities of water for both human consumption and preservation of the fish habitat. The very old distribution system is experiencing numerous leaks which are increasing the amount of water required. Over 12,000,000 gallons of treated water is being lost per year through leaks. In addition to the leaking pipes, the system has lines that “dead end” and must be flushed regularly to avoid a dangerous buildup of trihalomethanes. (A dangerous by-product of the treatment process) Flushing the lines also requires large quantities of water to be wasted.The proposed project would resolve these two critical needs. Additional benefits would be improvements to the fire suppression abilities and a decrease on operating and maintenance costs. The extension of water lines for looping the system would allow installation of fire hydrants in areas that have not had access to water lines and are at risk of wild fires. This project would consist of the replacement of 7,500 feet and new installation of approximately 9,100 feet of C-900 water lines which will increase water supply reliability, water conservation and water use efficiency as well as improve drinking water quality and help alleviate fire danger. Up to 45% of the water drawn from the reservoir and treated is being lost due to the old deteriorated water lines and the	15	7	Yes	Implementable Project	High	Medium	23
150	Lake County Special Districts	Mt. Hannah, CSA #22 Water System	Mt. Hannah, CSA #22 is a public water system serving 80 customers. CSA #22 relies on ground water for supply. Due to current drought conditions, the well level dropped 65% from January 2013 to January 2014. The well has lost the ability to recharge and can only be pumped for approximately 30 minutes and then must be allowed to recharge for 2 to 3 hours. Due to the well being overdrawn, turbidity issues have become a problem. Filtering for turbidity requires even more water that is not available. We are in the process of preparing to truck water to the community from outside the area. This will be very costly and an extreme financial burdon on the disadvantaged community.In addition to the loss of capacity, the system has a deteriorated trunk line that has severe leaks and is losing up to 45% of the water being pumped. The customers are economically disadvantaged. They have been conserving water and the average consumption for the CSA is approx. 35 gallons per day per person.Water rates for this CSA are considerably higher than the county average but due to the small number of customers, the CSA struggles financially and has not been able to build a capital reserve fund. The geographic location of this CSA eliminates the option of consolidation. It is located on Cobb Mountain and not near any other systems that it could tie into. The CSA desperately needs a deeper well and a new trunk line installed.	15	7	Yes	Implementable Project	High	Medium	23
151	Yolo County Flood Control and Water Conservation District	Regional Drought Preparedness through Increased Groundwater Recharge	[illegible] recharge and recovery is central to good conjunctive management of surface and groundwater resources. Currently, by District policy, 160 miles of surface water canals remain unlined, providing summertime groundwater recharge services that benefit the aquifer and riparian habitat. The recharged groundwater is used by farmers, individual well owners and business, cities, and small communities. Normally, the majority of canal recharge occurs in the summertime, during the irrigation season. This project proposes to divert wintertime water into the canal system which would require the installation of automated canal gates to replace manual gates. This project will improve local water supply reliability during times of drought and improve conjunctive use management overall. The District has been building and planning improvements to its conjunctive use system for many decades. The regionally supported groundwater monitoring program is extensive. The ag/urban partnership between the cities of Davis, Woodland, and Winters and the Water District is strong. Indeed, the Cities depend on the recharge activities of the District to maintain their water supplies. The disadvantaged communities (DAC) in the western half of the District also depend exclusively on groundwater. The installation of automated gates to make winter recharge possible will increase groundwater storage and will benefit the community for years to come.	16	7	Yes	Implementable Project	High	Medium	23
166	Department of State Hospital	Recycled Water Conversion projects	Napa State Hospital currently utilizes potable water supplied by the City of Napa for almost all irrigation needs (a limited area is currently served by recycled water). In 2011, NSD installed a recycled water main through NSH which included three metered turnouts. The project will connect to these turnouts, with the downstream improvements owned and operated by NSH. To convert the irrigation system, approximately 38,000 lineal feet of recycled water pipe will be installed, along with valves, and ancillary improvements to deliver water to 139 irrigation points of connection, The connections typically occur at existing irrigation back flow devices, which will be replaced. Existing improvements downstream of the back flow devices will remain in place. Signage and modifications to above ground irrigation valves in accordance with NSD requirements are also part of the project.	13	4	No	Implementable Project	High	Medium	23
169	City of Davis	Recycled Water Projects	The City is currently evaluating the feasibility of various uses of recycled water using WWTP effluent. The WWTP is being upgraded allowing the City to produce high quality recycled water meeting Title 22 Standards. This project would be to assist with funding implementation of the chosen recycled water use(s). These uses may include but are not limited to water for: habitat, Yolo County Landfill, City-owned lands south of the WWTP, agricultural users in the area, City municipal uses, and filling stations.	10	3	No	Implementable Project	High	Medium	23
170	Harbor View Mutual Water	Water Storage Tank Replacement Project	The community currently has two 50 year old redwood storage tanks that have started to leak a significant amount of water due to rot and age. One of the tanks is in the middle of the water system and can't be taken out of service for maintenance. Neither tank is seismically secured to the cement foundation under them. The company contracted Water Works Engineering to draft us a PER as to the best way to solve our water storage tank problems, it was determined that replacement of all three of our current tanks with two new bolted steel tanks would be the cheapest and easiest fix for the long term. The estimated replacement cost the entire project is 1.3 million.	10	6	No	Implementable Project	High	Medium	23

Table D-7: Westside IRWM Plan Project Screening Results (sorted by Primary Objective)

Project No.	Lead Agency /Organization	Project Title	Planned Project/Program Types and Activities	Total Criteria Score	Readiness	Potentially Critical DAC Project	Project Type	Importance	Urgency	Primary Objective
193	City of Woodland	Well 31 ASR Project	existing Well #6. The new ASR well will facilitate groundwater recharge by injecting treated surface water into the gravel layer approximately 500 feet below the surface when surplus Sacramento River water is available during winter months. The ASR well water would be pumped from the ASR well to supplement surface water during drought conditions and to meet peak summer demands. ASR also has long-term water quality benefits because injected water replaces native groundwater impaired by nitrate and naturally occurring metallic species, including arsenic, hexavalent chromium, manganese, and selenium, with better-quality water.The intent is to inject water into the ASR well each winter and build a large reservoir of treated surface water beneath the well and utilize the water primarily during drought years. The project removes a high capacity groundwater extraction well from the regional aquifer and replaces it with a well that will promote groundwater recharge and sustainability while improving Woodland's water supply reliability during a drought. The ASR program greatly reduces the need for Woodland to utilize native groundwater in the City's water system. The City recently completed construction of three ASR Wells. The testing completed to date has been a success and indicates that ASR technology is successful in Woodland. The extracted water retains the constituent characteristics of treated surface water. The new ASR well would include the ability to inject treated surface water at a rate of approximately 2,000 gpm and extract water at a rate of approximately 3,500 gpm. The new ASR well is considered a Categorical Exemption under CEQA as it is a replacement of an existing water supply facility. The EIR for the ASR program has been completed and all necessary permits have been secured. The existing well will be properly destroyed.	13	6	No	Implementable Project	High	Medium	23
195	City of Woodland	Woodland Recycled Water Utility Expansion Project (Phase II)	The City of Woodland currently has tertiary treated Title 22 effluent from the City's Water Pollution Control Facility (WPCF) providing a firm capacity of approximately 2,700 gpm for recycled water. Woodland has an existing recycled water utility serving 2 City parks and a large industrial user in the industrial area northwest of the Water Pollution Control Facility (WPCF). The City has planned for an expansion of the recycled water utility into the Spring Lake Area of the City and also to serve the planned Woodland Research & Technology Park. There are several existing large water users that would use the recycled water for irrigation of parks and roadside landscaping. Businesses in the Research Park would utilize recycled water for cooling buildings. In addition, recycled water would be available to extend into new development areas for landscape irrigation. Portions of recycled water pipelines in Spring Lake have already been constructed by development projects. Providing recycled water to these areas would reduce demands on the potable water distribution system and reduce the demand on the groundwater aquifer. The recycled water pipeline would be constructed in the City's existing right of way. The City has recently completed a Mitigated Negative Declaration for the project. The expected initial demand for recycled water would exceed 110 acre feet per year. The Capital Cost for the Project is approximately $2.5M.The recycled water project includes construction of approximately 10,000 feet of 8" diameter purple pipe and a 100,000 gallon storage tank. The project also provides recycled water for expansion (Phase III) to west of Highway 113.	11	4	No	Implementable Project	High	Medium	23
196	City of Woodland	Woodland Recycled Water Utility Expansion Project (Phase III)	The City of Woodland currently has tertiary treated Title 22 effluent from the City's Water Pollution Control Facility (WPCF) providing a firm capacity of approximately 2,700 gpm for recycled water. Woodland has an existing recycled water utility serving 2 City parks and a large industrial user in the industrial area northwest of the Water Pollution Control Facility (WPCF). The City has planned for an expansion of the recycled water utility into the Sports Park Area of the City and also to serve the planned SP1B and SP1C areas in the City's General Plan. There are several existing large water users that would use the recycled water for irrigation of parks and roadside landscaping. In addition, recycled water would be available to extend into new development areas for landscape irrigation. Providing recycled water to these areas would reduce demands on the potable water distribution system and reduce the demand on the groundwater aquifer. The recycled water pipeline would be constructed in the City's existing right of way. The City has recently completed a Mitigated Negative Declaration for the project. The expected initial demand for recycled water would exceed 70 acre feet per year. The Capital Cost for the Project is approximately $925,000.The recycled water project includes construction of approximately 4,300 feet of 8" diameter purple pipe.	11	4	No	Implementable Project	High	Medium	23
203	City of Davis	Recycled Water Pump Station	With the completion of secondary and tertiary improvements, the City's Wastewater Treatment Plant is now capable of producing tertiary disinfected effluent that meets the requirements of Title 22 of the California Code of Regulations for recycled water. However, a final component of these upgrades is a means of delivering the recycled water produced at the WWTP to potential future customers. New infrastructure is necessary to convey recycled water from the WWTP to potential future customers or to send recycled water to locations within the WWTP property boundary for storage or disposal. This infrastructure, referred to as the "Phase 1 Recycled Water Facilities", will include a new Recycled Water Pump Station and associated piping specifically for conveyance of recycled water to onsite storage ponds and the WWTP's overland flow (OLF) site. To allow for greater operational flexibility, the Recycled Water Pump Station will be designed for a target minimum flowrate of 2,500 gpm with one pump in operation. At this higher flowrate, the City will be able to operate the Recycled Water Pump Station for less than 24 hours per day and still meet the peak day diversion targets. The pump will also be equipped with a variable frequency drive (VFD), which further increases operational flexibility. The pump station will be sized to accommodate a second pump in the future. The Recycled Water Pump Station will draw disinfected tertiary recycled water from the effluent channel of the recently-constructed chlorine contact tank (CCT) and has been designed to deliver water to any of the following locations for disposal or beneficial reuse: · Zones 5 - 15 of the OLF · Recycled Water Pond 1 (formerly Aerated Pond 1) · The Return Channel that provides conveyance to the WWTP's former Oxidation Ponds · A future off-site recycled water storage tank located on the City's Howatt Ranch property	14	8	No	Implementable Project	High	Medium	23
84	Yolo County Flood Control and Water Conservation District	Winters Main Canal Modernization Project: Integrated Precision Water Mgmt.	Installation of automatic water control gates, pump flow meters and vegetated native grass canal banks, to improve irrigation efficiency. In addition, planting of native grasses to minimize erosion and decrease use of herbicides.	18	9	Yes	Implementable Project	High	Medium	24
141	Reclamation District 2035	Conjunctive Use Study	The project consists of the study and analysis of the coordinated use of surface and groundwater that could benefit the agricultural, urban, and environmental interests within, nearby and downstream of Yolo County, especially the North Delta region.	11	2	No	Planning	High	Medium	24

Table D-7: Westside IRWM Plan Project Screening Results (sorted by Primary Objective)

Project No.	Lead Agency /Organization	Project Title	Planned Project/Program Types and Activities	Total Criteria Score	Readiness	Potentially Critical DAC Project	Project Type	Importance	Urgency	Primary Objective
185-YS	Yolo County Flood Control and Water Conservation District	West Adams Canal Renovation and China Slough Rehabilitation Project	Enlargement and improvement of the Yolo County Flood Control & Water Conservation District's (District) West Adams, East Adams, and Acacia Canal system, and rehabilitation and improvement of China Slough (a natural storm drainage channel). The District's canal system would need to be modernized to allow for a "demand" system and to ensure no spills. China Slough would need to be cleaned, an operating road constructed, and installation of about eight check structures. Improvements to the canals and slough would be implemented to convey 10,000 acre-feet of surface water per year through China Slough to farmers in the Yolo-Zamora region (~4,200 acres).	11	2	No	Implementable Project	High	Medium	24

Conditional Formatting

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Table D-8: Westside IRWM Plan Project Screening Results
(Resource Management Strategy Matrix)

		Resource Management Strategies																										
		Reduce Water Demand		Improve Operational Efficiency and Transfers				Increase Water Supply						Improve Water Quality						Practice Resources Stewardship								Improve Flood Management
Project No.	Project Title	Agricultural Water Use Efficiency	Urban Water Use Efficiency	Conveyance Delta	Conveyance Regional/Local	System Reoperation	Water Transfers	Conjunctive Management & Groundwater	Desalination	Precipitation Enhancement	Recycled Municipal Water	Surface Storage CALFED	Surface Storage Regional/Local	Drinking Water Treatment & Distribution	Groundwater and Aquifer Remediation	Matching Water Quality to Use	Pollution Prevention	Salt and Salinity Management	Urban Runoff Management	Agricultural Lands Stewardship	Economic Incentives Loans Grants & Water	Ecosystem Restoration	Forest Management	Land Use Planning and Management	Recharge Areas Protection	Waterdependent Recreation	Watershed Management	Flood Risk Management
1	Bees Lakes Preserve																					X				X		
2	505-East Channel Restoration																					X					X	
3	Apricot Draw Bank Stabilization													X			X					X					X	
4	Dry Creek Wildlife Migration Corridor Feasibility Study																					X					X	
5	Duncan-Giovannoni Channel Restoration Feasibility Study																					X					X	
6	Glide Ranch Channel Restoration Feasibility Study																					X					X	
7	Putah Creek Interdam Reach Invasive Weed Control																					X					X	
8	Lower McNamara Pool Channel Reconfiguration Feasibility Study																					X					X	
9	MacQuiddy Channel Reconfiguration Feasibility Study																					X					X	
10	Mace to Road 106A Channel Restoration Feasibility Study																					X					X	
11	Nishikawa Channel Restoration Feasibility Study																					X					X	
12	Old Davis Road to Mace Channel Restoration Feasibility Study																					X					X	
13	Olmo-Hammond-UCD Channel Restoration Feasibility Study																					X					X	
14	Pleasant Creek Wildlife Migration Corridor Plan																X					X					X	
15	Pleasants Creek Bank Stabilization																X					X					X	
16	Restoria Channel Restoration Feasibility Study																					X					X	
17	Road 106A to Yolo Bypass Channel Restoration Feasibility Study																					X					X	
18	Russell Ranch Channel Restoration Feasibility Study																					X					X	
19	Stevenson Bridge Channel Restoration Feasibility Study																					X					X	
20	Thompson Canyon Bank Stabilization Design and Permits																					X					X	

Table D-8: Westside IRWM Plan Project Screening Results
(Resource Management Strategy Matrix)

WESTSIDE SAC IRWM
Integrated Regional Water Management Plan

		Resource Management Strategies																										
		Reduce Water Demand		Improve Operational Efficiency and Transfers				Increase Water Supply						Improve Water Quality						Practice Resources Stewardship								Improve Flood Management
Project No.	Project Title	Agricultural Water Use Efficiency	Urban Water Use Efficiency	Conveyance Delta	Conveyance Regional/Local	System Reoperation	Water Transfers	Conjunctive Management & Groundwater	Desalination	Precipitation Enhancement	Recycled Municipal Water	Surface Storage CALFED	Surface Storage Regional/Local	Drinking Water Treatment & Distribution	Groundwater and Aquifer Remediation	Matching Water Quality to Use	Pollution Prevention	Salt and Salinity Management	Urban Runoff Management	Agricultural Lands Stewardship	Economic Incentives Loans Grants & Water	Ecosystem Restoration	Forest Management	Land Use Planning and Management	Recharge Areas Protection	Waterdependent Recreation	Watershed Management	Flood Risk Management
21	Upper McNamara Pool Channel Reconfiguration Feasibility Study																					X					X	
22	Warren Weed Control																					X					X	
23	Aquatic Nuisance Vegetation Management																					X					X	
24	Commercial Washer Rebate Program		X	X																								
25	Gibson Canyon Creek Detention Basin																											X
26	Improvements to Solano Project Facilities				X									X														
27	Invasive Plant Removal Program																					X						
28	Large Landscape Water Efficiency Program		X	X																								
29	NBA Infrastructure and Capacity Improvements			X	X								X	X														
30	North Bay Aqueduct Alternate Intake Project			X	X									X		X						X						
31	Improve Solano Project SCADA infrastructure	X	X			X																						
33	Research on Hydrodynamics and WQ Interactions in the Delta.			X	X									X														
34	Research on Improving Water Treatment for Delta Sources													X														
35	Risk Assessment of Delta Water Supplies			X	X									X														
36	Solano Subbasin Conjunctive Use			X	X			X							X										X			
37	Southwestern Sacramento Valley Basin/Solano Subbasin Groundwater-Surface Water Flow			X	X			X							X							X			X		X	
38	Source water protection for Delta water sources													X													X	
39	Source water protection for Putah Creek watershed													X								X				X	X	
40	Regional Invasive Plants, Aquatic and Terrestrial Weeds Management Plan																					X	X			X	X	
42	Ulatis Flood Control Channel Grade Control				X																	X						

Table D-8: Westside IRWM Plan Project Screening Results
(Resource Management Strategy Matrix)

		Resource Management Strategies: Reduce Water Demand		Improve Operational Efficiency and Transfers				Increase Water Supply						Improve Water Quality						Practice Resources Stewardship								Improve Flood Management
Project No.	Project Title	Agricultural Water Use Efficiency	Urban Water Use Efficiency	Conveyance Delta	Conveyance Regional/Local	System Reoperation	Water Transfers	Conjunctive Management & Groundwater	Desalination	Precipitation Enhancement	Recycled Municipal Water	Surface Storage CALFED	Surface Storage Regional/Local	Drinking Water Treatment & Distribution	Groundwater and Aquifer Remediation	Matching Water Quality to Use	Pollution Prevention	Salt and Salinity Management	Urban Runoff Management	Agricultural Lands Stewardship	Economic Incentives Loans Grants & Water	Ecosystem Restoration	Forest Management	Land Use Planning and Management	Recharge Areas Protection	Waterdependent Recreation	Watershed Management	Flood Risk Management
43	Wetland Restoration Research and Impacts to Source Water Quality.													X								X		X				
44	City of Clearlake Stormwater Management Plan (SWMP), Storm Drainage and Flood Control	X	X		X		X				X			X		X	X		X	X	X	X	X	X		X	X	X
45	Lower Cache Creek Flood Risk Reduction Project																					X						X
46	Bear Creek Habitat Enhancement																					X					X	X
48	Crescent Bay Improvement Company					X		X						X			X				X					X		X
49	Dixon Main Drain / V-drain Enlargement Project	X															X			X		X					X	X
50	Eastside Drain	X															X			X		X					X	X
51	Storm Flow Reduction From Agricultural Lands North of Interstate 80	X															X			X		X					X	X
52	Implementation of the Cache Creek Resources Management Plan																			X		X		X			X	X
53	Invasive Plant Removal in Ulatis Creek	X					X													X		X		X			X	X
55	Plant Intake													X		X		X	X	X	X	X	X	X	X	X	X	X
56	Upper Putah CreekWatershed Management Plan																X					X					X	
57	Restore Native Fish Spawning Areas in Clear Lake Tributaries																X					X				X	X	
58	Reduce Flood Damage																X					X				X	X	X
59	Middle Creek Flood Damage Reduction and Ecosystem Restoration Project																X					X				X	X	X
60	Improve Watershed Roads and Trails to Reduce Soil Erosion																X					X	X	X		X	X	
61	Improve Water Dependent Recreation Opportunities																									X		
62	Identify, Protect and restore Important Wildlife Habitat Areas in Clear Lake																X					X				X	X	
63	Develop and Implement a Comprehensive Watershed Monitoring Programs							X			X		X	X	X	X	X		X	X		X	X	X	X	X	X	X
64	Develop a Native Fish Management Plan																			X		X	X	X		X	X	

Table D-8: Westside IRWM Plan Project Screening Results
(Resource Management Strategy Matrix)

		Resource Management Strategies																										
		Reduce Water Demand		Improve Operational Efficiency and Transfers				Increase Water Supply						Improve Water Quality						Practice Resources Stewardship								Improve Flood Management
Project No.	Project Title	Agricultural Water Use Efficiency	Urban Water Use Efficiency	Conveyance Delta	Conveyance Regional/Local	System Reoperation	Water Transfers	Conjunctive Management & Groundwater	Desalination	Precipitation Enhancement	Recycled Municipal Water	Surface Storage CALFED	Surface Storage Regional/Local	Drinking Water Treatment & Distribution	Groundwater and Aquifer Remediation	Matching Water Quality to Use	Pollution Prevention	Salt and Salinity Management	Urban Runoff Management	Agricultural Lands Stewardship	Economic Incentives Loans Grants & Water	Ecosystem Restoration	Forest Management	Land Use Planning and Management	Recharge Areas Protection	Waterdependent Recreation	Watershed Management	Flood Risk Management
65	Collaborative Process to Update Clear Lake Integrated Watershed Management Plan	X	X					X			X		X	X		X	X		X	X	X	X	X	X	X	X	X	X
66	Clear Lake Water Quality Assessment													X			X					X				X	X	
67	Cache Creek Flow Enhancement Project				X								X													X		X
68	Assess stream channel hydrology and related riparian and aquatic habitats for restoration							X							X		X					X		X	X	X	X	X
69	Adobe Creek Conjunctive Use Project					X		X					X		X							X					X	X
70	Lakeview Hazardous Fuels Reduction																X					X	X			X	X	X
71	Hazardous Fuels Reduction in the Upper Lake Watershed																X					X	X			X	X	X
72	Regional Collaborative Water Conservation Program	X	X	X	X			X			X		X	X	X	X	X		X	X	X	X					X	
73	The Restoration of the Clear Lake Hitch to Blue Lakes	X	X	X	X	X	X	X	X	X	X	X	X									X					X	
74	Spawning Hitch fish and reproduction loss correction measures for an artificial trap																					X						
75	DAC Community Wastewater Management Project														X		X											
76	Regional Invasive Mussels Management Plan																					X	X			X	X	
80	Cache Creek Anadramous Fish Reintroduction Project																					X				X		
81	Comprehensive Mercury Assessment and Implementation for the Westside Region															X	X				X	X		X	X	X	X	X
82	Non-Native Invasive Weed Management Project																					X					X	
83	Lower Sacramento and Delta North Regional Flood Management Plan												X									X				X		X
84	Winters Main Canal Modernization Project: Integrated Precision Water Mgmt.	X			X			X														X				X		
85	Abandoned Well Incentive Program														X		X											
86	County Service Area (CSA) #6 Levee Repair Project																											X
87	LBRID Wastewater Storage Pond and Disposal Improvements															X	X											

Table D-8: Westside IRWM Plan Project Screening Results
(Resource Management Strategy Matrix)

		Resource Management Strategies																										
		Reduce Water Demand		Improve Operational Efficiency and Transfers				Increase Water Supply						Improve Water Quality						Practice Resources Stewardship								Improve Flood Management
Project No.	Project Title	Agricultural Water Use Efficiency	Urban Water Use Efficiency	Conveyance Delta	Conveyance Regional/Local	System Reoperation	Water Transfers	Conjunctive Management & Groundwater	Desalination	Precipitation Enhancement	Recycled Municipal Water	Surface Storage CALFED	Surface Storage Regional/Local	Drinking Water Treatment & Distribution	Groundwater and Aquifer Remediation	Matching Water Quality to Use	Pollution Prevention	Salt and Salinity Management	Urban Runoff Management	Agricultural Lands Stewardship	Economic Incentives Loans Grants & Water	Ecosystem Restoration	Forest Management	Land Use Planning and Management	Recharge Areas Protection	Waterdependent Recreation	Watershed Management	Flood Risk Management
88	Water Tank Replacement Project													X														
89	Soda Bay Water System Improvements	X	X											X		X					X							
90	NBRID Water Treatment Plant Replacement		X											X												X		
91	NBRID Wastewater Storage Pond and Disposal Improvements															X	X											
92	NBRID Wastewater Treatment Plant Replacement															X	X											
93	Rural Disadvantaged Community (DAC) Partnership Project													X			X				X							
94	Increase Cache and Putah Creek Watershed Education and Outreach	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
96	Mid Valley, Knights Landing Repair Project																											X
97	Form Task Force/Subcommittee to strategize and implement Watershed Education and	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
99	Agricultural Tail Water Reuse Program	X															X			X								
100	Irrigation Billing / Irrigation Management System Improvements	X			X			X									X			X							X	
102	SCADA Implementation	X			X																						X	
105	Solano County Riparian Habitat Restoration and Enhancement Project																					X						
106	Waterway Management for Improved Water Quality and Wildlife Habitat																			X		X					X	X
108	Sulphur Creek Mercury and Sediment Reduction Project															X	X									X	X	X
109	Elgin Mine Drainage Water Treatment Project															X	X				X					X	X	
111	Deep Water Ship Channel East Levee Repair																					X				X		X
112	Deep Water Ship Canal Navigation Levee Repair																					X				X		X
113	Port of West Sacramento North and South Levee Repair																					X				X		X
114	Sacramento River Levee Repair																					X				X		X

Table D-8: Westside IRWM Plan Project Screening Results
(Resource Management Strategy Matrix)

		Resource Management Strategies																										
		Reduce Water Demand		Improve Operational Efficiency and Transfers				Increase Water Supply						Improve Water Quality						Practice Resources Stewardship								Improve Flood Management
Project No.	Project Title	Agricultural Water Use Efficiency	Urban Water Use Efficiency	Conveyance Delta	Conveyance Regional/Local	System Reoperation	Water Transfers	Conjunctive Management & Groundwater	Desalination	Precipitation Enhancement	Recycled Municipal Water	Surface Storage CALFED	Surface Storage Regional/Local	Drinking Water Treatment & Distribution	Groundwater and Aquifer Remediation	Matching Water Quality to Use	Pollution Prevention	Salt and Salinity Management	Urban Runoff Management	Agricultural Lands Stewardship	Economic Incentives Loans Grants & Water	Ecosystem Restoration	Forest Management	Land Use Planning and Management	Recharge Areas Protection	Waterdependent Recreation	Watershed Management	Flood Risk Management
115	Sacramento River Recreational Trail																					X				X		
116	Sacramento Bypass-Yolo Bypass Levee Repair Phase II																					X				X		X
117	West Sacramento South Cross Levee Repair																					X				X		X
118	Conjunctive Water Use Program	X						X													X				X	X		
119	Moore Siphon Reliability/Restoration Project	X			X																							
120	Yolo County Airport Drainage Plan																							X			X	X
122	Cache Creek Parkway Plan																			X		X			X	X	X	X
123	Clarksburg Flood Protection Feasibility Study																											X
125	Methylmercury Impacts Analyses for the Yolo Bypass																X											
126	Implementation of the Cache Creek Watershed Invasive Weed Management Plan																X			X		X						X
127	Agricultural Drain, Slough and Canal Riparian Habitat Enhancement																X			X		X					X	X
128	Program to Prevent Wastewater Discharges															X												
129	Native Plant Nursery to Support Putah-Cache Ecotype Restoration																					X						
130	Pollution Prevention and Watershed Education Project		X														X		X									
131	Pacific Flyway Center/Delta Gateway																			X		X				X		
132	Lower Putah Creek Restoration from Toe Drain to Putah Creek Diversion Dam (Yolo Bypass																					X						
133	Yolo Bypass Wildlife Area Public Use Improvements																									X		
134	Climate Change Adaptation Study																			X		X	X				X	
135	Tule Canal Habitat Enhancement & Sediment Removal																			X								X
136	Levee Repairs/Maintenance- Segments 150, 173 and 297																											X

Table D-8: Westside IRWM Plan Project Screening Results
(Resource Management Strategy Matrix)

WESTSIDE SAC IRWM
Integrated Regional Water Management Plan

		Resource Management Strategies																										
		Reduce Water Demand		Improve Operational Efficiency and Transfers				Increase Water Supply						Improve Water Quality						Practice Resources Stewardship								Improve Flood Management
Project No.	Project Title	Agricultural Water Use Efficiency	Urban Water Use Efficiency	Conveyance Delta	Conveyance Regional/Local	System Reoperation	Water Transfers	Conjunctive Management & Groundwater	Desalination	Precipitation Enhancement	Recycled Municipal Water	Surface Storage CALFED	Surface Storage Regional/Local	Drinking Water Treatment & Distribution	Groundwater and Aquifer Remediation	Matching Water Quality to Use	Pollution Prevention	Salt and Salinity Management	Urban Runoff Management	Agricultural Lands Stewardship	Economic Incentives Loans Grants & Water	Ecosystem Restoration	Forest Management	Land Use Planning and Management	Recharge Areas Protection	Waterdependent Recreation	Watershed Management	Flood Risk Management
137	Installation of Groundwater Wells	X						X								X												
138	Groundwater Studies	X						X							X													
139	Floodway Corridor Project			X									X															X
140	Cross Bypass Canal Modernization	X			X																							
141	Conjunctive Use Study	X	X					X						X		X											X	
142	Centennial Park Riparian Forest Restoration and Loop Trail Development Project																X					X	X			X		X
143	Regional Capital Improvement Plan																											
145	Municipal Well at the George Kristoff Water Treatment Plant		X				X	X						X														
147	Paradise Vallev-Clearlake Oaks County Water Consolidation													X							X							
148	Spring Valley Water System Distribution Line Loop		X										X	X		X					X							
150	Mt. Hannah, CSA #22 Water System													X							X							
151	Regional Drought Preparedness through Increased Groundwater Recharge	X				X		X												X					X			
152	Corona & Twin Peaks Mines Cleanup														X	X	X				X	X	X	X	X	X	X	
153	Sewer Lift Station Upgrades													X			X											
154	Sewer Lift Station Upgrades													X			X											
155	Lower Putah Creek Restoration: Monticello Dam to Dry Creek																											
156	Solano and Napa County Drought Relief Project		X																									
159	City of Winters Drinking Water Hexavalent Chromium (Cr6) Compliance Project		X			X		X			X			X	X	X					X			X				
160	Parks and Greenbelts Irrigation and Landscape Upgrades		X					X					X			X	X		X					X		X		
161	Leak Detection Survey		X		X																							

Table D-8: Westside IRWM Plan Project Screening Results
(Resource Management Strategy Matrix)

		Resource Management Strategies																										
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162	Drainage Channel Feasibility Study		X		X											X	X		X			X				X	X	X
163	Retention Pond Feasibility Study		X		X											X	X		X			X				X	X	X
164	Russel Boulevard Demonstration LID Project		X		X			X								X	X		X			X				X	X	X
166	Recycled Water Conversion projects	X	X								X										X	X	X	X	X	X	X	
167	Davis Greenbelts Landscape Conversions		X										X				X		X					X		X		
168	Harper Junior High Water Conservation Improvements		X										X				X		X					X		X		
169	Recycled Water Projects	X	X					X			X									X	X							
170	Water Storage Tank Replacement Project		X											X														
171-YS	Agricultural Stormwater Improvements	X						X									X			X						X	X	X
172-YS	Arboretum Waterway Wetland Restoration and Enhancement		X														X	X	X			X				X	X	X
173-YS	Bike Tunnel Landscaping Redesign for Stormwater Quality Improvement		X		X			X								X	X		X			X				X	X	X
174-YS	Feasibility Study for Stormwater Trash Control Measures															X	X		X			X				X	X	X
175-YS	Flood Monitoring Network Project																											
176-YS	Forbes Ranch Regulating Pond				X	X		X					X				X		X									X
177-YS	Knights Landing Storm Drain Project																		X									X
178-YS	Knights Landing Underground Drainage Study				X														X									X
179-YS	Madison Drainage Study				X														X									X
180-YS	North Regional Pond and Pump Station				X								X						X							X		X
181-YS	Raise Highway 16 Out of Flood plain							X					X															X
182-YS	Site Survey for Converting Rocky Swales to Bioswales		X		X			X								X	X		X			X				X	X	X

Table D-8: Westside IRWM Plan Project Screening Results
(Resource Management Strategy Matrix)

WESTSIDE SAC IRWM
Integrated Regional Water Management Plan

Resource Management Strategies

		Reduce Water Demand		Improve Operational Efficiency and Transfers				Increase Water Supply						Improve Water Quality						Practice Resources Stewardship								Improve Flood Management
Project No.	Project Title	Agricultural Water Use Efficiency	Urban Water Use Efficiency	Conveyance Delta	Conveyance Regional/Local	System Reoperation	Water Transfers	Conjunctive Management & Groundwater	Desalination	Precipitation Enhancement	Recycled Municipal Water	Surface Storage CALFED	Surface Storage Regional/Local	Drinking Water Treatment & Distribution	Groundwater and Aquifer Remediation	Matching Water Quality to Use	Pollution Prevention	Salt and Salinity Management	Urban Runoff Management	Agricultural Lands Stewardship	Economic Incentives Loans Grants & Water	Ecosystem Restoration	Forest Management	Land Use Planning and Management	Recharge Areas Protection	Waterdependent Recreation	Watershed Management	Flood Risk Management
183-YS	Site Survey for Hardscape Conversion to Pervious Pavement		X		X			X								X	X		X			X				X	X	X
184-YS	Upstream Flow Management to Prevent Madison Flooding and to Facilitate GW				X	X		X					X														X	X
185-YS	West Adams Canal Renovation and China Slough Rehabilitation Project	X			X	X		X									X		X								X	X
186-YS	West Area Pond Redesign		X		X											X	X		X			X				X	X	X
187-YS	Winters Bioswales Project and Habitat Enhancement		X														X					X						
188-YS	Winters North Area Stormwater Pond				X	X		X									X		X									X
189-YS	Yolo County Drains and Sloughs -- Governance and Maintenance Study	X			X			X									X		X								X	X
190-YS	Madison Farmer Field Stormwater Capture and Groundwater Recharge							X									X		X	X							X	X
191-YS	Western Yolo Sloughs Citizen Science Program				X			X																X			X	X
192	Barker Slough Water Quality and Habitat Restoration Project																X			X		X		X			X	
193	Well 31 ASR Project							X					X	X														
194	Outfall Channel Culvert Replacement Project				X																							X
195	Woodland Recycled Water Utility Expansion Project (Phase II)										X					X					X							
196	Woodland Recycled Water Utility Expansion Project (Phase III)										X					X					X							
197	Cronin Ranch Habitat Corridor Project							X									X			X	X	X		X				
198	Ulatis Creek Riparian Floodplain Restoration Project																X			X	X	X		X				X
199	Solano County K-12 Watershed Education in the Sacramento River Watershed		X														X		X	X						X	X	
200	Centennial Park Pine Creek and Wetlands Habitat Restoration Project							X									X					X						X
201	Davis Wetlands Public Access Improvements				X			X			X						X		X			X		X				
202	Davis Manor Neighborhood Green Street Project		X					X							X		X		X			X		X			X	X

Table D-8: Westside IRWM Plan Project Screening Results
(Resource Management Strategy Matrix)

WESTSIDE SAC IRWM
Integrated Regional Water Management Plan

		Resource Management Strategies																										
		Reduce Water Demand		Improve Operational Efficiency and Transfers				Increase Water Supply						Improve Water Quality						Practice Resources Stewardship								Improve Flood Management
Project No.	Project Title	Agricultural Water Use Efficiency	Urban Water Use Efficiency	Conveyance Delta	Conveyance Regional/Local	System Reoperation	Water Transfers	Conjunctive Management & Groundwater	Desalination	Precipitation Enhancement	Recycled Municipal Water	Surface Storage CALFED	Surface Storage Regional/Local	Drinking Water Treatment & Distribution	Groundwater and Aquifer Remediation	Matching Water Quality to Use	Pollution Prevention	Salt and Salinity Management	Urban Runoff Management	Agricultural Lands Stewardship	Economic Incentives Loans Grants & Water	Ecosystem Restoration	Forest Management	Land Use Planning and Management	Recharge Areas Protection	Waterdependent Recreation	Watershed Management	Flood Risk Management
203	Recycled Water Pump Station	X	X					X			X					X				X				X				
204	Sewer Lateral Replacement																X											

Appendix D.3

Project List Updates

WESTSIDE SAC IRWM
Integrated Regional Water Management Plan

Project No.	Lead Agency /Organization	Project Title	Planned Project/Program Types and Activities	Total Criteria Score	Readiness	Project Type	Importance	Urgency
32	Solano County Water Agency	Solano Invasive Species Program	Program will prevent colonization of any regional water body by quagga or zebra mussels and eliminate or prevent the spread of New Zealand mud snails from Putah Creek.	6	5	Completed	High	High
54	City of Davis	Wastewater Treatment Plant Secondary and Tertiary Improvements	To meet new surface water discharge limitations at Willow Slough, the City of Davis must cease its surface water discharge to Willow Slough, all or in part, through upgrades to its existing treatment process to provide for tertiary treatment.	11	9	Completed	High	High
77	Scotts Valley Band of Pomo Indians	Scotts Creek Watershed Assessment	Perform a watershed wide assessment of the physical and biological characteristics of the entire Scotts Creek Watershed located in Lake County, CA	12	4	Canceled	Medium	Medium
78	Scotts Valley Band of Pomo Indians	Hitch Habitat Assessment	Identify and assess habitat for the Clear Lake hitch (within the Clear Lake basin.	10	3	Canceled	High	Medium
79	Scotts Valley Band of Pomo Indians	Eight Mile Valley Meadow Rehabilitation Project	Implementation of the Eight Mile Valley Meadow Rehabilitation project as described in the Design Plan completed in September 2012, including restoration of stream geomorphology, installation of bank protection measures and native plants.	20	9	Canceled	Medium	Medium
87	Lake Berryessa Resort Improvement District	LBRID Wastewater Storage Pond and Disposal Improvements	This project will upgrade the wastewater storage ponds and disposal spray fields.	13	6	Completed	High	High
95	Reclamation District 2035	Sacramento River Joint Intake Project	The Project consists of a 400-cfs intake and integrally constructed pump station, new discharge pipeline and appurtenant structures, and demolition of the existing facilities.	18	8	Completed	High	High
96	Knights Landing Ridge Drainage District	Mid Valley, Knights Landing Repair Project	Subset of the Mid-Valley Area Levee Reconstruction Project currently underway through a partnership with ACOE and the Central Valley Flood Protection Board.	13	9	Completed	High	Medium
98	Reclamation District No. 2068	Canal Headworks Metering	This project would involve the installation of metering equipment, data collection and data storage to each of the districts primary distribution laterals.	12	3	Inactive	High	Medium
101	Reclamation District No. 2068	RD 2068 Levee Slope Modification	SFCWA proposes to construct a large (700+/- acre) aquatic habitat improvement.	10	2	Inactive	High	Medium
103	Reclamation District No. 2068	Solano Subregion Groundwater Investigations	Continue with the aquifer evaluation, data collection and development of conjunctive capability within Solano and Yolo Counties.	11	2	Inactive	High	Low
104	Reclamation District No. 2068	Pump Station No. 1 and Upstream Drainage Tributary Inflow Metering	This project would involve the installation of metering equipment and data storage to each of the districts four primary water supply pumps, and major points of tributary inflow of agricultural drainage upstream of these pumps.	15	4	Inactive	High	Medium
110	Woodland-Davis Clean Water Agency	Davis-Woodland Water Supply Project	The project is comprised of four regional facility components: (1) a joint RD 2035/WDCWA Sacramento River Intake facility (up to 80 cfs capacity for the WDCWA); (2) 4.5 mile raw water pipeline(s) to convey untreated surface water to a water treatment facility; (3) a regional water treatment facility to treat the surface water before delivery; and (4) 10 miles of treated water pipelines to deliver treated water to local water systems.	19	8	Completed	High	High
121	Yolo County	Analysis of BDCP's Yolo Bypass Conservation Measure and Other Measures	Sacramento Area Flood Control Agency (SAFCA) has joined Yolo County (the "partners") in seeking an analysis of the potential flood protection impacts of the conservation measures proposed in the November 2010 Bay Delta Conservation Plan (BDCP) Working Draft .	7	0	Canceled	High	Medium
124	Yolo County Parks	Lower Cache Creek Campground and Habitat Restoration	The project involves the construction of approximately 9 new camp sites and potentially 9 rural campsites at the Yolo County Lower Cache Creek Park site as well as restoration of significant riparian and upland environments.	13	7	Canceled	Medium	Medium
142	City of Vacaville	Centennial Park Riparian Forest Restoration and Loop Trail Development Project	This project proposes to restore riparian environment along two tributaries of Horse Creek by controlling invasive species and installing a diverse selection of native trees, shrubs and perennial forbs in a 140 foot by 2,400 foot long corridor along the middle tributary and a 185 foot wide by 2,950 foot long corridor along the northern tributary.	16	8	Completed	Medium	Medium
144	Reclamation District 999	Elk Slough Groundwater Quality Improvement and Flood Protection Project	Elk Slough is the surface water recharge source for the sole-source shallow aquifer providing drinking water for residents of the Delta community of Clarksburg. The slough is currently closed to the fresh water of the Sacramento River and is maintained by tidal inflows from Sutter Slough. Elk Slough water quality is typically similar to that of the river; however, when salinity intrusion increases during droughts, the slough water quality declines. Proposed salinity barriers, Delta Cross Channel reoperations, and Freeport intake operations work in concert to significantly backwater Elk Slough and reduce freshening tidal inflows. An operable gate at the slough head would allow for a limited amount of Sacramento River water (less than 5 cfs) to maintain water quality and improve drinking water recharge. This would reverse salinity intrusion and potentially mitigate for other conveyance and salinity intrusion actions in the Delta. The operable gate would also provide for fish passage and protect approximately 19 miles of at-risk levees within Yolo County. Proposed activities enhance and maintain a riparian and flood protection corridor, establish long-term multi-species wildlife habitat conservation area, and restore natural fluvial and slough biological processes. Project phases include completion of field investigations assessing existing ecological and geotechnical conditions, a topographic survey, preliminary engineering and alternative designs; preparation and submission of a CEQA document, and associated permits; selection of final designs, development of construction documents, development of bid documentation; and project bidding and construction. The project intends to improve groundwater conditions to secure local drinking water supplies from drought conditions; improve riparian and aquatic habitat; reduce community conflict over proposed salinity and other water operations by maximizing recharge quality given hydrologic conditions. This is the first component of a larger project to establish flood gates, flood easements, and relocate or modify existing structures on Elk Slough.	15	6	Inactive	High	Medium

Project No.	Lead Agency /Organization	Project Title	Planned Project/Program Types and Activities	Total Criteria Score	Readiness	Project Type	Importance	Urgency
146	City of Woodland	Well 29 ASR Project	The project involves the design and construction of a new municipal aquifer storage and recovery (ASR) well near the site of the existing Well #10 on City owned property. The new ASR well will facilitate groundwater recharge by injecting treated surface water into the gravel layer approximately 470 feet down from the surface when surplus Sacramento River water is available during winter. The ASR well water would be pumped from the ASR well to supplement surface water during drought conditions. ASR also has long-term water quality benefits because, over time, injected water replaces native groundwater impaired by nitrate and naturally occurring metallic species, including arsenic, hexavalent chromium, manganese, and selenium, with better-quality water.The intent is to inject water into the ASR well each winter and build a large reservoir of treated surface water beneath the well and utilize the water primarily during drought years. The project removes a high capacity groundwater extraction well from the regional aquifer and replaces it with a well that will promote groundwater recharge and sustainability while improving Woodland's water supply reliability during a drought. City recently completed construction and full scale ASR feasibility testing of Well 28. The feasibility testing was a success and indicates that ASR technology would be successful in Woodland. The new ASR well would include the ability to inject treated surface water at a rate of approximately 1,000 gpm and extract water at a rate of approximately 1,500 gpm. The new ASR well is considered a Categorical Exemption under CEQA as it is a replacement of an existing water supply facility. The existing well will be properly destroyed. The Well 28 design would be replicated for the new well to minimize design time and costs and provide identical ASR well facilities for Woodland.	11	6	Completed	High	Medium
147	Lake County Special Districts	Paradise Vallev-Clearlake Oaks County Water Consolidation	Paradise Valley Water System, County Service Area 16 (CSA #16), serves 75 customers. The system does not have adequate source capacity in accordance with Section 64554, Chapter 16, Title 22 of the California Code of Regulations. CSA #16 has three wells that when combined do not produce the required source capacity. Attempts to drill a fourth well in 2012 were unsuccessful. fhe current drought has further reduced the wells ability to prod uce and the CSA is critically challenged to produce sufficient water for human consumption. The CSA is under an urgency ordinance and required to keep usage below 50 gpd per person. !'he option of building a surface water treatment plant is not desirable due to the poor water quality of Clear Lake and the costs would be prohibitive for the very small district. It has been determined that consolidating with Clearlake Oaks County Water System (CLOCWS) is the best option for resolving the lack of source capacity. Consolidation with CLOCWS would benefit both systems as it would resolve source capacity for CSA # 16 and would allow CLOCWS to expand their customer base and upgrade storage. Project will include the construction of a pipeline to distribute water to CSA # 16.	14	7	Completed	High	Medium
148	Lake County Special Districts	Spring Valley Water System Distribution Line Loop	Spring Valley, CSA #2 is a public water system serving 493 customers. CSA #2 draws water from Indian Valley Reservoir which is at a critically low level due to the drought. Storage for Indian Valley reservoir is currently 27,753 acre feet compared to 96,411 acre feet last year. Release of 10 cubic feet per second is required for fish habitat. This project would help preserve sufficient quantities of water for both human consumption and preservation of the fish habitat. The old and deteriorated distribution system is experiencing numerous leaks which are increasing the amount of water required for community consumption. In addition to the leaking pipes, the system has lines that "dead end" and must be flushed regularly to avoid a dangerous buildup of trihalomethanes. (a dangerous by-product of the treatment process) Flushing the lines also requires large quantities of water to be wasted.TSpring Valley, CSA #2 is a public water system serving 493 customers. CSA #2 draws water from Indian Valley Reservoir which is at a critically low level due to the drought. Storage for Indian Valley reservoir is currently 27,753 acre feet compared to 96,411 acre feet last year. Release of 10 cubic feet per second is required for fish habitat. This project would help preserve sufficient quantities of water for both human consumption and preservation of the fish habitat. The very old distribution system is experiencing numerous leaks which are increasing the amount of water required. Over 12,000,000 gallons of treated water is being lost per year through leaks. In addition to the leaking pipes, the system has lines that "dead end" and must be flushed regularly to avoid a dangerous buildup of trihalomethanes. (A dangerous by-product of the treatment process) Flushing the lines also requires large quantities of water to be wasted.The proposed project would resolve these two critical needs. Additional benefits would be improvements to the fire suppression abilities and a decrease on operating and maintenance costs. The extension of water lines for looping the system would allow installation of fire hydrants in areas that have not had access to water lines and are at risk of wild fires. This project would consist of the replacement of 7,500 feet and new installation of approximately 9,100 feet of C-900 water lines which will increase water supply reliability, water conservation and water use efficiency as well as improve drinking water quality and help alleviate fire danger. Up to 45% of the water drawn from the reservoir and treated is being lost due to the old deteriorated water lines and the need for frequent line flushing.	15	7	Completed	High	Medium

Project No.	Lead Agency /Organization	Project Title	Planned Project/Program Types and Activities	Total Criteria Score	Readiness	Project Type	Importance	Urgency
149	City of Woodland	Woodland Industrial Recycled Water Project	The City of Woodland currently has tertiary treated Title 22 effluent from the City's Water Pollution Control Facility (WPCF) providing a firm capacity of approximately 2,700 gpm for recycled water. The City of Woodland relies exclusively on groundwater for its water supply. When surface water is available, recycled water would improve reliability and reduce demands on both groundwater and surface water sources. Woodland has a large industrial area northwest of the Water Pollution Control Facility (WPCF). There are several large water users that would use the recycled water for cooling of various industrial processes. In addition, there are two City Parks along the recycled water pipeline alignment that would use the water for irrigation. Providing recycled water to these areas would reduce demands on the potable water distribution system and reduce the demand on the groundwater aquifer. The recycled water pipeline would be constructed in the City's existing right of way. The City has recently completed a Mitigated Negative Declaration for pipeline installation, repair, and rehabilitation throughout the City. The expected initial demand for recycled water would exceed 2,000 acre feet per year. The Capital Cost for the Project is approximately $5.2M.The recycled water project includes construction of approximately 20,000 feet of 12" diameter purple pipe and a pump station at the WPCF. As users increase, a storage tank will need to be added to balance demand with supply. Woodland is also evaluating extending the recycled water pipeline to serve adjacent agricultural fields as a future project.	13	6	Completed	High	Medium
150	Lake County Special Districts	Mt. Hannah, CSA #22 Water System	Mt. Hannah, CSA #22 is a public water system serving 36 customers. CSA #22 relies on ground water for supply. Due to current drought conditions, the well level dropped 65% from January 2013 to January 2014. The well has lost the ability to recharge and can only be pumped for approximately 30 minutes and then must be allowed to recharge for 2 to 3 hours. Due to the well being overdrawn, turbidity issues have become a problem. Filtering for turbidity requires even more water that is not available. We are in the process of preparing to truck water to the community from outside the area. This will be very costly and an extreme financial burdon on the disadvantaged community.In addition to the loss of capacity, the system has a deteriorated trunk line that has severe leaks and is losing up to 45% of the water being pumped. The customers are economically disadvantaged. They have been conserving water and the average consumption for the CSA is approx. 35 gallons per day per person.Water rates for this CSA are considerably higher than the county average but due to the small number of customers, the CSA struggles financially and has not been able to build a capital reserve fund. The geographic location of this CSA eliminates the option of consolidation. It is located on Cobb Mountain and not near any other systems that it could tie into. The CSA desperately needs a deeper well and a new trunk line installed.	15	7	Completed	High	Medium
153	Lake Berryessa Resort Improvements District	Sewer Lift Station Upgrades	A single six (6) inch asbestos cement sewer main installed in the mid 1960s conveys pumped raw sewage from the Lift Station A Collection Tank to remote Facultative Ponds and Sprayfields. Approximately 5,200 feet of the sewer trunk line is under high pressure due to a 231 foot change in elevation from the tank to terminus manhole and frictional headloss within the pipe. Combination of age (50 years), high working pressure (> 100 psi) and asbestos cement pipe properties have caused leaks and breaks prompting emergency repairs. The existing AC sewer main has inadequate hydraulic capacity to handle 100-year design storm inflows per requirements mandated by the Central Valley RWQCB. The project will replace 3,000 feet of sewer main and appurtenances from Lift Station A traversing below the Storage Pond access road.	10	8	Completed	Medium	Medium
154	Lake Berryessa Resort Improvements District	Sewer Lift Station Upgrades	Sewer Lift Stations B, C and D in the residential collection system have insufficient firm pumping capacity and to handle 100-year design storm inflows per requirements mandated by the Central Valley RWQCB. The project will replace progressive cavity style pumps with latest technology chopper pumps, renew yard piping plus appurtenances and upgrade the electrical systems.	11	8	Completed	Medium	Medium
155	Solano County Water Agency	Lower Putah Creek Restoration: Monticello Dam to Dry Creek	The project restores over 600 acres of riparian forest along nine river miles (30% of the length and area of the riparian corridor) from Monticello Dam to Dry Creek (see Figure 1) replacing 223 occurrences of invasive weeds (20 net acres) with weed resistant native vegetation, restoring natural channel form and function including meander form and pool-riffle-run sequence to 2,400 feet of channel, creating 12 new salmon spawning riffles, grading 45 acres of floodplain to functional elevation, converting 3 acres of excess open water to floodplain, lowering water temperatures and adding an acre of shaded riverine habitat.	12	7	Completed	Medium	Medium
157	Blue Ridge-Berryessa Partnership/Trust for Conservation Innovation	Lake Berryessa Wildlife Area Restoration	The Lake Berryessa Wildlife Area encompasses approximately 2,000 acres (the actual acreage varies due to reservoir fluctuations) of undeveloped annual grassland and California oak woodland on the east shore of Lake Berryessa in Napa County The Wildlife Area runs along the entire east shore of the lake from the east side of Monticello Dam to Eticuera Creek. The area is federally owned and administered by the Bureau of Reclamation. The Partnership entered into a management agreement with the Bureau of Reclamation to restore the Wildlife Area. Through a collaborative approach, the Wildlife Area will be managed to demonstrate collaboration, innovation, and conservation best practices to achieve the following goals. 1. Improve wildlife habitat, 2. protect native plant and animal species, 3. decrease invasive species, 4. decrease the risk of wildfire, and 5. increase recreational opportunities compatible with the authorized purposes of the Wildlife Area.	9	2	Canceled	Medium	Medium

Appendix E

Plan Implementation Framework

Appendix E.1

Technical Memorandum – Information Needs, Potential Sources, and Suggested Implementation Steps for Tracking Progress on Plan Objectives

10 April 2013

Technical Memorandum

To: Westside Sacramento IRWM Plan Participants

From: Westside Sacramento IRWM Consultant Team

Subject: Westside Sacramento IRWM Plan
Information Needs, Potential Sources, and Suggested Implementation Steps for Tracking Progress on Plan Objectives
K/J 1170019.00

This Technical Memorandum has been prepared to identify information needs and potential information sources for tracking progress on the Westside Integrated Regional Water Management Plan (IRWM Plan) Objectives. This document is intended to provide a starting point for discussions amongst the Regional Water Management Group (RWMG) as plan implementation proceeds. This Technical Memorandum fulfills the scope of work associated with Task 2.1 of the Grant Agreement No. 4600009398 between the California Department of Water Resources and Yolo County Flood Control and Water Conservation District for preparation of the Westside IRWM Plan.

Attachment 1 of this TM provides a summary table of the 24 IRWM Plan objectives, targets and performance measures that were developed in a collaborative process with interested stakeholders and the RWMG. The table also includes a summary of some of the information needed to fully understand and monitor completion or progress towards implementation of each objective. A summary list of the 49 information needs identified in the table is also provided below by each focus area.

Attachment 2 of this TM provides an expanded version of the plan objectives presented in the Draft Section 6 – Goals and Objectives of the Westside IRWM Plan. A list of data sources and key information that will provide a starting point for developing a better understanding of each objective has been included. This is a working list and is expected to be expanded, refined, and updated based on feedback received from plan development participants.

The provided data sources were developed using background documents referenced during preparation of the IRWM Plan and was expanded with input from various RWMG members. Attachment 3 provides a summary of individuals who provided input for development of this TM by plan objective. It is recognized that there are vast amounts of data sources available for each objective and further research or contact with individuals will unveil additional sources; however this document is intended to serve as a guide and is not all inclusive.

Attachment 2 also includes a list of “suggested implementation steps” for each objective that the RWMG can use to initiate activities that will be needed to track objective progress. One approach for monitoring objectives could include the formation of several workgroups or sub-committees that would be responsible for refining and clarifying performance measures, coordinating actions, monitoring, and reporting on progress for specific Plan objectives. Additional description of implementation, plan performance, and monitoring activities can be found in Section 10 – Plan Implementation Framework.

Summary of Potential Objective Information Needs

Education and Awareness Focus

1. Total estimated number of students in Region by grade level.
2. Total estimated number of schools in Region by type and location.
3. Availability of benchmarked existing outreach efforts to schools and students by the various sources.
4. Confirm existence of programs in areas of the Region where no sources found.
5. Availability of benchmarked current public communications in the Region through various sources including outreach events, materials, and publications disseminated.

Habitat Focus

1. Compilation of goals and targets from final adopted conservation planning documents.
2. Confirm existence or need for specific habitat planning document in upper Cache and upper Putah creek watersheds.
3. Availability of compiled and benchmarked program implementation and timing information to be able to determine to what extent the IRWM program will support goals established in Natural Communities Conservation Plans (NCCP)/Habitat Conservation Plans (HCP).
4. Documented research and GIS mapping identifying suitable life-cycle habitat for targeted species.
5. Prepare summary of findings in study for further implementation of Objective Nos. 5 and 6 as listed in Attachment 1 – Table Summary Objectives Information Needs.

Invasives Focus

1. Documentation of an active regional, coordinated invasive aquatic invertebrates management and monitoring program.
2. Select targeted invasive species (e.g., tamarisk, arrundo, etc.).
3. Consistent geographic and species coverage in planning documents throughout Region.
4. Understanding of existing invasives management activities.

5. Description and synthesis of existing invasives management activities.

6. Existence of invasive plant management plan.

Infrastructure Focus

1. Define what is key water management infrastructure (e.g., water supply, distribution, treatment, wastewater, flood management).

2. Select key metrics from International Infrastructure Management Manual (IIMM).

3. Synthesis of existing infrastructure plans including geographic coverage that match the criteria for key water management infrastructure.

Reasonable Use Focus

1. 2015 interim GPCD target for City of Rio Vista.

2. Annual progress and 2015 UWMP updates to measure performance.

3. Number of Ag water suppliers complying with Act in the Region; availability of Agricultural Water Management Plans for review.

4. Number and type of Agricultural Best Management Practices (BMPs) and Efficient Water Management Practices (EWMPs) currently implemented by suppliers in the Region.

Recreation Focus

1. Estimated usage at non-fee facilities/water bodies.

2. Existence of compiled estimates of recreation usage throughout the Region.

3. List of recreation areas to be tracked in the Region.

4. Summary of recreation-related maintenance activities throughout the Region.

Risk Management Focus

1. Identify current and targeted levels of flood protection deemed appropriate in the Region.

2. GIS mapping coverage showing current and desired levels of flood protection.

3. Define "large erosion event" and criteria that will be used to identify such an event.

4. Documentation of preventative measures, programs, and activities currently undertaken throughout the Region.

5. Quantify number of acres burned in the Region

Understand Watershed Function Focus

1. Identify which programs to monitor and existence of current representatives in the Region that monitor such programs.

2. Define “active participation.”

3. Selection of targeted basins for groundwater monitoring and key criteria for monitoring groundwater levels and quality.

4. Determination of key locations for monitoring groundwater levels and constituents to be monitored.

5. Establish desired parameters, topics, and information related to natural resources that is to be shared throughout the Region.

Water Quality Focus

1. Understanding and benchmarking of existing stormwater permit compliance challenges, if any.

2. Determination of activities Regional stakeholders can participate in to help achieve Total Maximum Daily Load (TMDL) targets.

3. Compilation of annual number/quantity of spills for wastewater agencies for the Region.

4. Agencies that do not report to the California Integrated Water Quality System (CIWQS).

5. Identify contaminants of concern in drinking water sources to be monitored.

6. Understanding of drinking water sources that have present challenges meeting drinking water quality standards.

7. Track projects implemented by water suppliers to improve or provide treatment of contaminants.

8. Inventory of all water and wastewater entities in the Region.

9. Determine agencies that are not in compliance with water and/or wastewater standards.

Water Supply Focus

1. Survey all Municipal and Industrial (M&I) water suppliers to determine existence of drought ordinances, stipulations, and number of days ordinance is invoked each year.

2. Include consideration of available alternate water supplies for each agency.

3. Identify what measures will be used to track “robust agricultural industry” – suggest using multi-year moving average of economic production for Region.

4. Contracted/requested amount of water compared to delivered (SCWA and other water suppliers).

Attachments: 1 – Table Summary – Objectives Information Needs
2 – Data Sources and Suggested Implementation Steps
3 – Summary of RWMG Members Who Provided Information and Potential Sources by Plan Objective

Attachment 1

Table Summary – Objectives Information Needs

Attachment 1 – Table Summary Objectives Information Needs

No.	Plan Objectives *(Importance, Urgency)*	Quantitative/Quantitative Measurement	Target	Potential Information Needs	Approximate Completion Date
Education and Awareness Focus					
1	Provide/promote use of educational curricula for K-12 students ***(Medium, Low)***	Quantitative - Availability of curricula suitable to each grade and student population.	Contact 50% of all schools in Region each year.	- total estimated number of students in Region by grade level - total estimated number of schools in Region by type and location	Annually, beginning July 2013
		Quantitative - Number of schools contacted each year.		- availability of benchmarked existing outreach efforts to schools and students by the various sources	
		Quantitative -Number of students who receive instruction.	Reach 30% of student population within the Region each year starting in 2014.	- confirm existence of programs in areas where no sources found	Annually, beginning July 2013
2	Provide educational information to encourage stewardship by public ***(Medium, Low)***	Quantitative - Number of people who receive the educational materials/messages each year.	10% of population annually.	- availability of benchmarked current public communications through various sources including outreach events, materials, and publications disseminated	Annually, beginning 2014
Habitat Focus					
3	Restore native vegetation/form/function in riparian/aquatic corridors ***(Medium, Medium)***	Quantitative - Acres restored along corridors, canals and ditches; Number of native plants planted; Improved connectivity of habitat corridors, etc.	Support goals established within NCCP's, HCP's, and other habitat planning documents for the Region.	- compilation of goals and targets from final adopted planning documents - confirm existence or need for specific habitat planning document in upper Cache and upper Putah creek watersheds - availability of compiled and benchmarked program implementation and timing information to be able to determine to what extent the IRWM program will support goals established in NCCPs/HCPs	Annually
4	Quantify extent of suitable life-cycle habitat for T/E/I native fish ***(High, Medium)***	Quantitative - Existence of documentation of extent of suitable life-cycle habitat currently accessible to threatened, endangered, or imperiled (T/E/I) native fish within the Region.		- documented research and GIS mapping identifying suitable life-cycle habitat for targeted species - prepare summary of findings in study for further implementation of Objective Nos. 5 & 6	31-Dec-14
5	Prioritize/Plan/schedule improvements of life-cycle habitat for T/E/I native fish ***(High, Medium)***	Quantitative - Existence of a document with planned, prioritized, and scheduled improvements.		Linked to Objective No. 4	31-Dec-15
6	Increase availability of suitable life-cycle habitat for T/E/I native fish ***(High, Medium)***	Quantitative - Change in the area of suitable life-cycle habitat that is accessible to target species.	number of acres of suitable habitat added	Linked to Objective Nos. 4 and 5 and possibly No. 3 once suitable life-cycle habitats are identified and associated with riparian/aquatic corridor restoration projects to the extent they also benefit T/E/I species.	Dependent on completion of Objective #5
Invasives Focus					
7	Prevent colonization by Quagga/Zebra mussels and eliminate/prevent spread of New Zealand mud snail ***(High, High)***	Quantitative - Presence (or absence) of target invasive species.		-Documentation of an active regional, coordinated invasive aquatic invertebrates management and monitoring program.	
8	Establish invasive plant management plan ***(Medium, Medium)***	Quantitative - Existence of an invasive plant management plan for the Region or integration of existing plans.		- select targeted invasive species (e.g. tamarisk, arrundo, etc) - consistent geographic and species coverage throughout Region. - understanding of existing invasives management activities -description and synthesis of existing invasives management activities - Existence of invasive plant management plan	31-Dec-15
9	Implement Invasive Plant Management Plan ***(Medium, Low)***	Quantitative - Measures appropriate to the targeted outcomes designated in the Invasive Plant Management Plan created according to Objective 8.		Regional Invasive Plant Management Plan	

Attachment 1 – Table Summary Objectives Information Needs

No.	Plan Objectives *(Importance, Urgency)*	Quantitative/Quantitative Measurement	Target	Potential Information Needs	Approximate Completion Date
Infrastructure Focus					
10	Create Asset Management Plan for key water management infrastructure ***(Medium, Low)***	Quantitative - Existence of Asset Management Plan		- define what is key water management infrastructure (e.g., water supply, distribution, treatment, wastewater, flood management) - select key metrics from IIMM - Synthesis of existing infrastructure plans including geographic coverage that match the criteria for key water management infrastructure.	31-Dec-15
Reasonable Use Focus					
11	Meet 20% by 2020 Conservation Targets ***(Medium, Medium)***	Quantitative - Water conservation measured in gallons per capita day as defined by the Water Conservation Act of 2009 and DWR guidance methodologies. Use UWMPs to measure progress.		- 2015 interim target for City of Rio Vista - Annual progress and 2015 UWMP updates to measure performance.	31-Dec-20
12	Increase adoption of Ag BMPs ***(Medium, Medium)***	Quantitative - Compliance with SBX7-7. Number of required Efficient Water Management Practices (EWMPs) adopted and number of optional EWMPs adopted.		-number of Ag water suppliers complying with Act in the Region; availability of Agricultural Water Management Plans for review - number and type of Ag BMPs and EWMPs currently implemented by suppliers in the Region.	
Recreation Focus					
13	Maintain and increase water-related recreational opportunities ***(Medium, Low)***	Quantitative - Describe maintenance activities performed annually. Quantitative - Describe additional or enhanced water-related recreational opportunities provided annually.		- estimated usage at non-fee facilities/water bodies - existence of compiled estimates of recreation usage throughout the Region. - list of recreation areas to be tracked in the Region - summary of recreation-related maintenance activities throughout the Region.	Annually
Risk Management Focus					
14	Provide adequate flood protection ***(High, Medium)***	Quantitative - Change in calculated level of flood protection.	Provide flood protection consistent with the Central Valley Flood Protection Plan; for urban and urbanizing areas meet the urban level of flood protection; for other developed areas meet the FEMA standard of flood protection; for rural areas provide the level of protection warranted for the assets subject to damage.	- identify current and targeted levels of flood protection deemed appropriate in the Region - GIS mapping coverages showing current and desired levels of flood protection.	31-Dec-50
15	Manage watershed activities to reduce large erosion events ***(Medium, Medium)***	Quantitative - Number of large erosion events documented each year. Quantitative - Number of preventive measures taken and repairs made to reduce large erosion events.		- define "large erosion event" and criteria that will be used to identify such an event. - documentation of preventative measures, programs, and activities currently undertaken throughout the Region - quantify number of acres burned in Region	
Understand Watershed Function Focus					
16	Monitor state/federal Delta programs ***(Medium, High)***	Qualitative - Scientific information and studies available that characterize potential impacts. Qualitative- Active participation and engagement in specifically identified State and Federal water resources planning and projects.		- identify which programs to monitor and existence of current representatives in the Region that monitor such programs. - define "active participation"	

No.	Plan Objectives *(Importance, Urgency)*	Quantitative/Quantitative Measurement	Target	Potential Information Needs	Approximate Completion Date
17	Monitor conditions/improve understanding to support sustainable groundwater basins ***(High, Low)***	Quantitative - Groundwater levels and quality throughout the Region. Qualitative -Information to understand and predict status of aquifer functions over the long-term; Understand opportunities to improve regional water supply portfolio through conjunctive management.	Prevent long-term declines in groundwater levels and quality throughout the region.	- selection of targeted basins for groundwater monitoring and key criteria for monitoring groundwater levels and quality. - determination of key locations for monitoring groundwater levels and constituents to be monitored	
18	Maintain and enhance monitoring network and information sharing. ***(High, Medium)***	Qualitative Measurement - Availability of important information; ease of access to data and information across agency boundaries.		- establish desired parameters, topics, and information related to natural resources that is to be shared throughout the Region.	
Water Quality Focus					
19	Address pollutant sources to meet runoff standards and TMDL targets ***(High, Medium)***	Quantitative - Compliance with runoff standards and progress toward meeting targets identified in specific TMDLs within the Region. Qualitative - Actions taken to address pollutant sources.		- understanding and benchmarking of existing stormwater permit compliance challenges, if any. - determination of activities Regional stakeholders can participate in to help achieve TMDL targets.	
20	Minimize accidental wastewater spillage/discharges ***(Medium, Medium)***	Quantitative - Number of spills reported per year; volume of wastewater spilled that reached receiving waters.	Zero spills per year of wastewater that reaches receiving waters.	- compilation of annual number/quantity of spills for wastewater agencies for the Region - agencies that do not report to the CIWQS system	
21	Reduce Public health risks by reducing contaminants in drinking water sources ***(Medium, Medium)***	Quantitative - Improvements in source water quality; cost savings for meeting quality standards for drinking water at point of delivery; reductions in concentration of constituents of concern in drinking water at point of delivery.		- identify contaminants of concern in drinking water sources to be monitored - understanding of drinking water sources that have present challenges meeting drinking water quality standards. - track projects implemented by water suppliers to improve or provide treatment of contaminants	
22	Meet all drinking water and wastewater discharge standards ***(High, High)***	Quantitative - Compliance with all relevant quality standards.		- inventory of all water and wastewater entities in the Region. - determine agencies that are not in compliance with water and/or wastewater standards	
Water Supply Focus					
23	Provide 100% reliability of M&I water supplies ***(High, Medium)***	Quantitative - Number of days M&I water suppliers invoke drought ordinances and number of days rationing is required.	Zero days per year.	- survey all M&I water suppliers to determine existence of drought ordinances, stipulations, and number of days ordinance is invoked each year. - include consideration of available alternate water supplies for each agency.	
24	Provide agricultural water supplies to support a robust agricultural industry ***(High, Medium)***	Quantitative - Groundwater levels and quality throughout the Region. Quantitative - Annual surface water deliveries for agricultural use as compared to contracted amounts. Qualitative- Changes in agricultural outputs within the Region over time.	Prevent long-term declines in groundwater levels and quality throughout the region. Provide 100% reliability for contracted annual deliveries by Solano County Water Agency.	- identify what measures will be used to track "robust agricultural industry" – suggest using multi-year moving average of economic production for Region - contracted/requested amount of water compared to delivered (SCWA and other water suppliers)	

Attachment 2

Data Sources and Suggested Implementation Steps

Attachment 2 – Data Sources and Suggested Implementation Steps

Education and Awareness Focus

1. **Provide and promote use of educational curricula designed to increase awareness of watershed and resource stewardship and how individual stewardship relates to community health and well-being for K-12 students starting July 2013 through the planning period.**

Qualitative Measurement

None

Quantitative Measurement

- Availability of curricula suitable to each grade and student population within the Region.
- Number of schools contacted each year to promote use of curricula.
  - Target: Contact 50% of all schools in Region each year.
- Number of students who receive instruction from grade-suitable curricula.
  - Target: Reach 30% of student population within the Region each year starting in 2014.

Addresses Plan Goals

2, 3, 7, and 11

Priority

Importance = Medium
Urgency = Low

Notes

May host an education summit as part of Plan implementation that could result in new targets to replace the current ones.

Suggested Implementation Steps

Form a sub-committee/workgroup (potentially same sub-committee for both Objective Nos. 1 and 2) responsible for the following:

- Determine number of students in Region by grade level
- Determine number of schools in Region by type and location
- Establish contact with existing programs including those listed below and obtain:
  - Name of schools outreached to
  - Grade levels and number of students
  - Curricula used/available
  - Frequency of contact
- Establish contact with schools to obtain input from teachers who received CEEI curricula training

Attachment 2 – Data Sources and Suggested Implementation Steps

- Establish where and how data will be collected and saved
- Establish reporting protocol

Data Sources

Education and outreach are available through various agencies within the Region that provide workshops, seminars, field trips, trainings conference presentations, site tours and environmental education to local schools. Local agency resources available to the Region:

Upper Cache Creek Planning Area

- Lake County Office of Education (http://www.lake-coe.k12.ca.us/)

Valley Floor Planning Area

- Yolo County Resource Conservation District – Currently run educational workshops for the public however do not have an active education program to target students (http://www.yolorcd.org/)
- Yolo Basin Foundation (http://www.yolobasin.org/teachers2011.cfm)
- Dixon Resource Conservation District (http://www.dixonrcd.org/)
- Cach Creek Conservancy (https://sites.google.com/site/cccpractice2/) – Does keep track of the number of students mainly focus on 3rd -6th grade students
- Center for Land-Based Learning (http://landbasedlearning.org/)
- Putah Creek Council (http://www.putahcreekcouncil.org/restore)
- Yolo County Office of Education (www.ycoe.org/)

Upper Putah Creek Planning Area

- Watershed Information Center & Conservancy of Napa County (http://www.napawatersheds.org/app_pages/view/4312)
- Solano Resource Conservation District (http://www.solanorcd.org/)
- Bureau of Reclamation Mid-Pacific Region, Lake Berryessa (http://www.usbr.gov/mp/berryessa/facts.html)
- Napa County Resource Conservation District (http://www.naparcd.org/education.html)
- Napa County Office of Education (www.napacoe.org/)
- Solano County Office of Education (www.solanocoe.net/)

General Resources

- California Environmental Protection Agency Education and the Environment Initiative (http://www.californiaeei.org/); A cooperative, statewide effort already in place to help K-12 students learn about the environment and how it relates to their everyday lives called the California Education and Environment Initiative (EEI). Curriculum information provided by the California Department of Education.
- California Department of Fish and Wildlife (http://www.dfg.ca.gov/education/)
- Water Education Foundation

Attachment 2 – Data Sources and Suggested Implementation Steps

- NPDES Phase II Small Municipal Separate Storm Sewer System Permits (http://www.waterboards.ca.gov/water_issues/programs/stormwater/phase_ii_municipal.shtml)

Potential Information Needs

See Attachment 1.

In order to know if the Region is meeting or making progress towards this target the total number schools and students within the Region will need to be obtained. This information can be approximated from the U.S. Census (http://www.census.gov) or by contacting the school districts within the Region to obtain student counts by grade and number of schools.

2. Provide educational information designed to increase awareness of watershed and resource stewardship and how individual stewardship relates to community health and well-being for the adult population within the Region starting July 2013 through the planning period.

Qualitative Measurement

None

Quantitative Measurement

- Number of people who receive the educational materials/messages within the Region each year.
  - Target: 10% of population annually

Addresses Plan Goals

2, 3, 7, and 11

Priority

Importance = Medium
Urgency = Low

Notes

Likely will be able to coordinate and share resources with agencies in neighboring IRWM Regions (e.g. the Regional Water Authority in the American River Basin Region has expressed interest in collaborating on this objective) who intend to conduct similar public education campaigns.

Suggested Implementation Steps

Form a sub-committee/workgroup (potentially same sub-committee for both Objective Nos. 1 and 2) responsible for the following:

- Establish contact with existing programs listed below and estimate the number of people outreached through media contacts such as:
  - Special events (i.e. booths at Fairs, conferences)

Attachment 2 – Data Sources and Suggested Implementation Steps

    - Workshops
    - Publications ordered,
    - Materials disseminated (mailers, flyers, emails)
    - Website access
  - Establish where and how data will be collected and saved
  - Establish reporting protocol

Data Sources

Education and outreach are available through various agencies within the Region that provide workshops, seminars, field trips, trainings conference presentations, site tours and environmental education to local schools and communities. Local agency resources available to the Region are listed below:

<u>Upper Cache Creek Planning Area</u>

- No information found.

<u>Valley Floor Planning Area</u>

- Yolo County Resource Conservation District - Currently run educational workshops for the public and have several publications such as "Welcome to the Watershed" (http://www.yolorcd.org/)
- Yolo Basin Foundation (http://www.yolobasin.org/teachers2011.cfm)
- Dixon Resource Conservation District (http://www.dixonrcd.org/)
- Cach Creek Conservancy (https://sites.google.com/site/cccpractice2/)
- Putah Creek Council (http://www.putahcreekcouncil.org/restore)

<u>Upper Putah Creek Planning Area</u>

- Watershed Information Center & Conservancy of Napa County (http://www.napawatersheds.org/app_pages/view/4312)
- Bureau of Reclamation Mid-Pacific Region, Lake Berryessa (http://www.usbr.gov/mp/berryessa/facts.html)
- Solano Resource Conservation District (http://www.solanorcd.org/)
- Napa County Resource Conservation District (http://www.naparcd.org/education.html)
- Napa County Flood Control and Water Conservation District (http://www.countyofnapa.org/FloodDistrict/)

<u>General Resources</u>

- California Environmental Protection Agency Education and the Environment Initiative (http://www.californiaeei.org/)
- California Department of Fish and Wildlife (http://www.dfg.ca.gov/education/)

Potential Information Needs

See Attachment 1.

Attachment 2 – Data Sources and Suggested Implementation Steps

In order to know if the Region is meeting or making progress towards this target the total population of the Region will need to be obtained. This information can be approximated from the U.S. Census (http://www.census.gov).

Habitat Focus

3. Restore native vegetation and form and function along riparian corridors, canals, and other aquatic sites throughout the Region to provide stream shading, habitat enhancement and increased biological diversity through 2035.

Qualitative Measurement

None

Quantitative Measurement

- Acres restored along corridors, canals and ditches; Number of native plants planted; Improved connectivity of habitat corridors; etc.
    - Target: Support goals established within Natural Community Conservation Plans (NCCPs), Habitat Conservation Plans (HCPs), and other habitat planning documents for the Region. (See Appendix C.8 for a list of existing habitat planning documents and a summary of goals and targets within those planning documents.)

Addresses Plan Goals

1, 5, 8, and 13

Priority

Importance = Medium
Urgency = Medium

Notes

As habitat planning documents are added or updated these targets need to be updated as well.

Suggested Implementation Steps

Form a sub-committee/workgroup (potentially same sub-committee for both Objective Nos. 3 and 4) responsible for the following:

- Track adoption and implementation of:
    - Bay Delta Conservation Plan
    - Yolo National Heritage Conservation Plan
    - Solano Habitat Conservation Plan
    - Other habitat restoration plans
- Establishing contact with existing programs listed below and determine projects implemented – location and scope of work

Attachment 2 – Data Sources and Suggested Implementation Steps

- Determine and document how implemented projects support goals in adopted conservation plans
- Establish where and how data will be collected and saved
- Establish reporting protocol

Data Sources

Upper Cache Creek Planning Area

- Hitch Adaptive Management Plan (HAMP) - (http://www.robinsonrancheria.org/environmental/water.htm
- Lake County. Clear Lake Integrated Watershed Management Plan (http://www.co.lake.ca.us/Government/Directory/Water_Resources/watershedplan.htm)
- Bear Creek Watershed Assessment. 2010. Colusa County Resource Conservation District.
- Colusa Basin Watershed Management Plan. 2012. Colusa County Resource Conservation District.
- Clear Lake Integrated Aquatic Plant Management Plan. 2004. Lake County.
- Evaluating and Managing a Multiply-Stressed Ecosystem at Clear Lake, California: A Holistic Ecosystem Approach. 2002. Suchanek et al.
- Kelsey Creek Watershed Assessment. 2010. West Lake and East Lake Resource Conservation District.
- Middle Creek Watershed Assessment. 2010. West Lake and East Lake Resource Conservation District.
- Scotts Creek Watershed Assessment. 2010. West Lake and East Lake Resource Conservation District.

Valley Floor Planning Area

- Bay Delta Conservation Plan (http://baydeltaconservationplan.com/Home.aspx)
- Yolo National Heritage Program Plan Document (http://www.yoloconservationplan.org/enviro-portal.html).
- Lower Putah Creek Watershed Management Action Plan. Lower Putah Creek Coordinating Committee
- Cache Creek Resources Management Plan. Revised Final August 2002. Yolo County.
- Yolo County Resource Conservation District (http://www.yolorcd.org/) – Actively engaged in restoration work and partners with Solano RCD and the Audubon Landowner Stewardship Program (http://ca.audubon.org/landowner-stewardship-program)
- Cach Creek Conservancy (https://sites.google.com/site/cccpractice2/) – Restoration is main focus and where most of their budget is dedicated they manage a nature preserve. Complete annual maintenance on invasive removal along Cache Creek.
- Conaway Preservation Group (http://www.conawayranch.com/home)
- Yolo Bypass Wildlife Area Management Plan. 2006. California Department of Fish and Wildlife.

Attachment 2 – Data Sources and Suggested Implementation Steps

- Integrated Regional Water Management Plan. 2007. Water Resources Association of Yolo County.
- Integrated Regional Water Management Plan. 2005. Solano County Water Agency.

Upper Putah Creek Planning Area

- Watershed Information Center & Conservancy of Napa County (http://www.napawatersheds.org/app_pages/view/4312)
- Solano Resource Conservation District (http://www.solanorcd.org/)
- Napa County Resource Conservation District (http://www.naparcd.org.html)
- Tuleyome (http://www.tuleyome.org/)
- Solano Habitat Conservation Plan (http://www.scwa2.com/Conservation_Habitat_Docs.aspx)
- Napa County Integrated Water Resource Planning Framework. 2011. Napa County Flood Control and Water Conservation District.
- Napa County Baseline Data Report. 2005. Napa County.

General Resources

- California Essential Habitat Connectivity Project: A Strategy for Conserving a Connected California (http://www.dot.ca.gov/hq/env/bio/project_materials.htm)
- Department of Fish and Wildlife (http://www.dfg.ca.gov/habcon/conplan/)
- Vegetation Treatment Program Environmental Impact Report. Board of Forestry and Fire Protection. (http://bofdata.fire.ca.gov/board_committees/resource_protection_committee/current_projects/vegetation_treatment_program_environmental_impact_report_(vtpeir))

Potential Information Needs

See Attachment 1.

4. Quantify the extent of suitable life-cycle habitat currently accessible to threatened, endangered, or imperiled (T/E/I) native fish within the Region by December 31, 2014.

Qualitative Measurement

None

Quantitative Measurement

Existence of documentation of extent of suitable life-cycle habitat currently accessible to threatened, endangered, or imperiled native fish within the region.

Addresses Plan Goals

3, 5, 8, and 11

Attachment 2 – Data Sources and Suggested Implementation Steps

Priority

Importance = High
Urgency = Medium

Notes

This objective is linked to Objectives 5 and 6.

Suggested Implementation Steps

Form a sub-committee/workgroup (potentially same sub-committee for both Objective Nos. 3 and 4) responsible for the following:

- o Select the threatened, endangered, or imperiled native fish species within the Region that will be the focus of the habitat assessment.
- o Establish criteria for determining "suitable habitat currently accessible" for each species through document research
- o Compile mapping with known locations of suitable potential habitat
- o Prepare summary of findings based on research
- o Establish where and how data will be collected and saved
- o Establish reporting protocol

Data Sources

Upper Cache Creek Planning Area

- Department of Fish and Wildlife –Clear Lake Hitch Petition Evaluation (http://www.dfg.ca.gov/serp.html?q=clear+lake+hitch&cx=001779225245372747843%3A3y4rnp6j9ny&cof=FORID%3A10&ie=UTF-8)
- Robinson Rancheria – Hitch Adaptive Management Plan (currently under development)http://www.robinsonrancheria.org/environmental/water.htm
- Petition to List the Clear Lake Hitch (Lavinia exilicauda chi) as Endangered or Threatened under the Endangered Species Act. 2012. Center for Biological Diversity.

Valley Floor Planning Area

- Bay Delta Conservation Plan (currently under development)(http://baydeltaconservationplan.com/Home.aspx)
- Yolo National Heritage Program Plan Document (currently under development) (http://www.yoloconservationplan.org/enviro-portal.html).
- Solano Habitat Conservation Plan (currently under development) (http://www.scwa2.com/Conservation_Habitat_Docs.aspx)
- Lower Putah Creek Watershed Management Action Plan. Lower Putah Creek Coordinating Committee
- Cache Creek Resources Management Plan. Revised Final August 2002. Yolo County.
- Yolo County Resource Conservation District (http://www.yolorcd.org/) – Recently involved in creation of on-farm habitat for species of special concern Sacramento Perch worked with Dr. Peter Moyle at UC Davis.
- Dr. Peter Moyle, UCD

Attachment 2 – Data Sources and Suggested Implementation Steps

- Patrick Crain, Fish Biologist
- Yolo County Natural Resources Manager – Cindy Tuttle

Upper Putah Creek Planning Area

- Napa County Resource Conservation District (http://www.naparcd.org.html)
- Napa County Flood Control and Water Conservation District (http://www.countyofnapa.org/FloodDistrict/)

General Resources

- California Wilderness Coalition Missing Linkages: Restoring Connectivity to the California Landscape (http://www.calwild.org/linkages/index.html)
- California Essential Habitat Connectivity Project: A Strategy for Conserving a Connected California (http://www.dot.ca.gov/hq/env/bio/project_materials.htm)
- Department of Fish and Wildlife – General information regarding natural community conservation planning (http://www.dfg.ca.gov/habcon/conplan/)

Potential Information Needs

See Attachment 1.

5. Prioritize, plan, and schedule improvements in suitable life-cycle habitat accessible to threatened, endangered, or imperiled native fish within the Region by December 31, 2015.

Qualitative Measurement

None

Quantitative Measurement

The existence of a document with planned, prioritized, and scheduled improvements.

Addresses Plan Goals

3, 5, 8, and 11

Priority

Importance = High
Urgency = Medium

Notes

This objective is linked to Objectives 4 and 6.

Suggested Implementation Steps

Linked to Objective No. 4

Data Sources

Linked to Objective No. 4

Attachment 2 – Data Sources and Suggested Implementation Steps

Potential Information Needs

Linked to Objective No. 4

6. **Increase availability of suitable life-cycle habitat for threatened, endangered, or imperiled native fish as designated in result of Objective 5.**

Qualitative Measurement

None

Quantitative Measurement

Change in the area of suitable life-cycle habitat that is accessible to target species.

Addresses Plan Goals

5, 8, and 13

Priority

Importance = High
Urgency = Medium

Notes

This objective is linked to Objectives 4 and 5.

Suggested Implementation Steps

Linked to Objective No. 4 and 5

Data Sources

Linked to Objective No. 4 and 5

Potential Information Needs

See Attachment 1.

Invasive Species Focus

7. **Prevent colonization of any regional water body by Quagga mussels or Zebra mussels and eliminate or prevent the spread of New Zealand mud snails from Putah Creek during the planning period.**

Qualitative Measurement

None

Quantitative Measurement

Presence (or absence) of target invasive species by location within the Region.

Attachment 2 – Data Sources and Suggested Implementation Steps

Addresses Plan Goals

5, 8, 9, and 12

Priority

Importance = High
Urgency = High

Notes

A number of aquatic invertebrate prevention programs are operational within the Region now.

Suggested Implementation Steps:

Form a sub-committee/workgroup responsible for the following:

- Review of existing invasive mussels management and monitoring program and activities and recommend how to prepare an appropriate regional plan
- Establish where and how data will be collected and saved
- Establish reporting protocol

Data Sources

Upper Cache Creek Planning Area

- Lake County Water Resources is responsible for monitoring presence/absence of mussels more information can be obtained at Lake County Invasive Prevention Mussel Program (http://www.nomussels.com/)
- Clear Lake Watershed Sanitary Survey. Updated 2013. Clear Lake Water Utilities.

Valley Floor Planning Area

- No information found.

Upper Putah Creek Planning Area

- U.S. Bureau of Reclamation (Lake Berryessa) (http://www.usbr.gov/mussels/)
- Napa County Resource Conservation District (http://www.naparcd.org.html)
- Tuleyome (http://www.tuleyome.org/)

General Resources

- U.S. Bureau of Reclamation (http://www.usbr.gov/mussels/ and http://websearch.usbr.gov/searchblox/servlet/SearchServlet?col=5&query=Invasive+Species)
- U.S. Geological Survey (http://nas.er.usgs.gov/taxgroup/mollusks/zebramussel)
- California Department of Fish and Wildlife (http://www.dfg.ca.gov/Invasives/)
- The 100th Meridian Initiative (http://100thmeridian.org)

Potential Information Needs

See Attachment 1.

Attachment 2 – Data Sources and Suggested Implementation Steps

8. Establish an invasive plant management plan (including specific and measurable targeted outcomes for species of concern and a schedule to accomplish target outcomes) for the entire Region by December 31, 2015.

Qualitative Measurement

None

Quantitative Measurement

Existence of an invasive plant management plan for the Region or integration of existing plans.

Addresses Plan Goals

3, 5, 8, 10, 11, and 13

Priority

Importance = Medium
Urgency = Medium

Notes

- Lake County has a countywide plan that could be integrated with other plans or serve as a basis for a region-wide plan.
- This objective is linked to Objective No. 9.

Suggested Implementation Steps:

Form a sub-committee/workgroup (same sub-committee for both Objective Nos. 8 and 9) responsible for the following:

- o Review of existing invasive plant management plan(s) to ensure consistent geographic and species coverage throughout the Region
- o Determine if a new plan should be created or use combination of existing plans for implementation
    - ensure plan has targeted outcomes
- o Establish where and how data will be collected and saved
- o Establish reporting protocol

Data Sources

<u>Upper Cache Creek Planning Area</u>

- Clear Lake Integrated Aquatic Plant Management Plan. August 2004. Lake County Department of Public Works Water Resources Division. (http://www.co.lake.ca.us/Government/Directory/Water_Resources/Aquatic_Plant_Management/Aquatic_Plant_Management_Plan.htm).
- Clear Lake Watershed Sanitary Survey. Updated 2013. Clear Lake Water Utilities.

Attachment 2 – Data Sources and Suggested Implementation Steps

Valley Floor Planning Area

- Cache Creek Watershed Weed Management Plan, Yolo County Resource Conservation District (http://www.yolorcd.org/documents/CacheCreekWatershedWeedManagementPlan.pdf)
- Yolo County Resource Conservation District (http://www.yolorcd.org/nodes/programs/invasives.htm)
- Lower Putah Creek Watershed Management Action Plan. Lower Putah Creek Coordinating Committee
- Cache Creek Resources Management Plan. Revised Final August 2002. Yolo County

Upper Putah Creek Planning Area

- Napa County Resource Conservation District (http://www.naparcd.org.html)
- Napa County Flood Control and Water Conservation District (http://www.countyofnapa.org/FloodDistrict/)
- Tuleyome (http://www.tuleyome.org/)

General Resources

- California Invasive Plant Council (http://www.cal-ipc.org/)
- US Geological Survey, Ecosystems - Invasive Species Program (http://www.usgs.gov/ecosystems/invasive_species).
- Vegetation Treatment Program Environmental Impact Report. Board of Forestry and Fire Protection. (http://bofdata.fire.ca.gov/board_committees/resource_protection_committee/current_projects/vegetation_treatment_program_environmental_impact_report_(vtpeir))

Potential Information Needs

See Attachment 1.

9. Implement programs and projects to meet the designated outcomes defined in the Invasive Plan Management Plan developed in Objective 8 (according to the schedule provided in that Plan).

Qualitative Measurement

None

Quantitative Measurement

Measures appropriate to the targeted outcomes designated in the Invasive Plant Management Plan created according to Objective 8.

Addresses Plan Goals

5, 8, 10, and 13

Attachment 2 – Data Sources and Suggested Implementation Steps

Priority

Importance = Medium
Urgency = Medium

Notes

This objective is linked to Objective 8.

Suggested Implementation Steps:

Form a sub-committee/workgroup (same sub-committee for both Objective Nos. 8 and 9) responsible for the following:

- Determine who will track projects implemented and how results will be measured.
- Establish where and how data will be collected and saved
- Establish reporting protocol

Data Sources

This objective is linked to Objective 8.

Potential Information Needs

This objective is linked to Objective 8.

Infrastructure Focus

10. Create an Asset Management Plan for key water management infrastructure within the region consistent with the guidance provided in the *International Infrastructure Management Manual* by December 31, 2015.

Qualitative Measurement

None

Quantitative Measurement

Existence of Asset Management Plan

Addresses Plan Goals

2, 3, 6, 9, 10, 11, and 12

Priority

Importance = Medium
Urgency = Low

Notes

The California Emergency Management Agency "critical infrastructure protection" criteria and the work done for existing Natural Hazard Mitigation Plans may be a reasonable place to start to identify key water management infrastructure within the Region and to set priorities for investment.

Attachment 2 – Data Sources and Suggested Implementation Steps

Suggested Implementation Steps:

Form a sub-committee/workgroup responsible for the following:

- o Define key water management infrastructure for the Region and what facilities would be considered in the regional Asset Management Plan
- o Review existing infrastructure plans to determine:
    - geographic coverage,
    - how to incorporate into a regional asset management plan using key metrics from IIMM, and
    - if Asset management plan should be compilation of existing infrastructure planning documents from local agencies or created specifically for the Region
- o Establish where and how data will be collected and saved
- o Establish reporting protocol

Data Sources

Upper Cache Creek Planning Area

- No information found.

Valley Floor Planning Area

- City of Davis Water Distribution System Optimization Plan. 2011.
- City of Winters Water Master Plan.
- City of Vacaville Infrastructure, Facilities and Services Status Report (http://www.cityofvacaville.com/index.aspx?page=66). 2007.
- City of Vacaville Municipal Services Review and Comprehensive Annexation Plan. 2004.
- City of Vacaville Northeast Sector Sewer Master Plan. 2009.
- City of Winters Municipal Services Review. 2008.
- City of Winters Water Master Plan. 2006.
- City of Dixon Municipal Services Review. 2005.
- City of Rio Vista Municipal Services Review. 2005.

Upper Putah Creek Planning Area

- No information found

General Resources

- International Infrastructure Management Manual http://www.ipwea.org.au/bookshop/iimm/
- California Emergency Management Agency, Critical Infrastructure Protection Program (http://www.calema.ca.gov/InfrastructureProtection/Pages/Infrastructure-Protection.aspx)

Potential Information Needs

See Attachment 1.

Attachment 2 – Data Sources and Suggested Implementation Steps

Reasonable Use Focus

11. Meet 20% by 2020 statewide water conservation targets by December 31, 2020.

Qualitative Measurement

None

Quantitative Measurement

Water conservation measured in gallons per capita day as defined by the Water Conservation Act of 2009 and DWR guidance methodologies. Use UWMPs to measure progress. The 2015 interim and 2020 compliance targets for each urban water supplier are summarized in the following table:

Urban Water Supplier	Baseline (gpcd)	2015 Interim Target	2020 Compliance Target
City of Vacaville	172	169	166
City of Rio Vista [a]	320	---	256
City of Davis	203	204	167
City of Dixon	166	168	164
City of West Sacramento	305	275	244
City of Woodland	289	260	231

Note: Rio Vista 2010 UWMP did not include a 2015 Interim Target.

Addresses Plan Goals

7, 9, and 12

Priority

Importance = Medium
Urgency = Medium

Notes

- The UWMP compliance targets are subject to review and revision during the 2015 UWMP development cycle. Water use efficiency is critical to all water agencies, but is particularly important to those agencies that use imported water diverted from the Sacramento River as meeting this objective will be key to reducing the Region's dependence on the Delta for water supply.
- Portions of the Region are not required to prepare an Urban Water Management Plan; however there are multiple conservation programs and regional conservation is encouraged.

Suggested Implementation Steps:

Form a sub-committee/workgroup responsible for the following:

- o Collect data and review program implementation, progress, and trends since 2010 UWMPs.
- o Compile results from 2015 UWMPs to measure performance and provide recommended program adjustments, if necessary.

Attachment 2 – Data Sources and Suggested Implementation Steps

- Establish where and how data will be collected and saved
- Establish reporting protocol

Data Sources

Upper Cache Creek Planning Area

- No information found.

Valley Floor Planning Area

- City of Davis 2010 Urban Water Management Plan
- City of Rio Vista Urban Water Management Plan 2010
- City of Vacaville 2010 Urban Water Management plan Update Draft
- City of West Sacramento 2010 Urban Water Management Plan
- City of Woodland 2010 Urban Water Management Plan
- California Water Service Company, 2010 Urban Water Management Plan Dixon District

Upper Putah Creek Planning Area

- No information found

General Resources

- California Department of Water Resources Urban Water Management Programs (http://www.water.ca.gov/urbanwatermanagement/)

Potential Information Needs

See Attachment 1.

12. Increase adoption of locally cost effective agricultural best management practices (BMPs) throughout the planning period.

Qualitative Measurement

None

Quantitative Measurement

- Compliance with Senate Bill SBX7-7, the Water Conservation Act of 2009 (http://www.water.ca.gov/wateruseefficiency/sb7/).
- Number of required Efficient Water Management Practices (EWMPs) adopted
- Number of optional EWMPs adopted.
- Number of other Best Management Practices (BMPs) adopted (beyond EWMPs).

Addresses Plan Goals

6, 7, 9, 12, and 13

Attachment 2 – Data Sources and Suggested Implementation Steps

Priority

Importance = Medium
Urgency = Medium

Notes

- EWMPs are a subset of all potential BMPs.
- A list of EWMPs can be found in California Water Code §10608.48(c).
- Other agricultural BMPs include actions to protect or improve water quality, to improve soil conservation, or to reduce impacts on habitat.
- Since agricultural water users can divert up to 600,000 AFY from the Sacramento River, use of EWMPs is critical to reducing the Region's dependence on the Delta for water supply.

Suggested Implementation Steps:

Form a sub-committee/workgroup responsible for the following:

- Review 2012 Agriculture Water Management Plans and compile number of BMPs and EWMPs currently adopted by each supplier
- Survey agriculture water suppliers who are not required or have not completed AWMPs to obtain information regarding implementation of BMPs and EWMPs.
- Establish where and how data will be collected and saved
- Establish reporting protocol

Data Sources

Upper Cache Creek Planning Area

- No information found

Valley Floor Planning Area

- No information found

Upper Putah Creek Planning Area

- No information found

General Resources

- California Farm Bureau Federation (http://www.cfbf.com/)
- Natural Resources Conservation Service (http://www.ca.nrcs.usda.gov/)
- Agricultural Water Council (http://www.agwatercouncil.org/)
- Department of Water Resources Agricultural Water Management Guidebook (http://www.water.ca.gov/wateruseefficiency/sb7/committees/ag/a6/)

Potential Information Needs

See Attachment 1.

Attachment 2 – Data Sources and Suggested Implementation Steps

Recreation Focus

13. Maintain and increase water-related recreational opportunities within the Region throughout the planning period.

Qualitative Measurement

None

Quantitative Measurement

- Describe maintenance activities that benefit water-related recreation performed annually.
- Describe additional or enhanced water-related recreational opportunities provided annually.

Addresses Plan Goals

5 and 12

Priority

Importance = Medium
Urgency = Low

Notes

Some areas within the Region rely more heavily on water-related recreational opportunities as part of the local economy than other areas and so actions designed to maintain water-related recreation may hold a higher priority for those areas (e.g., communities surrounding Clearlake).

Suggested Implementation Steps:

Form a sub-committee/workgroup responsible for the following:

- Determine targeted recreational areas/parks/facilities around the Region.
- Establish contact with existing programs listed below and obtain:
  - Estimated number of people who visit recreation area
  - Description of maintenance activities performed
  - Description of additional or enhanced recreational opportunities that could be provided
- Establish where and how data will be collected and saved
- Establish reporting protocol

Data Sources

Upper Cache Creek Planning Area

- Bureau of Land Management - Cache Creek Coordinated Resource Management Plan (http://www.blm.gov/ca/st/en/fo/ukiah/cache_creek_crmp.html)

Attachment 2 – Data Sources and Suggested Implementation Steps

- Lake County Visitor Information Center (http://www.visitredwoodcoast.com/content/lake-county-visitor-information-center/ncoDF96B4298D3288B8A)
- Chamber of Commerce (http://www.lakeportchamber.com/)

Valley Floor Planning Area

- Cache Creek Conservancy – provides creek side access to visitors can provide estimates (https://sites.google.com/site/cccpractice2/)

Upper Putah Creek Planning Area

- Napa County Regional Park and Open Space District (http://www.napaoutdoors.org/)
- Watershed Information Center & Conservancy of Napa County (http://www.napawatersheds.org/app_pages/view/4312)

General Resources

- Bureau of Reclamation – (http://www.usbr.gov/main/regions.html)
- Bureau of Land Management – (http://www.blm.gov/ca/st/en.html)
- California Department of Parks and Recreation (http://www.parks.ca.gov/)

Potential Information Needs

See Attachment 1.

Recreation areas that are non-fee; do not have a means to track the number of people.

Risk Management Focus

14. Provide adequate flood protection for all urban and rural areas within the region by December 31, 2050.

Qualitative Measurement

None

Quantitative Measurement

- Change in calculated level of flood protection.
  - Targets: Provide flood protection consistent with the Central Valley Flood Protection Plan; for urban and urbanizing areas meet the urban level of flood protection; for other developed areas meet the FEMA standard of flood protection; for rural areas provide the level of protection warranted for the assets subject to damage.

Addresses Plan Goals

4, 10, 12, and 13

Attachment 2 – Data Sources and Suggested Implementation Steps

Priority

Importance = High
Urgency = Medium

Notes

While the completion date for this objective is 2050, projects that contribute toward meeting this objective are expected to be implemented within the current planning horizon of 2035.

Suggested Implementation Steps:

Form a sub-committee/workgroup responsible for the following:

- Compile mapping to show the current and targeted levels of flood protection for the Region
- Establish contact with agencies to collect information regarding planned projects to comply with flood protection levels if not in compliance
- Establish where and how data will be collected and saved
- Establish reporting protocol

Data Sources

Upper Cache Creek Planning Area

- Lake Flood Management http://www.co.lake.ca.us/Government/Directory/Water_Resources/Department_Programs/Flood_Management.htm
- Lake County Flood Insurance Study. 2011.
- Lake County Floodplain Management Plan. 2009.

Valley Floor Planning Area

- Yolo County Flood Control and Water Conservation District (http://www.ycfcwcd.org/)
- FloodSAFE Yolo Pilot Program - http://www.ycfcwcd.org/floodsafeyolo.html
- Central Valley Flood Protection Plan. 2012. FloodSAFE.
- Flood Control Systems Status Report. 2011. FloodSAFE.
- Flood Insurance Study, Solano County. 2009. FEMA.
- Flood Insurance Study, Yolo County. 2010. FEMA.

Upper Putah Creek Planning Area

- Napa County Flood Control and Water Conservation District (http://www.countyofnapa.org/FloodDistrict/)

General Resources

- California Department of Water Resources Flood Management (http://www.water.ca.gov/floodmgmt/)
- California Emergency Management Agency Flood Preparedness (http://www.calema.ca.gov/PlanningandPreparedness/Pages/Floods.aspx)

Attachment 2 – Data Sources and Suggested Implementation Steps

Potential Information Needs

See attachment 1.

15. Manage watershed activities and conditions to reduce the risk of large erosion events that could increase undesirable sediment loading to water bodies throughout the planning period.

Qualitative Measurement

None

Quantitative Measurement

- Number of large erosion events documented each year.
- Number of preventive measures taken and repairs made to reduce large erosion events.

Addresses Plan Goals

5, 6, 7, 10, and 13

Priority

Importance = Medium
Urgency = Medium

Notes

Tracking progress on this objective will require establishing a definition of (and possibly criteria to identify) a "large erosion event" including consideration of wildfires, landslides, and construction-related discharges.

Suggested Implementation Steps:

Form a sub-committee/workgroup responsible for the following:

- o Define "large erosion event" and criteria used to identify such an event
- o Evaluate available documents and contact agencies as needed to document preventative measures, programs and activities undertaken to prevent large erosion events
- o Establish where and how data will be collected and saved
- o Establish reporting protocol

Data Sources

<u>Upper Cache Creek Planning Area</u>

- No information found.

<u>Valley Floor Planning Area</u>

- No information found.

<u>Upper Putah Creek Planning Area</u>

- Napa County Roads Department

Attachment 2 – Data Sources and Suggested Implementation Steps

General Resources

- Bureau of Land Management Resource Management Plans for California's Public Lands (http://www.blm.gov/pgdata/etc/medialib/blm/ca/pdf/pa/planning.Par.25515.File.dat/RMP.pdf)
- United States Department of Agriculture Forest Service Pacific Southwest Region Land and Resource Management Plan Mendocino National Forest (http://www.fs.usda.gov/detailfull/mendocino/landmanagement/?cid=FSBDEV3_004518&width=full)
- United States Department of Agriculture Natural Resources Conservation Service (http://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/landscape/)
- Vegetation Treatment Program Environmental Impact Report. Board of Forestry and Fire Protection. (http://bofdata.fire.ca.gov/board_committees/resource_protection_committee/current_projects/vegetation_treatment_program_environmental_impact_report_(vtpeir))

Potential Information Needs

See Attachment 1.

16. Monitor planning of state and federal water related projects and programs in the Delta and estimate potential local impacts throughout the planning period.

Qualitative Measurement

- Scientific information and studies available that characterize potential impacts to region.
- Active participation and engagement in specifically identified state and federal water resources planning and projects.

Quantitative Measurement

None

Addresses Plan Goals

3 and 11

Priority

Importance = Medium
Urgency = High

Notes

None

Suggested Implementation Steps:

Form a sub-committee/workgroup responsible for the following:

- o Define active participation and/or targeted programs of interest

Attachment 2 – Data Sources and Suggested Implementation Steps

- Determine who monitors programs and how participation will occur in representation of the Westside Region.
- Establish where and how data will be collected and saved
- Establish reporting protocol

Data Sources

Upper Cache Creek Planning Area

- No information found.

Valley Floor Planning Area

- No information found.

Upper Putah Creek Planning Area

- Napa County Public Works Water Resources Division

General Resources

- (many general state and federal programs could be listed here)

Potential Information Needs

See attachment 1.

17. Monitor conditions and improve understanding to support sustainable use of groundwater basins within the Region as an important part of the Region's water supply throughout the planning period.

Qualitative Measurement

- Information to understand and predict status of aquifer functions over the long-term
- Understand opportunities to improve regional water supply portfolio through conjunctive management

Quantitative Measurement

Prevent long-term declines in groundwater levels and quality throughout the region.

Addresses Plan Goals

3, 6, 9, 11, and 12

Priority

Importance = High
Urgency = Low

Notes

- Potential long-term declines of groundwater levels can be assessed by computing and reporting a 10-year moving average of groundwater levels at key

Attachment 2 – Data Sources and Suggested Implementation Steps

locations for active aquifers each year within the Region. Comparing a 10-year moving average each year should filter out most effects of annual variability in local precipitation, groundwater use and recharge.

- Potential long-term declines in water quality can be assessed by computing an annual average for key constituents from select groundwater wells in active aquifers. The list of aquifers and constituents to be tracked for each aquifer needs to be identified.

Suggested Implementation Steps:

Form a sub-committee/workgroup (potentially same sub-committee for both Objective Nos. 17 and 24) responsible for the following:

- o Identifying monitoring wells and data (level and quality) collected within groundwater basins
- o Establishing Reporting protocol and criteria – such as groundwater basin management objectives
- o Determining key locations to collect monitoring data and groundwater levels/constituents to be monitored
- o Establish where and how data will be collected and saved
- o Establish reporting protocol

Data Sources

Upper Cache Creek Planning Area

- Lake County Watershed Protection District, Monitoring Plan Lake County California Statewide Groundwater Elevation Monitoring System. March 2012.
- Lake County Groundwater Management Plan.
- Big Valley Groundwater Management Plan.

Valley Floor Planning Area

- YCFC&WCD 2006 Groundwater Management Plan
- YCFC&WCD Groundwater Monitoring Program Report
- City of Davis/UC Davis Groundwater Management Plan
- City of Vacaville Groundwater Management Plan
- City of Woodland Groundwater Management Plan
- Colusa County Groundwater Management Plan
- Solano Irrigation District 2010 Groundwater Status Report – Water Levels and Quality
- Solano Irrigation District Groundwater Management Plan Upgrade
- Yolo County IGSM Report

Upper Putah Creek Planning Area

- Napa County Groundwater Monitoring Plan 2013
- Napa County Groundwater Conditions and Groundwater Monitoring Recommendations Final Report

Attachment 2 – Data Sources and Suggested Implementation Steps

General Resources

- Department of Water Resources - Bulletin 118 (http://www.water.ca.gov/publications/browse.cfm).
- California Statewide Groundwater Elevation Monitoring (CASGEM) (http://www.water.ca.gov/groundwater/casgem)– The following are designated monitoring entities as of January 1, 2013:
    - Lake County Watershed Protection District
    - Water Resources Association of Yolo County
    - Napa County

Potential Information Needs

See attachment 1.

18. Maintain and enhance monitoring network and information sharing to support management of watersheds and natural resources within the Region throughout the planning period.

Qualitative Measurement

- Availability of important information
- Ease of access to data and information across agency boundaries

Quantitative Measurement

None

Addresses Plan Goals

2, 3, 6, 9, 10, 11, and 12

Priority

Importance = High
Urgency = Medium

Notes

See Section 10 for more details related to data collection and management.

Suggested Implementation Steps:

Form a sub-committee/workgroup responsible for the following:

- Evaluate current monitoring network and information sharing mechanisms provided throughout the Region.
- Develop recommendations for areas where additional information could be shared; identify the potential benefits and costs of the increased capacity.

Attachment 2 – Data Sources and Suggested Implementation Steps

Data Sources

Upper Cache Creek Planning Area

- Lake County Watershed Protection District, Monitoring Plan Lake County California Statewide Groundwater Elevation Monitoring System. March 2012.

Valley Floor Planning Area

- Yolo County Groundwater Monitoring Program http://www.ycfcwcd.org/groundwatermonitoring.html

Upper Putah Creek Planning Area

- Napa County Groundwater Monitoring Plan 2013
- Napa County Groundwater Conditions and Groundwater Monitoring Recommendations Final Report

General Resources

- California Statewide Groundwater Elevation Monitoring (CASGEM) (http://www.water.ca.gov/groundwater/casgem)– The following are designated monitoring entities as of January 1, 2013:
    - Lake County Watershed Protection District
    - Water Resources Association of Yolo County
    - Napa County
- California State Water Resources Control Board, California Integrated Water Quality System Project (CIWIQS) (http://www.waterboards.ca.gov/ciwqs/publicreports.shtml)
- Joint Task Force for California Watershed Management (http://resources.ca.gov/watershedtaskforce)

Potential Information Needs

See Attachment 1.

Water Quality Focus

19. Address pollutant sources in order to meet runoff standards and satisfy targets as described in specific Total Maximum Daily Loads (TMDLs) within the Region throughout the planning period.

Qualitative Measurement

Actions taken to address pollutant sources

Quantitative Measurement

- Compliance with runoff standards as described in stormwater permits
- Progress toward meeting targets identified in specific TMDLs within the Region

Attachment 2 – Data Sources and Suggested Implementation Steps

Addresses Plan Goals

4, 5, 6, and 8

Priority

Importance = High
Urgency = Medium

Notes

The following table presents a summary of the TMDLs existing within the Westside Region:

Water Body	Pollutant	Resolution No.	Target	Compliance Date
Clear Lake	Nutrients	R5-2006-0060	87,100 kg Average annual (five year rolling average)	By ten years after approval by OAL (Office of Administrative law)
Clear Lake	Mercury	R5-2002-0207	Methylmercury concentration in fish tissue shall not exceed 0.09 and 0.19 methylmercury/kg wet weight of tissue in trophic level 3 and 4 fish, respectively.	Regional Water Board will review the progress toward meeting the fish tissue objectives for Clear Lake every five years.
Cache Creek, North Fork Cache Creek, and Bear Creek	Mercury	2005-0146	Average methylmercury concentration shall not exceed 0.12 and 0.23 mg methylmercury/kg wet weight of muscle tissue in trophic level 3 and 4 fish, respectively.	Regional Water Board will review the progress toward meeting the water quality objectives and the Basin Plan requirements at least every five years.

There are currently no TMDLs on Putah Creek watershed.

Suggested Implementation Steps:

Form a sub-committee/workgroup responsible for the following:

- Establish communication with state and federal regulatory agencies to monitor progress towards compliance with TMDLs including actions taken
- Review existing stormwater permit for compliance challenges, if any
- Determine if Regional stakeholders can take action(s) to help achieve TMDL targets
- Establish where and how data will be collected and saved
- Establish reporting protocol

Data Sources

<u>Upper Cache Creek Planning Area</u>

- Central Valley Regional Water Quality Control Board – Clear Lake Mercury TMDL (http://www.waterboards.ca.gov/rwqcb5/water_issues/tmdl/central_valley_projects/clear_lake_hg/index.shtml).

Attachment 2 – Data Sources and Suggested Implementation Steps

- Central Valley Regional Water Quality Control Board – Clear Lake Nutrient TMDL (http://www.waterboards.ca.gov/rwqcb5/water_issues/tmdl/central_valley_projects/clear_lake_nutrients/index.shtml).
- Clear Lake Watershed TMDL Monitoring Program. 2009. Lake County Watershed Protection District.
- Monitoring and Implementation Plan Clear Lake Mercury and Nutrient TMDLs. 2008.
- Central Valley Regional Water Quality Control Board – Cache Creek, Bear Creek, Sulphur Creek and Harley Gulch Mercury TMDL (http://www.waterboards.ca.gov/rwqcb5/water_issues/tmdl/central_valley_projects/cache_sulphur_creek/index.shtml)
- Department of Water Resources samples Clear Lake six times per year for nutrients and chlorophyll-a
- US EPA pilot capping project to cap contaminated sediments in Clear Lake.

<u>Valley Floor Planning Area</u>
- No information found

<u>Upper Putah Creek Planning Area</u>
- No information found

<u>General Resources</u>
- No information found

Potential Information Needs

See Attachment 1.

20. Minimize accidental spillage/discharges of wastewater to receiving waters throughout the planning period.

Qualitative Measurement

None

Quantitative Measurement

- Number of spills reported per year
- Volume of wastewater spilled that reached receiving waters
    - Target: Zero spills per year of wastewater that reaches receiving waters

Addresses Plan Goals

4, 5, 6, 8, and 12

Priority

Importance = Medium
Urgency = Medium

Notes

Attachment 2 – Data Sources and Suggested Implementation Steps

None

Suggested Implementation Steps:

Form a sub-committee/workgroup responsible for the following:

- Track number and cause of spills, locations, and quantity that reached receiving waters based on query from CIWQS
- Establish where and how data will be collected and saved
- Establish reporting protocol

Data Sources

Upper Cache Creek Planning Area

- Big Valley Tribe EPA Office – has available map of spills adjacent to Clear Lake

Valley Floor Planning Area

- No information found

Upper Putah Creek Planning Area

- Lake Berryessa Resort Improvement District, Napa County
- Napa Berryessa Resort Improvement District, Napa County

General Resources

- California State Water Resources Control Board, California Integrated Water Quality System Project (CIWQS) can be used to query data by Agency such as violations (i.e. sewer spills, exceedance in effluent limits) and enforcement actions (http://ciwqs.waterboards.ca.gov/ciwqs/readOnly/publicReportFacilityAtGlanceCriteria.jsp)
- Central Valley Regional Water Quality Control Board Executive Officer quarterly reports (http://www.swrcb.ca.gov/rwqcb5/)

Potential Information Needs

See Attachment 1.

21. Reduce public health risks by reducing contaminants of concern in drinking water sources throughout the planning period.

Qualitative Measurement

None

Quantitative Measurement

- Improvements in source water quality for constituents of concern
- Cost savings for meeting quality standards for drinking water at point of delivery
- Reductions in concentration of constituents of concern in drinking water point of delivery

Attachment 2 – Data Sources and Suggested Implementation Steps

Addresses Plan Goals

3, 6, 9, and 12

Priority

Importance = Medium
Urgency = Medium

Notes

This objective highlights that there are multiple ways within a watershed to meet drinking water standards and that cleaner sources of water can provide lower levels of public health risk.

Suggested Implementation Steps:

Form a sub-committee/workgroup responsible for the following

- Identify constituents of concern in drinking water sources, start with review of Watershed Sanitary Surveys.
- Establish communication with water suppliers and track projects implemented to improve source water quality including the following parameters:
    - Cost savings for meeting quality standards
    - Reductions in concentrations of constituents
- Establish where and how data will be collected and saved
- Establish reporting protocol

Data Sources

Upper Cache Creek Planning Area

- Clear Lake Watershed Sanitary Survey. Updated 2013. Clear Lake Water Utilities

Valley Floor Planning Area

- Solano Project – Watershed Sanitary Survey Below Monticello Dam. 2006. Solano County Water Agency.

Upper Putah Creek Planning Area

- Lake Berryessa Resort Improvement District, Napa County
- Napa Berryessa Resort Improvement District, Napa County

General Resources

- California Department of Public Health provides a list of contaminants and respective MCLs for public water systems also provides information for emerging contaminants (http://www.cdph.ca.gov/certlic/drinkingwater/Pages/default.aspx)
- Sacramento Valley Water Quality Coalition Monitoring and Reporting Program Plan (http://www.svwqc.org/pdf/SVWQC_2009_AMR_2010-03-01_FINAL.PDF)

Attachment 2 – Data Sources and Suggested Implementation Steps

- California Department of Public Health "Blue-Green Algae" (http://www.cdph.ca.gov/HealthInfo/environhealth/water/Pages/Bluegreenalgae.aspx)

Potential Information Needs

See Attachment 1.

22. Meet all drinking water, and wastewater discharge standards within the region throughout the planning period.

Qualitative Measurement

None

Quantitative Measurement

Compliance with all relevant quality standards

Addresses Plan Goals

4, 5, 6, 8, and 12

Priority

Importance = High
Urgency = High

Notes

- Basin Plans consist of a designation or establishment for the waters within a specified area of beneficial uses to be protected, water quality objectives to protect those uses, and a program of implementation needed for achieving the objectives. The Basin Plans containing the water quality standards for the Central Valley Region are:
  - Water Quality Control Plan for the Sacramento River Basin and the San Joaquin River Basin.
  - Water Quality Control Plan for the Tulare Lake Basin.

- State Implementation Policy (SIP) establishes a standardized approach for permitting discharge of toxic pollutants to non-ocean surface waters in a consistent manner.
  - Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays and Estuaries of California. State Water Resources Control Board California Environmental Protection Agency, 2005.

- The U.S. Environmental Protection Agency (EPA) promulgated numeric water quality criteria for priority toxic pollutants and other water quality standard provisions to be applied to waters of the State of California to protect human health and the environment.
  - California Toxics Rule (CTR)

Attachment 2 – Data Sources and Suggested Implementation Steps

- The California Safe Drinking Water Act authorizes the California Department of Public Health to protect the public from contaminants in drinking water by establishing maximum contaminant levels (MCLs) that are at least as stringent as those developed by the U.S. EPA.
  - Title 22, California Code of Regulations Division 4. Environmental Health Chapter 15. Domestic Water Quality and Monitoring Article 4. Primary Standards A—Maximum contaminant levels

Suggested Implementation Steps:

Form a sub-committee/workgroup responsible for the following:

- Identify agencies that will be tracking drinking water and wastewater discharge permit requirements
- Track identified agency's compliance through CIWQS and CDPH drinking water database or through request to individual agencies
- Establish where and how data will be collected and saved
- Establish reporting protocol

Data Sources

Upper Cache Creek Planning Area

- No information found

Valley Floor Planning Area

- No information found

Upper Putah Creek Planning Area

- Napa County Planning, Building and Environmental Services (http://www.countyofnapa.org/PBES/)
- Lake Berryessa Resort Improvement District, Napa County
- Napa Berryessa Resort Improvement District, Napa County

General Resources

- California State Water Resources Control Board, California Integrated Water Quality System Project (CIWIQS) can be used to query data by Agency such as violations (i.e. sewer spills, exceedance in effluent limits) and enforcement actions (http://ciwqs.waterboards.ca.gov/ciwqs/readOnly/publicReportFacilityAtGlanceCriteria.jsp)
- California Department of Pubic Health – Produces Annual Compliance Reports for Public Water Systems which includes summary of violations by contaminant category, individual contaminant and by violation category in each county (http://www.cdph.ca.gov/certlic/drinkingwater/Pages/Publications.aspx)

Potential Information Needs

See Attachment 1.

Attachment 2 – Data Sources and Suggested Implementation Steps

Water Supply Focus

23. Provide 100% reliability of municipal and industrial (M&I) water supplies of appropriate quality to meet forecasted demands[1] within the Region throughout the planning period.

Qualitative Measurement

None

Quantitative Measurement

- Number of days in reporting year that M&I water suppliers invoke drought ordinances
- Number of days rationing is required in reporting year
    - Target: Zero days of rationing per year

Addresses Plan Goals

1, 6, 9 and 12

Priority

Importance = High
Urgency = Medium

Notes

- Meeting this objective can be accomplished through a variety of approaches such as increased supplies, conjunctive management, water transfers, long-term demand management, water rationing, etc.
- Satisfaction of this objective should include consideration of availability of alternate supplies should a drinking water source become contaminated or otherwise disrupted.

Suggested Implementation Steps:

Form a sub-committee/workgroup responsible for the following:

- Establish contact with water suppliers to collect the following information
    - Existing drought water use reduction ordinances, policies and procedures
    - number of days rationing required and impacts to municipal and industrial customers
    - alternative supply options in the event of contamination or other disruption
- Establish where and how data will be collected and saved
- Establish reporting protocol

[1] "Forecasted demands" include the amount of water estimated to be necessary to satisfy fire suppression needs.

Attachment 2 – Data Sources and Suggested Implementation Steps

Data Sources

Upper Cache Creek Planning Area

- No information found.

Valley Floor Planning Area

- No information found.

Upper Putah Creek Planning Area

- No information found.

General Resources

- No information found.

Potential Information Needs

See Attachment 1.

24. Provide agricultural water supplies of appropriate quality to support a robust agricultural industry within the Region throughout the planning period.

Qualitative Measurement

Changes in agricultural outputs within the Region over time

Quantitative Measurement

- Groundwater levels and quality throughout the Region
  - o Target: Prevent long-term declines in groundwater levels and quality throughout the Region
- Annual surface water deliveries for agricultural use as compared to contracted amounts.
  - o Target: Provide 100% reliability for contracted annual deliveries by Solano County Water Agency

Addresses Plan Goals

1, 9, and 12

Priority

Importance = High
Urgency = Medium

Notes

- This objective is written differently than Objective 23 for M&I water supplies primarily because there are no "forecasted demands" for agriculture within the Region.
- While it is true that "a robust agricultural industry within the Region" relies on many factors, a consistent water supply of appropriate quality is a major factor.

Attachment 2 – Data Sources and Suggested Implementation Steps

- Groundwater level monitoring linked to Objective 17.

Suggested Implementation Steps:

Form a sub-committee/workgroup (potentially same sub-committee for both Objective Nos. 17 and 24) responsible for the following:

- o Define the term "robust agricultural industry"
- o Identifying monitoring wells and data collected at each site within groundwater basins
- o Determining key locations to collect monitoring data and constituents to be monitored
- o Obtain annual surface water deliveries for agricultural use compared to contracted amounts from water suppliers
- o Review respective County Crop reports for annual agricultural production monitoring
- o Establish where and how data will be collected and saved
- o Establish reporting protocol

Data Sources

Upper Cache Creek Planning Area

- No information found.

Valley Floor Planning Area

- No information found.

Upper Putah Creek Planning Area

- No information found.

General Resources

- California Department of Food and Agriculture – As a performance measure can obtain annual crop reports by county (http://www.cdfa.ca.gov/exec/county/countymap/)
- California Statewide Groundwater Elevation Monitoring (CASGEM) (http://www.water.ca.gov/groundwater/casgem)– The following are designated monitoring entities as of January 1, 2013:
    - o Lake County Watershed Protection District
    - o Water Resources Association of Yolo County
    - o Napa County
- Agricultural Water Management Plans

Potential Information Needs

See Attachment 1.

Attachment 3

Summary of RWMG Members Who Provided Information and Potential Sources by Plan Objective

Attachment 3 – Summary of RWMG Members Who Provided Information and Potential Sources by Plan Objective

Plan Objective No.	Contacts that Provided Feedback
1	Jeanette Wrysinski – Yolo County RCD Lynelle Pollock – Cache Creek Conservancy Tom Smythe – Lake County Water Resources Libby Earthman – Putah Creek Council Jeff Sharp – Watershed Information Center & Conservancy of Napa County Bob Schneider – Tuleyome, Inc. Greg Dills - Eastlake & Westlake Resource Conservation District (contact efforts underway will include feedback for the final)
2	Jeanette Wrysinski – Yolo County RCD Lynelle Pollock – Cache Creek Conservancy Tom Smythe – Lake County Water Resources Libby Earthman – Putah Creek Council Jeff Sharp – Watershed Information Center & Conservancy of Napa County Bob Schneider – Tuleyome, Inc. Chris Lee – Solano County Water Agency Greg Dills - Eastlake & Westlake Resource Conservation District (contact efforts underway will include feedback for the final)
3	Jeanette Wrysinski – Yolo County RCD Lynelle Pollock – Cache Creek Conservancy Tom Smythe – Lake County Water Resources Libby Earthman – Putah Creek Council Jeff Sharp – Watershed Information Center & Conservancy of Napa County Larry Ray – Scotts Valley Band of Pomo Indians Bob Schneider – Tuleyome, Inc. Chris Lee – Solano County Water Agency
4	Jeanette Wrysinski – Yolo County RCD Lynelle Pollock – Cache Creek Conservancy Tom Smythe – Lake County Water Resources Libby Earthman – Putah Creek Council Jeff Sharp – Watershed Information Center & Conservancy of Napa County Larry Ray – Scotts Valley Band of Pomo Indians Bob Schneider – Tuleyome, Inc. Chris Lee – Solano County Water Agency
5	Not Applicable – Linked to Objective No. 4
6	Not Applicable – Linked to Objective No. 4 and 5
7	Tom Smythe – Lake County Water Resources Jeff Sharp – Watershed Information Center & Conservancy of Napa County Chris Lee – Solano County Water Agency
8	Jeanette Wrysinski – Yolo County RCD Jeff Sharp – Watershed Information Center & Conservancy of Napa County
9	Not Applicable – Linked to Objective No. 8
10	Tom Smythe – Lake County Water Resources Jeff Sharp – Watershed Information Center & Conservancy of Napa County Chris Lee – Solano County Water Agency Max Stevenson – Yolo County Flood Control and Water Conservation District
11	Jeff Sharp – Watershed Information Center & Conservancy of Napa County

Attachment 3 – Summary of RWMG Members Who Provided Information and Potential Sources by Plan Objective

Plan Objective No.	Contacts that Provided Feedback
12	Chris Lee – Solano County Water Agency Jeff Sharp – Watershed Information Center & Conservancy of Napa County Max Stevenson – Yolo County Flood Control and Water Conservation District
13	Tom Smythe – Lake County Water Resources Jeff Sharp – Watershed Information Center & Conservancy of Napa County Max Stevenson – Yolo County Flood Control and Water Conservation District
14	Jeff Sharp – Watershed Information Center & Conservancy of Napa County
15	Jeanette Wrysinski – Yolo County RCD Bob Schneider – Tuleyome, Inc. Jeff Sharp – Watershed Information Center & Conservancy of Napa County Greg Dills - Eastlake & Westlake Resource Conservation District (contact efforts underway will include feedback for the final)
16	Chris Lee – Solano County Water Agency Jeff Sharp – Watershed Information Center & Conservancy of Napa County
17	Tom Smythe – Lake County Water Resources Jeff Sharp – Watershed Information Center & Conservancy of Napa County Chris Lee – Solano County Water Agency Max Stevenson – Yolo County Flood Control and Water Conservation District
18	Jeff Sharp – Watershed Information Center & Conservancy of Napa County
19	Tom Smythe – Lake County Water Resources Bob Schneider – Tuleyome, Inc.
20	Jeff Sharp – Watershed Information Center & Conservancy of Napa County
21	Jeff Sharp – Watershed Information Center & Conservancy of Napa County
22	Jeff Sharp – Watershed Information Center & Conservancy of Napa County
23	Tom Smythe – Lake County Water Resources
24	Max Stevenson – Yolo County Flood Control and Water Conservation District

Appendix F

Storm Water Resource Plan for Yolo County

Water Resources Association of Yolo County

Storm Water Resource Plan for Yolo County

   

Kennedy/Jenks Consultants

May 2018

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With the assistance of:

Kennedy/Jenks Consultants

The Water Resources Association of Yolo County would like to thank the State Water Resources Control Board and the many dedicated stakeholders for their time, guidance, and thoughtful participation in the creation of this plan.

Executive Summary

The Water Resources Association of Yolo County (WRA of Yolo County) has developed this Storm Water Resource Plan (SWRP or Plan) to inform future water management decisions and promote effective conjunctive use as well as alleviate flooding, groundwater, and water quality issues through stormwater management throughout Yolo County. This SWRP was developed in accordance with the SWRP Guidelines (see Checklist and Self-Certification in Appendix A) published by the State Water Resources Control Board (State Water Board) for the Storm Water Grant Program (SWGP), part of the Water Quality, Supply, and Infrastructure Improvement Act of 2014 (also known as Proposition 1 [Prop 1]).

ES.1 Introduction (Section 1)

The selected boundary for this SWRP is Yolo County located in northern California. Yolo County falls within the Westside-Sacramento Integrated Regional Water Management (Westside IRWM) Planning Region, which also includes four other Counties: Colusa, Lake, Solano, and Napa. Yolo County also borders the North Sacramento Valley and American River Basin IRWM Planning Regions. Coordination between the IRWM Regions and the SWRP development occurs through joint participation in meetings as well as in specific outreach.

This portion of the plan describes the development of SWRP objectives and their relationship to the Westside IRWM Plan objectives. One of the key elements of SWRP projects are that they provide multiple-benefits; therefore, acknowledgement of these multiple benefits is important to establishment of SWRP objectives. The SWRP Objectives incorporate all 24 Westside IRWM Plan Objectives, as well as three additional objectives specific to stormwater management.

ES.2 Watershed Identification (Section 2)

Yolo County makes up about 1,034 square miles of the Sacramento Hydrologic Region in northern California and includes the lower portions of both the Putah Creek and Cache Creek watersheds, as well as the surrounding low-lying drainage basins in the region, including the Colusa Basin drain (a portion of the Sacramento-Stone Corral watershed) and Lower Sacramento watershed. Yolo County also primarily encompasses the Yolo Subbasin of the Sacramento Valley groundwater basin as designated by DWR Bulletin 118 2016 Interim Update.

The SWRP presents an opportunity to address the issues identified in the Westside IRWM Plan specific to stormwater resource management in Yolo County. Challenges identified in the IRWM Plan related to stormwater management include: Habitat and Invasive Species, Infrastructure Protection, Flood Management and Other Natural Disasters, Climate Change, Water Quality, Sustaining Groundwater Resources, and Land Use.

ES.3 Water Quality Compliance (Section 3)

The quality of surface waters in the region is greatly influenced by land use practices as well as historic sources. In Yolo County, surface waters are impacted largely by agricultural use, resource extraction (i.e., mercury mining in watersheds upstream of Yolo County), and nonpoint source pollutants from urban uses. Surface waters in the SWRP area are especially impaired by mercury, boron, pesticides, and toxicity.

Implementation of this SWRP will result in projects that are consistent with the Total Maximum Daily Loads (TMDLs), National Pollutant Discharge Elimination System (NPDES) Permits, and Waste Discharge Requirements (WDRs) applicable for the watersheds within Yolo County, and comply with other plans and permits described in this section.

ES.4 Organization, Coordination, Collaboration (Section 4)

The Yolo County SWRP was developed by the SWRP Team with input by those entities participating in the Water Resources Association of Yolo County. Development of the Plan also included the participation of community stakeholders not normally involved with the WRA of Yolo County to ensure that local agencies, non-governmental organizations, nonprofit organizations, and the community are identified and consulted throughout the SWRP development. There are many on-going efforts by local agencies and non-governmental organizations to address water quantity and quality issues in Yolo County.

This SWRP will build off these efforts by the entities described in this section.

ES.5 Identification & Prioritization of Projects (Section 5)

Projects presented in this section were submitted for consideration to be included in the Yolo SWRP. A total of 28 projects were submitted; see Appendix H for blank project forms. Project review consisted of a two-part process: (1) Initial Project Screening and (2) Project Prioritization and Ranking (for implementation projects only). In total, the submitted projects met all objective categories and 24 of the 27 SWRP objectives. Individually, projects met 1-6 out of 11 objective categories and 1-8 out of 27 SWRP objectives.

Implementation of prioritized water supply projects could result in 33,627 AFY of water which could infiltrate back into the groundwater plus an additional 1,000 gpm per storm event.

ES.6 Implementation Strategy and Schedule (Section 6)

This section sets forward a proposed framework for SWRP implementation and performance monitoring to track progress, and it offers recommendations for the first two years of Plan implementation activities. This section is intended to serve as the cornerstone of critical actions the stakeholders must take to ensure SWRP program success into the future.

The SWRP for Yolo County will rely on the WRA of Yolo County, Yolo Subbasin Groundwater Agency (YSGA), and Westside-Sacramento Regional Water Management Group (RWMG) for implementation of the Plan and incorporation into the Westside-Sacramento (Westside) Integrated Regional Water Management (IRWM) Plan. Implementation of the SWRP includes incorporation into the IRWM Plan, maintenance of the Plan, obtaining applicable permits for implementation, tracking project status, and community participation.

ES.7 Education, Outreach, Public Participation (Section 7)

Since its inception in 1993, the WRA of Yolo County has a history of local stakeholder and community engagement in planning, programs and activities for water resource planning in Yolo County. The term “stakeholder” refers to representatives of agencies, nonprofit groups, nongovernmental organizations, government organizations, and private citizens interested in or affected by the development of the Plan.

Specific outreach to non-government organizations (NGOs), disadvantaged communities (DACs), economically distressed areas (EDAs) and the general public built on the efforts initiated by the WRA of Yolo County.

Section 1: Introduction and SWRP Objectives

The Water Quality, Supply, and Infrastructure Improvement Act of 2014 (also known as Proposition 1 [Prop 1]) established grant and loan programs for public agencies, nonprofit organizations, public utilities, state and federally recognized Indian tribes, and mutual water companies to support planning and implementation of water projects. One of the programs created by Prop 1 is the Storm Water Grant Program (SWGP) administered by the State Water Resources Control Board (State Water Board). Senate Bill 985 (SB 985), the Storm Water Resource Planning Act, amended the California Water Code to require development of a Storm Water Resource Plan (SWRP or Plan) in order to be eligible for grants from a bond act approved after January 1, 2014; therefore, SB 985 applies to Prop 1 and applicants seeking funding from the SWGP are required to develop a SWRP or functionally equivalent plan(s). The State Water Board developed the Proposition 1 Storm Water Resource Plan Guidelines (SWRP Guidelines; State Water Board 2015) to assist applicants with the development of their SWRP.

The Water Resources Association of Yolo County (WRA of Yolo County) have developed this SWRP to inform future water management decisions and promote effective conjunctive use as well as alleviate flooding, groundwater, and water quality issues through storm water management throughout Yolo County. This SWRP was developed in accordance with the SWRP Guidelines (see Checklist and Self-Certification in Appendix A).

1.1 Plan Development

The selected boundary for this SWRP is Yolo County (shown in Figure 1-1), located in northern California. Yolo County falls within the Westside-Sacramento Integrated Regional Water Management (Westside IRWM) Planning Region, which also includes four other Counties: Colusa, Lake, Solano, and Napa. Yolo County also borders the North Sacramento Valley and American River Basin IRWM Planning Regions. Coordination between the IRWM Regions and the SWRP development occurs through joint participation in meetings as well as in specific outreach.

The boundary selection for this SWRP originated with a discussion initiated by the Westside IRWM Coordinating Committee on 15 January 2016 to discuss general interest in preparation of a SWRP. A follow-up Coordinating Committee Special Business Meeting on 29 January 2016 resulted in the WRA of Yolo County as the only entity that had sufficient stakeholder interest and resources to pursue preparation of a SWRP. Therefore, the selected boundary focuses on the Yolo County drainages within the Westside IRWM.

1.1.1 Relation to Other Planning Efforts

There are many on-going efforts to address water quantity and quality issues in the SWRP area. First and foremost is the initiation of the WRA of Yolo County in 1993. In 2007, the WRA of Yolo County completed a local Yolo County IRWM Plan which describes Yolo County-specific topics and foundational action items, and continues to inform water management in Yolo County. Other efforts to address storm water issues include:

- FloodSAFE Yolo;
- WRA of Yolo County's Subsidence Network Monitoring;
- Westside IRWM grant to address mercury contamination in watersheds above the SWRP area; and
- Continued participation in the broader Westside IRWM.

The Westside Sacramento Integrated Regional Water Management (IRWM) Plan, published in 2013, is the most current of these documents. This plan presents a comprehensive overview of the SWRP area as well as the much larger IRWM Plan area, discusses the history and hydrology of the area, as well as its regulatory framework and water quality/quantity challenges. It also identifies water needs in the IRWM Plan area and assesses a wide variety of approaches to determine potential strategies to meet water quality and quantity goals.

The Westside Sacramento IRWM Plan draws on previous water management plans, including the Yolo County IRWM Plan developed in 2007, which discusses water issues specific to Yolo County. The Yolo County IRWM Plan was developed by the Water Resources Association of Yolo County and represents the specific water quantity (e.g. flood and fluctuating groundwater levels) issues as well as quality issues such as mercury sediments from upstream abandoned mines.

The SWRP builds on flood management modelling and planning documents created by FloodSAFE Yolo, a pilot program led by the Central Valley Flood Protection Board that includes a number of agencies in the SWRP area. The FloodSAFE Yolo Program coordinated the flood management efforts associated with the Cache Creek Integrated Action and the Yolo County Sloughs, Canals, and Creeks Management Program identified in the Yolo County IRWM Plan. This program includes analysis of historical floods and modelling of flood scenarios in the SWRP area to identify areas that are vulnerable to flood.

Part of the SWRP area is also included in the Lower Sacramento River/Delta North Regional Flood Management Plan (FloodProtect), a study of flood preparedness in a region consisting of parts of Solano, Yolo, Sacramento, and Sutter Counties. This study provides a discussion of flood management problems and lists flood infrastructure improvements needed in each county included in the region of study. This document will help identify critical flood control needs in the SWRP area of the proposed SWRP.

Other documents related to flood preparedness within the SWRP area include:

- Flood Protect. Lower Sacramento River/Delta North Regional Flood Management Plan. July 2014. http://www.yolocounty.org/home/showdocument?id=28753
  - Covers parts of Solano, Yolo, Sacramento, and Sutter Counties. Identifies flood infrastructure needs and potential vulnerabilities in the SWRP area.
- FloodSAFE Yolo Pilot Program. "1st Annual Report (2008-2009)." September 2008. http://www.yolowra.org/irwmp_integrated_actions/1st-Annual-Report_floodSAFE_2008.pdf
  - Covers Yolo County. Discusses the formation and goals of the FloodSAFE Yolo consortium of agencies and presents results of the first few years of the program and describes planned future work. Contains maps analyzing areas impacted in various flood scenarios.
- Borcalli, Francis E. "Cache Creek and Cache Creek Settling Basin." FloodSAFE Yolo. Presentation delivered 21 November 2008.
  - Covers City of Woodland and adjacent area. Discusses flood vulnerabilities and mitigation strategies in the vicinity of Woodland, CA. Introduces the Lower Cache Creek Feasibility Investigation.
- Various flood maps covering University of California Davis Campus, Interstate 5 corridor, the City of Madison, and other areas in the vicinity show extensive flood monitoring efforts throughout the SWRP area as well as results of models of predicted and historic floods.

In addition to these large-scale planning documents, watershed-scale analysis has been conducted targeting smaller watersheds within the SWRP area:

- Yolo County Resource Conservation District conducted an in-depth study on the Willow Creek Watershed in the southwest portion of the SWRP area and included a detailed analysis of the water, soil, and ecological resources in the basin, as well as discussion of water quality problems to address.
- The City of Winters completed reports discussing storm water projects needed in the Moody Slough and Putah Creek/Dry Creek subbasins.
- The City of Woodland has completed in-depth analysis and hydrologic modeling of storm water infrastructure and natural drainage in the vicinity of the City, which has resulted in a detailed report presenting necessary storm water infrastructure improvements.

Additional reports and documents used in the development of this SWRP are listed in Section 8: References.

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Storm Water Resource Plan For Yolo County

YOLO COUNTY SWRP AND NEIGHBORING IRWM REGIONS

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Figure 1-1

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1.1.1.1 Other IRWM Plan Regions

The American River Basin Region and North Sacramento Valley Region are also embarking on SWRPs under the SWGP planning grant. Coordination between the IRWM Regions and the SWRP development occurred through solicitation to participate in meetings and provide comments on plan sections.

The Yolo County SWRP area is located at the most downstream end of the extensive Sacramento River watershed and is hydrologically connected to the Sacramento-San Joaquin Delta and the San Francisco Bay. The American River Basin IRWM Plan area is located adjacent to the Yolo County SWRP area and consists primarily of the greater part of Sacramento County directly east of Yolo County and portions of Placer and El Dorado Counties. Therefore, projects implemented as part of the SWRP for Yolo County are likely to directly impact SWRP efforts in the neighboring American River Basin SWRP area.

The Yolo County SWRP area is bounded to the north by North Sacramento Valley IRWM Region. In this Region, are two SWRP efforts: The City of Chico SWRP and the City of Redding SWRP. Both of these planning areas drain into the Sacramento River; therefore, the SWRP for Yolo County will coordinate with the two North Sacramento Valley Region SWRPs when appropriate.

1.1.1.2 Yolo Subbasin Groundwater Agency

The Yolo Subbasin Groundwater Agency (YSGA) was formed on June 19, 2017 as the Groundwater Sustainability Agency (GSA) for the Yolo Subbasin. The mission of the Yolo Subbasin Groundwater Agency is to provide a dynamic, cost-effective, flexible collegial organization to ensure compliance with State of California Sustainable Groundwater Management Act (SGMA) within the Yolo Subbasin. The YSGA will serve a coordinating and administrative role for developing the Groundwater Sustainability Plan, which is anticipated to be completed by January 1, 2022. More information on the YSGA can be found on their website: http://yologroundwater.org

As described in Section 4: Coordination and Collaboration, many of the members and affiliates of the YSGA are also stakeholders of the SWRP. Where there is a nexus between groundwater and storm water, the YSGA will support the implementation activities of the SWRP. See Section 6: Implementation Strategy and Schedule for additional details.

1.1.1.3 Storm Water Management Plans

Five agencies within the SWRP area are included in the Phase 2 Municipal Separate Storm Sewer System (MS4) permit:

- City of Davis
- University of California, Davis
- City of West Sacramento
- City of Woodland
- Yolo County

These agencies are each required to maintain an individual storm water management plan (SWMP) documenting their approach to local storm water management. Further discussion on how these agencies are complying with their individual storm water permits is provided in Section 3: Water Quality Compliance. It is anticipated that implementation of the SWRP will aid these agencies in meeting the requirements of their MS4 permits.

1.1.1.4 Concurrent Studies

There are currently two grant-funded projects underway in or near the SWRP area:

1. A project funded through the EPA's Brownfields Assessment Program and led by the Westside IRWM will involve investigating abandoned mines in the Cache and Putah Creek watersheds and developing remediation plans for sites that pose the greatest threat to water quality. This project may help elucidate and mitigate upstream contamination sources outside of the SWRP area that could facilitate meeting the Total Mass Daily Load (TMDL) for mercury within the planning area. Work on the project commenced in early 2016, and a report on brownfields is expected to be available in early 2017.

2. Funded by the Watershed Restoration and Delta Water Quality and Ecosystem Restoration Grant Programs, this project will involve collecting streamflow data in multiple tributaries to the Yolo Bypass region. The project team includes UC Davis faculty, as well as two local consulting firms with experience in environmental compliance and watershed-scale environmental management. This study will provide useful data to support hydrologic modeling of this portion of the SWRP area.

1.2 SWRP Objectives

The SWRP Guidelines (p. 17) include several mentions of the need for storm water management objectives as follows:

> "Storm water management on a watershed basis provides for a combination of storm water management objectives and multiple benefits throughout the watershed or sub-watershed. Therefore, the Plan should discuss how the ***various storm water management objectives*** within the watershed will protect or improve water quality, water supply reliability, and/or achieve other objectives. The Plan should include a discussion of the added benefits to integration of multiple storm water management strategies, as compared to stand-alone projects.
>
> ***The Plan must discuss how its objectives*** and projects fit into the broader water management goals of the applicable IRWM plan. For the purposes of receiving project implementation funding, submittal of a Storm Water Resource Plan to the applicable IRWM group (for further incorporation into an existing IRWM plan) fulfills the public agency's requirement for "incorporation." However, the State Water Board recognizes that further collaboration and coordination with other agencies within the IRWM group is essential for long-term incorporation."

This portion of the plan describes the development of SWRP objectives and their relationship to the Westside IRWM Plan objectives. One of the key elements of SWRP projects are that they provide multiple-benefits; therefore, acknowledgement of these multiple benefits is important to establishment of SWRP objectives. Potential storm water benefits include:

1. creation and restoration of wetlands,
2. riverside [riparian] habitats;
3. instream flows,
4. increase in park and recreation lands,
5. urban green space,
6. augments recreation opportunities for communities,
7. increases tree canopy,
8. reduces heat island effect,
9. improves air quality,
10. maximizes water quality,
11. maximizes water supply,
12. maximizes flood management,
13. maximizes environmental benefits, and
14. maximizes other community benefits.

1.2.1 Westside IRWM Plan Objectives

According to Water Code section 79743, the projects implemented as a result of the SWRP should also address the priorities of the local regional water management group. The Westside IRWM Plan was developed based on the Integrated Regional Water Management Guidelines for Proposition 84 and 1E, and includes 24 objectives related to water management, as described in Westside IRWM Plan Section 6.4 (page 6-4 to 6-18, WRA of Yolo County, 2013). The Westside IRWM Plan goals and objectives were identified as the major water resource issues in the region and as such, reflect water resource management values and overall priorities for the SWRP area. Therefore, it is natural that the SWRP utilizes the Westside IRWM Plan goals and objectives to further define the storm water management strategies that meet the SWRP Objectives.

1.2.1.1 Basin Plan Objectives Relevant to Storm Water

The Sacramento and San Joaquin River Basins Plan is the water quality control plan formulated and adopted by the Regional Water Quality Control Board for the Central Valley region (Central Valley RWQCB), which regulates water quality in the Westside IRWM region. The objective of the Basin Plan is to show how the quality of the surface and ground waters in the Central Valley Region should be managed to provide the highest water quality reasonably possible. The Basin Plan lists various water uses (Beneficial Uses), describes the water quality which must be maintained to allow those uses (Water Quality Objectives), and outlines an implementation plan for achieving those standards.

The objectives for the Westside IRWM region include meeting the water quality standards outlined in the Central Valley Basin Plan, and are consistent with the overarching planning goals promulgated by the Central Valley RWQCB.

1.2.2 SWRP Objectives and Benefits

The SWRP Objectives incorporate all 24 Westside IRWM Plan Objectives, as well as three additional objectives specific to storm water management that will be adopted by the Westside RWMG:

- Objective 25. Convert paved and/or impervious areas and increase tree canopy and vegetation, reducing urban heat island effects.
- Objective 26. Optimize the rural storm water conveyance system to drain and retain storm water flows as necessary. Provide proper rural drainage and keep conveyance systems clear of debris to minimize county road flooding during storm events.
- Objective 27. Enable proper rural retention and modify rural landscape to maximize groundwater recharge of excess storm water.

Appendix B presents a detailed table that shows the relationship between the IRWM Plan objectives, objectives identified by the Water Code (page 9, SWRP Guidelines), and SWRP Guideline Objectives. The SWRP Objectives will be considered in the prioritization and selection of projects in Section 5.

The SWRP Objectives will be used to achieve the following Benefit Categories:

- Water Quality
- Water Supply
- Flood Management
- Environmental
- Community

The following sections summarize the SWRP objectives and the relationship to storm water benefits. The SWRP will prioritize projects that result in multiple tangible and intangible storm water benefits minimize the resources needed to achieve these benefits, while maximizing the effective area of benefits. As described in the sections below, many of the SWRP Objectives will result in multiple benefits. A discussion of how SWRP Objectives relate to individual projects is included in Section 5.2.

1.2.2.1 Water Quality Benefit Category

The main value of the Water Quality (WQ) Benefit Category is increased filtration and/or treatment of runoff. There are nine SWRP Objectives that result in water quality benefits. Of these, eight can contribute to at least one additional Benefit Category:

1. WQ.1 can result in environmental benefits in addition to water quality benefits.
2. WQ.2 can result in water supply benefits in addition to water quality benefits.
3. WQ.3 can result in flood management and environmental benefits in addition to water quality benefits.
4. WQ.4 can result in environmental and community benefits in addition to water quality benefit category.
5. WQ.5 can result in water supply and community benefits in addition to water quality benefits.
6. WQ.6 can result in water supply, environmental, and community benefits in addition to water quality benefits.
7. WQ.8 can result in water supply and flood management benefits in water quality benefits.
8. WQ.9 can result in water supply and flood management benefits in addition to water quality benefits.

Benefits	Yolo County Storm Water Resource Plan Water Quality (WQ) Objectives
Water quality while contributing to compliance with applicable permit and/or TMDL requirements Main Benefit: ■ Increased filtration and/or treatment of runoff Secondary Benefits: ■ Nonpoint source pollution control ■ Reestablish natural water drainage and treatment	**WQ.1*** Restore native vegetation/form/function along riparian/aquatic corridors
	WQ.2* Increase adoption of agricultural Best Management Practices
	WQ.3* Manage watershed activities to reduce large erosion events
	WQ.4* Monitor state/federal Delta programs
	WQ.5* Monitor conditions/improve understanding to support sustainable groundwater basins
	WQ.6* Maintain/enhance watershed and natural resource monitoring network and information sharing
	WQ.7 Address pollutant sources to meet runoff standards and Total Maximum Daily Load (TMDL) targets
	WQ.8* Reduce public health risks by reducing contaminants in drinking water sources
	WQ.9* Meet all drinking water and wastewater discharge standards

Note:
* This Storm Water Management Objective can achieve multiple benefits as noted above.

1.2.2.2 Water Supply Benefit Category

The main value of the Water Supply (WS) Benefit Category is water supply reliability and conjunctive use. There are 11 SWRP Objectives that result in water supply benefits. Of these, seven can contribute to at least one additional Benefit Category:

1. WS.3 can result in water quality and community benefits in addition to water supply benefits.
2. WS.4 can result in water quality, environmental, and community benefits in addition to water supply benefits.
3. WS.5 can result in water quality, environmental, and community benefits in addition to water supply benefits.
4. WS.6 can result in water quality and flood management benefits in addition to water supply benefits.
5. WS.7 can result in water quality and flood management benefits in addition to water supply benefits.
6. WS. 10 can result in flood management benefits in addition to water supply benefits.
7. WS. 11 can result in flood management benefits in addition to water supply benefits.

Benefits	Yolo County Storm Water Resource Plan Water Supply (WS) Objectives
Water supply through groundwater management and/or runoff capture and use <u>Main Benefit:</u> ■ Water supply reliability ■ Conjunctive use <u>Secondary Benefit:</u> ■ Water conservation	**WS.1** Create asset management plan for key water management infrastructure
	WS.2 Meet 20% by 2020 conservation targets
	WS.3* Increase adoption of agricultural Best Management Practices
	WS.4* Monitor conditions/improve understanding to support sustainable groundwater basins
	WS.5* Maintain/enhance watershed and natural resource monitoring network and information sharing
	WS.6* Reduce public health risks by reducing contaminants in drinking water sources
	WS.7* Meet all drinking water and wastewater discharge standards
	WS.8 Provide 100% reliability of municipal and industrial water supplies
	WS.9 Provide agricultural water supplies to support a robust agricultural industry
	WS.10* Optimize the rural storm water conveyance system to drain and retain storm water flows as necessary. Provide proper rural drainage and keep conveyance systems clear of debris to minimize county road flooding during storm events.
	WS.11* Enable proper rural retention and modify rural landscape to maximize groundwater recharge of excess storm water.

Note:
* This Storm Water Management Objective can achieve multiple benefits as noted above.

1.2.2.3 Flood Management Benefit Category

The main value of the Flood Management (FM) Benefit Category is decreased flood risk by reducing runoff rate and/or volume. There are seven SWRP Objectives that result in flood management benefits. Of these, five can contribute to at least one additional Benefit Category:

1. FM.2 can result in water quality benefits in addition to flood management benefits.
2. FM.4 can result in water quality and water supply benefits in addition to flood management benefits.
3. FM.5 can result in water quality and water supply benefits in addition to flood management benefits.
4. FM.6 can result in water supply benefits in addition to flood management benefits.
5. FM.7 can result in water supply benefits in addition to flood management benefits.

Benefits	Yolo County Storm Water Resource Plan Flood Management (FM) Objectives
Main Benefit: ▪ Decreased flood risk by reducing runoff rate and/or volume Secondary Benefit: ▪ Reduced sanitary sewer overflows	**FM.1** Provide adequate flood protection
	FM.2* Manage watershed activities to reduce large erosion events
	FM.3 Minimize accidental wastewater spillage/discharges
	FM.4* Reduce public health risks by reducing contaminants in drinking water sources.
	FM.5* Meet all drinking water and wastewater discharge standards.
	FM.6* Optimize the rural storm water conveyance system to drain and retain storm water flows as necessary. Provide proper rural drainage and keep conveyance systems clear of debris to minimize county road flooding during storm events.
	FM.7* Enable proper rural retention and modify rural landscape to maximize groundwater recharge of excess storm water.

Note:

* This Storm Water Management Objective can achieve multiple benefits as noted above.

1.2.2.4 Environmental Benefit Category

The main value of the Environmental (EN) Benefit Category is environmental and habitat protection and improvement and increased urban green space. There are 11 SWRP Objectives that result in environmental benefits. Of these, five can contribute to at least one additional Benefit Category:

1. EN.1 can result in water quality benefits in addition to environmental benefits.
2. EN.8 can result in water quality and flood management benefits in addition to environmental benefits.
3. EN.9 can result in water supply and community benefits in addition to environmental benefits.
4. EN.10 can result in water quality, water supply, and community benefits in addition to environmental benefits.
5. EN.11 can result in community benefits in addition to environmental benefits.

Benefits	Yolo County Storm Water Resource Plan Environmental (EN) Objectives
Main Benefit: ■ Environmental and habitat protection and improvement, including; • wetland enhancement/ creation; • riparian enhancement; and/or • instream flow improvement ■ Increased urban green space Secondary Benefit: ■ Reduce energy use, greenhouse gas emissions, or provide a carbon sink ■ Reestablish of the natural hydrograph ■ Water temperature improvements	**EN.1*** Restore native vegetation/form/function along riparian/aquatic corridors
	EN.2 Quantify the extent of suitable life-cycle habitat for Threatened/Endangered/Imperiled native fish
	EN.3 Prioritize/plan/schedule improvements to suitable life-cycle habitat for T/E/I native fish
	EN.4 Increase availability of suitable life-cycle habitat for Threatened/Endangered/Imperiled native fish identified
	EN.5 Prevent colonization by quagga mussels/zebra mussels and eliminate/prevent spread of New Zealand mud snails
	EN.6 Establish invasive plant management plan
	EN.7 Implement invasive plant management plan
	EN.8* Manage watershed activities to reduce large erosion events
	EN.9* Monitor state/federal Delta programs
	EN.10* Maintain/enhance watershed and natural resource monitoring network and information sharing
	EN.11* Convert paved and/or impervious areas and increase tree canopy and vegetation, reducing urban heat island effects

Note:
* This Storm Water Management Objective can achieve multiple benefits as noted above.

1.2.2.5 Community Benefit Category

The main value of the Community (CO) Benefit Category is employment opportunities provided and public education. There are seven SWRP Objectives that result in community benefits. Of these, four can contribute to at least one additional Benefit Category:

1. CO.4 can result in water quality and environmental benefits in addition to community benefits.
2. CO.5 can result in water quality and water supply benefits in addition to community benefits.
3. CO.6 can result in water quality, water supply, and environmental benefits in addition to community benefits.
4. CO.7 can result in environmental benefits in addition to community benefits.

Benefits	Yolo County Storm Water Resource Plan Community (CO) Objectives
Main Benefit: ▪ Employment opportunities provided ▪ Public education Secondary Benefit: ▪ Community involvement ▪ Enhance and/or create recreational and public use areas	**CO.1** Provide and promote use of educational curricula for K-12 students
	CO.2 Provide educational information to encourage stewardship by public
	CO.3 Maintain and increase water-related recreational opportunities
	CO.4* Monitor state/federal Delta programs
	CO.5* Monitor conditions/improve understanding to support sustainable groundwater basins
	CO.6* Maintain/enhance watershed and natural resource monitoring network and information sharing
	CO.7* Convert paved and/or impervious areas and increase tree canopy and vegetation, reducing urban heat island effects

Note:
* This Storm Water Management Objective can achieve multiple benefits as noted above.

1.3 Plan Organization

This SWRP is divided into the following sections as outlined below:

- Section 1 – Introduction and SWRP Objectives: provides an overview of the document and identifies the storm water management objectives of this SWRP.
- Section 2 – Watershed Identification: identifies the SWRP boundary and watersheds within the planning area.
- Section 3 – Water Quality Compliance: identifies water quality issues within the major watersheds, including pollutants identified on the 303(d) list of impaired water bodies or with relevant TMDLs. This section also includes discussion of the SWRP in relation to applicable TMDL Implementation Plans (IPs) and MS4 Permits.
- Section 4 – Organization, Coordination, and Collaboration: describes the community engagement process that occurred during plan development, including identification of stakeholders, an overview of the existing Westside IRWM group, and the mechanisms used to engage stakeholders and the public in plan development.
- Section 5 - Identification and Prioritization of Projects: includes a list of previously identified projects, the process of site selection and development of SWRP projects, conceptual designs for each SWRP project, the methodology and results for quantification of water supply and water quality benefits of proposed projects, and prioritization of both SWRP and previously identified projects.
- Section 6 - Implementation Strategy and Schedule: outlines programs to assist in implementation of strategies identified in this SWRP, including community outreach during project development. This section also discusses how current monitoring required by the MS4 Permits will be utilized as part of the adaptive management process, in addition to a general schedule of SWRP milestones.
- Section 7: Education, Outreach and Public Participation.
- Section 8: References

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Section 2: Watershed Identification

As introduced in Section 1, development of this SWRP boundary started with the Westside IRWM Planning Region, and based on stakeholder interest, was focused to the drainages within Yolo County. Although there is no formalized analysis of countywide water inventories for land use planning, Water Resources Association of Yolo County (WRA of Yolo County) is the primary forum for collaboration among water managers in Yolo County. The WRA of Yolo County, a member of the Westside RWMG, provides a regional forum to coordinate and facilitate solutions to water challenges and opportunities in Yolo County, including storm water management. The WRA of Yolo County currently has 10 member agencies, which include agricultural water suppliers, urban water suppliers, groundwater managers, and flood protection providers (RWMG, 2013). Through focused meetings, these agencies can effectively interact and make key decisions to facilitate storm water management efforts within the Yolo County watersheds.

Yolo County makes up about 1,034 square miles of the Sacramento Hydrologic Region in northern California. It is also underlain completely by the Sacramento Valley Groundwater Basin. This section describes the SWRP Planning Area water resources and provides context for watershed management issues that should be addressed through implementation of this SWRP, the Westside IRWM Plan, or other county-wide or regional efforts.

2.1 Surface Water Resources

As shown in Figure 2-1, Yolo County is located within the Sacramento Hydrologic Region as defined by DWR and includes the lower portions of both the Putah Creek and Cache Creek watersheds, as well as the surrounding low-lying drainage basins in the region, including the Colusa Basin drain (a portion of the Sacramento-Stone Corral watershed) and Lower Sacramento watershed.

2.1.1 Hydrologic Boundary

The SWRP watershed delineation is based on the 12-digit (most detailed) United States Geological Survey (USGS) Watershed Boundary Dataset for subwatersheds. The key water features as indicated by the USGS subbasin boundaries (using Hydrologic Unit Code Level 8) are Cache Creek (which captures the Cache Creek watershed), Putah Creek (which captures the Putah Creek watershed), and the Sacramento River (which captures the Sacramento-Stone Corral and Lower Sacramento watersheds). The Yolo Bypass is used to manage the much larger Sacramento River watershed flood flows.

While the actual Cache and Putah Creek watersheds account for only a small percentage of the lower land area of the SWRP Area, water from Cache Creek and Putah Creek comprise a majority of the water entering Yolo County. Direct discharges to the Sacramento River from Cache and Putah Creeks are limited to larger, more significant flood events, which historically had to overtop the broad natural levees adjacent to the river. Currently, water from Cache and Putah Creek continue to pond during flood events, but the water is also managed through a series of facilities that can convey flows to the Sacramento River during high-runoff events (RWMG, 2013).

2.1.1.1 Cache Creek Watershed

The Cache Creek watershed encompasses approximately 1,165 square miles, and about 248 square miles of the watershed is located in Yolo County (approximately 21 percent). Cache Creek provides numerous benefits, including habitat and water supply. YCFC&WCD owns the Cache Creek Dam, located on Cache Creek approximately 5 miles downstream of Clear Lake outlet, and operates both Cache Creek Dam and Clear Lake in accordance with the Solano and Gopcevic Decrees. The North Fork Cache Creek subwatershed drains the area north of Clear Lake and includes Long Valley Creek, Wolf Creek, and Bartlett Creek. YCFC&WCD owns and operates the Indian Valley Dam on the North Fork Cache Creek, which forms the Indian Valley Reservoir. Indian Valley Reservoir has a total storage capacity of 300,600 AF, of which 40,000 AF is dedicated to flood control. Bear Creek drains the area to the east of the North Fork Cache Creek, and its watershed lies entirely within Colusa County. Bear Creek flows into the main stem of Cache Creek at the border of Colusa and Yolo Counties (RWMG, 2013).

After Cache Creek flows into Yolo County, it continues through the agriculturally intensive Capay Valley until it reaches the Capay Diversion Dam, where some flows are diverted into YCFC&WCD's irrigation system. Cache Creek continues downstream of Capay Dam, where it terminates in an area known as the Cache Creek Settling Basin, just upstream of the Yolo Bypass. Cache Creek is considered an intermittent stream, in that flows in the creek are inconsistent, and there are periods particularly during the summer when no streamflow is present (RWMG, 2013).

The Cache Creek Settling Basin is a component of the Sacramento River Flood Control Project. It was designed to trap sediments carried by Cache Creek and prevent them from being deposited in the Yolo Bypass, thereby maintaining the flood capacity of the Yolo Bypass. The settling basin has an overflow into the Yolo Bypass, which allows flow to enter the Sacramento River upstream of Rio Vista in Solano County (RWMG, 2013).

2.1.1.2 Putah Creek Watershed

The Putah Creek watershed encompasses approximately 654 square miles and is 50 miles wide, extending from Cobb Mountain (elevation 4,700 feet) in Lake County to the Yolo Bypass (elevation a few feet above sea level). About 48 square miles of the watershed is located in Yolo County (approximately 7 percent). Tributaries to Putah Creek within Lake County include Harbin Creek, Big Canyon Creek, St. Helena Creek, Dry Creek, Coyote Creek, and Soda Creek. From Lake County, Putah Creek flows into Napa County and Lake Berryessa. The major tributaries within Napa County include Pope Creek, Chiles Creek, Capell Creek, and Eticuera Creek. Lake Berryessa has a storage capacity of 1,602,000 AF and is regulated by Monticello Dam, which is owned by USBR and operated by Solano County Water Agency. From the outlet of Monticello Dam, Putah Creek flows into Solano County and Yolo County, where it eventually discharges to the Yolo Bypass (RWMG, 2013).

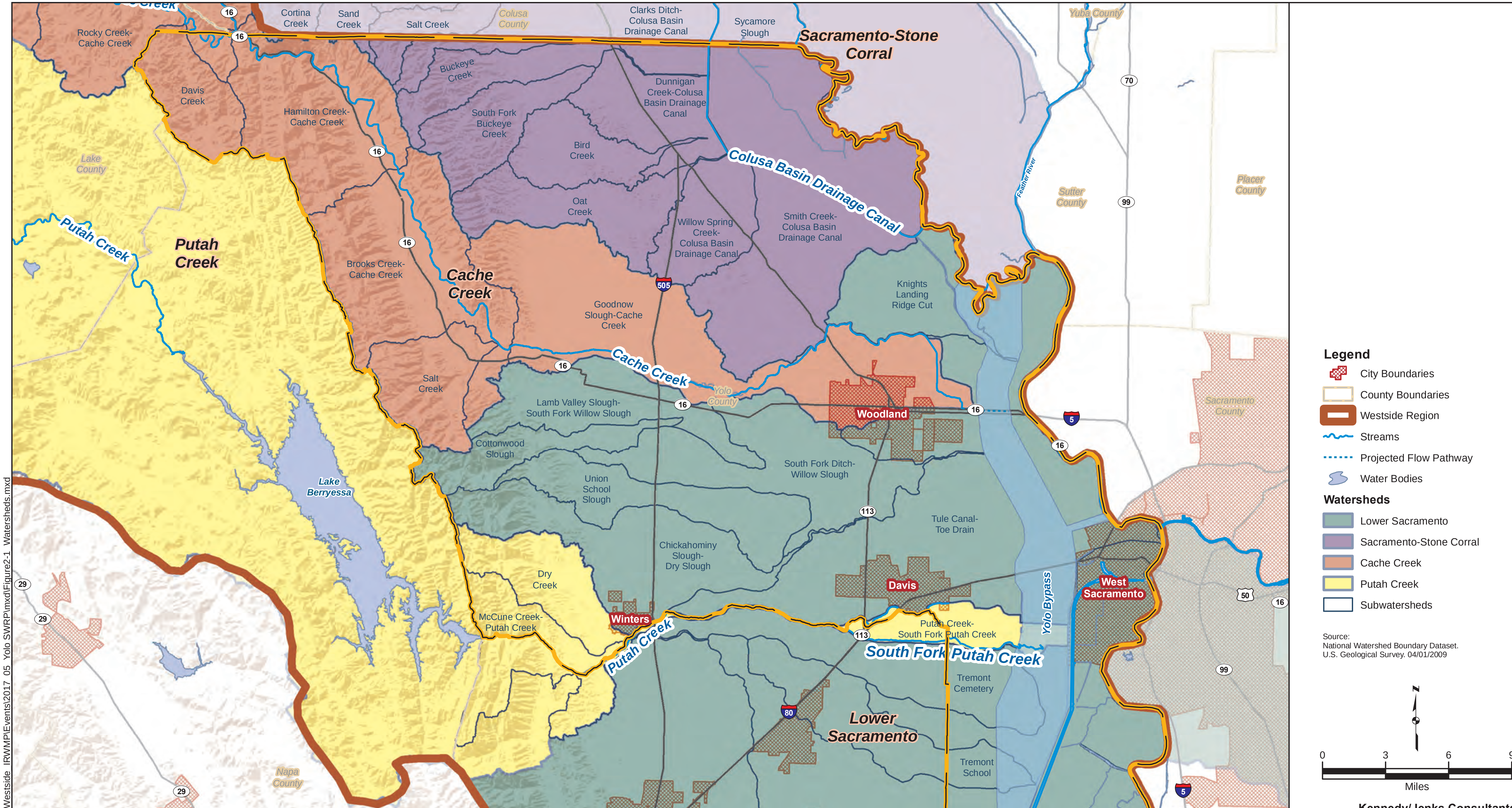
The South Fork of Putah Creek is an artificial channel constructed over a period of several decades, beginning in the 1870s. It departs from the natural creek channel about 1 mile upstream of Interstate 80 and flows directly east to the Yolo Bypass. The creek eventually abandoned its original channel (the North Fork) entirely and was named the South Fork Putah Creek for practical purposes. In the 1940s, the U.S. Army Corps of Engineers constructed levees along the lowermost 9 miles of the South Fork channel as part of the Sacramento River Flood Control Project (RWMG, 2013).

2.1.1.3 Sacramento-Stone Corral Watershed

The Sacramento-Stone Corral watershed encompasses 1,884 square miles, most of which is located outside of Yolo County. Flows in the watershed generally travel from the coastal ranges in the west towards the Sacramento River. The majority of water from the watershed is discharged to the Sacramento River outside the region; however, the southernmost portion of the watershed flows into the county via the Colusa Basin Drain. This drain is a man-made channel designed to convey irrigation drainage and storm runoff from 32 ephemeral streams to the Knights Landing outfall gates for discharge into the Sacramento River. Seven of these streams originate in the Dunnigan Hills of Yolo County (RWMG, 2013). The Sacramento-Stone Corral watershed comprises nearly 1,884 square miles in the Sacramento Valley and includes portions of Glenn, Colusa, and Yolo Counties. About 250 square miles of the watershed is located in Yolo County (approximately 13 percent).

2.1.1.4 Lower Sacramento River Watershed

The Sacramento River forms the easterly border of the County. The entire Sacramento River watershed covers approximately 27,000 square miles in Northern California, of which the Lower Sacramento River watershed makes up 1,229 square miles (approximately 4.6 percent). Yolo County, which lies near the downstream end of the Sacramento River, encompasses around 39 percent (approximately 476 square miles) of the Lower Sacramento River watershed. Because of its location and relatively small drainage area, the portion of the Sacramento River located within the county is influenced heavily by the areas outside it.



Storm Water Resource Plan For Yolo County

Watersheds

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2.2 Groundwater Resources

Groundwater makes up approximately 33 percent of the water supply for users in Yolo County in an average water year, and for many agricultural users and municipalities, groundwater is the only source of water supply. Some agricultural areas are fully reliant on groundwater. Municipalities such as the cities of Woodland and Davis currently obtain their drinking water supplies from well water pumped from the deeper Tehama formation. Water from the Tehama formation is of high quality, but water managers are uncertain about the sustainable yield of the aquifer.

Water stored in groundwater aquifers serve as a key water supply source in Yolo County. Thousands of groundwater wells exist within the county, and most of these groundwater wells are used to supply individual domestic demands or agricultural operations. Some of the larger towns and cities also operate municipal wells to meet or help meet urban, municipal, and industrial demands. Some of the communities within the county such as Davis, UC Davis, Woodland, and Winters have historically relied on groundwater as their sole supply source until a recent transition to surface water with the Sacramento River as the primary source. Still, maintaining sustainable groundwater aquifers that yield high quality groundwater will be crucial to meet the long-term water demands within the County.

Yolo County primarily encompasses the Yolo Subbasin of the Sacramento Valley groundwater basin as designated by DWR Bulletin 118 2016 Interim Update as shown in Figure 2-2. A small portion of Yolo County intersects the Solano Subbasin to the south. The water bearing formations of this basin generally have very high storage capacity and are essentially contained within two stratigraphic units: (1) the deeper older thick alluvial and river sediments of the Tehama formation, and (2) the younger shallower sediments, floodplain deposits, and stream channel deposits that overlie the Tehama formation (DWR B118, 2016). The sustainable yield of the Yolo Subbasin is not yet fully understood, but the DWR Bulletin 118 has not identified the subbasin as in an overdraft condition.

Groundwater quality concerns in the region relate to drinking water and irrigation uses. Constituents of concern within Yolo County include: arsenic, boron, chromium, salinity, iron, magnesium, nitrate, selenium, and total dissolved solids (TDS). In general, based on the measured levels of these constituents in wells within the county, groundwater quality meets agricultural quality standards but are exceeding or just below maximum contaminant levels (MCLs) set for drinking water.

2.3 Land Use Description

The County encompasses more than 322,000 acres (504 square miles) of land, which is dominated by agriculture and open space (with native vegetation). Agriculture makes up approximately 49 percent of the total land area, whereas urban and community developments represent only 5 percent of the total land area. Open space (44 percent of the county), provides essential habitat for native species and broad-ranging opportunities for recreation. Tourists and residents are attracted to the region's lakes, waterways, and lands for recreational activities like boating, fishing, hiking, camping, and hunting. These lands are managed by local and private entities as well as federal and state agencies such as the Bureau of Land Management (BLM), the U.S. Forest Service (USFS), and California Department of Fish and Wildlife (CDFW). Table 2-1 summarizes the existing land use classifications in the SWRP Area, and Figure 2-3 illustrates the distribution of land uses throughout the county. Figure 2-4 shows the land management agencies within Yolo County, including municipalities and tribal entities discussed in the following subsection.

Table 2-1: Yolo County Land Use Distribution

Land Use Category	Total Acres	Percent of Total
Agricultural	322,224	49.4
Communities	33,074	5.1
Water Surface	10,481	1.6
Native Riparian/Vegetation	256,920	43.7
Barren/Unclassified	1,218	<1
Total Acres	**623,917**	**100**

Source: California Department of Water Resources, Land Use Survey, Yolo County, 2008.

2.3.1 Communities

The major communities and tribal areas within the county are shown in Figure 2-4. The Yocha Dehe Wintun tribal area is located at the western side of the county. The four incorporated cities within the county are Davis, West Sacramento, Winters, and Woodland. Other unincorporated communities scattered throughout the county include Esparto, Knights Landing, Dunnigan, Monument Hills, Clarksburg, Madison, Yolo, Zamora.

Of the above communities, 12 include areas that are considered Disadvantaged Community (DAC) or Economically Distressed Area (EDA) according to DWR's definitions:

- DAC: census geographies "with an annual median household income (MHI) that is less than 80 percent of the Statewide annual MHI (PRC Section 75005(g)))." (http://www.water.ca.gov/irwm/grants/resources_dacs)
- EDA: census geographies with "a population that is ≤20,000 people; and less than 85% of the State's MHI." (https://gis.water.ca.gov/app/edas/)

Figure 2-5 shows the DACs and EDAs within Yolo County.

2.3.2 Water and Wastewater Service Providers

The county includes 45 major municipalities, special districts, and agencies with water supply, wastewater management, flood control, and other water or resource management responsibilities. It includes 14 agencies that are strictly wholesale or retail water suppliers and five (5) agencies providing both water and wastewater services. There are three (3) agencies that provide only flood control services and 11 reclamation districts that provide flood control and storm drain maintenance services. There are 12 agencies that provide other water resource coordination, and the remaining eight (8) agencies provide some combination of the above services. Figure 2-6 identifies the service areas and agency boundaries for the municipalities and agencies where data are available. See Appendix C for a listing of the water and wastewater service agencies within Yolo County, as well as brief overviews for each system.

Of the 23 county agencies that currently deliver water, nine (9) pump groundwater, seven (7) divert surface water, and seven (7) supply a combination of groundwater, surface water, and other water supply.

There are also 80 minor water systems within the county, of which 75 use groundwater as their sole source of water supply, and the remaining using either surface water or non-potable water.

2.3.3 Other Land Use Agencies

Local, state, and federal land management agencies in the county are shown in Figure 2-4 and include the following:

- Yolo County
- U.S. Bureau of Land Management
- U.S. Bureau of Reclamation
- U.S. Fish and Wildlife
- U.S. Forest Service
- California Department of Fish and Wildlife
- State Lands

2.4 Watershed Management Issues

The SWRP presents an opportunity to address the issues identified in the Westside IRWM Plan specific to storm water resource management in Yolo County. Challenges identified in the IRWM Plan related to storm water management include: Habitat and Invasive Species, Infrastructure Protection, Flood Management and Other Natural Disasters, Climate Change, Water Quality, Sustaining Groundwater Resources, and Land Use.

2.4.1 Habitat and Invasive Species

The lakes, creeks, wetlands, sloughs, and other water features throughout the region provide key habitat for many of California's well-known fish and wildlife species (see Figure 2-7). Anadromous fish migrate into the region and use its waterways for spawning. Resident and migratory waterfowl rely on the lakes and wetlands for food and nesting habitat. Changes to the landscape from agriculture, development, and flood control projects have diminished aquatic and riparian habitat over the last 150 years (RWMG, 2013).

Regional conservation areas, such as the Yolo Bypass Wildlife Area and Cache Creek Natural Area/Cache Creek Wilderness Area have been established to protect important habitats and species. Cache Creek is designated as a California Wild and Scenic River. This designation for more than 31 miles of the creek is aimed at maintaining free-flowing conditions and preserving its aquatic and riparian environment (RWMG, 2013).

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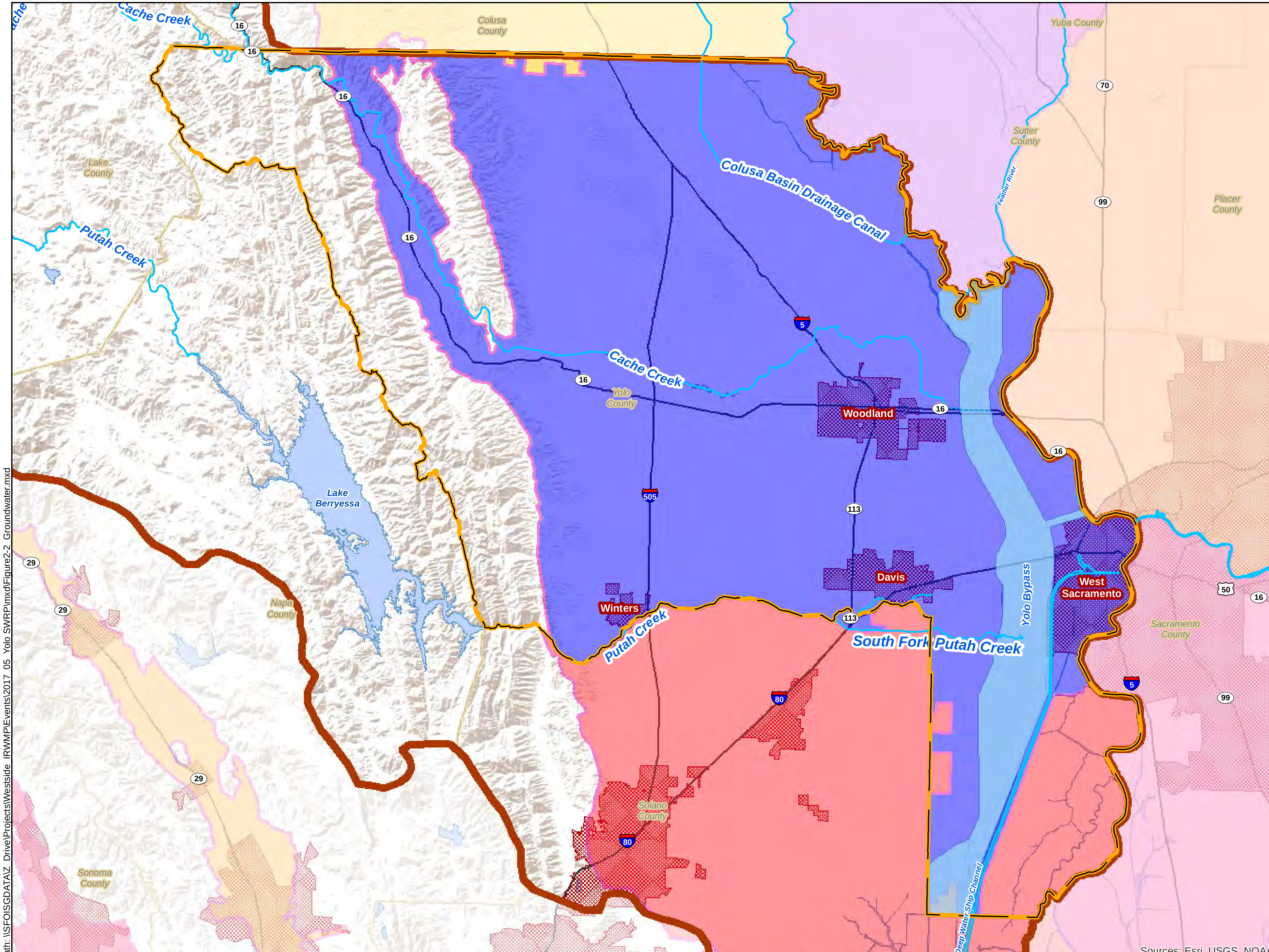

Legend

- Yolo County SWRP Boundary
- City Boundaries
- County Boundaries
- Westside Region
- Streams
- Projected Flow Pathway
- Water Bodies

B 118 Groundwater Basins

Subbasin Name

- Colusa
- Napa Valley
- North American
- Solano
- Sonoma Valley
- South American
- South Yuba
- Sutter
- Yolo

Source:
Bulletin 118-Groundwater Basins, California Department of Water Resources (DWR), 2003

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Kennedy/Jenks Consultants

Storm Water Reousrce Plan For Yolo County

DWR BULLETIN 118 GROUNDWATER BASINS AND SUBBASINS

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Figure 2-2

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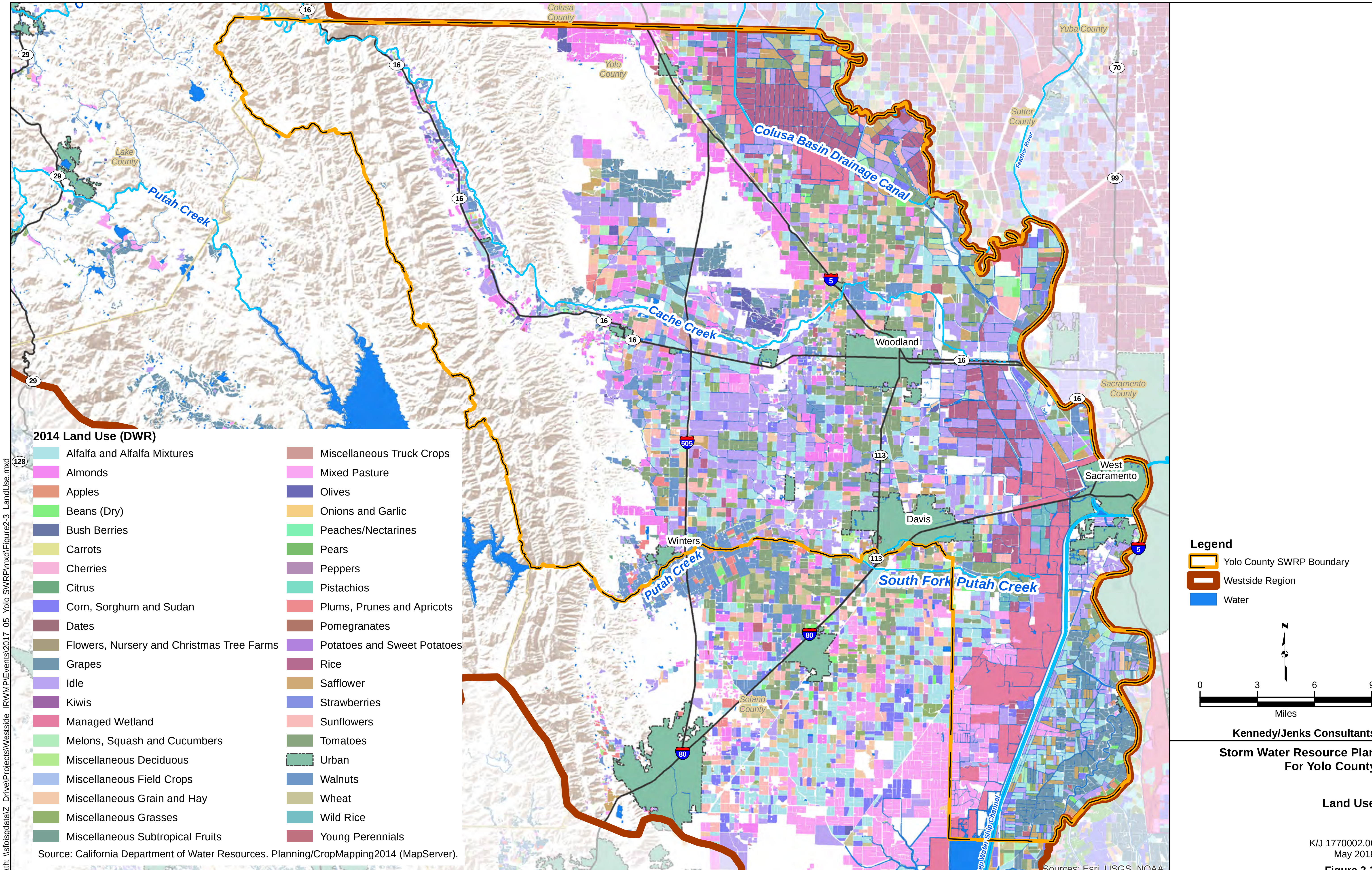

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Storm Water Resource Plan For Yolo County

Land Use

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Figure 2-3

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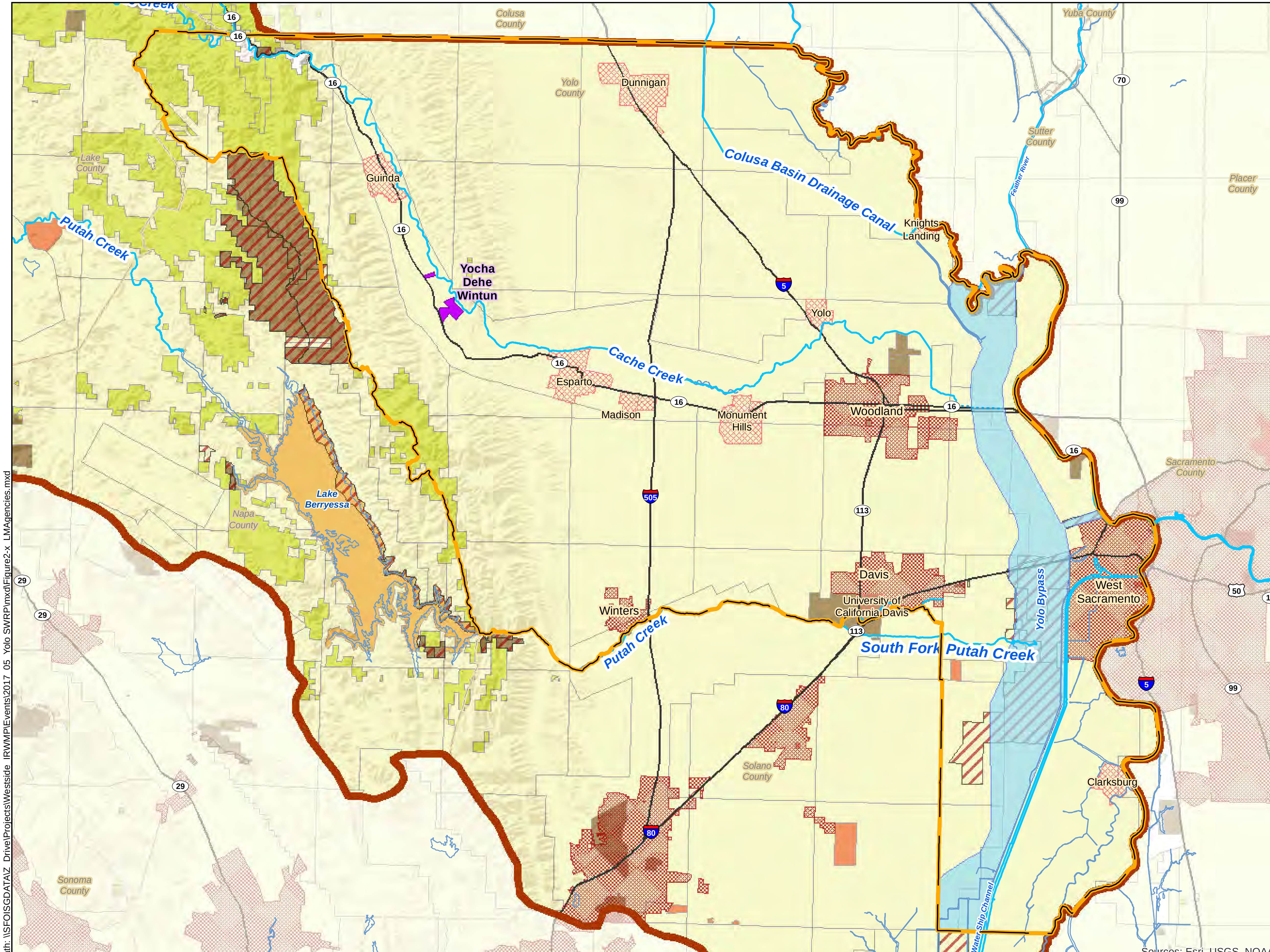

Legend

- Yolo County SWRP Boundary
- City Boundaries
- Tribal Lands
- Unincorporated Communities
- County Boundaries
- Westside Region
- Streams
- Projected Flow Pathway
- Water Bodies

Land Management Agencies

- Bureau of Land Management
- Bureau of Reclamation
- Military
- Other State Lands
- US Forest Service
- Other/Privately Owned
- CA Dept. of Fish and Wildlife

Source:
Bulletin 118-Groundwater Basins, California Department of Water Resources (DWR), 2003

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Kennedy/Jenks Consultants

Storm Water Resource Plan For Yolo County

LAND MANAGEMENT AGENCIES, CITIES, AND TRIBAL LANDS

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Figure 2-4

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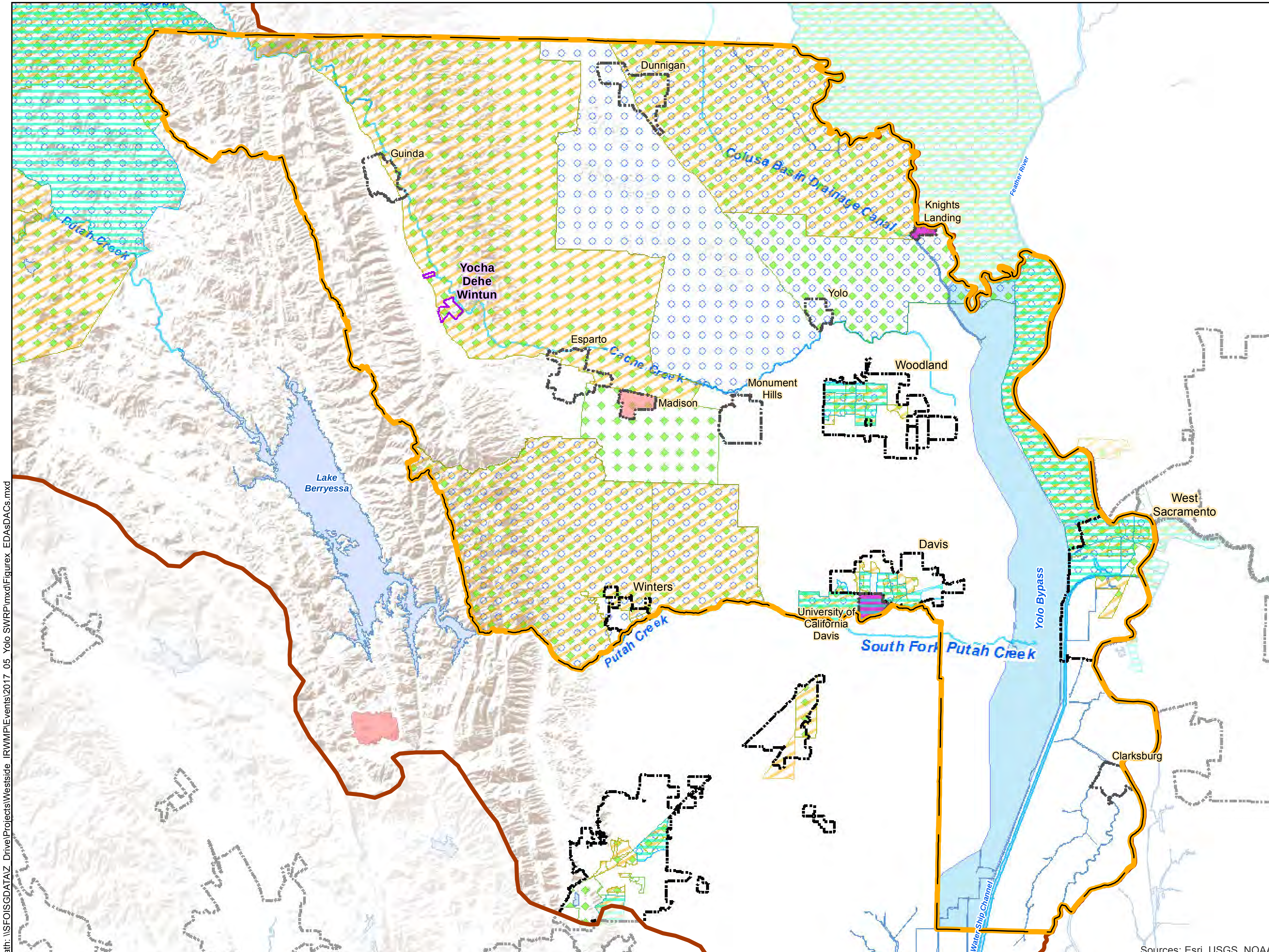

DAC: Disadvantaged Community identified as a census geography "with an annual median household income (MHI) that is less than 80 percent of the Statewide annual MHI (PRC Section 75005(g)))." (http://www.water.ca.gov/irwm/grants/resources_dac.cfm)

EDA: Economically Distressed Area identified as a census geography with "a population that is ≤20,000 people; and less than 85% of the State's MHI." (https://gis.water.ca.gov/app/edas/)

Legend

- Yolo County SWRP Boundary
- City Boundaries
- Tribal Lands
- Unincorporated Communities
- Westside Region
- Streams
- Water Bodies
- Water Bodies
- EDA By Census Block Group
- EDA By Census Tract
- EDA By Census Place
- DAC By Census Block Group
- DAC By Census Tract
- DAC By Census Place

Source:
Bulletin 118-Groundwater Basins, California Department of Water Resources (DWR), 2003

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Storm Water Resource Plan For Yolo County

DISADVANTAGED COMMUNITIES (DACs) AND ECONOMICALLY DISADVANTAGED AREAS (EDAs)

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Figure 2-5

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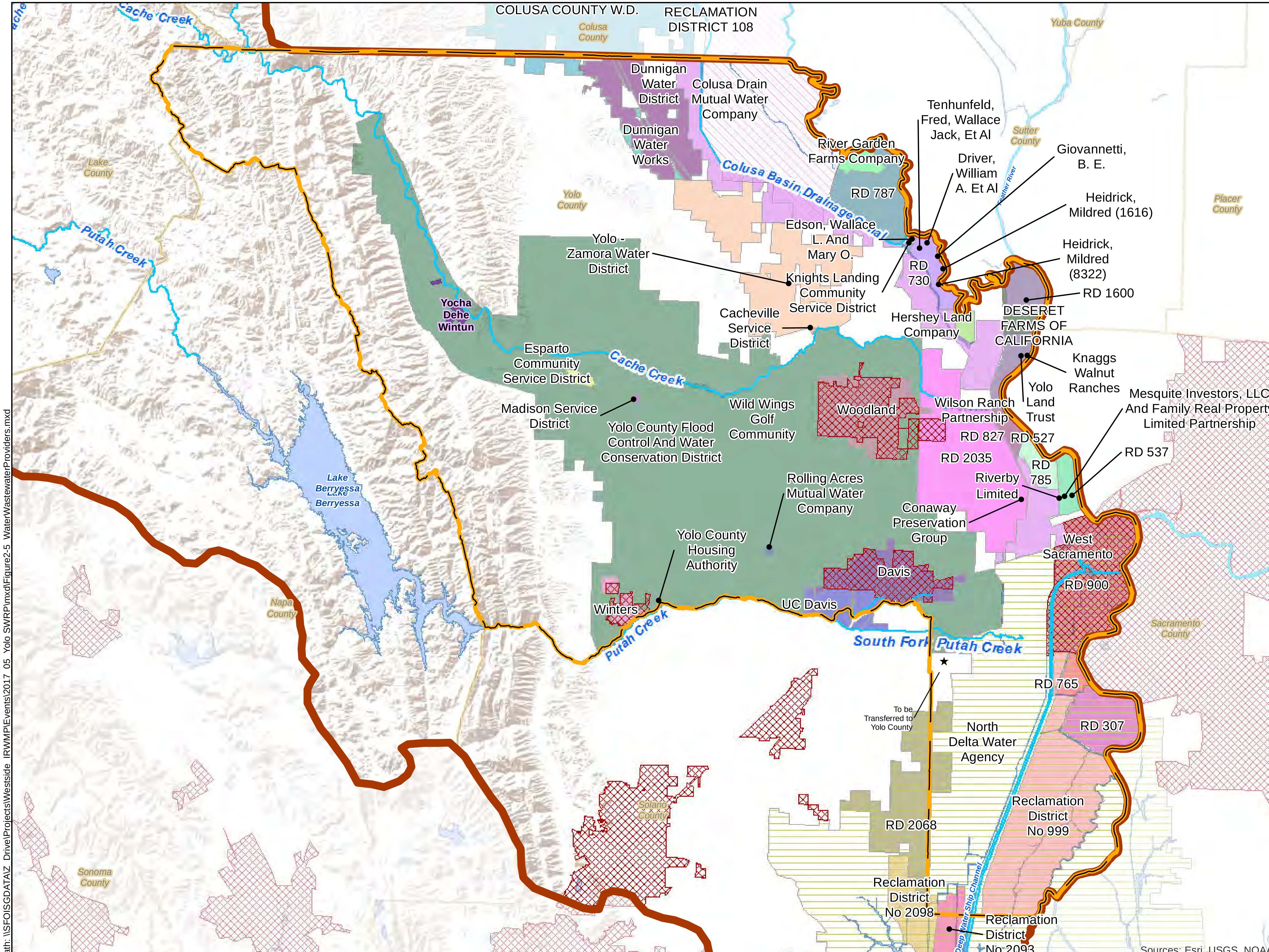

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Legend

- Yolo County SWRP Boundary
- Westside Region
- County Boundaries
- City Boundaries
- Streams
- Water Bodies
- ★ To be Transferred to Yolo County

Source:
Land Status, Bureau of Land Management, 2011;
California Department of Fish and Game (DFG) Owned and Operated Lands, CA Dept. of Fish and Game, 2011.

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Storm Water Resource Plan For Yolo County

Water and Wastewater Providers

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Figure 2-6

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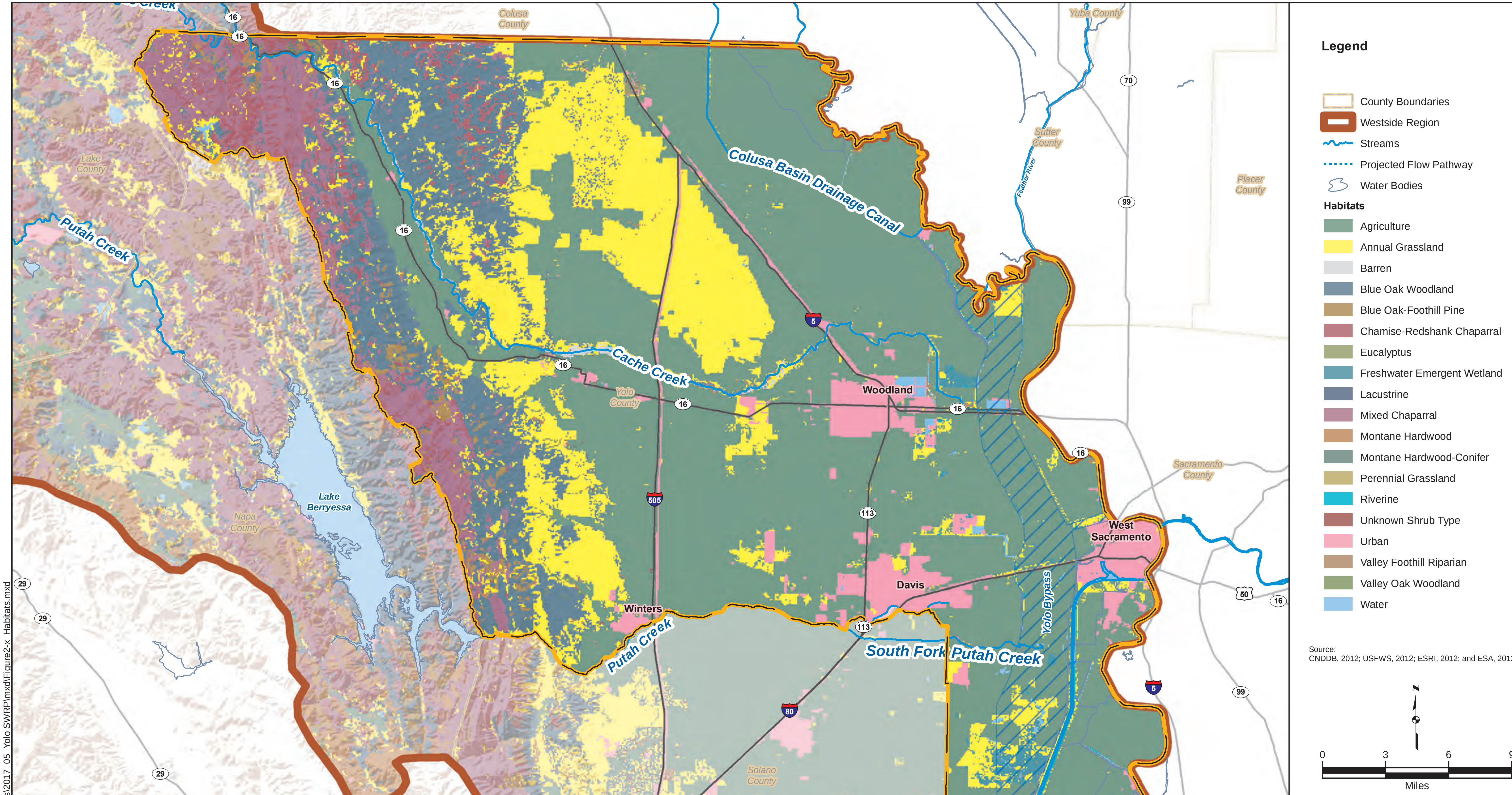

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Storm Water Resource Plan For Yolo County

Yolo County Native Habitats

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Figure 2-7

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These conservation areas and designation, however, do not cover the entire county, and additional work is necessary to improve special status and endangered species habitat including the following objectives (RWMG, 2013):

- Increase productive floodplain connectivity,
- Improve overall fish passage,
- Expand contiguous extent of riparian canopy,
- Establish and manage additional reserves and preserves, and
- Protect vernal pools and migratory bird wintering areas.

Invasive plants present a significant challenge to the management of the county's water resources. Hence, addressing the spread of invasive species is an important component of maintaining the natural diversity of the region and helping to protect water (RWMG, 2013).

From the late 19th century to today, development of urban communities, agriculture conducted across large areas, and disturbance of the stream channels as a result of mining and construction of infrastructure has altered riparian habitat throughout the region. This disturbance has led to increased intrusion of invasive species in both terrestrial and aquatic areas, which can cause widespread impacts through the watershed. A number of invasive plants and animal species either already occur in or threaten to invade the region (RWMG, 2013). Invasive plant species of concern in the county include, distaff thistle (Carthamus lanatus), purple loosestrife (Lythrum salicaria), ravenna grass (Saccharum ravennae) and yellow flag iris (Iris pseudacorus).

The major risks to the watersheds from the spread of invasive aquatic and terrestrial plant species include (RWMG, 2013):

- Water quality impacts resulting from temperature changes due to alterations in river shading and chemical processes (increased nutrient loading, increased pH, and decreased dissolved-oxygen content)
- Water supply impacts, including reduced local availability of surface water and groundwater due to excessive evapotranspiration needs of invasive species and obstructions to water supply infrastructure due to the unmanaged growth of invasive plant communities
- Flooding risks as a result of alterations to the stream channel conveyance capacity and raised water levels during high flows
- Increased erosion as a result of decreased bank stability due to weaker root structures of invasive plant species, causing undercutting and bank collapse. Erosion also results from changes in flow patterns due to invasive plant obstructions within waterways, which can cause constrictions, higher flow velocities in certain areas, and potentially increased erosion.
- Increased fire hazards resulting from the dense growth patterns of some invasive plants, which present a significant fuel source in upland areas and decrease the ability of riparian areas to serve as natural firebreaks. Native riparian areas tend to be open networks of plants and steep and lightly vegetated banks that are poor fire fuel.
- Displacement of native habitats and associated wildlife due to water quality changes from invasive species and as a result of the species' ability to outcompete native plants, leading to the loss of food and habitat for native wildlife
- Hindered navigation for recreational activities as a result of invasive species obstructions to waterways and upland areas.

2.4.2 Infrastructure Protection

One of the ongoing challenges facing water suppliers and wastewater management agencies is aging and inadequate infrastructure. Much of the water storage and conveyance infrastructure, including the dams, canals, pipelines, and pump stations throughout the county, was built in the 1960s or earlier and could be nearing the end of its useful life. Some of the water supply systems may also require technological updates to keep pace with modern regulatory requirements and other drivers. Production groundwater wells also have a limited useful life, and groundwater producers must periodically drill replacement wells. Further, increasingly stringent water treatment requirements have required many existing and new wells to be retrofitted with groundwater treatment systems to remove contaminants and undesirable constituents such as arsenic, iron, and manganese. Many communities in the county are facing similar needs for investment in wastewater treatment facilities, and several are seeking to upgrade their flood protection infrastructure (RWMG, 2013).

As a result of the combination of aging infrastructure and rising expectations, water managers within the county must determine how they can make the significant investments required to replace and modernize aging infrastructure (RWMG, 2013).

2.4.3 Flood Management and Other Natural Disasters

Much of Yolo County is a natural floodplain. Three geographic regions with flooding issues include: Cache Creek basin/Woodland, Sacramento River corridor, Western Yolo floodplain (Madison, Esparto, Airport Slough, etc.) and Yolo County land west of the un-leveed part of the Yolo Bypass south of Putah Creek. The unincorporated area of Yolo County near Cache Creek, as well as parts of the City of Woodland, have only 10-year flood protection according to the Federal Emergency Management Agency (FEMA; WRA of Yolo County, 2007).

Yolo County contains 2015 miles of levees as part of the Sacramento River Flood Control Project, including the Yolo Bypass. The Yolo Bypass does not, and has not, functioned at design flow capacity for many years. This poses a threat to the citizens of Yolo, Solano, and Sacramento Counties if future flood events exceed the capacity of the Bypass. Geotechnical studies are necessary to determine whether some of the Yolo County's Sacramento River levees are subject to under-seepage or other potential causes of levee failure (WRA of Yolo County, 2007).

Some of the issues surrounding flood management and storm drainage within Yolo County include:

- Through seepage and under-seepage threats to Sacramento River levees
- Erosion threats to Sacramento River levees
- Inadequate funding for geotechnical studies to determine erosion, stability, and seepage threats to Sacramento River levees and subsequent repair projects
- Inadequate public outreach (need for flood insurance, understanding of evacuation plans, etc.)
- Inadequate emergency preparedness plans for levee failures
- Need to evaluate development in the floodplain (the more development, the greater the risk to public safety)
- Inadequate compensation to Yolo County for providing the City of Sacramento with flood protection. Failure of the federal and state governments to equitably address the Sacramento River Flood Control Project induced flood risks within and adjacent to the Yolo Bypass.
- Inadequate flood protection from existing Cache Creek levees.
- Erosion of existing Cache Creek levees
- Inadequate vegetation removal on Cache Creek (impedes capacity)
- Insufficient understanding of the risk of Cache Creek flooding
- Inadequate levees to protect Madison and Esparto from Lamb Valley Slough flooding
- Inadequate flood protection at the airport.

Future land use changes in the Yolo Bypass must be closely monitored to help ensure that impediments to flow do not occur that would further minimize capacity. All current and future land uses in the Bypass must be consistent with flow capacity requirements and subject to consistent State Reclamation Board enforcement. There should be no redirected hydraulic impacts as a result of the project operations, upstream development, or in-bypass projects.

2.4.4 Climate Change

Climate change could significantly impact Yolo County, impacting the ecological, environmental, and economic conditions. The potential impact of climate change should be studied and considered in planning for resource management and economic development. The following areas of concern are particularly relevant to the region (RWMG, 2013):

- Increases in peak storm water runoff flows and flood risk
- Increased evapotranspiration
- Decreased agricultural production due to changes in temperature and carbon dioxide levels
- Reductions in the habitat of riparian and aquatic species
- Decreased availability of water supplies.

2.4.5 Water Quality

High priorities for water quality include complying with discharge requirements and Basin Plan Objectives and providing water of suitable quality for the intended beneficial use (RWMG, 2013). Water quality objectives are prescribed by the Regional Water Quality Control Board in the *Water Quality Control Plan for the Sacramento River and San Joaquin River Basins* (Basin Plan) to protect the many beneficial uses of the region's waters, including municipal and domestic supply, agricultural supply, industrial supply, recreation, fishing, freshwater and wildlife habitat, and migration and spawning corridors.

The Basin Plan includes narrative and numeric water quality objectives. Waste load allocations have been, and will continue to be, adopted as part of the development of total maximum daily loads (TMDLs) for 303(d) listed waterways within Yolo County (RWMG, 2013).

Cache Creek, Colusa Basin Drain, and the Sacramento River within Yolo County all have TMDLs, and additional TMDLs are anticipated in the future for the Colusa Basin Drain, Davis Creek and Reservoir, Putah Creek, and Sacramento River. Surface water quality constituents of primary concern in Yolo County include mercury, boron, pesticides, nutrients, and fecal coliform (RWMG, 2013).

The Upper Cache Creek carries mercury-laden flows through Cache Creek to the settling basin that drains into the Yolo Bypass, which ultimately drains into the Bay Delta. Through this conveyance pathway, Cache Creek is a major contributor of mercury to the Bay Delta. Putah Creek has also been identified as a major contributor of mercury; however, the construction of Lake Berryessa has greatly reduced this contribution (RWMG, 2013).

Boron is another common source of water quality impairment for the county. Boron, a naturally occurring element in the soils of the region, dissolves in water and is carried into surface water bodies. While necessary for plant growth at low concentrations, boron in high concentrations is toxic to plants and can stunt their growth. Portions of Cache Creek, Putah Creek, Willow Slough, Willow Slough Bypass and the Tule Canal have been 303(d) listed for elevated boron concentrations that may be impairing agricultural water quality. From an end use perspective, boron in surface water is mainly a concern for irrigators in the valley who could be affected by the negative plant growth impacts (RWMG, 2013).

Pesticides are another major concern related to water quality impairment for the Westside Region. Surface waters in Yolo County are 303(d) listed for a host of pesticides that impair freshwater habitat and commercial and sport fishing beneficial uses. The source of pesticides is runoff from agricultural applications (RWMG, 2013).

Compliance with state and federal water quality programs is discussed in further detail in Section 3: Water Quality Compliance.

2.4.6 Sustaining Groundwater Resources

Groundwater is a key component of the county's conjunctive water supply portfolio. Urban areas, agriculture, and the environment in Yolo County depend upon a reliable water supply, a combination of both groundwater and surface water. In a normal year, nearly all urban water users in the county, except the City of West Sacramento, rely on groundwater as a significant source of water supply. Farmers rely on groundwater for approximately 40 percent of their supply in a normal year but rely more heavily on groundwater during drought years. In the future, urban population growth will result in an increase in water supply needs and demands from cities, unincorporated communities, and UC Davis (WRA of Yolo County, 2007).

It is unknown if the deep aquifers in the area are able to sustain current and future demands. Although agencies have tried to improve the understanding of groundwater resources through preparation of groundwater management plans and monitoring programs, much work remains to quantify the reliable, sustainable groundwater supplies available (RWMG, 2013).

Sustaining groundwater resources is also important because heavy reliance on groundwater and groundwater pumping has resulted in subsidence (consolidation of the aquifer causing decreased ground levels). Lower land surfaces resulting from subsidence of peat soils behind levees, some of which can be attributed to groundwater pumping, also contribute to flood risk because of the reduced effectiveness of the levees. Subsidence due to groundwater pumping has been detected in the northern Yolo-Zamora area of Yolo County between Zamora and Knights Landing, where subsidence is reported to be on the order of 5 feet, and the vicinity of Davis and Woodland, where subsidence is estimated at 2 or 3 feet (RWMG, 2013).

2.4.7 Land Use

The following land uses and human activities can contribute to the degradation of soils, waterbodies, and habitat and can make watershed management more difficult. Some of the listed activities have been described under several earlier topics but are additionally emphasized here because of their importance to the stakeholders (RWMG, 2013):

- Alteration of the natural landscape for any purpose, creating disturbed soils susceptible to erosion, and requiring installation of minimum control measures prescribed for NPDES storm water management permit compliance;
- Application or accidental release of potentially contaminating substances or prohibited waste discharges to water supplies, including wastewater

system overflows, septic system failures, water treatment byproducts, pest abatement, improper disposal of litter or refuse, and lack of storm water management

- Removal of natural vegetation and wildlife habitat, including destruction of wetlands, waterways, and shoreline ecologies
- Improper livestock husbandry and other poorly implemented agriculture, industry, and commercial BMPs
- Potential conflict between land and water use for: (a) recreation and tourism, (b) agriculture, and (c) opportunities to restore and preserve the environment.

In addition, urban development (parking lots, roads, and other impervious areas) contributes to increased runoff and pollution and decreased infiltration and natural creek and river flows. Methods to address these land use impacts include increasing urban greenspace, low impact development techniques such as reduced impervious area and vegetated facilities and infiltration basins for storm water runoff capture, and conversion of impervious pavement to pervious materials.

Section 3: Water Quality Compliance

The quality of surface waters in the region is greatly influenced by land use practices as well as historic sources. As discussed in Section 2.2, land use in the SWRP is approximately 44% open space, 45% agriculture, and 5% urban and community development. In Yolo County, surface waters are impacted largely by agricultural use, resource extraction (i.e., mercury mining in watersheds upstream of Yolo County), and nonpoint source pollutants from urban uses. Surface waters in the SWRP area are especially impaired by mercury, boron, pesticides, and toxicity.

Implementation of this SWRP will result in projects that are consistent with the TMDLs, NPDESs, and WDRs applicable for the watersheds within Yolo County, and comply with other plans and permits described in this section.

3.1 Activities Associated with Pollution of Stormwater and/or Dry Weather Runoff

Yolo County is within the Sacramento River Basin. Surface water from the Sacramento River and San Joaquin River Basins meet and form the San Joaquin River Delta, and ultimately drain into the San Francisco Bay. The Sacramento and San Joaquin Rivers furnish roughly 51% of the State's water supply, delivering water from the Delta to Southern California, the San Joaquin valley, Tulare Lake Basin, the San Francisco Bay area, as well as within the Delta boundaries. Water quality in the Sacramento and San Joaquin River Basins is collectively discussed in the Water Quality Control Plan for the California Regional Water Quality Control Board (RWQCB), Central Valley Region, Fourth Edition, The Sacramento River Basin and the San Joaquin River Basin (Basin Plan; RWQCB, 2016). Primary causes of pollutants to surface waters presented in the Basin Plan include urban runoff, industries, mines, agricultural runoff (RWQCB, 2016). Water quality in the SWRP area is summarized in Section 4.3 of the Yolo County IRWM Plan (WRA of Yolo County, 2007). The Central Valley Regional Water Quality Control Board (Central Valley RWQCB), as well as other state and federal regulatory and resource agencies, participated in the Westside Sacramento IRWM planning process and will likely support the effort to obtain regulatory and environmental approval for IRWM Plan actions during implementation (Section 1.2.2.3, Kennedy/Jenks, 2013).

Yolo County prepared a Stormwater Management Program (SWMP) Planning Document that primarily focused on the urbanized areas of El Macero and Willowbank (Yolo County, 2004). The cities of Davis, West Sacramento, and Woodland and the University of California, Davis prepared their own Stormwater Management Plans or SWMP Planning Documents (City of Davis, 2006; City of West Sacramento, 2003; City of Woodland, 2004; UCD, 2010).

The Basin Plan (Chapter IV, RWQCB, 2016), Yolo County IRWM Plan (Section 4.3 and 4.4, WRA of Yolo County, 2007), and the various Stormwater Management Plans and SWMP Planning Documents identify activities that can generate or contribute to the pollution of storm water or dry weather runoff, or impair the beneficial uses of storm water or dry weather runoff, such as:

- confined animal feeding operations
- agricultural drains
- urban drainage
- residential drainage
- industrial drainage
- agricultural runoff
- road construction activities
- mining
- agriculture irrigation
- logging and other harvest activities
- natural sources such as effects of fire, flood, and landslide
- landfill leachate collection system
- non-permitted direct connection and illicit discharges
- construction
- roads, streets, and highways operations and maintenance
- drainage system operation and maintenance
- waste handling and disposal
- water and sewer utility operation and maintenance

The magnitude of impact of these activities depends on the occurrence of activities within the drainage area, which is related to land uses and percentage of lands within the SWRP Planning Area. Based on the information found in Section 2.2, urban land uses and their associated activities account for a small portion of land use, while agriculture accounts for a large portion of land use in the SWRP planning area. Flooding and erosion are key concerns in Yolo County, as described in the Westside IRWM Plan, and can have a negative impact on surface water quality. The Yolo County Farm Bureau is one resource within Yolo County that provides assistance for complying with sediment and erosion requirements on irrigated lands (Yolo County Farm Bureau, 2017) and assists agricultural producers with compliance with the RWQCB Irrigated Lands Program. Mercury, in particular, is a significant source of water quality impairment and is a legacy left by the extensive mining areas upstream of Yolo County (Kennedy/Jenks, 2013).

The discussion that follows identifies specific impaired water bodies and the permits within the SWRP planning area.

3.2 TMDL and NPDES Compliance

3.2.1 TMDLs

The 1972 Clean Water Act (CWA) established strategies for managing water quality, as described in Section 3.2.1 (page 3-21 to 3-28) and Section 5.8 (pages 5-9 to 5-11) of the Westside IRMWP. To support these strategies, Section 303(d) of the CWA requires the identification of water bodies that do not meet, or are not expected to meet, water quality standards (i.e., impaired water bodies), and requires development of a total maximum daily load (TMDL) for each listing.

The Central Valley RWQCB is the state agency responsible for identifying impaired water bodies within the Central Valley region. Impaired water bodies are published by the Central Valley RWQCB in an Integrated Report to be approved by both the SWRCB and the USEPA and included on the Section 303(d) list of impaired waters requiring TMDLs. The USEPA approved the 2008-2010 303(d) list on 12 November 2010 and approved the revised 2012 303(d) list on 30 July 2015. The 2012 303(d) list is the current list; there were no updates to the 2008-2010 303(d) list for the Central Valley region.

On 20 December 2016 the Central Valley RWQCB approved and submitted the 2014 303(d) list to the SWRCB, which will replace the current 303(d) list after being approved by the SWRCB and the USEPA. The 2014 303(d) list includes updates to the Central Valley region which can be seen in Table 3-1.

TMDLs presented herein are for parameters that are included in a state general stormwater permit (municipal, industrial, and/or construction), indicating that storm water has been identified as a potential source of the parameter. Mercury, for example, is included in state general stormwater permits and is a major water quality issue in Cache Creek in Yolo County (Kennedy/Jenks, 2013). Mercury mines along the headwaters of Cache Creek, outside of the SWRP planning area, provided a significant source of mercury used in gold mining in the 19th century. SWRP storm water and erosion control projects may assist in reaching the TMDL goals by helping to minimize the erosion of mercury-contaminated soil. Additionally, the pesticide TMDL outside of the City of West Sacramento may be partially addressed by increasing the infiltration of storm water into soil.

Figure 3-1 shows the impaired water bodies located within the SWRP Planning Area and Table 3-1 presents a summary of 303(d) listed impaired water bodies in the SWRP Planning Area, towns and cities near the impaired water body, the associated pollutant(s) of concern, the potential sources as reported by the SWRCB, and the completion date for the TMDL. A more detailed list is provided in Appendix D.

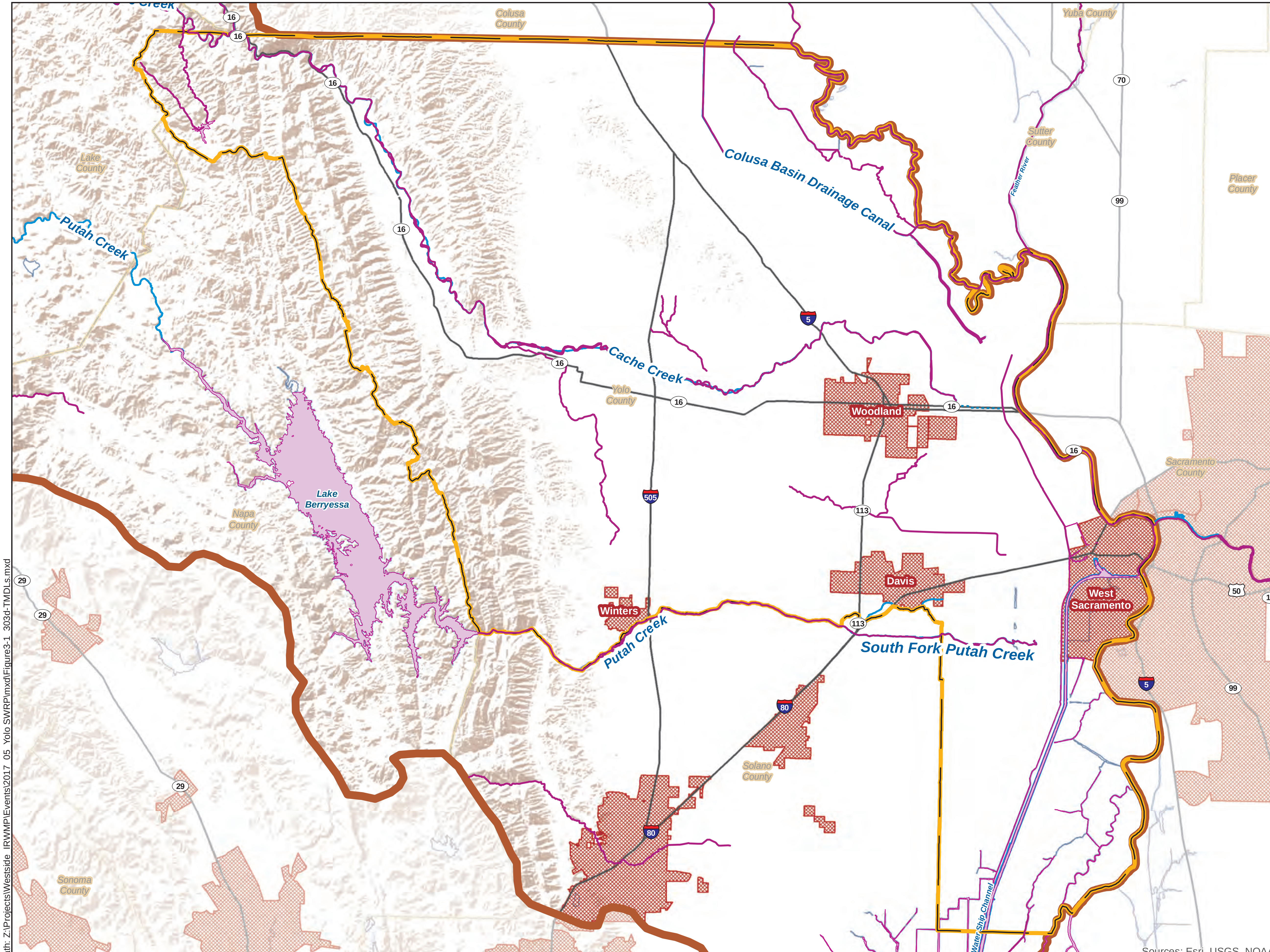
Table 3-1 Summary of 303(d) List of Impaired Water Bodies in Yolo County

303d Listed Waterbody	Pollutants																			Potential Pollutant Sources (2)
	Axinphos-methyl (Guthion)	Selenium	Carbofuran	Dieldrin	Malathion	Boron	Mercury	DDT (Dichlorodi-phenyltrichloroethane)	Diazinon	Escherichia coli (E. coli)	Group A Pesticides	Chlordane	Chlorpyrifos	Invasive Species	PCBs (Polychlorinated biphenyls)	Oxygen, Dissolved	Salinity	Fecal Coliform	Unknown Toxicity	
Cache Creek, Lower (Clear Lake Dam to Cache Creek Settling Basin near Yolo Bypass)						X (2021)	X (2007) [1]												X (2019)	The source of mercury is abandoned mines in the area. Potential sources for other pollutants are listed as unknown.
Colusa Basin Drain	X (2019)		X (2021)	X (2021)	X (2010)		X (2021)	X (2021)	X (2008)	X (2021)	X (2019)					X (2021)			X (2019)	Sources for pollutants are listed as unknown.
Davis Creek (downstream from Davis Creek Reservoir, Yolo County)							X (2017)													Sources for pollutants are listed as unknown.
Davis Creek (upstream from Davis Creek Reservoir, Yolo County)							X (2017)													Sources for pollutants are listed as unknown.
Davis Creek Reservoir							X (2017)													Sources for pollutants are listed as unknown.
Delta Waterways (northern portion)							X (2009)	X (2011)	X (2007) [1]		X (2011)	X (2011)	X (2007) [1]	X (2019)	X (2019)				X (2019)	The source of mercury is abandoned mines in the area. Potential sources for other pollutants are listed as unknown.
Delta Waterways (northwestern portion)							X (2009)	X (2011)	X (2007) [1]		X (2011)		X (2007) [1]	X (2019)			X (2019)		X (2019)	The source of mercury is abandoned mines in the area. Potential sources for other pollutants are listed as unknown.
Gordon Slough (from headwaters and Goodnow Slough to Adams Canal, Yolo County)																X (2021)				Sources for pollutants are listed as unknown.
Knights Landing Ridge Cut (Yolo County)						X[4] (2021)										X (2021)	X (2021)			Sources for pollutants are listed as unknown.
Putah Creek (Solano Lake to Putah Creek Sinks; partly in Delta Waterways, northwestern portion)						X[4] (2021)	X (2017)													The source of mercury is abandoned mines in the area. Potential sources for other pollutants are listed as unknown.
Sacramento River (Red Bluff to Knights Landing)				X (2021)			X (2021)	X (2021)							X (2021)				X (2019)	Sources for pollutants are listed as unknown.
Sacramento River (Knights Landing to the Delta)				X (2022)			X (2012)	X (2021)				X (2021)			X (2021)				X (2019)	The source of mercury is abandoned mines in the area. Potential sources for other pollutants are listed as unknown.
Sycamore Slough (Yolo County)																X (2021)				Sources for pollutants are listed as unknown.

	Pollutants																			
303d Listed Waterbody	Axinphos-methyl (Guthion)	Selenium	Carbofuran	Dieldrin	Malathion	Boron	Mercury	DDT (Dichlorodi-phenyltrichloroethane)	Diazinon	Escherichia coli (E. coli)	Group A Pesticides	Chlordane	Chlorpyrifos	Invasive Species	PCBs (Polychlorinated biphenyls)	Oxygen, Dissolved	Salinity	Fecal Coliform	Unknown Toxicity	Potential Pollutant Sources (2)
Tule Canal (Yolo County)						X (2021)				X (2021)							X (2021)	X (2021)		Sources for pollutants are listed as unknown.
Willow Slough (Yolo County)						X (2021)													X(5)	Sources for pollutants are listed as unknown.
Willow Slough Bypass (Yolo County)		X(5)			X(5)	X (2021)				X (2021)							X(5)	X (2021)	X(5)	Sources for pollutants are listed as unknown.
Winters Canal (Yolo County)									X (2021)											Sources for pollutants are listed as unknown.

Notes:
(1) Addressed by USEPA approved list.
(2) Potential sources presented are the potential sources listed on the State Water Board website, listed below.
(3) The expected TMDL completion date is presented in parenthesis.
(4) This TMDL's completion and approval schedule is different for different waterbodies. See waterbody-specific column.
(4)Delisted on 2014 303(d) Impaired Water Bodies Integrated Report
(5)Added to the 2014 303(d) Impaired Water Bodies Integrated Report

Sources:
(a) http://www.waterboards.ca.gov/water_issues/programs/tmdl/integrated2012.shtml, accessed March 15, 2017.
(b) Natural sources and those not included in MS4 or general statewide storm water permits are assumed not to be applicable to storm water discharges.



Legend

- City Boundaries
- County Boundaries
- Westside Region
- Streams
- Projected Flow Pathway
- Water Bodies
- 303(d) Impaired Rivers/Streams
- 303(d) Impaired Water Bodies

Source:
2010 303(d) Listed Waters, SWRCB, 2012.

0 3 6 9
Miles

Kennedy/Jenks Consultants

Storm Water Resource Plan
For Yolo County

Impaired Water Bodies
within Yolo County

K/J 1770002.00
May 2018

Figure 3-1

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3.2.2 NPDES Permits

There are several types of National Pollutant Discharge Elimination System (NPDES) permits for discharges to surface waters within Yolo County including municipal, individual, industrial and construction permits as discussed below. Table 3-2 summarizes the applicable, active NPDES permits issued for the SWRP Area; a list of the applicable, active NPDES permits is included as Appendix E. Figure 3-2 presents the permittee locations, as published on the State Water Board website, relative to impaired water bodies.

Table 3-2 NPDES Permits Issued by the Central Valley RWQCB – Yolo County

Type of Permit	Total (a)
Phase I Municipal MS4	0
Phase II Small MS4	6
Individual	2
Industrial Storm Water	102
Construction Storm Water	65

(a) Based on the State Water Board website, accessed March 15, 2017 (https://ciwqs.waterboards.ca.gov/ciwqs/readOnly/CiwqsReportServlet?inCommand=reset&reportName=RegulatedFacility)

(b) There also 46 Non NPDES Waste Discharge Requirements (WDRs) discussed in Section 3.3.1)

3.2.2.1 Municipal Permits

The CWA was amended in 1987 to include coverage for urban runoff discharges from Municipal Separate Storm Sewer Systems (MS4s) under NPDES, as described in Section 1.1 of the Yolo County SWMP Planning Document (page 1-1 to 1-2, Yolo County, 2004). Municipalities may require coverage by a Phase I or Phase II MS4 permit, depending on the municipality's population or as determined by the permitting authority. The goal of MS4 permits is to improve water quality from within municipalities and the first finding of the Phase II MS4 permit states:

> "The State Water Resources Control Board (State Water Board) finds that:
>
> 1. Storm water is a resource and an asset and should not be treated as a waste product. Managing rainwater and storm water at the source is a more effective and sustainable alternative to augmenting water supply, preventing impacts from flooding, mitigating storm water pollution, creating green space, and enhancing fish and wildlife habitat. California encourages alternative, innovative, multi-objective solutions to help use and protect this valuable resource, while at the same time controlling pollution due to urban runoff."

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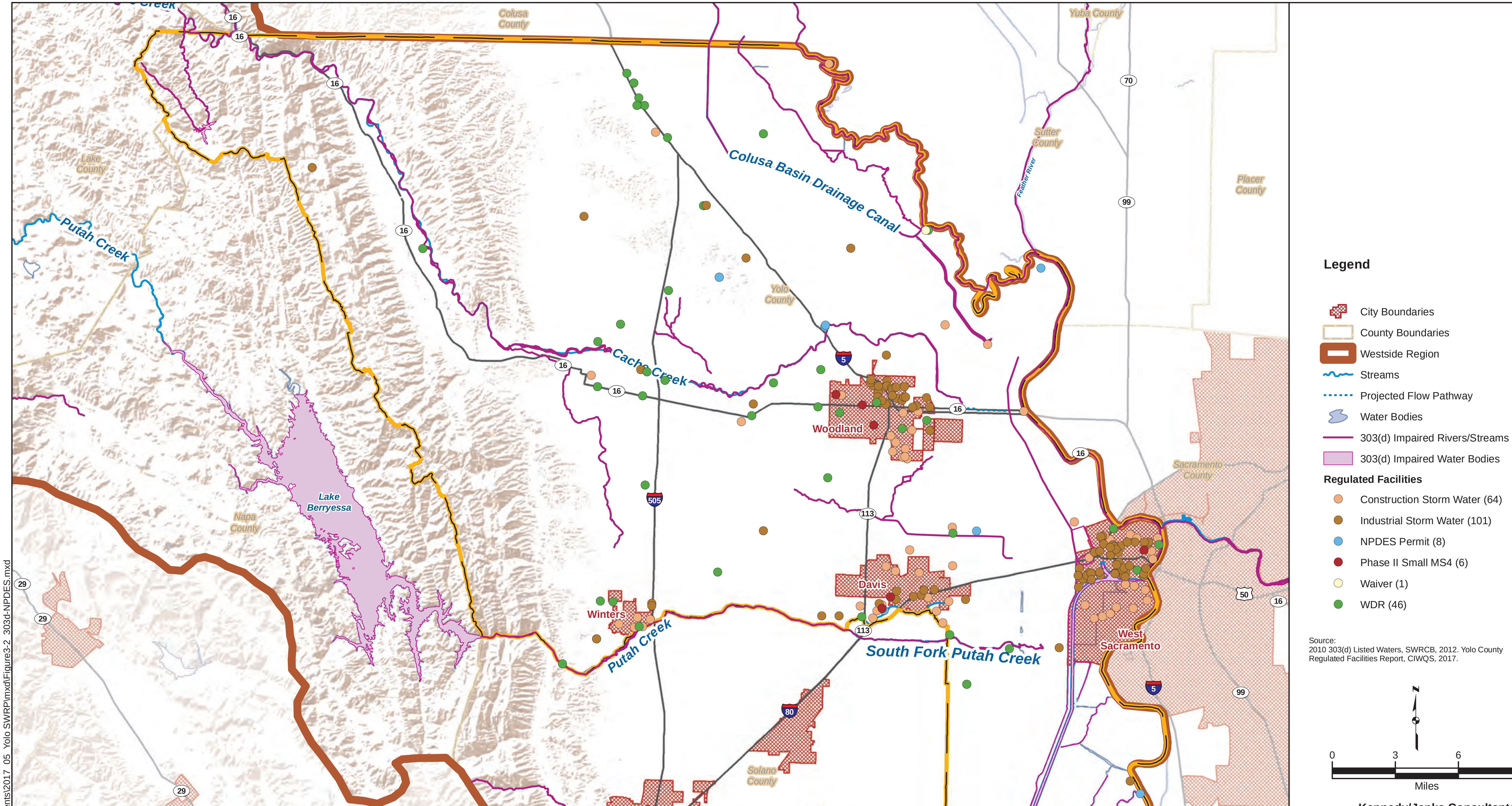

Kennedy/Jenks Consultants

Storm Water Resource Plan For Yolo County

NPDES Permits within Yolo County

K/J 1770002.00
May 2018

Figure 3-2

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In California, Phase I municipalities now have individual NPDES permits administered by the Regional Water Quality Control Boards, and Phase II municipalities are covered by the General Permit for Discharges of Storm Water from Small Municipal Separate Storm Sewer Systems (Small MS4 General Permit) administered by the State Water Resources Control Board. There are no Phase I municipalities in the SWRP planning area, but there are six permittees that are required to comply with the Small MS4 General Permit (Order No. 2013-0001-DWQ):

- 40th District Agricultural Association[1]
- City of Davis[2]
- City of Woodland[2]
- City of West Sacramento
- Yolo County
- University of California Davis (UC Davis)[1]

Small MS4 General Permit compliance requires permittees to develop programs to address

- Education and Outreach
- Public Involvement and Participation
- Illicit Discharge Detection and Elimination
- Construction Site Storm Water Runoff Control
- Pollution Prevention/Good Housekeeping
- Post Construction Storm Water Management
- Water Quality Monitoring
- Program Effectiveness Assessment and Improvement
- TMDL Compliance

SWRP projects will likely aid permittees to meet some of their MS4 permit requirements in alignment with the findings of the MS4 permit. For example, UC Davis experiences major water quantity and quality issues on campus including flooding, organic loading from leaf litter in the Arboretum, and stagnant water. These issues can be resolved through potential SWRP projects such as upstream detention and a redesign of the Arboretum to increase flow rates, add flood capacity, and construct green infrastructure projects to filter storm water. The SWRP will identify these types of project implementation opportunities to address activities that contribute to the pollution of storm water and dry weather runoff.

In addition to monitoring for TMDLs listed in Attachment G, municipalities are required to monitor 303(d) impaired water bodies as part of the MS4 requirements. When implementing the SWMP, special consideration will be given to ensure 303 (d) impaired water bodies are not negatively impacted. TMDL requirements within Yolo County for 303 (d) listed bodies were discussed in Section 3.2.1 and can be found in Table 3-1.

The City of Winters has taken initial steps to develop a storm water management plan and is working towards meeting the requirements of MS4 permitting. The City of Winters is currently covered under a waiver from the MS4 Permit due, in part, to its small population size (under 10,000).

If the town of Madison constructs underground drainage facilities, a feasibility study being conducted during the implementation of this Plan, the town of Madison will be required to obtain a Phase 2 – MS4 Permit and will need to meet MS4 permitting requirements.

3.2.2.2 Individual Permits

There are four facilities in the SWRP planning area that are covered by individual NPDES permits, which are issued by the Central Valley RWQCB: City of Davis Wastewater Treatment Plant (Order No. R5-2013-0127, effective 23 November 2013), City of Woodland Water Pollution Control Facility (Order No. R5-2014-0120, effective 1 December 2014), UC Davis Center for Aquatic Biology and Aquaculture (Order No. R5-2012-0053, effective 28 July 2012), and the UC Davis Campus Wastewater Treatment Plant (Order No. R5-2014-0152, 1 February 2015). The City of Davis Wastewater Treatment Plant is allowed to discharge treated municipal wastewater to Willow Slough Bypass and the Conaway Ranch Toe Drain, which are both part of the Yolo Bypass. These discharges are classified as a major discharge. The UC Davis Center for Aquatic Biology and Aquaculture is allowed to discharge treated aquaculture wastewater at two locations, both at the South Fork of Putah Creek. These discharges are classified as minor discharges. The Orders contain requirements such as effluent limitations, compliance with the Basin Plan, monitoring and reporting requirements, and implementation of best management practices (BMPs), as

---

[1] The 40th District Agricultural Association and UC Davis both hold non-traditional MS4 permits used for storm water discharge from entities that are not municipalities.

[2] The Draft Order to amend Order 2013-0001-DWQ removes the TMDL requirement of the Phase II MS4 Permit for the City of Davis and the City of Woodland. The Final Order has not been released.

well as discharge prohibitions, receiving water limitations, and other provisions.

3.2.2.3 Industrial and Construction Permits

Storm water discharges associated with construction activity, industrial activity, and utilities other than water suppliers may also be covered by statewide general permits under NPDES, including the Industrial General Permit (IGP) for industrial activities and the Construction General Permit (CGP) for construction activity.

3.3 Other Permits

All projects proposed and implemented as part of the Yolo County SWRP and Westside Sacramento IRWM Plan will comply with applicable local storm water documents and ordinances, including the SWMP (Yolo County, 2004) and other Yolo County Public Works Division requirements. All projects will also comply with applicable state and federal regulations, including the California Environmental Quality Act (Public Resources Code § 21000 et seq.), the CWA, the Endangered Species Act (ESA), the Safe Drinking Water Act, applicable water rights permits and licenses, State Water Board plans and policies, State and Regional Water Board water quality control plans and policies (Wat. Code, § 10562, subd. (b)(5)), NPDES permits, Areas of Special Biological Significance Compliance Plans (State Water Board Resolution 2012-0012), conditional waivers issued by State and/or Regional Water Boards (Wat. Code, § 10562, subds. (b)(5) & (6).), and the Mosquito Abatement and Vector Control District Law (Division 3, Chapter 1 of the Health and Safety Code beginning with Article 2000; State Water Board, 2015).

3.3.1 Waste Discharge Requirements

According to the California Code of Regulations, Title 27 section 20090, there are nine categories of discharges that are regulated by the Waste Discharge Requirements (WDRs) Program: sewage, wastewater, underground injection, Regional Water Board cleanup actions, gas condensate, soil amendments, drilling waste, reuse, and waste treatment in fully enclosed units. There are a number of adopted WDR orders within Yolo County, which are listed in Appendix F and can be found on the Central Valley RWQCB website: http://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/index.shtml#yolo. However, waste discharge permits do not typically apply to storm water discharges, which are regulated under other permits, as discussed in Section 3.2.

Central Valley RWQCB also administers the Irrigated Lands Regulatory Program (ILRP) aimed at regulating waste discharges due to agricultural operations. The Yolo County Farm Bureau Irrigated Lands Program (Yolo ILP) is designed to help farmers in the County to protect water quality from discharges of irrigation water and storm water that enters surface water bodies and meet the requirements of the ILRP. The Yolo ILP group is part of the Sacramento Valley Water Quality Coalition (Coalition), which is responsible for fulfilling the conditions and requirements of the WDR General Order R5-2014-0030-R1 for waste discharges from irrigated lands, which includes surface water quality monitoring and analysis on the pesticides, herbicides, nutrients and other agricultural products.

Growers under the Coalition are required to prepare and have certified a Sediment and Erosion Control Plan (SECP), which will help identify erosion sources and potential locations of sediment discharge that could affect the quality of storm water and irrigation water discharges from farmlands. The SECP includes identified parcels and/or corresponding field(s) the SECP applies to, on-farm sediment and erosion management practices, site evaluation, and SECP self-certification.

3.3.2 California Health and Safety Code – Pest and Mosquito Abatement

As indicated in Section 2.2, all projects implemented from this SWRP and the Westside Sacramento IRWM Plan will comply with the Mosquito Abatement and Vector Control District Law (Division 3, Chapter 1 of the Health and Safety Code beginning with Article 2000; State Water Board, 2015). The Yolo County SWMP Planning Document includes a summary of implementation plans and schedules for complying with BMPs for illicit discharges, stormwater quality at construction sites, new and redevelopment planning, and municipal stormwater operation (Yolo County, 2004). This includes the condition that all land development applications be reviewed by the Planning and Public Works Department, which, in part, reviews proposed projects for mitigation or prevention of foreseeable health hazards or environmental degradation in the context of vector control, among other areas (Yolo County, 2004). Furthermore, the Sacramento-Yolo County Mosquito & Vector Control District has prepared a Mosquito and Mosquito-Borne Disease Management Plan, with which all projects will be required to comply (Sacramento-Yolo Mosquito and Vector Control District, 2005).

3.3.3 Modification of a River or Stream Channel

As projects in this SWRP are implemented, some projects may result in the modification of a river or stream channel. These types of projects may require additional permitting for compliance with CWA Sections 404 and 401, as well as California Department of Fish and Wildlife regulations. CWA Section 404 permits are issued by the US Army Corps of Engineers while CWA Section 401 water quality certifications are issued by the California RWQCB.

Low impact development (LID) measures are encouraged where feasible in various stormwater guidance documents prepared in the region, such as the City of West Sacramento Post-Construction Standards Plan (City of West Sacramento, 2014). Implementing LID and hydromodification controls can also reduce the impacts to river and stream channels by reducing flow duration, volume, frequency and/or peak flow rates. The Yolo County SWRP also supports LID practices in the limited acreage of urbanized areas within the planning area.

3.4 Monitoring

The Yolo County SWRP, the implementation of projects, and associated monitoring data will be tracked using a Data Management System (DMS) that takes advantage of database systems developed by statewide efforts (as described in Section 6 Implementation Schedule and Strategy). The data management approach includes collection and sharing of data through state databases, County monitoring such as through the Yolo County Irrigated Lands Program, and monitoring by municipalities with MS4 permits. Additional adaptive approaches to data management will continue to be considered. Data management and project implementation tracking is discussed further in Section 6.

3.4.1 Statewide Databases

The Yolo County SWRP will utilize state databases for the collection and management of Plan data, including such programs as:

- California Department of Water Resources (DWR) Water Data Library (WDL) – an online webservice with public access to groundwater, water quality, and surface water flow data. (http://www.water.ca.gov/waterdatalibrary/)
- California Environmental Resources Evaluation System – the State's web service for natural resources and planning data. (CERES) (http://ceres.ca.gov/)
- California Environmental Data Exchange Network -a centralized online location for sharing information about the State's surface water bodies including water quality, aquatic habitat, and wildlife health. (CEDEN) (http://www.ceden.org/)
- California Statewide Groundwater Elevation Monitoring (CASGEM) – a program to track seasonal and long-term trends in groundwater elevations in California's groundwater basins. Data is contributed by local monitoring entities or DWR groundwater data collection efforts. (http://www.water.ca.gov/groundwater/casgem/)
- California Environmental Information Catalog (CEIC) – an online directory of spatial and other types of data resources contributed by cities, counties, utilities, state and federal agencies, private businesses, and academic institutions. (http://gis.ca.gov/catalog).

In addition, as indicated previously, the SWRP area is in the Sacramento and San Joaquin River Basins, and therefore upstream of the Sacramento-San Joaquin River Delta (Delta). The Delta is collectively monitored with the San Francisco Bay by the Bay-Delta Team, staffed by the State Water Board and the Central Valley and San Francisco Bay RWQCBs. Water quality at the Delta and upstream of the Delta is monitored as part of the Delta Regional Monitoring Program. This stakeholder-driven program is currently in progress and publishes various water quality reports in accordance with the program timeline. Additional information can be found here: http://www.waterboards.ca.gov/centralvalley/water_issues/delta_water_quality/delta_regional_monitoring/index.shtml.

3.4.2 Yolo County Irrigated Lands Program (ILP)

As described in Section 3.3.1, the Yolo ILP (as part of the Coalition) includes surface water quality monitoring and analysis within the Yolo subwatershed. According to the Coalition's *Annual Monitoring Report 2016* (Larry Walker Associates, 2017[3]), the Coalition uses a "Representative Monitoring" approach to achieve the goals of the 2016 Monitoring and Reporting Plan:

[3] https://www.waterboards.ca.gov/centralvalley/water_issues/irrigated_lands/water_quality/coalitions/sacramento_valley/index.html#sacamrs

- Representative monitoring is conducted at sites in drainages representative of larger regions based on shared agricultural and geographic characteristics;
- Representative monitoring includes a cycle of two years of "Assessment" monitoring for the broader suite of ILRP analytes, followed by two years of sampling needed for Management Plan implementation (referred to as "Non-Assessment" monitoring); and
- Monitoring schedules and the analytes monitored are customized based on the characteristics of individual subwatersheds and Management Plans.

Sampling sites were selected based upon the following fundamental assumptions regarding management of non-point source discharges to surface water bodies:

1) Landscape scale sampling at the bottom of drainage areas allows determination of the presence of water quality problems using a variety of analytical methods, including water column and sediment toxicity testing, water chemistry analyses, and bioassessment;
2) Strategic source investigations utilizing Geographic Information Systems can be used to identify upstream parcels with attributes that may be related to the analytical results, including crops, pesticide applications, and soil type; and
3) Management practice effectiveness can best be assessed by coalitions at the drainage and watershed scale to determine compliance with water quality objectives in designated water bodies. Results from farm-level management practices evaluations are used to complement Coalition efforts on the watershed scale by providing crop-specific information that supports management practice recommendations.

In Yolo County the representative monitoring site is Willow Slough Bypass at County Road 102 (which becomes Pole Line Road just south of the City of Davis boundary). The Willow Slough Bypass is a large drainage including approximately 102,000 total acres. Irrigated acreage (excluding rice acreage) is approximately 66,000 acres. Predominant crops in the drainage are grain, pasture, corn, tomatoes, rice, almonds, and walnuts. Data submitted to the ILRP can be accessed through CEDEN.

3.4.3 Other Monitoring Programs

Other local monitoring programs will be utilized to the extent practical, including but not limited to:

- UC Davis's Putah Creek monitoring, as described in their Program Effectiveness Assessment and Improvement Plan (UC Davis, 2015)
- The Westside Brownfields Coalition Assessment Project (http://www.westsideirwmbrownfields.org/), which will include an assessment of mine-affected Brownfields in the Westside IRWM area, including the Cache Creek Watershed. Identification and assessment will target those Brownfield sites that (1) contaminate the watershed, (2) potentially contribute to public and environmental health concerns, and (3) inhibit reuse for open space, economic development, or other beneficial uses.

Section 4: Organization, Coordination, and Collaboration

The Yolo County SWRP was developed by the SWRP Team with input by those entities participating in the Water Resources Association of Yolo County. Development of the Plan also included the participation of community stakeholders not normally involved with the WRA of Yolo County to ensure that local agencies, non-governmental organizations, nonprofit organizations, and the community are identified and consulted throughout the SWRP development. As described in Section 1, there are many on-going efforts by local agencies and non-governmental organizations to address water quantity and quality issues in Yolo County. This SWRP will build off these efforts by the entities described in this section.

4.1 Local Agencies and Non-Governmental Organizations

SWRP development for Yolo County was initiated by the WRA of Yolo County to address storm water and dry weather runoff management for its member agencies. The WRA of Yolo County member agencies are: City of Davis, City of West Sacramento, City of Winters, City of Woodland, County of Yolo, Dunnigan Water District, Reclamation District 108, Reclamation District 2035, University of California (UC) at Davis, and Yolo County Flood Control and Water Conservation District.

In addition to WRA of Yolo County member agencies, other agencies and non-governmental organizations were invited to participate in the development of the Plan including, but not limited to: Madison Community Service District (CSD), Esparto CSD, Knights Landing CSD, and the Lower Putah Creek Coordinating Committee (LPCCC). Table 4-1 lists the organizations/stakeholders invited and participating in the development of the SWRP.

Furthermore, several broader efforts, such as FloodSAFE Yolo, FloodProtect, the Bay-Delta Conservation Plan, and other regional/statewide efforts that incorporate state and federal agencies were considered in the development of the SWRP implementation strategy (described further in Section 6).

As indicated in Table 4-1, many of the stakeholders of the SWRP are also members of the YSGA. Therefore, due to the nexus of storm water management and groundwater management within Yolo County, the SWRP will be implemented in parallel with and supported by the efforts of the YSGA. Further details on the implementation of the SWRP is provided in Section 6: Implementation Strategy and Schedule.

The entities in Table 4-1 have taken on storm water as part of their management responsibilities, including:

- Storm Water Collection/Storm Drain Systems/Storm Water Treatment
- Water Resources Management
- Water Supplier
- Flood Control/Runoff Management
- Water Quality Control
- Pollution/Sediment Control/Prevention and Associated Standards Control
- Storm Water Reuse
- Ecosystem and Watershed Restoration and Protection
- Storm Water Permits, Compliance and Enforcement
- Public Education and Outreach

4.1.1 Yolo Subbasin Groundwater Agency

The Yolo Subbasin Groundwater Agency (YSGA) was officially formed on June 19, 2017 for the purpose of acting as the Groundwater Sustainability Agency (GSA) for the Yolo Subbasin. YSGA members and affiliated parties consists of cities, water suppliers, Community Service Districts, Reclamation Districts, the Yocha Dehe Wintun Nation, Yolo County, water resource managers, private groundwater pumpers, the University of California, Davis, and other parties with initial groundwater management and associated land use jurisdiction of the Yolo Groundwater Subbasin.

Table 4-1: ***Yolo County SWRP Stakeholders***

Stakeholder	Type/Classification	Interests/Responsibilities Related to Storm Water
WRA of Yolo County[2]	Non-profit organization	Includes Interests/Responsibilities of all Member Agencies
City of Davis[1,2]	Municipal water agency	Water Supplier, Water Quality Control, Storm Drain Systems, Water Resources Management, Storm Water Reuse, Pollution/Sediment Control, Ecosystem and Watershed Restoration and Protection, Public Education and Outreach
City of West Sacramento[1,2]	Municipal water agency	Water Supplier, Water Quality Control, Storm Drain Systems, Water Resources Management, Storm Water Reuse, Pollution/Sediment Control/Prevention, Ecosystem and Watershed Restoration and Protection, Public Education and Outreach
City of Winters[1,2]	Municipal water agency	Water Supplier, Water Quality Control, Storm Drain Systems, Water Resources Management, Storm Water Reuse, Pollution/Sediment Control, Ecosystem and Watershed Restoration and Protection, Public Education and Outreach
City of Woodland[1,2]	Municipal water agency	Water Supplier, Water Quality Control, Storm Drain Systems, Water Resources Management, Storm Water Reuse, Pollution/Sediment Control, Ecosystem and Watershed Restoration and Protection, Public Education and Outreach
Reclamation District 108[1,2]	Reclamation district	Water Supplier, Flood Control, Ecosystem and Watershed Restoration and Protection
Reclamation District 2035[1,2]	Reclamation district	Flood Control (Levee Maintenance; Drainage), Water Supplier (Irrigation Services)
Yocha Dehe Wintun Nation[2]	Tribe	Storm Water Collection/Treatment, Water Supplier, Storm Water Reuse, Water Quality Control, Sediment Control, Ecosystem and Watershed Restoration and Protection, Public Education and Outreach
Dunnigan Water District[1,2]	Irrigation district	Water Supplier
UC Davis[1,2]	Educational organization	Water Supplier, Water Quality Control, Storm Drain Systems, Water Resources Management, Storm Water Reuse, Pollution/Sediment Control, Ecosystem and Watershed Restoration and Protection, Public Education and Outreach
Yolo County[1,2]	Government agency	Water Quality Control, Storm Drain Systems, Water Resources Management, Storm Water Reuse, Pollution/Sediment Control, Ecosystem and Watershed Restoration and Protection, Public Education and Outreach
Yolo County Flood Control & Water Conservation District[1,2]	Government agency	Water Supplier, Storm Water Reuse, Storm Drainage Control, Flood Control, Ecosystem and Watershed Restoration and Protection
Madison CSD[2]	Community Service District	Water Supplier
Esparto CSD[2]	Community Service District	Water Supplier, Storm Drainage Control
Knights Landing CSD	Community Service District	Water Supplier, Storm Drainage Control
Lower Putah Creek Coordinating Committee[3]	Non-governmental organization	Pollution and Sediment Control/Prevention, Ecosystem and Watershed Restoration and Protection

1. Member agency of the WRA of Yolo County
2. Member of the Yolo Subbasin Groundwater Agency
3. The LPCCC represents the Boards of Supervisors of Solano and Yolo Counties; the cities of Davis, Fairfield, Suisun, Vacaville, Vallejo and Winters; Solano County Water Agency; Solano Irrigation District; Maine Prairie Water District; the UC Davis; Putah Creek Council; and riparian landowners.

4.2 State and Federal Agencies

Throughout the development of the SWRP, the State Water Resources Control Board (SWRCB) was kept informed of Plan development progress through submittal of deliverables, quarterly invoices, and notification of changes in development scope. Coordination with state agencies occurred on an as-needed basis for Plan development and implementation of specific projects.

State agencies will be contacted during future plan updates.

4.3 Community Participation

Community participation was important during SWRP development in that it fostered outreach, participation, and involvement of disadvantaged communities (DACs), local tribes, the general public, and specific audiences such as local ratepayers, developers, locally regulated commercial and industrial stakeholders, and nonprofit organizations.

SWRP development included regular meetings to review Plan content, process, and implementation. These meetings generally followed WRA of Yolo County Technical Committee Meetings.

The Yolo County SWRP serves as the foundation for the development of the SWRP for the Region's IRWM Area which will be integrated into the IRWM Plan upon its completion; the WRA of Yolo County's and Westside-Sacramento RWMG's existing governance structures, as well as the WRA of Yolo County's information distribution process, was utilized for the SWRP. Progress of the SWRP development was presented at Westside-Sacramento RWMG bi-monthly Coordinating Committee Meetings. In this way, resources were optimized and participation was maximized.

Open to the public and all other interested parties, all stakeholder meetings were announced ahead of time. Copies of meeting agendas, meeting summaries, presentations and handouts, and lists of meeting attendees are available on the project website. During these meetings, stakeholders were given the opportunity to discuss and review the content of the SWRP and to review and comment on the draft versions. See Appendix G for submitted comments and their responses.

Section 7 describes the SWRP public outreach and participation process.

4.3.1 Other SWRP Areas

The Yolo County SWRP area is bounded to the north by North Sacramento Valley IRWM Region. In this Region, are two SWRP efforts: The City of Chico SWRP (for the Big Chico Creek and Little Chico Creek Watersheds) and the City of Redding SWRP. Both of these planning areas drain into the Sacramento River; therefore, the development of the Yolo County SWRP was coordinated with the two North Sacramento Valley Region SWRPs when appropriate, and coordination will continue through the implementation of the Yolo County SWRP.

4.4 Plan Implementation

The SWRP for Yolo County will be adopted by the Westside-Sacramento RWMG and incorporated into the Westside-Sacramento IRWM Plan. The 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, including funding strategies, responsibilities, tracking, and participation is already identified and has been in place through the Westside-Sacramento RWMG and WRA of Yolo County.

Furthermore, all projects proposed and implemented as part of the Yolo County SWRP will comply with applicable town, city, and county storm water documents and ordinances, including those identified in Section 1. All projects will also comply with applicable state and federal regulations, including the California Environmental Quality Act (Public Resources Code § 21000 et seq.), the Clean Water Act, the Safe Drinking Water Act, applicable water rights permits and licenses, State Water Board plans and policies, State and Regional Water Board water quality control plans and policies (Wat. Code, § 10562, subd. (b)(5)), NPDES permits, Areas of Special Biological Significance Compliance Plans (State Water Board Resolution 2012-0012), conditional waivers issued by State and/or Regional Water Boards (Wat. Code, § 10562, subds. (b)(5) & (6).), and the Mosquito Abatement and Vector Control District Law (Division 3, Chapter 1 of the Health and Safety Code beginning with Article 2000.) (State Water Board 2015).

Implementation of the SWRP for Yolo County is discussed in greater detail in Section 6: Implementation Strategy and Schedule.

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Section 5: Identification and Prioritization of Projects

5.1 Project Solicitation and Review Process

Projects presented in this section were submitted for consideration to be included in the Yolo SWRP. A total of 28 projects were submitted; see Appendix H for blank project forms. Project review consisted of a two-part process: (1) Initial Project Screening and (2) Project Prioritization and Ranking (for implementation projects only). The following sections describe the project review process and results.

5.1.1 Initial Project Screening

Initial Project Review consists of a sequence of questions to ultimately determine the storm water benefits resulting from implementation. In order for a project to be prioritized, a project must meet all of the following criteria:

1. A completed Westside Sacramento IRWM Plan Project Information Form
2. A completed SWRP Project Addendum
3. Project will result in immediate or downstream benefit to Yolo County
4. Project will result in more than one storm water benefit (as listed in Table 3 of the Storm Water Resource Plan Guidelines)
5. Quantification of at least two storm water benefits (as listed in Table 3 of the Storm Water Resource Plan Guidelines)

If criteria 1 or 2 are not met, the project is considered inactive and removed from the SWRP project list. If criteria 3 is not met, the project is considered a non-storm water project and removed from the SWRP project list. If criteria 4 or 5 are not met, the project is a planning or conceptual project or study and remained on the project list. If criteria 1-5 are met, the storm water project is considered ready for implementation.

All 28 submitted projects met criteria 1-3 and are summarized in the following subsection and shown in Figure 5-1.

5.1.1.1 Agricultural Stormwater Improvements

- **Project Applicant:** University of California, Davis
- **Main Benefit Categories Met:** Water Quality, Water Supply, Flood Management, Community
- **Capital Cost:** $250,000
- **Secured Funding/Source:** To Be Determined
- **Annual Operations and Maintenance Cost/Funding Source:** $10,000/To Be Determined
- **Benefit Metrics Value(s):** Storm water captured/treated (AFY/CFS)
- **Project Summary:** Agricultural runoff currently enters the storm drain system directly. This project would create retention basins and vegetated ditches to collect storm water and irrigation runoff along edges of agricultural fields.

5.1.1.2 Arboretum Waterway Wetland Restoration and Enhancement

- **Project Applicant:** University of California, Davis
- **Main Benefit Categories Met:** Water Quality, Water Supply, Flood Management, Environmental, Community
- **Capital Cost:** $4,000,000
- **Secured Funding/Source:** $3,000,000/UC Davis
- **Annual Operations and Maintenance Cost/Funding Source:** $20,000/General Fund
- **Benefit Metrics Value(s)**: 935 acres of treated storm water, 2,000 gpm of recycled water irrigation
- **Project Summary:** This project will enhance the Arboretum Waterway, which captures runoff from 900 acres of the UC Davis campus, by establishing a wetland area to treat storm water and recycled water prior to discharge to Putah Creek. This project will include establish wetlands, increase storm water retention, slope stabilization, enhance a recreation area for the public, utilize recycled water for irrigation, and create public education opportunities.

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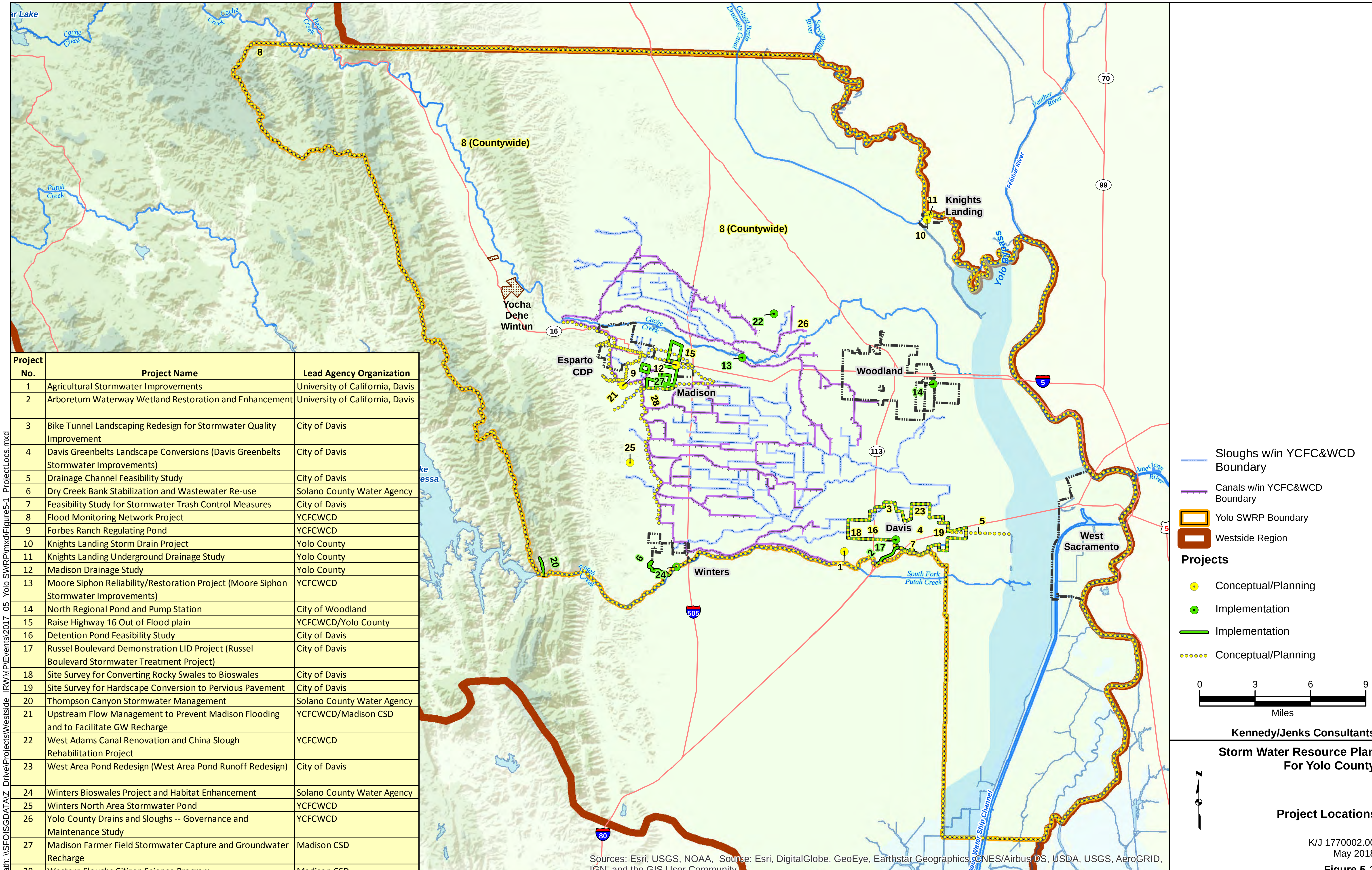

Project No.	Project Name	Lead Agency Organization
1	Agricultural Stormwater Improvements	University of California, Davis
2	Arboretum Waterway Wetland Restoration and Enhancement	University of California, Davis
3	Bike Tunnel Landscaping Redesign for Stormwater Quality Improvement	City of Davis
4	Davis Greenbelts Landscape Conversions (Davis Greenbelts Stormwater Improvements)	City of Davis
5	Drainage Channel Feasibility Study	City of Davis
6	Dry Creek Bank Stabilization and Wastewater Re-use	Solano County Water Agency
7	Feasibility Study for Stormwater Trash Control Measures	City of Davis
8	Flood Monitoring Network Project	YCFCWCD
9	Forbes Ranch Regulating Pond	YCFCWCD
10	Knights Landing Storm Drain Project	Yolo County
11	Knights Landing Underground Drainage Study	Yolo County
12	Madison Drainage Study	Yolo County
13	Moore Siphon Reliability/Restoration Project (Moore Siphon Stormwater Improvements)	YCFCWCD
14	North Regional Pond and Pump Station	City of Woodland
15	Raise Highway 16 Out of Flood plain	YCFCWCD/Yolo County
16	Detention Pond Feasibility Study	City of Davis
17	Russel Boulevard Demonstration LID Project (Russel Boulevard Stormwater Treatment Project)	City of Davis
18	Site Survey for Converting Rocky Swales to Bioswales	City of Davis
19	Site Survey for Hardscape Conversion to Pervious Pavement	City of Davis
20	Thompson Canyon Stormwater Management	Solano County Water Agency
21	Upstream Flow Management to Prevent Madison Flooding and to Facilitate GW Recharge	YCFCWCD/Madison CSD
22	West Adams Canal Renovation and China Slough Rehabilitation Project	YCFCWCD
23	West Area Pond Redesign (West Area Pond Runoff Redesign)	City of Davis
24	Winters Bioswales Project and Habitat Enhancement	Solano County Water Agency
25	Winters North Area Stormwater Pond	YCFCWCD
26	Yolo County Drains and Sloughs -- Governance and Maintenance Study	YCFCWCD
27	Madison Farmer Field Stormwater Capture and Groundwater Recharge	Madison CSD
28	Western Sloughs Citizen Science Program	Madison CSD

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5.1.1.3 Bike Tunnel Landscaping Redesign for Stormwater Quality Improvement

- **Project Applicant:** City of Davis
- **Main Benefit Categories Met:** Water Quality, Flood Management, Environmental, Community
- **Capital Cost:** $40,000
- **Secured Funding/Source:** None
- **Annual Operations and Maintenance Cost/Funding Source:** $0 Additional/City of Davis Budget
- **Benefit Metrics Value(s):** NA
- **Project Summary**: Redesign the current drainage and landscaping near greenbelt bike tunnels to prevent flooding from storm water. Assess the top highly-trafficked tunnels with drainage issues within the greenbelt system (sites identified by staff include the North Davis greenbelt sections of Anderson and North Star as well Mace Ranch Park by Explore it and the tunnel under Loyola). Improved drainage would include re-landscaping the areas surrounding these tunnels to prevent flood events and improve storm water quality discharges through the use of different storm water low impact design methods through infiltration, transpiration and evaporation. Each site could showcase a different method; signage near the tunnels would illustrate the project and highlight elements of the project design.

5.1.1.4 Davis Greenbelts Landscape Conversions

- **Project Applicant:** City of Davis
- **Main Benefit Categories Met:** Water Quality, Environmental, Community
- **Capital Cost:** $234,849/acre converted
- **Secured Funding/Source:** None
- **Annual Operations and Maintenance Cost/Funding Source:** To Be Determined
- **Benefit Metrics Value(s):** Increased habitat-1 acre for each site converted, potential to reach hundreds of residents per year with information on storm water quality and water conservation.
- **Project Summary**: One of the greatest assets to the Davis park system is the network of more than 60 miles of Green Belts with bike trails that connect parks and neighborhoods throughout the City. Each belt is typically between 100 to 200 feet across with an 8-foot bike path meandering through the middle. Most of the landscape consists of irrigated turf and shade trees. Large open turf areas are greatly appreciated as multi-use event areas for local neighbors, but a majority of the space is mostly utilized by the public as aesthetic while passing through on the bike path. It is these spaces that are great candidates to convert existing turf to a low water use, drought tolerant landscape with interpretive learning opportunities to show the general public ways of converting their landscapes at home.

5.1.1.5 Drainage Channel Feasibility Study

- **Project Applicant:** City of Davis
- **Main Benefit Categories Met:** Water Quality, Flood Management
- **Capital Cost:** $80,000
- **Secured Funding/Source:** None
- **Annual Operations and Maintenance Cost/Funding Source:** NA
- **Benefit Metrics Value(s):** NA
- **Project Summary:** Looking to study feasibility to enhance the five separate storm drain conveyance channels to improve evapotranspiration through design improvements. This feasibility study would provide specific ways to improve the design of the existing facilities to improve water quality for the discharges that occur from each channel. The facilities are located Citywide. The study may yield that only one channel is worthy of modification. In particular, the City would like to study the El Macero Drainage Channel in southeast Davis as it is believed to be the channel with that would benefit the most from design improvements. A map can be provided to aid in located each of these drainage channels. If project is developed an educational component can be added.

5.1.1.6 Dry Creek Bank Stabilization

- **Project Applicant:** Solano County Water Agency
- **Main Benefit Categories Met:** Environmental, Community
- **Capital Cost:** $250,000

- **Secured Funding/Source:** Lower Putah Creek Coordinating Committee Vegetation Management (Proposed)
- **Annual Operations and Maintenance Cost/Funding Source:** $5,000/ Lower Putah Creek Coordinating Committee
- **Benefit Metrics Value(s):** One to two acres of new riparian vegetation, number of enrolled landowners, reduce sediment loading along two miles of eroding banks stabilized by vegetation
- **Project Summary:** Dry Creek is a significant wildlife migration corridor that forms the western boundary of Winters with urban property to the north and east and agricultural land to the south and west. It is a deeply incised gully that is actively eroding both urban and agricultural properties. The City of Winters wastewater treatment plant is adjacent to Dry Creek at the northeastern corner of the city and could provide treated wastewater for bioengineering projects to enhance both stability of the banks and wildlife habitat along two miles of creek channel.

5.1.1.7 Feasibility Study of Stormwater: Trash Control Measures

- **Project Applicant:** City of Davis
- **Main Benefit Categories Met:** Water Quality, Flood Management, Environmental
- **Capital Cost:** $150,000
- **Secured Funding/Source:** None
- **Annual Operations and Maintenance Cost/Funding Source:** NA
- **Benefit Metrics Value(s):** NA
- **Project Summary:** Feasibility study to assess options for storm water trash control measures. This study will assess the best method(s) to help the City meet mandatory requirements for trash screening to prevent trash from entering waterways. One particular area of concern is Channel A. An option for this area is to install trash racks/debris cages in the Wildhorse Basin to address issues with trash flowing from the area directly into Channel A. There is currently no barrier between the storm water from the basin and the channel. This study would provide an assessment of potential options to comply with the trash amendment requirements of the Small MS4 permit.

5.1.1.8 Flood Monitoring Network Project

- **Project Applicant:** YCFC&WCD
- **Main Benefit Categories Met:** Water Supply – Water Supply Reliability, Flood Management
- **Capital Cost:** $350,000
- **Secured Funding/Source:** To Be Determined
- **Annual Operations and Maintenance Cost/Funding Source:** To Be Determined
- **Benefit Metrics Value(s):** Canal/slough conveyance capacity for diversion of storm water runoff into canals; increased groundwater infiltration through YCFC&WCD canals and nearby sloughs.
- **Project Summary:** This project will install four (4) elevation (or stage) staff gages in sloughs that interact with YCFC&WCD canals as well as nine (9) precipitation gages. The goal of the project is to optimize the YCFC&WCD's conveyance system through monitoring flow and precipitation. These gages will be incorporated into the YCFC&WCD's existing SCADA system. The stage gages will be used to monitor stage in the slough system and will assist YCFC&WCD's information management and decision-making process for storm conveyance through the canal and slough systems. The precipitation gages will provide data for Yolo-County agencies to distinguish the type and quantity of rainfall events, providing information on where an increase in slough capacity is needed.

5.1.1.9 Forbes Ranch Regulating Pond

- **Project Applicant:** YCFC&WCD
- **Main Benefit Categories Met:** Water Supply, Flood Management, Community
- **Capital Cost:** $700,000
- **Secured Funding/Source:** None
- **Annual Operations and Maintenance Cost/Funding Source:** $50,000/District Water Users
- **Benefit Metrics Value(s):** NA
- **Project Summary:** Develop and construct a 200 acre-feet regulating pond to reduce drainage and flood waters through the town of Madison and District canal system. Divert storm water flows to the pond through the existing conveyance. The regulating pond would provide storm water retention during the winter and would allow for groundwater

recharge in the spring and summer when capacity and water is available. The regulating pond would provide water quality benefits by allowing the sediments in the runoff to settle and lessening the transfer of pollutants and chemicals downstream. The surrounding area would have native vegetation that would promote benefits for wildlife habitat, and the property would allow for groups to visit and learn about the multi-functional project. Similar to the District's Chapman Reservoir, we would install automated gates and monitoring devices at the regulating pond that would be connected to the District's SCADA system for real-time management.

5.1.1.10 Knights Landing Storm Drain Project

- **Project Applicant:** Yolo County
- **Main Benefit Categories Met:** Water Quality, Flood Management
- **Capital Cost:** $100,000
- **Secured Funding/Source:** To Be Determined
- **Annual Operations and Maintenance Cost/Funding Source:** To Be Determined
- **Benefit Metrics Value(s):** To Be Determined
- **Project Summary:** Design and construct a new storm drain or culvert in the vicinity of 4th and Railroad streets in the community of Knights Landing. KL has historically experience standing water (localized flooding) in the northern portions of town that can be as deep as 2 feet in wet years. The new storm drainage would convey storm water to the County's existing drainage system on the east side of Railroad Street. Design and construction are proposed to be completed by Public Works.

5.1.1.11 Knights Landing Underground Drainage Study

- **Project Applicant:** Yolo County
- **Main Benefit Categories Met:** Water Quality, Flood Management
- **Capital Cost:** $100,000
- **Secured Funding/Source:** None
- **Annual Operations and Maintenance Cost/Funding Source:** To Be Determined
- **Benefit Metrics Value(s):** NA
- **Project Summary:** This project would model new underground drainage facilities for the entire Town of Knights Landing to determine location(s) for outfall to the Sacramento River or Ridge Cut Slough. Preliminarily it is estimated that the underground drainage facilities would be sized for 30-50 cfs of storm flows and the system outfall would need to be sized accordingly to prevent backup of the system. Outfall locations would also need to be evaluated to determine if the downstream capacity would be sufficient to convey this additional flow during storm events. LID strategies will be used to ensure discharge water quality does not impact the Sacramento River or Ridge Cut Slough water quality.

5.1.1.12 Madison Drainage Study

- **Project Applicant:** Yolo County
- **Main Benefit Categories Met:** Water Quality, Flood Management
- **Capital Cost:** $100,000
- **Secured Funding/Source:** To Be Determined
- **Annual Operations and Maintenance Cost/Funding Source:** To Be Determined
- **Benefit Metrics Value(s):** To Be Determined
- **Project Summary:** This project would model new underground drainage facilities for the entire Town of Madison to determine location(s) for outfall (possibly Cache Creek, the South Fork Willow Slough or Cottonwood Slough). The system outfall would need to be sized accordingly to prevent backup of the system. Outfall locations would also need to be evaluated to determine if the downstream capacity would be sufficient to convey this additional flow during storm events. LID strategies will be used to ensure discharge water quality does not negatively impact downstream water quality.

5.1.1.13 Moore Siphon Reliability/Restoration Project

- **Project Applicant:** YCFC&WCD
- **Main Benefit Categories Met:** Water Supply, Flood Management
- **Capital Cost:** $1,000,000
- **Secured Funding/Source:** District Annual Budget
- **Annual Operations and Maintenance Cost/Funding Source:** $20,000/District Annual Budget

- **Benefit Metrics Value(s):** Approximately 1 TAF/y reliable water supply, 15,000 acres of cropland stays in production, 200 AF/day of water supply for agriculture May-October (36 TAF/y)
- **Project Summary:** The Moore Siphon conveys irrigation water from the north side of Cache Creek (Alder Canal) to the south side (Moore Canal). Through the Moore Siphon, YCFC&WCD delivers water to approximately 15,000 acres of cropland (12% of its irrigation service area). This water also makes a significant recharge contribution to the City of Woodland's groundwater supply. Due to the age and exposure of the 66-inch corrugated metal pipe, as well as Cache Creek erosion issues at both ends of the siphon, the siphon well need to be replaced in the near future.

5.1.1.14 North Regional Pond and Pump Station

- **Project Applicant:** City of Woodland
- **Main Benefit Categories Met:** Water Quality, Water Supply, Flood Management, Environmental
- **Capital Cost:** $8,000,000
- **Secured Funding/Source:** Funded for 100% Construction Costs/Development Fees
- **Annual Operations and Maintenance Cost /Funding Source):** $100,000/Landscape/Lighting District Fund
- **Benefit Metrics Value(s):** Up to 120 cfs treated storm water, reliable 500 ac-ft of water during the non-rainy season, 75-acre pond vs. 75 acres of barren land
- **Project Summary:** The project involves the design and construction of an approximately 75-acre sedimentation pond and a pump station able to eventually accommodate a 120-cfs design flow. Project re-purposes an existing City evaporation pond that is no longer in use for any purpose. Currently the pond only receives nearby runoff.

  This project will add the NR Pond hydraulically into the City's storm drainage network and include:

  - Low flow training wall and inlet pipes from the Gibson Channel to the NR Pond
  - High flow weir from South Canal to the NR Pond
  - Outlet pipes from NR Pond to the South Canal
  - Pump station at the downstream terminus of the South Canal
  - Force main and outfall from the pump station to the outfall channel

5.1.1.15 Raise Highway 16 Out of Flood Plain

- **Project Applicant:** Yolo County, Town of Madison, Yocha Dehe Wintun Nation, California Department of Transportation
- **Main Benefit Categories Met:** Water Quality, Flood Management, Environmental
- **Capital Cost:** To Be Determined
- **Secured Funding/Source:** $1,200,000/County Funds
- **Annual Operations and Maintenance Cost/Funding Source:** To Be Determined
- **Benefit Metrics Value(s):** NA
- **Project Summary:** This project was initially proposed by Caltrans as flooding of Highway 16 is a chronic problem. The project was not constructed because of concerns of some farmers about grades at farm road crossings. Raising Highway 16 creates a barrier that could be used to store storm water north of the highway in detention basins/recharge ponds. Increasing the capacity of Willow Slough south of Highway 16 west of Madison is needed so that flows can be conveyed to the detention basins. Willow Slough is the source of the majority of flooding in Madison. Cottonwood Slough contributes to occasional flooding (last time was 1996) in Madison. This project could be coordinated with the Madison Canals project as other upstream diversions could benefit this project and/or the planned detention basins could be coordinated.

5.1.1.16 Detention Pond Feasibility Study

- **Project Applicant:** City of Davis
- **Main Benefit Categories Met:** Water Quality, Flood Management
- **Capital Cost:** $100,000
- **Secured Funding/Source:** None
- **Annual Operations and Maintenance Cost/Funding Source:** $0 Additional/City of Davis Budget
- **Benefit Metrics Value(s):** NA
- **Project Summary:** Looking to study feasibility for design enhancements for the seven separate storm

drain detention ponds to improve evapotranspiration and water quality in the City's discharge. This feasibility study would provide specific ways to improve the design of the existing facilities to improve water quality for the discharges that occur from each facility. The facilities are located Citywide, but all of the ponds are located north of I 80 in the northern two thirds of the City. The study may yield that only one pond is worthy of modification. In particular, the City would like to study the Core Area Pond in central Davis as it believed to be the pond that receives the most pollutants from its drainage shed. A map can be provided to aid in located each of these ponds. If project is developed an educational component can be added.

5.1.1.17 Russell Boulevard Demonstration LID Project

- **Project Applicant:** City of Davis
- **Main Benefit Categories Met:** Water Quality, Flood Management, Environmental, Community
- **Capital Cost:** $667,200
- **Secured Funding/Source:** Yes
- **Annual Operations and Maintenance Cost/Funding Source:** $0 Additional/City of Davis Budget
- **Benefit Metrics Value(s):** Treat 2,355 cu. ft. per day, up to 12,300 cu. ft. of infiltration per day, 6,225 sq. ft. habitat, 7 trees, 500-1000 volunteer hrs/yr
- **Project Summary:** The project is to be located in front of City Hall (already proposed and working its way through the City's Parks and Community Services Department) along Russell Boulevard. Russell Boulevard is one of the City's prominent east-west arterials. The project is to create a vegetated swale to treat storm water runoff on the north side of the roadway. The surface area it will treat is 43,470 square feet. It is proposed to treat drainage prior to discharge to the City's storm drain system consistent with the standards of Section E.12 of the State's Small MS4 Phase II General Permit (Permit).

5.1.1.18 Site Survey for Converting Rocky Swales to Bioswales

- **Project Applicant:** City of Davis
- **Main Benefit Categories Met:** Water Quality, Flood Management, Environmental, Community
- **Capital Cost:** $40,000
- **Secured Funding/Source:** None
- **Annual Operations and Maintenance Cost/Funding Source:** $0 Additional/City of Davis Budget
- **Benefit Metrics Value(s):** NA
- **Project Summary:** In public greenbelts and parks, convert existing rocky drainage swales into bioswales to provide environmental benefits. Convert drainage in areas that currently use rocky swales, such as in Mace Ranch Park and the housing development behind Montgomery Elementary in South Davis, to bioswales. Converting the existing rocky swales to vegetative bioswales will encourage microhabitats, beneficial insects, infiltration, transpiration, and evaporation to better showcase storm water retention techniques. Other possible sites include Evergreen Pond and North Star Park.

5.1.1.19 Site Survey for Hardscape Conversion to Pervious Pavement

- **Project Applicant:** City of Davis
- **Main Benefit Categories Met:** Water Quality, Water Supply, Flood Management, Environmental, Community
- **Capital Cost:** $40,000
- **Secured Funding/Source:** None
- **Annual Operations and Maintenance Cost/Funding Source:** $0 Additional/City of Davis Budget
- **Benefit Metrics Value(s):** NA
- **Project Summary:** Survey public parking lots that currently have impervious surfacing to assess the practicality of converting these locations to pervious pavement when they are in need of resurfacing, maintenance or redesign. Portions of the pathways near the sites could potentially highlight permeable pavers in addition to the parking lots. Projects could be planned with improvements to incorporate bioswales, low water use plants, and other low-impact design measures into any landscape changes at the site. The projects would include signage on storm water techniques implemented and information about water quality.

5.1.1.20 Thompson Canyon Stormwater Management

- **Project Applicant:** Solano County Water Agency

- **Main Benefit Categories Met:** Water Quality, Environmental, Community
- **Capital Cost:** $500,000
- **Secured Funding/Source:** None
- **Annual Operations and Maintenance Cost/Funding Source:** $10,000/ Thompson Canyon Homeowner's Association
- **Benefit Metrics Value(s):** One mile of restored creek channel and access road, lack of interruption of drinking water processing, increased fish populations measured by average time to catch a fish
- **Project Summary:** Thompson Canyon is the first tributary from the north to Lower Putah Creek downstream of Monticello Dam. It was the main source of sediment loading into Lower Putah Creek in the highest storm runoff event in the history of the Solano Project (1983). Even in average rainfall years, sediment from Thompson Canyon has buried the best trout spawning site in the Interdam Reach. The lower mile of the canyon has a legacy dirt road that contributed to catastrophic hillslope failure. The road has thirty stream crossings without properly sized culverts or rock fords and is not properly outsloped for drainage. This project would repair the stream crossings, properly outslope the road and apply gravel surface. It would also install rock vanes for grade control in the channel.

5.1.1.21 Upstream Flow Management to Prevent Madison Flooding and to Facilitate GW Recharge

- **Project Applicant:** YCFC&WCD/Madison CSD
- **Main Benefit Categories Met:** Water Quality, Flood Management, Environmental
- **Capital Cost:** To Be Determined
- **Secured Funding/Source:** None
- **Annual Operations and Maintenance Cost/Funding Source:** To Be Determined
- **Benefit Metrics Value(s):** NA
- **Project Summary:** The District proposes to manage high flows from Lamb Valley, Cottonwood and S. Fork Willow Sloughs using the existing canal system as well as other means such as upstream check dams. During storm events, Willow Slough floods the Town of Madison. The Canal system can potentially be used to convey water away from the Town of Madison and reduce flood levels while also managing peak flows through use of check dams, particularly in Lamb Valley Slough. Flow and water level monitoring could serve several purposes. GW recharge can be accomplished through canal bottoms and potential recharge/detention basins. P. 29 and 30 of the 2012 FIS describe some of the upstream channel capacity limitations and a review of FIRM maps shows several points of intersection between the sloughs and canals to be explored. This project can be coordinated with Raising Highway 16 project.

5.1.1.22 West Adams Canal Renovation and China Slough Rehabilitation Project

- **Project Applicant:** YCFC&WCD
- **Main Benefit Categories Met:** Water Supply, Flood Management, Environmental
- **Capital Cost:** $16,000,000
- **Secured Funding/Source:** None
- **Annual Operations and Maintenance Cost/Funding Source:** Unknown/Beneficiaries under an annexation process with YCFC&WCD
- **Benefit Metrics Value(s):** 10,000 AF increased surface water, 10,000 AF decreased groundwater use
- **Project Summary:** Enlargement and improvement of the Yolo County Flood Control & Water Conservation District's (District) West Adams, East Adams, and Acacia Canal system, and rehabilitation and improvement of China Slough (a natural storm drainage channel). The District's canal system would need to be modernized to allow for a "demand" system and to ensure no spills. China Slough would need to be cleaned, an operating road constructed, and installation of about eight check structures. Improvements to the canals and slough would be implemented to convey 10,000 acre-feet of surface water per year through China Slough to farmers in the Yolo-Zamora region (~4,200 acres).

5.1.1.23 West Area Pond Redesign

- **Project Applicant:** City of Davis
- **Main Benefit Categories Met:** Water Quality, Water Supply, Flood Management, Environmental
- **Capital Cost:** $100,000
- **Secured Funding/Source:** None

- **Annual Operations and Maintenance Cost/Funding Source:** NA
- **Benefit Metrics Value(s):** If the Project is implemented, 26.4 acres of open space that will be enhanced by aquatic wildlife and riparian habitat, 3.8 million gallons of treated storm water per year.
- **Project Summary:** Redesign the West Area Pond (detention basin) to utilize agricultural summer flows to enhance aquatic wildlife habitat and improve water quality. This proposal involves redirecting existing agricultural runoff through the Stonegate drainage pond and pumping it into the West Area Pond. This would enhance aquatic habitat while improving any water discharges through retention, enhancing opportunities for infiltration, transpiration and evaporation.

5.1.1.24 Winters Bioswales Project and Habitat Enhancement

- **Project Applicant:** Solano County Water Agency
- **Main Benefit Categories Met:** Water Quality, Environmental, Community
- **Capital Cost:** $195,328
- **Secured Funding/Source:** $10,000/Solano County Water Agency; $17,664.90/Individuals
- **Annual Operations and Maintenance Cost/Funding Source:** $5,000/Solano County Water Agency+Volunteers
- **Benefit Metrics Value(s):** 5 acres of habitat restored, 3 community tours, 1 classroom component
- **Project Summary:** Storm water from the town of Winters drains residential areas, business districts, and undeveloped lands into a culvert system that delivers contaminated runoff to Putah Creek and one of its major tributaries, Dry Creek. Eighteen discharge points exist, eight of which are connected directly to Putah Creek, the remaining to Dry Creek. Three main culvert delivery sites occur within the Winters Putah Creek Nature Park (WPCNP), draining approximately 200 acres of impervious lands. The storm water network drains streets, parking lots, businesses and suburban lots, over-irrigated landscapes and disturbed lands, carrying sediment, petroleum products, fertilizers, pesticides, and bacteria into Putah Creek.

  By redirecting this storm water runoff onto newly constructed floodplains of Putah Creek, water quality contaminants can be decreased through the breakdown action of sunlight, soil, plant roots and microorganisms. Moreover, the redirected water can assist in rehydrating portions of the floodplain during periods of drought and enhance riparian plant growth for the benefit of corridor wildlife. Each culvert outlet, along with the receiving floodplain landscape requires novel designs to redirect, capture, and infiltrate storm water, all involving site-specific earthworks, specialized soil treatments, appropriate vegetation, monitoring, and post-installation management.

5.1.1.25 Winters North Area Stormwater Pond

- **Project Applicant:** YCFC&WCD
- **Main Benefit Categories Met:** Water Quality, Water Supply, Flood Management, Environmental, Community
- **Capital Cost:** To Be Determined
- **Secured Funding/Source:** None
- **Annual Operations and Maintenance Cost/Funding Source:** To Be Determined
- **Benefit Metrics Value(s):** NA
- **Project Summary:** Develop and construct a 5,000 acre-feet storm water retention pond in the north area of Winters to reduce drainage and flood waters from the Chickahominy Slough. The retention pond would also be used for groundwater recharge in times when the capacity and water was available. The retention pond would provide water quality benefits by allowing the sediments in the runoff to settle and lessening the transfer of pollutants and chemicals downstream. The surrounding area would have native vegetation that would promote benefits for wildlife habitat, and the property would allow for groups to visit and learn about the multi-beneficial, multi-agency partnership. Similar to the District's Chapman Reservoir, the project would install automated gates and monitoring devices at the retention pond that would be connected to the District's SCADA system for real-time management.

  This project would offer an opportunity to measure rainfall-runoff relationships and the effectiveness of this size of retention pond in attenuating flood peaks and retaining sediment. Automation and SCADA control would allow for real-time decision making in pond operation and would allow pond stage and outlet flows to be tracked and controlled during and following storm events. Additionally, given the right conditions and appropriate storage in the pond, groundwater percolation can be monitored and tracked to ensure groundwater recharge in the region. If successful, a similar pond could be constructed and installed to capture storm flows in the low-lying areas of Yolo County.

5.1.1.26 Yolo County Drains and Sloughs – Governance and Maintenance Study

- **Project Applicant:** YCFC&WCD
- **Main Benefit Categories Met:** Water Supply, Flood Management
- **Capital Cost:** $150,000
- **Secured Funding/Source:** None
- **Annual Operations and Maintenance Cost/Funding Source:** To Be Determined
- **Benefit Metrics Value(s):** NA
- **Project Summary:** Plan that will identify governing bodies and maintenance responsibilities involved in the County's drains, canals, and sloughs. The District and County will work together to develop a governance and maintenance study that will assist in providing effective rural storm water management responsibilities based on the defined governing bodies. Plan/investigation will initiate a legitimate storm water management program in Yolo County.

5.1.1.27 Madison Farmer Field Stormwater Capture and Groundwater Recharge

- **Project Applicant:** Madison CSD
- **Main Benefit Categories Met:** Water Quality, Water Supply, Flood Management**,** Community
- **Capital Cost:** $400,000
- **Secured Funding/Source:** To Be Determined
- **Annual Operations and Maintenance Cost/Funding Source:** NA
- **Benefit Metrics Value(s):** 300 AF - 1,100 AF per storm event (farmer fields - detention basin)
- **Project Summary:** Modify farmer fields around Madison, specifically those next to Highway 16 and those that will capture upstream flows. The two options considered include 1) 1,200 acres of farmer field modification for rainfall capture (8"-berm) and 2) modification of a farmer field near Cache Creek (maybe half of APN 049-060-017) for rainfall and storm water runoff capture a 3'- high storm water detention basin. This project will require farmer participation and advanced planning for field modification and will depend on the storm intensity. The first option will only capture rainfall and the second option will capture rainfall and allow runoff to be collected into the detention basin. The second option will require more modification to the property, additional infrastructure for channeling runoff into the basin, and a pump if the water needs to be drained from the basin.

5.1.1.28 Western Yolo Sloughs Citizen Science Program

- **Project Applicant:** Madison CSD
- **Main Benefit Categories Met:** Flood Management, Community
- **Capital Cost:** To Be Determined
- **Secured Funding/Source:** To Be Determined
- **Annual Operations and Maintenance Cost/Funding Source:** To Be Determined
- **Benefit Metrics Value(s):** TBD

Project Summary: Sloughs surrounding the Madison area are known to cause regular flooding in Madison and beyond. Namely, Cottonwood Slough, Lamb Valley Slough, the South Fork Willow Slough and the Madison Drain have been identified as sources of flooding in

Madison in various studies and reports. It seems likely that upstream mitigation to remove water before the sloughs reach Madison and Esparto, and management of the sloughs to keep them free of debris could help in alleviating flooding in the area. However, none of these channels are monitored, therefore, it is unknown what capacity these sloughs have, when that capacity is reached (during or after a storm), or what type of mitigation would be most fitting for each slough. Additionally, it is not known if the Winters Canal is also full when sloughs are full, or if it may have capacity that could be used to alleviate the sloughs when they are over flowing. The Madison CSD with its partners will develop a citizen science program where Madison residents and residents from the nearby areas will visit sloughs and canals that carry water in and around Madison following rain events. The program members will record whether they see water flowing in the sloughs and canals at previously determined locations, and record observations such as whether the channels are successfully carrying the flows, appear to be obstructed, or are overflowing. The information will be compiled in an easy to use format so that members can easily share the information with Madison CSD and others. The information will initially be used until a flow monitoring network can be developed in the sloughs, and potentially beyond. The goal is to gain a better understanding of the slough flow patterns and information that can be used to plan for flood mitigation in Madison, while also engaging and educating the community.

5.2 SWRP Objectives and Benefits

Table 5-1 and Table 5-2 summarize how the 28 projects submitted to the Yolo SWRP meet the SWRP Objectives and Benefit Categories presented in Section 1. Table 5-1, which compares the submitted projects against the SWRP objectives, provides a preliminary check to make sure that the projects submitted to the Plan are compatible with Yolo County SWRP and the Westside Integrated Regional Water Management Plan, which includes Yolo County.

In total, the submitted projects met all objective categories and 24 of the 27 SWRP objectives. Individually, projects met 1-6 out of 11 objective categories and 1-8 out of 27 SWRP objectives.

Table 5-2 provides a preliminary check to make sure that the submitted projects will result in multiple benefits related storm water and/or dry weather runoff within Yolo County. As stated in the previous subsection, projects submitted for implementation must result in at least 2 storm water benefits, in addition to providing quantification for at least 2 benefits. Eight projects identified at least one benefit in each benefit category and each identified 2-13 benefits. In total, the submitted projects identified benefits in all benefit categories (i.e., water supply, water quality, flood management, environmental, and community).

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Table 5-1: Yolo SWRP Objectives Matrix

Project Number	Lead Agency Organization	Project Title	Water Quality	Increase filtration and/or treatment of runoff	Nonpoint source pollution control	Reestablished natural water drainage and treatment	Water Supply	Water supply reliability	Water conservation	Conjunctive use	Flood Management	Decreased flood risk by reducing runoff rate and/or volume	Reduced sanitary sewer overflows	Environmental	Environmental and habitat protection and improvement	Wetland enhancement/creation	Riparian enhancement	Instream flow improvement	Increased urban green space	Reduced energy use, greenhouse gas emissions, or provides a carbon sink	Reestablishment of the natural hydrograph	Water temperature improvements	Community	Enhanced and/or created recreational and public use areas	Community involvement	Employment opportunities provided	Public education
1	University of California, Davis	Agricultural Stormwater Improvements		x	x	x		x	x			x									x			x	x	x	x
2	University of California, Davis	Arboretum Waterway Wetland Restoration and Enhancement		x	x	x		x	x			x			x					x	x			x	x	x	x
3	City of Davis	Bike Tunnel Landscaping Redesign for Stormwater Quality Improvement		x					x			x			x												x
4	City of Davis	Davis Greenbelts Landscape Conversions		x		x			x	x					x									x			x
5	City of Davis	Drainage Channel Feasibility Study		x	x	x						x															
6	Solano County Water Agency	Dry Creek Bank Stabilization and Wastewater Re-use							x						x				x	x					x		x
7	City of Davis	Feasibility Study for Stormwater Trash Control Measures		x								x			x												
8	YCFC&WCD	Flood Monitoring Network Project		x				x				x															
9	YCFC&WCD	Forbes Ranch Regulating Pond		x		x		x		x		x			x												x
10	Yolo County	Knights Landing Storm Drain Project		x	x							x	x														
11	Yolo County	Knights Landing Underground Drainage Study		x	x							x	x														
12	YCFC&WCD/Madison CSD	Madison Drainage Study		x	x							x	x														
13	YCFC&WCD	Moore Siphon Reliability/ Restoration Project						x	x	x		x															
14	City of Woodland	North Regional Pond and Pump Station		x	x			x				x			x				x					x			
15	Yolo County	Raise Highway 16 Out of Flood Plain						x	x	x		x								x				x			
16	City of Davis	Retention Pond Feasibility Study		x	x	x						x															
17	City of Davis	Russell Boulevard Demonstration LID Project		x		x			x			x			x				x					x	x	x	x
18	City of Davis	Site Survey for Converting Rocky Swales to Bioswales		x					x			x			x												x
19	City of Davis	Site Survey for Hardscape Conversion to Pervious Pavement		x								x			x						x						x
20	Solano County Water Agency	Thompson Canyon Stormwater Management		x	x	x		x	x						x									x			
21	YCFC&WCD/Madison CSD	Upstream Flow Management to Prevent Madison Flooding and to Facilitate GW Recharge		x						x		x								x				x			
22	YCFC&WCD	West Adams Canal Renovation and China Slough Rehabilitation Project						x		x		x								x							
23	City of Davis	West Area Pond Redesign		x	x			x				x			x												
24	Solano County Water Agency	Winters Bioswales Project and Habitat Enhancement		x	x	x									x							x		x			x
25	YCFC&WCD	Winters North Area Stormwater Pond		x		x		x		x		x			x												x
26	YCFC&WCD	Yolo County Drains and Sloughs – Governance and Maintenance Study						x		x		x															
27	Madison CSD	Madison Farmer Field Stormwater Capture and Groundwater Recharge		x		x		x	x			x													x		
28	Madison CSD	Western Yolo Sloughs Citizen Science Program										x												x		x	
		Total		22	11	11		13	11	8		24	3		14	0	0	0	3	5	3	1		10	5	4	11

Table 5-2: Yolo SWRP Benefits Matrix

Project Number	Lead Agency Organization	Project Title	Education and Awareness Focus	1. Provide and promote use of educational curricula for K-12 students	2. Provide educational information to encourage stewardship by public	Habitat Focus	3. Restore native vegetation/form/function along riparian/aquatic corridors	4. Quantify the extent of suitable life-cycle habitat for Threatened/Endangered/Imperiled native fish	5. Prioritize/plan/schedule improvements to suitable life-cycle habitat for T/E/I native fish	6. Increase availability of suitable life-cycle habitat for Threatened/Endangered/Imperiled native fish identified by Objective 5.	Invasive Species Focus	7. Prevent colonization by quagga mussels/zebra mussels and eliminate/prevent spread of New Zealand mud snails	8. Establish invasive plant management plan	9. Implement invasive plant management plan	Infrastructure Focus	10. Create asset management plan for key water management infrastructure	Reasonable Use Focus	11. Meet 20% by 2020 conservation targets	12. Increase adoption of agricultural Best Management Practices	Recreation Focus	13. Maintain and increase water-related recreational opportunities
1	University of California, Davis	Agricultural Stormwater Improvements																			
2	University of California, Davis	Arboretum Waterway Wetland Restoration and Enhancement					x														
3	City of Davis	Bike Tunnel Landscaping Redesign for Stormwater Quality Improvement			x																
4	City of Davis	Davis Greenbelts Landscape Conversions			x											x		x			x
5	City of Davis	Drainage Channel Feasibility Study								x											
6	Solano County Water Agency	Dry Creek Bank Stabilization and Wastewater Re-use					x														
7	City of Davis	Feasibility Study for Stormwater Trash Control Measures					x			x											
8	YCFC&WCD	Flood Monitoring Network Project																			
9	YCFC&WCD	Forbes Ranch Regulating Pond			x																
10	Yolo County	Knights Landing Storm Drain Project																			
11	Yolo County/	Knights Landing Underground Drainage Study																			
12	YCFC&WCD with Madison CSD	Madison Drainage Study																			
13	YCFC&WCD	Moore Siphon Reliability/ Restoration Project								x		x		x		x			x		
14	City of Woodland	North Regional Pond and Pump Station														x					x
15	Yolo County	Raise Highway 16 Out of Flood Plain																			
16	City of Davis	Retention Pond Feasibility Study								x											
17	City of Davis	Russell Boulevard Demonstration LID Project								x											
18	City of Davis	Site Survey for Converting Rocky Swales to Bioswales			x																
19	City of Davis	Site Survey for Hardscape Conversion to Pervious Pavement			x																
20	Solano County Water Agency	Thompson Canyon Stormwater Management					x														
21	YCFC&WCD with Madison CSD	Upstream Flow Management to Prevent Madison Flooding and to Facilitate GW Recharge																			
22	YCFC&WCD	West Adams Canal Renovation and China Slough Rehabilitation Project																			
23	City of Davis	West Area Pond Redesign					x			x											
24	Solano County Water Agency	Winters Bioswales Project and Habitat Enhancement		x			x														
25	YCFC&WCD	Winters North Area Stormwater Pond			x																
26	YCFC&WCD	Yolo County Drains and Sloughs -- Governance and Maintenance Study														x					
27	Madison CSD	Madison Farmer Field Stormwater Capture and Groundwater Recharge			x																
28	Madison CSD	Citizen Science Program			x																
		Total		1	8		6	0	0	6		1	0	1		4		1	1		2

Project Number	Lead Agency Organization	Project Title	Risk Management Focus	14. Provide adequate flood protection	15. Manage watershed activities to reduce large erosion events	Understand Watershed Function Focus	16. Monitor state/federal Delta programs	17. Monitor conditions/improve understanding to support sustainable groundwater basins	18. Maintain/enhance watershed and natural resource monitoring network and information sharing	Water Quality Focus	19. Address pollutant sources to meet runoff standards and Total Maximum Daily Load (TMDL) targets	20. Minimize accidental wastewater spillage/discharges	21. Reduce public health risks by reducing contaminants in drinking water sources	22. Meet all drinking water and wastewater discharge standards	Water Supply Focus	23. Provide 100% reliability of municipal and industrial water supplies	24. Provide agricultural water supplies to support a robust agricultural industry	Storm Water Focus	25. Convert paved and/or impervious areas and increase tree canopy and vegetation, reducing urban heat island effects.	26. Optimize the rural storm water conveyance system to drain and retain storm water flows as necessary. Provide proper rural drainage and keep conveyance systems clear of debris to minimize county road flooding during storm events.	27. Enable proper rural retention and modify rural landscape to maximize groundwater recharge of excess storm water.
1	University of California, Davis	Agricultural Stormwater Improvements									x						x			x	x
2	University of California, Davis	Arboretum Waterway Wetland Restoration and Enhancement		x																	
3	City of Davis	Bike Tunnel Landscaping Redesign for Stormwater Quality Improvement		x				x			x										
4	City of Davis	Davis Greenbelts Landscape Conversions														x			x		
5	City of Davis	Drainage Channel Feasibility Study		x				x			x										
6	Solano County Water Agency	Dry Creek Bank Stabilization and Wastewater Re-use			x											x	x		x	x	
7	City of Davis	Feasibility Study for Stormwater Trash Control Measures		x				x			x										
8	YCFC&WCD	Flood Monitoring Network Project						x	x								x			x	
9	YCFC&WCD	Forbes Ranch Regulating Pond		x	x			x	x								x			x	x
10	Yolo County	Knights Landing Storm Drain Project		x							x	x		x						x	
11	Yolo County	Knights Landing Underground Drainage Study		x							x			x						x	
12	YCFC&WCD with Madison CSD	Madison Drainage Study		x							x			x						x	
13	YCFC&WCD	Moore Siphon Reliability/ Restoration Project																		x	
14	City of Woodland	North Regional Pond and Pump Station		x	x						x						x			x	
15	Yolo County	Raise Highway 16 Out of Flood Plain		x												x	x			x	
16	City of Davis	Retention Pond Feasibility Study		x				x			x										
17	City of Davis	Russell Boulevard Demonstration LID Project		x				x			x								x		
18	City of Davis	Site Survey for Converting Rocky Swales to Bioswales		x				x			x										
19	City of Davis	Site Survey for Hardscape Conversion to Pervious Pavement		x				x			x								x		
20	Solano County Water Agency	Thompson Canyon Stormwater Management																			
21	YCFC&WCD with Madison CSD	Upstream Flow Management to Prevent Madison Flooding and to Facilitate GW Recharge		x	x				x							x	x			x	x
22	YCFC&WCD	West Adams Canal Renovation and China Slough Rehabilitation Project		x	x			x	x								x			x	x
23	City of Davis	West Area Pond Redesign		x				x			x									x	x
24	Solano County Water Agency	Winters Bioswales Project and Habitat Enhancement																			x
25	YCFC&WCD	Winters North Area Stormwater Pond		x	x			x	x								x				x
26	YCFC&WCD	Yolo County Drains and Sloughs – Governance and Maintenance Study		x	x			x	x											x	
27	Madison CSD	Madison Farmer Field Stormwater Capture and Groundwater Recharge		x	x			x	x								x				
28	Madison CSD	Citizen Science Program		x	x			x	x								x				
		Total		21	9		0	15	8		13	1	0	3		4	11		4	14	7

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In addition to meeting the SWRP objectives and benefits, the submitted projects include:

- Opportunities to augment local water supply through groundwater recharge or storage for beneficial use of storm water and dry weather runoff – A total of 14 of the submitted projects will result in additional water supply: Projects 1, 4, 8, 9, 14, 15, 17, 20, 21, 22, 25, 26, and 27.

> The City of Woodland North Regional Pond and Pump Station project (Project 14) involves the design and construction of a 75-acre sedimentation pond and a pump station to accommodate a 120-cfs design flow. This project will re-purpose an existing City evaporation pond for treatment and detention of storm water prior to discharge to the Tule Canal.

- 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 – All but two (Projects 15 and 28) of the submitted Projects identified runoff pollution control and volume control.

> The Knights Landing Drainage Study (Project 11) would model new underground drainage facilities for the entire Town of Knights Landing. The air-tight, water-tight system reduces overland transportation in urban areas and allows for more control of the system (trash racks, clean-out boxes, and BMPs), advancing the goal of achieving improved storm drainage and reducing flooding, along with improving water quality and maintaining beneficial uses.

- Projects that reestablish natural water drainage treatment and infiltration systems, or mimic natural system functions – A total of 13 of the submitted projects would result in the reestablishment of natural water drainage and treatment: Projects 1, 2, 4, 5, 6, 9, 16, 17, 19, 20, 24, 25, and 27.

> Dry Creek is eroding due to the effects of surface water storage at Lake Berryessa. Erosion has accelerated since the Solano Project was completed. The Solano County Water Agency Dry Creek Bank Stabilization and Wastewater Re-Use Project (Project 6) includes bioengineering with willows and other native vegetation can stabilize eroding banks and provide cover for migrating wildlife.

- Opportunities to develop, restore, or enhance habitat and open space through storm water and dry weather runoff management – A total of 15 of the submitted projects identified benefits related to environmental and habitat protection and improvement: Projects 1, 2, 3, 4, 6, 7, 9, 17, 18, 19, 20, 23, 24, 25, and 27.

> The Winters Bioswales Project and Habitat Enhancement Project (Project 24) will redirect storm water runoff onto newly constructed floodplains of Putah Creek, which will assist in rehydrating portions of the floodplain during periods of drought and enhancing riparian plant growth for the benefit of corridor wildlife.

- Opportunities to use existing publicly owned lands and easements – A total of 17 projects will be located on lands with public ownership: Projects 1, 2, 3, 4, 5, 7, 9, 13, 14, 15, 16, 17, 18, 19, 23, 24, and 25.

> The City of Davis Site Survey for Hardscape Conversion to Pervious Pavement (Project 19) will advance the goal of converting public parking lots with impervious surfacing to pervious pavement.

5.3 Evaluation and Prioritization of Projects

This section outlines the approach taken in the evaluation and prioritization of those projects identified as implementation projects. The method used in this SWRP is based upon the SWRP Guidelines (SWRCB 2015) which recommend a project prioritization and screening process that involves both tangible (i.e., quantitative) benefit and intangible benefit evaluations. As stated in Section 5.1.10, projects were initially pre-screened and resulted in the 11 projects selected for evaluation under this plan because the projects provide storm water or flood management focus with clear benefits and are located within the planning area. Three scoring categories were developed for this plan and are presented below:

1. Scoring Category 1: Two questions regarding project funding availability and project location and land access, as further described in Section 5.2.1.
2. Scoring Category 2: A multiple benefits analysis based upon the main and additional benefits provided in Table 4 of the SWRP Guidelines (SWRCB 2015), as further described in Section 5.2.2.
3. Scoring Category 3: A quantitative metrics-based benefit analysis based upon the quantitative metrics suggested in the SWRP Guidelines (SWRCB 2015), as further described in Section 5.2.3.

A total of 250 points are distributed between the three scoring categories with 80 points for Scoring Category 1; 50 points for Scoring Category 2 and 120 points for Scoring Category 3. The distribution of the total points to the three scoring categories reflects both the relative importance derived from the SWRP guidelines as well as a means of balancing the merits of each project. Points were assigned to a variety of elements within each scoring category and summed to give a total score per category as detailed in Sections 5.2.1- 5.2.3 below.

Each of the categories were then summed at the end to give a total project score. Projects were ranked based on their total scores. The scoring process is summarized in Figure 5-2.

Projects were evaluated based upon their project proposal forms submitted to the Westside IRWM and the Storm Water Addendum Form. Proponents were asked to support claims made for various benefits (both main and additional) as well as identify quantitative metrics-based benefits.

At a minimum, each project will contribute to at least two or more Main Benefits and a number of Additional Benefits as listed in Table 4 of the SWRP Guidelines.

5.3.1 Scoring Category 1 - Project Funding and Land Availability

- SWRP Guidelines (SWRCB 2015) recommend projects or programs supported by proponent entities that will create, "permanent, local, or regional funding."
  - If projects were able to secure some sort of permanent funding to achieve the claimed benefits they were assigned a yes (i.e., "Y") for a value of 40 points. Projects without any other funding commitments were assigned a no (i.e., "N") for a value of zero (0) points.
- In addition to funding, the SWRP Guidelines (SWRCB 2015) recommends projects "use existing publicly owned lands and easements" in accordance with the Water Code §10562(e).
  - Projects were assigned a yes (i.e., "Y") for a value of 40 points if land access or agreements were available and were assigned a no (i.e., "N") for a value of zero (0) points if these access or agreements weren't available.

Projects were assigned either a total of 0, 40, or 80 points for Scoring Category 1 based on the answers to the funding and project land access questions.

5.3.2 Scoring Category 2 - SWRP Multiple Benefits Analysis

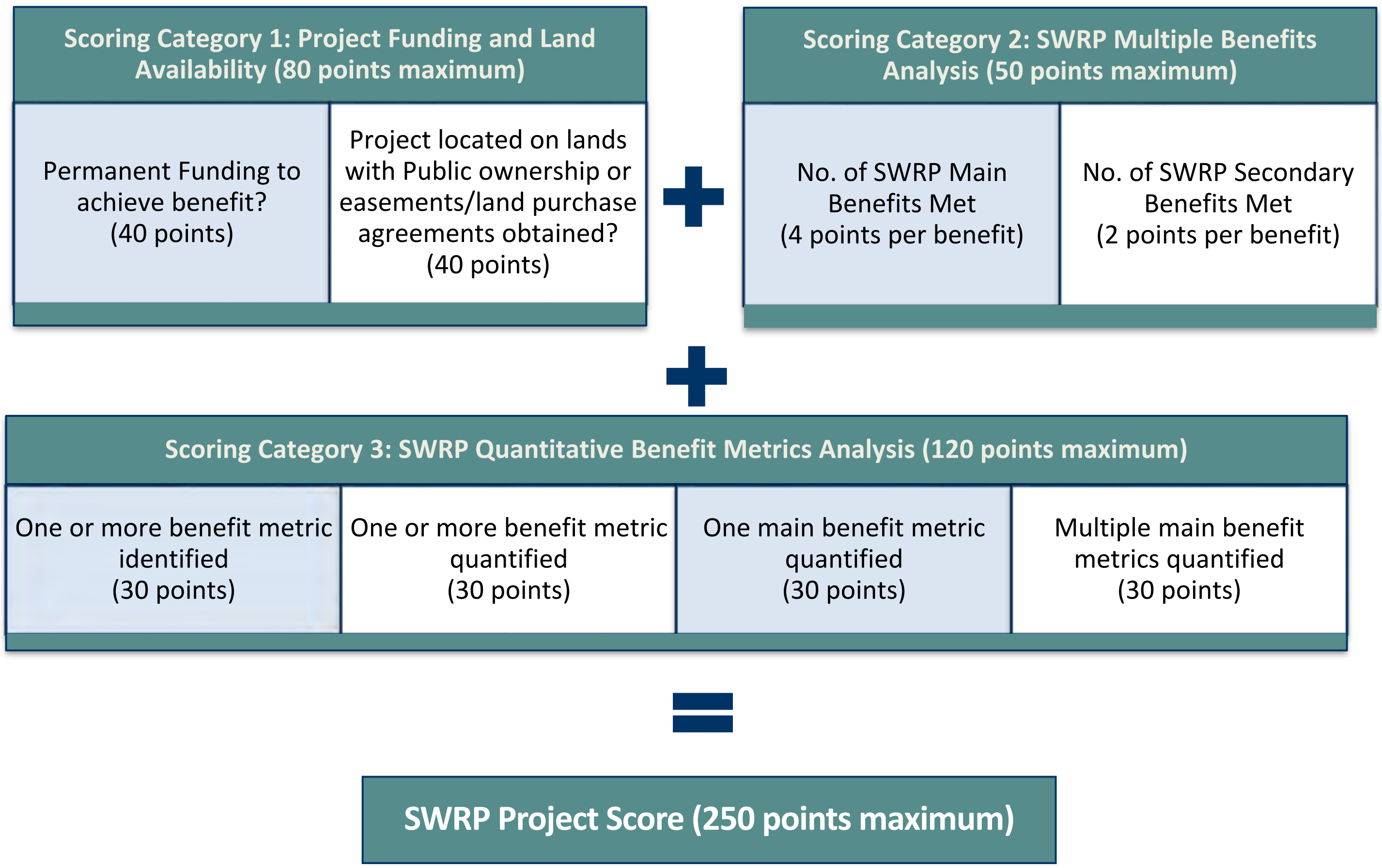
- A multiple benefit analysis was performed and is based on the main and secondary (i.e., additional) benefits list from SWRP Guidelines (SWRCB 2015).
  - Benefits which fall under five broad categories: water quality, water supply, flood management, environmental, and community.
  - The SWRP Guidelines require that projects meet "at least two or more" main benefits and as many secondary benefits as possible
    - Main benefits – 4 points each
    - Secondary benefits – 2 points each.
- Each project evaluated against each benefit.
  - Total number of main and secondary benefits, multiply by assigned point value.
  - Points totaled for each project, with a maximum of 50 points allowed for Scoring Category 2.
- After review, allow project proponent entities to defend benefits claimed for their projects as well as explain why certain benefits may be too difficult to claim and therefore would not be relevant to their project goals.

5.3.3 Scoring Category 3 - SWRP Quantitative Benefit Metrics Analysis

- Purpose: to add a quantitative metrics-based approach to capture the tangible benefits provided by each project and to demonstrate the specific benefits each project will have on the Planning Area.
  - Identifying quantitative metric(s) specific to one or more main and secondary benefits (herein referred to as "benefit metrics").
  - Identify value.
- The comparative ratings system is based on the number of benefit metrics identified, number of benefit metrics quantified, and the significance of storm water impacts. Points were assigned to each category as follows:
  - A score of zero (0) was assigned if a project was not able to identify a benefit metric with current quantifiable value or value to be calculated later.

- A score of 30 was assigned if a project could identify one or more benefit metrics however could not quantify the metric(s) at this time.
- A score of 60 was assigned if a project met the previous rating and in addition could identify one or more benefit metrics with at least one corresponding quantified value.
- A score of 90 was assigned if a project met the previous rating and in addition could identify one or more SWRP Main Benefit metrics with at least one corresponding quantified value.
- A score of 120 was assigned if a project met the previous rating and in addition could identify two or more SWRP Main benefit metrics with two or more corresponding quantified values.

Figure 5-2: Yolo SWRP Project Scoring Process



5.4 Summary of Project Prioritization and Selection

Table 5-3 presents the current prioritization of projects selected for implementation. In total, 11 projects were prioritized and ranked yielding total scores from 142 points to 238 points based on the scoring system developed in Section 5.2. The scores developed in this SWRP are for the purposes of prioritizing and ranking projects as required by the SWRP Guidelines. The purpose is to identify and develop projects with clear storm water and dry weather runoff goals that also provide multiple public water quality and supply benefits, and have been identified, prioritized, and selected based on a metrics-driven analysis. The relative prioritization of projects in this plan does not restrict any project from applying to or attaining State grant money funded by any bond measure approved by voters after January 2014, which includes Proposition 1 funding for implementation.

5.4.1 Quantification of Storm Water Management

Benefit quantification is an important measure of SWRP effectiveness. Quantification of storm water management actions show the balance between storm water as a resource and storm water as a hazard. The more that the potential storm water volume can be quantified, the more it can be put to use as a resource. Tools and methods to quantify project benefits are introduced in Section 6.

The following Subsections present the benefits anticipated as a result of the implementation of the prioritized projects in Table 5-3.

5.4.1.1 Water Quality Benefits

As presented in Section 1.4.2.1, successful implementation of the SWRP should result in the following Water Quality benefits:

- Increased filtrations and/or treatment of runoff
- Greater non-point source pollution control
- Reestablishment of natural water drainage and treatment

The following projects will result in water quality benefits:

- **Project 2: Arboretum Waterway Wetland Restoration and Enhancement**
  - <u>Benefit</u>: 935 acres of wetland treatment of runoff
  - <u>Analysis</u>: Recycled water is discharged to the Arboretum in compliance with UC Davis' Wastewater Treatment Plant (WWTP) National Pollution Discharge Elimination System (NPDES_ Permit, Order R5-2014-0152, NPDES No. CA0077895.

    Wetland area will provide natural treatment of storm water and recycled water, resulting in reduction in nitrate levels and suspended sediment and increase in dissolved oxygen.
- **Project 6. Dry Creek Bank Stabilization and Wastewater Re-use**
  - <u>Benefit</u>: 2 miles of sediment control
  - <u>Analysis:</u> The City of Winters WWTP is adjacent to Dry Creek at the northeastern corner of the City. The WWTP is regulated under Waste Discharge Requirements (WDRs) R5-2002-0136, which prescribes requirements for the discharge of treated domestic wastewater to approximately 170 acres of city owned spray fields vegetated with native grasses. Alteration of the WWTP's existing NPDES permit could provide treated wastewater for bioengineering projects to enhance both stability of the banks and wildlife habitat along two miles of creek channel.
- **Project 14: North Regional Pond and Pump Station**
  - <u>Benefit:</u> 120 cfs treatment prior to discharge
  - <u>Analysis:</u> This project will add the North Regional Pond hydraulically into the City's storm drainage network for the purposes of capturing, treating and reusing the storm water for agricultural purposes. Treatment of the storm water is in the form of settling prior to discharge via the pump station (120 cfs capacity) to the City's outfall channel. The projects will help the City meet its NPDES Permit (NPDES NO. CAS000004) by giving more control over the storm flows exiting to the City's outfall channel.

5.4.1.2 Water Supply Benefits

As presented in Section 1.4.2.2, successful implementation of the SWRP should result in the following Water Supply benefits:

- Increased water supply reliability
- Increased conjunctive use of groundwater and surface water (storm water)
- Water conservation

The following projects will maximize and/or augment water supply:

- **Project 2: Arboretum Waterway Wetland Restoration and Enhancement**
  - Benefit: Up to 2,000 gallons per minute (gpm) of reclaimed water ensures that the Arboretum's ecosystem will be sustained even in drought years
  - Analysis: UC Davis' WWTP NPDES Permit allows the WWTP to discharge up to 2,000 gpm to the Arboretum discharge point.
- **Project 4: Davis Greenbelts Landscape Conversions**
  - Benefit: About 1,200,000 gallons per year conserved per acre of turf conversion.
  - Analysis: Estimated water savings were calculated based on the assumption that half of all Davis Green Belts will be converted (1091 acres) and on the Estimated Total Water Use formula as provided in the Model Water Efficient Landscape Ordinance in Division 2, Title 23, California Code of Regulations (Revised 2015):
    - EWU (hydrozone) = [(ETo)(PF)(HA)(.62)]/(IE)

      Where,

      EWU (hydrozone) = Estimated Water Use (gallons per year)

      Eto = Reference Evapotranspiration (inches per year) = 56.72 (according to California Irrigation Management Information System Station 6 Davis)

      PF = plant factor = 0.8 for high water use turf and 0.2 for low water use shrub

      HA = hydrozone area (square feet [SF])

      (.62) = conversion factor (inches to gallons)

      IE = irrigation efficiency = 0.75 for rotator sprinkler and 0.81 for drip bubbler

      Therefore,

      $EWU_{(turf,\ rotator)}$ = [(56.72)(0.8)(43,560 SF/acre)(0.62)]/(0.75) = 1,600,000 gallons per year per acre

      $EWU_{(shrub,\ drip)}$ = [(56.72)(0.2)(43,560 SF/acre)(0.62)]/(0.81) = 400,000 gallons per year per acre of turf conversion

      Savings = 1,200,000 gallons per year per acre of turf conversion
- **Project 8. Flood Monitoring Network Project**
  - Benefit: 24,893 AF/Y of additional recharge of storm water through the YCFC&WCD's canal system.
  - Analysis: Based on an integrated water resources model for Cache Creek of a strategy to direct winter storm water runoff into the YCFC&WCD's existing unlined canals for the purposes of groundwater recharge. Locations were selected based on site visits after the storms in April 2017, November 2017, and January 2018. See Appendix I, Sections 3 and 6 for model documentation and results.
- **Project 13: Moore Siphon Reliability/Restoration Project**
  - Benefit 1: 1,000 AF/year of savings through reduction of leaks
  - Analysis 1: Field measurements by the United States Geological Survey (USGS) from 2011-2013 for Alder Canal (USGS 384125121540601), upstream of the siphon, and Moore Canal (USGS 384111121541301), downstream of the siphon, show a loss of flow of about 6-percent of average upstream flow (71 ft^3/s). Assuming flow in the canal May through October for irrigation (2,000 AFY) and that leaks due to the siphon structure accounts for half the loss of flow, rehabilitation of Moore Siphon would result in a savings of 1,000 AFY.
  - Benefit 2: 200 AF/day of water supply reliability for agriculture
  - Analysis 2: The rehabilitated siphon will have a design capacity of 200 AF/day. Rehabilitation of Moore Siphon will reduce the risk of supply interruption due to failure of the siphon.
- **Project 14: North Regional Pond and Pump Station**
  - Benefit: 500 AFY of agricultural storage
  - Analysis: Estimated annual storage is calculated using the Rational Method, which is described in the Yolo City/County Drainage Manual (floodSAFEYolo, 2010):

    Q = CiA where

    Q = rate of runoff, acre-inches per hour

    C = runoff coefficient, which is the ratio of peak runoff to average rainfall intensity = 0.59, assuming a 100-year, 10-day design storm = average rainfall intensity = 0.045 inches per hour (in/hr), assuming a 100-year, 10-day design storm (from National Weather Service Precipitation Frequency Data Server[1])

A = drainage area = 1,748 acres (based on Spring Lake Specific Plan future land use Woodland South area). Therefore,

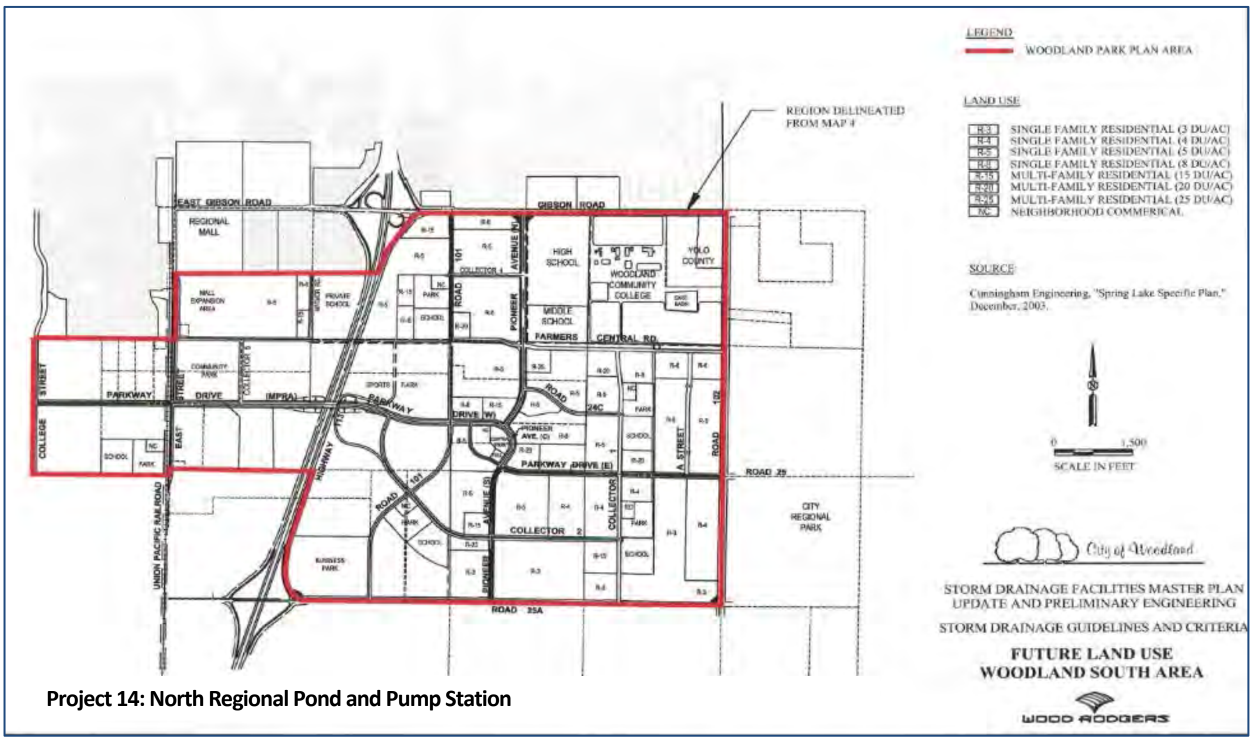
Q = 0.59 x 0.045 in/hr x 1,748 acres x 1 ft/12 inches x 24 hr / day x 10 days / year = 928 AFY

- **Project 22: West Adams Canal Renovation and China Slough Rehabilitation Project**
  - Benefit: 10,000 AF of increased surface water supply
  - Analysis: Enlargement and improvement of the YCFC&WCD's West Adams, East Adams, and Acacia Canal systems will be modernized to convey 10,000 AF of surface water per year. China Slough will be cleaned and installed with check structures to convey 10,000 AF of surface water.

- **Project 27. Madison Farmer Field Stormwater Capture and Groundwater Recharge**
  - Benefit: 300 AF - 1,100 AF per storm event (farmer fields - detention basin)
  - Analysis: Depends on the water year, but farmer field conversions to berms allows 300 AF per storm event. With 27 inches per hour infiltration rate, at least 30 hours required between storm events to dry out fields. For detention basin, 1,100 AF per storm and requires at least 5.5 days in between storms.

Collective Water Supply Benefits

Implementation of the above water supply projects could result in 33,627 AFY of water which could infiltrate back into the groundwater plus an additional 1,000 gpm per storm event.



Project 14: North Regional Pond and Pump Station

5.4.1.3 Flood Management Benefits

As presented in Section 1.4.2.3, successful implementation of the SWRP should result in the following Flood Management benefits:

- Decreased flood risk by reducing runoff rate and/or volume
- Reduced sanitary sewer overflows

The following projects will decrease risk of flood and sanitary sewer overflow:

- **Project 2: Arboretum Waterway Wetland Restoration and Enhancement**
  - Benefit: 1,800,000 cubic feet of runoff capture capacity
  - Analysis: The UC Arboretum has a 1,800,000 cubic feet of runoff capture capacity that will be maintained by this project.
- **Project 8. Flood Monitoring Network Project**
  - Benefit: Reduce flooding due to Cache Creek by diverting up to 150 cfs of storm water runoff diverted from Cache Creek to YCFC&WCD canals.
  - Analysis: Based on WEAP modeling of Cache Creek. Implementation of this project will allow YCFC&WCD to monitor the canals and sloughs during the winter and know when there is sufficient capacity available to divert flows out of Cache Creek before flows overtop its bank. See Appendix I, Section 3 for modeling description and results and Section 6 for a description of monitoring locations.
- **Project 17: Russell Boulevard Demonstration LID Project**
  - Benefit: 0.05 AF of infiltration for a 24-hour storm event
  - Analysis: By using engineered soil in the project, the anticipated infiltration rate will reach approximately 1.0 inches of water per hour. Project soils will be engineered consistent with recommended CASQA standards for vegetated swales, rain gardens, pervious paving, and storm water planters. Using this infiltration rate, it is estimated the project will capture and treat the full amount of the design storm or the 85th percentile 24-hour storm event, which is 2,080 cu. ft. of water (0.05 AF).
- **Project 27. Madison Farmer Field Stormwater Capture and Groundwater Recharge**
  - Benefit: 39,000 gpm – 128,000 gpm
  - Analysis: A 10-year, 24-hour design storm event produces 5.65 inches or an event similar to January 2017 produces 1.72 inches. Over an assumed area of 1,200 acres if farmer fields = 38,921 gpm

    1,200 acres x 43,560 square feet/acres x 144 square inches/square feet x 1.72 inches / 231 square inches to gallons / (24 hours x 60 minutes/hour) = 127,851 gpm

    1,200 acres x 43,560 square feet/acres x 144 square inches/ square feet x 5.65 inches / 231 square inches to gallons / (24 hours x 60 minutes/hour) = 127,851 gpm

5.4.1.4 Environmental Benefits

As presented in Section 1.4.2.4, successful implementation of the SWRP should result in the following Environmental benefits:

- Environmental and habitat protection and improvement
- Reduced energy use, reduced greenhouse gas emissions, and/or additional locations for carbon sinks
- Reestablishment of natural hydrographs
- Water temperature improvements

The following projects will result in environmental benefits:

- **Project 4. Davis Greenbelts Landscape Conversions**
  - Benefit: 1 acre of enhanced habitat per project site
  - Analysis: Turf will be removed and replaced with drought tolerant native plants and a network of oak woodland and pollinator plants.
- **Project 6. Dry Creek Bank Stabilization and Wastewater Re-use**
  - Benefit: 2 acres of new riparian vegetation
  - Analysis: The project area will cover 2 acres on Dry Creek at the confluence with the Lower Putah Creek. Bioengineering with willows and other native vegetation can stabilize eroding banks and provide cover for migrating wildlife. Native vegetation is limited by summer water. The location of the Winters WWTP is ideal for a gravity flow system to

irrigate willows and other native vegetation using bioengineering methods.

- **Project 17: Russell Boulevard Demonstration LID Project**
  - Benefit 1: 6,150 square feet of enhanced habitat (including 7 trees planted)
  - Analysis 1: About 6,150 square feet of rain gardens and bioswales made up of native vegetation will be installed.
- **Project 20. Thompson Canyon Stormwater Management**
  - Benefit: 1 river mile/10,000 square feet of restored trout spawning habitat for increased fish population
  - Analysis: The lower mile of the canyon has a legacy dirt road that contributed to catastrophic hillslope failure. The road has thirty stream crossings without properly sized culverts or rock fords and is not properly outsloped for drainage. This project would repair the stream crossings, properly outslope the road and apply gravel surface. It would also install rock vanes for grade control in the channel and plant 10,000 square feet of native vegetation.

Project 24. Winters Bioswales Project and Habitat Enhancement

- Benefit: 5 acres of habitat restoration
- Analysis: The culverts in Winters flow directly into Putah Creek with no treatment. This project will improve water quality and habitat improvement by removing sediments and other toxic materials from water before it enters the creek and will use the water to grow native species for habitat improvement adjacent to the creek. Five acres of habitat will be established, and a monitoring plan has been developed to ensure that plantings are thriving. The bioswales will capture water that is now flowing directly into Putah Creek. This water will be re-routed to be used by trees that shade Putah Creek and lower water temperature in the creek.

Project 17: Russell Boulevard Demonstration LID Project

5.4.1.5 Community Benefits

As presented in Section 1.4.2.5, successful implementation of the SWRP should result in the following Community benefits:

- Increased employment opportunities
- Increased public education
- Increased community involvement

The following projects will result in community benefits:

- **Project 4. Davis Greenbelts Landscape Conversions**
  - Benefit: 1 acre of recreation area per project site
  - Analysis: Some typical turf areas along the green belt have been designated by the City of Davis as underutilized for recreation and recognize the potential of the project for water conservation, demonstration gardens, and interpretive education. Decomposed granite paths and interpretive signs will be installed and will inform the public of the benefits of the project.
- **Project 17. Russell Boulevard Demonstration LID Project**
  - Benefit 1: 1,000 volunteer hours and 3 class tours per year
  - Analysis 1: Seven partnerships with community groups for this project have been identified including the Yolo County Master Gardeners, Sierra Club, UC Davis Arboretum, Yolo Resource Conservation District, California Conservation Corp and others. The area is intended to serve as an outdoor classroom for UC Davis, the Davis Joint Unified School District and the community at large. Volunteer opportunities will be used to maintain the project site.
  - Benefit 2: 34,370 square feet of additional public use area
  - Analysis 2: The project will include increased natural habitat in the downtown core that is available to the community which will include an outdoor classroom, public art, seating area, walking tour of storm water and water conservation demonstration areas.

  Project 24. Winters Bioswales Project and Habitat Enhancement
  - Benefit: 3 community tours and 1 class visit per year
  - Analysis: Bioswale plantings will be performed by volunteers who will be educated about why they are important and how they function.

5.5 Design Criteria and Best Management Practices

To prevent storm water and dry weather runoff pollution and increase effective storm water and dry weather runoff management, implementation of any project submitted to the Yolo SWRP will comply with the design criteria and/or best management practices specified by Yolo County and/or specific local jurisdictions and programs. Existing guidelines and programs include:

- Yolo County City/County Drainage Manual (FloodSAFE Yolo, 2010).
- Stormwater Management Planning Programs and Design Standards/Criteria for the City of Davis, the City of West Sacramento, the City of Woodland, the University of California, Davis, and Yolo County.
- Stormwater Best Management Practice Handbook, New Development and Redevelopment (California Stormwater Quality Association, 2003).

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Table 5-3: Yolo SWRP Project Prioritization and Scoring

Project Number	Project Name	Scoring Category 1: Project Funding and Land Availability				Scoring Category 2: SWRP Multiple Benefits Analysis																				
						Water Quality			Water Supply			Flood Management		Environmental					Community							
		Permanent Funding to achieve benefit? Scoring: (40 points)	Project located on lands with Public ownership? Scoring: (40 points)	Category 1 Score (80 max)	Match Provided	**Increased filtration and/or treatment of runoff**	Nonpoint source pollutant control	Reestablished natural water drainage and treatment	**Water supply reliability**	**Conjunctive use**	Water conservation	**Decreased flood risk by reducing runoff rate and/or volume**	Reduced sanitary sewer overflows	**Environmental and habitat protection and improvement**	Reduced energy use, greenhouse gas emissions, or provides a carbon sink	Reestablishment of the natural hydrograph	**Increased urban green space**	Water temperature improvements	**Employment opportunities provided**	**Public education**	Community involvement	Enhance and/or create recreational and public use areas	No. of SWRP Main Benefits Met Scoring: (4 points for each benefit)	No. of SWRP Secondary Benefits Met Scoring: (2 point for each benefit)	Total No. of Intangible Objectives-based Benefits	Category 2 Score (50 max)
2	Arboretum Waterway Wetland Restoration and Enhancement	Y	Y	**80**	Y	x	x	x	x		x	x		x	x	x			x	x	x	x	**6**	**7**	**13**	38
4	Davis Greenbelts Landscape Conversions (Davis Greenbelts Stormwater Improvements)	Y	Y	**80**	N	x		x			x			x						x		x	**3**	**3**	**6**	18
6	Dry Creek Bank Stabilization and Wastewater Re-use	Y	N	**40**	N						x			x	x		x			x	x		**3**	**3**	**6**	18
8	Flood Monitoring Network Project	N	Y	**40**	N	x			x		x	x											**3**	**1**	**4**	14
13	Moore Siphon Reliability/Restoration Project (Moore Siphon Stormwater Improvements)	Y	Y	**80**	N				x	x	x	x											**3**	**1**	**4**	14
14	North Regional Pond and Pump Station	Y	Y	**80**	Y	x	x		x			x		x			x					x	**5**	**2**	**7**	24
17	Russell Boulevard Demonstration LID Project (Russell Boulevard Stormwater Treatment Project)	Y	Y	**80**	Y	x		x			x	x		x			x		x	x	x	x	**6**	**4**	**10**	32
20	Thompson Canyon Stormwater Management	Y	N	**40**	N	x	x	x			x			x								x	**2**	**4**	**6**	16
22	West Adams Canal Renovation and China Slough Rehabilitation Project	Y	N	**40**	N				x	x		x		x									**4**	**0**	**4**	16
24	Winters Bioswales Project and Habitat Enhancement	Y	Y	**80**	Y	x	x	x						x				x		x		x	**3**	**4**	**7**	20
27	Madison Farmer Field Stormwater Capture and Groundwater Recharge	N	N	**0**	Y	x		x	x	x		x								x			**5**	**1**	**6**	22

Project Number	Project Name	Scoring Category 3: SWRP Quantitative Benefit Metrics Analysis			Project Scoring and Prioritization
		Benefit Metrics Analysis Type	Quantitative Benefit Metrics Value	SWRP Relative Benefits Scoring (0, 30, 90, 120)	SWRP Project Score (250 max) Scoring: (Sum of Categories 1, 2, and 3)
2	Arboretum Waterway Wetland Restoration and Enhancement	Treatment of stormwater runoff, recycled water for irrigation, establish wetland habitat, employment opportunities	935 acres of treated stormwater, 2,000 gpm of recycled water irrigation,	120	**238**
4	Davis Greenbelts Landscape Conversions (Davis Greenbelts Stormwater Improvements)	Prevent runoff, enhance habitat, recharge aquifers, LID signage, turf removal, enhanced green space	Public education: 385 persons/ac/yr, Water Conservation: 1.2 Mgal/yr/ac, Habitat/Enhanced Rec Space: 1 ac/site	90	**188**
6	Dry Creek Bank Stabilization and Wastewater Re-use	Provide cover for migrating wildlife, provide a shady corridor in what is now a dry gully, enhance public policy from non-conforming setbacks to effective bank stabilization, re-use treated wastewater to irrigate riparian plantings, riparian vegetation is a carbon sink, Inform Dry Creek landowners of a cost-effective bank stabilization method	1-2 acres of new riparian vegetation, Number of enrolled landowners, reduce sediment loading along two miles of eroding banks stabilized by vegetation	90+	**148**
8	Flood Monitoring Network Project	Water supply reliability, runoff diverted (flood management)	24,893 AF/Y of additional recharge of storm water through the YCFC&WCD's canal system. Reduce flooding due to Cache Creek by diverting up to 150 cfs of storm water runoff diverted from Cache Creek to YCFC&WCD canals.	120	**174**
13	Moore Siphon Reliability/Restoration Project (Moore Siphon Stormwater Improvements)	Allows for irrigation season flows to continue to 12% of District's agricultural users, allows farmers to use surface water in lieu of relying on groundwater, reduces runoff rate to upstream and downstream surrounding properties by properly conveying flows and reducing leaking, Rehabilitating the Moore Siphon will prevent current leakage.	Approximately 1 TAF/y, 15,000 acres of cropland stays in production 200 AF/day of water supply for agriculture May-October (36 TAF/y),	120	**214**
14	North Regional Pond and Pump Station	treatment of the stormwater prior to discharge to the City's outfall channel, possible transmission of stored water from NR pond to adjacent farmland, 75-acre pond vs 75-acre barren land, treating stormwater before discharge to the City's outfall channel, additional birding habitat	up to 120 cfs treated, reliably 500-ac ft of water during non-rainy season, 75-acre pond vs 75-acre barren land	120	**224**
17	Russell Boulevard Demonstration LID Project (Russell Boulevard Stormwater Treatment Project)	Increased habitat, increased infiltration, volunteer opportunities, increased green space, reestablish natural drainage,	2080 cu ft infiltration, 6,225 sq ft habitat, 7 trees, 500-1000 volunteer hrs/yr,	120	**232**
20	Thompson Canyon Stormwater Management	reduced sediment loading, infiltration strips capture more surface water and reduce runoff, infiltration strips capture more surface water and reduce runoff, enhance fishing at 5 Putah Creek fishing accesses visited by 100,000 people per year	1 river mile of restored creek channel and access road, 10,000 square feet of native vegetation established	120	**176**
22	West Adams Canal Renovation and China Slough Rehabilitation Project	Increases water supply availability and reliability to Yolo-Zamora area; and reduces dependence on groundwater, preserves groundwater supplies by providing available surface water supplies, Reduced peak discharge from storm events to region,	10,000 acre-feet increased surface water; 10,000 AF decreased groundwater use, need to study peak storm flows in this region	90	**146**
24	Winters Bioswales Project and Habitat Enhancement	Treatment of stormwater runoff, habitat improvement, community involvement (volunteering),	5 acres of habitat restored, 3 community tours and 1 classroom component.	90	**190**
27	Madison Farmer Field Stormwater Capture and Groundwater Recharge	Groundwater recharge from stormwater detention provides water supply reliability and opportunities for conjunctive use.	300 AF - 1,100 AF per storm event (farmer fields - detention basin) 128,000 gpm reduced peak runoff to the town of Madison	120	**142**

Section 6: Implementation Strategy and Schedule

This section sets forward a proposed framework for the Storm Water Resource Plan for Yolo County (SWRP or Plan) implementation and performance monitoring to track progress, and it offers recommendations for the first two years of Plan implementation activities. This section is intended to serve as the cornerstone of critical actions the stakeholders must take to ensure SWRP program success into the future.

6.1 Implementation Strategy

The SWRP for Yolo County will rely on the Water Resources Association of Yolo County (WRA of Yolo County), Yolo Subbasin Groundwater Agency (YSGA), and Westside-Sacramento Regional Water Management Group (RWMG) for implementation of the Plan and incorporation into the Westside-Sacramento (Westside) Integrated Regional Water Management (IRWM) Plan. Implementation of the SWRP includes incorporation into the IRWM Plan, maintenance of the Plan, obtaining applicable permits for implementation, tracking project status, and community participation. These activities are described in the subsections below.

6.1.1 Submittal to Applicable IRWM Plan

As described throughout this Plan, the Westside IRWM Region includes Yolo County. Therefore, this SWRP will be submitted to the Westside RWMG for incorporation into the IRWM Plan. This SWRP was developed to be consistent with the current version of the Westside IRWM Plan (2013), incorporating all of the Westside IRWM Plan objectives into the SWRP objectives, which were used to focus and evaluate projects submitted to the Plan. Therefore, implementation of the SWRP and its projects will help to further the Westside IRWM Plan's progress towards attaining its water management goals and objectives.

The Yolo County SWRP will also be submitted to the neighboring IRWM Plan Regions as identified in Section 1, the American River Basin Region and North Sacramento Valley Region.

6.1.1.1 Timeline for Submittal

The SWRP for Yolo County was completed in March 2018 and submitted to the Westside IRWM RWMG for incorporation in May 2018. It is anticipated that the Westside IRWM Plan will be updated to meet DWR's 2016 IRWM Plan Standards by summer of 2018.

6.1.1.2 Adaptive Management – Maintaining a Living Document

The SWRP is a living document and changes will be required as additional information is collected, as objectives are refined and better understood, as new projects are developed, and as the collaborative relationships among the Westside RWMG, WRA of Yolo County, YSGA and stakeholders continue to develop. Changes to the SWRP will follow a similar, publicly open and accessible process followed by this Plan and the Westside IRWM Plan's development process. The Westside IRWM will lead in the effort to change and/or update the SWRP with support from the WRA of Yolo County and YSGA, and participation from project proponents and other stakeholders. Specific protocol for changes and updates to the SWRP for Yolo County, as documented in Section 11.6 of the IRWM Plan, are summarized below:

- Making Changes to the SWRP:
    - Changes include revisions or updates to the section narratives.
    - The SWRP will be reviewed a minimum of every five years (or as needed) to determine if its content needs to be changed in a significant way other than the periodic updates or amendments of the objectives and projects.
    - If significant changes are needed, the SWRP will be revised and submitted to the RWMG for adoption into the SWRP and IRWM Plan.
- Updating and Amending the SWRP:
    - Updates and amendments specifically include changes to the project lists and refinements to the Plan objectives.
    - Refinements to the Plan objectives will be submitted to the RWMG for consideration to adopt as an amendment to the existing SWRP. Refinements will be incorporated into the SWRP and IRWM Plan a minimum of every five years (or as needed).
    - Project revisions, updates, and completions, as well as new projects, are received from stakeholders on a continual basis. The RWMG will review the Project

submittals and update the Project list on an annual basis. The updated project list will be posted on the Westside IRWM Plan website: http://www.westsideirwm.com/projects.html

6.1.2 Entities Responsible for Project Implementation

The Westside RWMG, WRA of Yolo County and YSGA (collectively called Authorizing Agencies) are responsible for implementation of the SWRP, with participation from project proponents and stakeholders.

Consistent with the IRWM Plan, the Authorizing Agencies functions include:

- Authorizing decisions using broad stakeholder agreement;
- Providing leadership for fostering cooperation, continuing coordination, tracking SWRP performance, and updating the SWRP; and
- Aiding in identifying willing agencies/organizations (with appropriate authority and financial conditions) to serve as a fiscal agency for each specific funding opportunity that is pursued.

Further description of the responsibilities of individual parties for SWRP implementation is provided in the following subsections and in Table 6-1.

6.1.2.1 Water Resources Association of Yolo County (WRA of Yolo County)

A consortium of public water purveying entities organized in 1993, the ten-member Water Resources Association of Yolo County is a nonprofit, mutual-benefit corporation created to provide a regional forum to coordinate and facilitate solutions to water management issues in Yolo County. Governed by a board of directors with a representative from each of its member agencies. The member agencies include: City of Davis, City of Woodland, City of West Sacramento, City of Winters, University of California Davis, Yolo County, Yolo County Flood Control and Water Conservation District (YCFC&WCD), Reclamation District 108, Reclamation District 2035 and Dunnigan Water District.

Maintenance and implementation of the SWRP will be led by the WRA of Yolo County. These responsibilities include:

- Encouraging public engagement and maintain a contact list of stakeholders;
- Conducting stakeholder meetings to report on and discuss the status of SWRP implementation and achieving SWRP goals and objectives;
- Soliciting project updates;
- Administering and maintain web content for public viewing;
- Pursuing grant funding for SWRP implementation, including project implementation;
- Selecting/prioritizing projects for inclusion in SWRP-related grant applications and prepare and submit grant applications;
- Working with local county and city officials and project proponents to discuss solutions if local ordinances and laws hinder or prevent implementation of a proposed project;
- Coordinating with related storm water resources management efforts including neighboring IRWM Regions and local, State, and federal agencies;
- Collecting, managing and sharing storm water and project data; and
- Setting and managing operating budget.

6.1.2.2 Yolo Subbasin Groundwater Agency (YSGA)

A Joint Exercise of Powers Agreement (JPA) was executed by and among the following public agencies for the purpose of forming a Groundwater Sustainability Agency and achieving groundwater sustainability in the Yolo Subbasin: City of Davis, City of West Sacramento, City of Woodland, City of Winters, Dunnigan Water District, Esparto Community Services District, Madison Community Services District, Reclamation District (RD) 108, RD 537, RD 730, RD 765, RD 785, RD 787, RD 827, RD 1600, RD 2035, Yocha Dehe Wintun Nation, Yolo County Flood Control and Water Conservation District, and County of Yolo.

Maintenance and implementation of the SWRP will be supported by the YSGA for those tasks considered to have a groundwater nexus. These responsibilities include:

- Encouraging public engagement and participation in the SWRP implementation;
- Soliciting project updates;
- Selecting/prioritizing projects for inclusion in SWRP-related grant applications and prepare and submit grant applications;

- Pursuing grant funding for implementation of groundwater projects;
- Coordinating with related groundwater management efforts;
- Managing and sharing groundwater data; and
- Setting and managing operating budget.

6.1.2.3 Westside RWMG

The RWMG was established through a memorandum of understanding (MOU) between Lake County Watershed Protection District, Napa County Flood Control and Water Conservation District, Solano County Water Agency, and the Water Resources Association of Yolo County.

The RWMG will support the implementation of the SWRP by:

- Leading the effort to update the SWRP, including receiving project submittals, updating project lists, reviewing and updating IRWM Plan and SWRP objectives, and updating SWRP content;
- Identifying and gathering data related to achieving IRWM Plan and SWRP goals and objectives;
- Supporting grant applications and other efforts to pursue funds for SWRP implementation; and
- Assisting in coordinating with neighboring IRWM Regions and local, State, and federal agencies.

6.1.2.4 SWRP Project Proponents

SWRP Project proponents include agencies or entities that have submitted projects they intend to sponsor during implementation and have been included in the SWRP. SWRP Project proponents, as documented in Section 11.2.1.1 of the IRWM Plan, are expected to have the following responsibilities:

- Providing project-specific information that may aid in advancing the regional objectives;
- Seeking opportunities to integrate projects to most efficiently achieve the regional objectives;
- Working with local county and city officials to review all ordinances and laws which are applicable;
- Providing updated project-specific information as necessary to reflect major project milestones (e.g., CEQA completion, 100% design, construction underway, construction complete, and project completion);
- Developing and implementing projects, collect performance monitoring data (described in Subsection 6.3.2), and report data to WRA of Yolo County annually;
- Participating in stakeholder meetings to educate others about the proponent's project(s);
- Identifying a point person for each project who will provide requested information for projects for inclusion in grant applications; and
- Complying with grant requirements, as identified by the funding agency, to qualify for grant funding.

6.1.2.5 SWRP Stakeholders

The SWRP Stakeholders introduced in Section 4 (and included in Appendix C) are a collection of people who choose to participate in SWRP implementation activities such as:

- Attending and participating in stakeholder outreach meetings;
- Reviewing and updating Plan objectives and content; and
- Assisting in the coordination with local, state, and federal agencies.

6.1.3 Federal, State, and Local Permits

This SWRP and the projects submitted to this Plan must be consistent with applicable federal and state regulations and policies, and permits implementing federal and state regulations and policies, including, but not limited to:

- Federal Permitting:
  - National Environmental Policy Act
  - Section 401 and 404 of the Clean Water Act

Table 6-1: Yolo County SWRP Implementation Responsibility Matrix

Scope	Frequency	WRA of Yolo County and YSGA	Westside RWMG	SWRP Project Proponents	SWRP Stakeholders
1. Conduct Stakeholder Meetings					
Schedule Meetings, Prepare Agendas, Prepare Content, Prepare Meeting Summaries	Annually/As Needed	Lead			Participate
2. Engage Public					
Maintain Email List	Annually/As Needed	Lead			
Send Announcements / Invitations	Annually/As Needed	Lead			
Administer Website, Update Content	Annually/As Needed	Lead			
3. Update SWRP					
Receive Project Submittals, Revise Project List	Annually	Support	Lead	Participate	
Review and Update Objectives	5 Years/As Needed	Support	Lead	Participate	Participate
Revise/Amend Plan Content	5 Years/As Needed	Support	Lead	Participate	Participate
4. Pursue Grant Funds for Implementation					
Identify Grant Opportunities	Quarterly	Lead	Support	Support	
Select Projects for Inclusion in Grant	As Needed	Lead	Support	Lead/Support	
Prepare and Submit Grant Applications	As Needed	Lead	Support	Lead/Support[1]	
Identify One or More Willing Fiscal Agent(s) to Manage Grant Funds (If Received) on Behalf of the SWRP	As Needed	Lead	Support		
5. Coordinate with Related Efforts					
Coordinate with Neighboring IRWM Regions	Annually	Lead	Support		
Coordinate with Local, State, and Federal Agencies	Annually/As Needed	Lead	Support	Support	Participate
6. Manage and Share Related Data and Information					
Gather/Synthesize Data Related to Plan Progress	Annually	Lead	Support	Support	
Report on Plan Progress	Annually	Lead	Support	Support	
Identify Data That Should Be Measured and Managed to Meet Plan Goals and Objectives (b)	Annually	Lead/Support[2]	Lead/Support[2]	Support	
Gather Data that Should Be Measured and Managed to Meet Plan Goals and Objectives (b)	As Needed	Support	Support	Lead	
Store and Manage Needed Information	Annually/As Needed	Lead	Support	Support	
7. Finance Implementation Activities					
Set Annual Operating Budget for Implementation Coordination	Annually	Lead			
Manage Expenditures of Implementation Coordination Activities	Annually/As Needed	Lead			

1. Depending on the grant solicitation, the project proponent could be the applicant and select projects for inclusion into a single agency grant application.
2. This will be coordinated with the Westside IRWM Plan annual goals and objectives update and will be led by and supported by either party depending on circumstances of the project.

- State Permitting:
  - California Environmental Quality Act
  - California Department of Fish and Wildlife Lake/Streambed Alteration Permit
  - State Water Resources Control Board plans and policies
  - Central Valley Regional Water Quality Control Board Total Maximum Daily Loads (TMDLs), National Pollutant Discharge Elimination System (NPDES), and other plans and policies
- Local Permitting:
  - City/County development and encroachment permits
  - Municipal storm water compliance
  - Local pretreatment programs
  - Other

Environmental document preparation and permitting must occur prior to construction of any project. Project proponents are responsible for obtaining the necessary permits; and they may request for assistance with federal and state permit coordination by the Authorizing Agencies, which includes member agencies that have jurisdiction over local permits.

6.1.4 Community Participation

Continuing public involvement, including interested stakeholders and the general public, is one of the most important aspects of implementing the Plan. This will be accomplished through multiple avenues of communication and engagement between the Authorizing Agencies and stakeholders. Community participation during Plan implementation will follow the same public involvement process described in Section 11.2.2 of the Westside IRWM Plan. The public involvement process is summarized below:

- Stakeholder meetings will be held annually at a minimum, or as needed to discuss/gather input of relevant topics of progress on implementation or in support of fulfilling Plan objectives.
- Stakeholder meetings will include opportunities for remote participation including conference calls, web interface, and other technologies that allow for reasonable interaction while the meeting is in progress.
- Information related to Plan implementation will be maintained and updated on the Westside IRWM website at: http://www.westsideirwm.com/
- In addition to meetings, comments and questions will be accepted via email and phone.
- Updates and meeting invitations will be distributed via the WRA of Yolo County - and YSGA-maintained stakeholder email list. Participants in the development of the SWRP for Yolo County will be added to the IRWM Plan stakeholder list.

6.1.5 Meeting Notices

This summary is not intended to be inclusive of all Brown Act requirements, but merely to provide a discussion of some of the key aspects that appear to apply to Plan implementation. The SWRP meetings will follow the Brown Act provisions.

The Brown Act is contained in Section 54950 et seq. of the *California Government Code* and sets forward specific requirements for noticing about meetings, the way meeting agendas are established, and discussions among legislative bodies outside meetings. Brown Act provisions will apply to all Authorizing Agency and stakeholder meetings. Meetings are required to be held within the County boundaries. Remote meetings (such as teleconference calls) are permitted so long as all teleconference locations are identified in the meeting notice and these locations are made available to the public. Meeting notices with agendas must be posted 72 hours prior to the meeting; special and emergency meetings are allowed with shorter notices under special circumstances. The public will be afforded opportunities to comment before or while agenda items are covered, and time will need to be set aside for members of the public to comment on items that are applicable to the Authorizing Agencies but are not otherwise agendized. All votes of the Authorizing Agencies must be cast in public. There are also special provisions for closed session meetings, such as for dealing with pending litigation and personnel issues.

There are many exemptions and other protocols to the Brown Act; details can be found in the California Attorney General's Office pamphlet *The Brown Act: Open Meetings for Local Legislative Bodies*, 2003 and other similar guidance materials.

6.1.6 Decision Making

Decisions during implementation authorized by the Authorizing Agencies will continue to be made using broad agreement, as during Plan development. All interested participants will be invited to participate as equals during stakeholder input meetings. The WRA of Yolo County and YSGA will set agendas, interact with stakeholders, and foster collaborative decisions as shown in Table 6-1. If for some reason broad agreement cannot be reached between the Authorizing Agencies and the stakeholder group related to specific items within a reasonable amount of time and effort, the Authorizing Agencies will discuss such item(s) and then decide by majority vote how to proceed.

6.2 Resources for Implementation

Once incorporated into the Westside IRWM Plan, implementation of the SWRP will be a collaborative effort between the Authorizing Agencies. The WRA of Yolo County, YSGA and Project Proponents will lead in the effort to obtain funding for implementation with support from the RWMG.

6.2.1 Financing

Financing of a SWRP is an enormous undertaking and requires the contributions and attention of local, state, and federal agencies to ensure success. Financing of the Plan will follow the same funding strategy as documented in Section 11.4.1 of the Westside IRWM Plan, which includes two distinct tracts: funding of SWRP administration and coordination and funding of project implementation. This section highlights the anticipated funding needs for both tracks, identifies potential funding sources, and documents some of the activities that the Authorizing Agencies and others will employ to secure additional funding.

6.2.1.1 Funding of SWRP Administration

Development of the SWRP was funded by the WRA of Yolo County and the Storm Water Grant Program from the State Water Resource Control Board. However, these funds cannot be spent on plan implementation activities, so one of the first steps to implement the SWRP is to establish a budget and funding sources to support implementation coordination. These include activities undertaken by the Authorizing Agencies to plan for and conduct stakeholder input meetings, track Plan implementation (including progress towards completing plan objectives and projects), and conduct ongoing public outreach and engagement as described in the governance sections.

To accomplish these important responsibilities, the Authorizing Agencies will establish an annual operating budget for implementation coordination and manage expenditure and implementation coordination activities. This budget will be approved by the YSGA and RWMG and discussed at a stakeholder input meeting. Members of the Authorizing Agencies (and potentially other agencies/organizations within the region) may provide funds or in-kind services to ensure that the implementation coordination activities are fulfilled. The Authorizing Agencies may direct the expenditure of implementation coordination funds for any of the roles defined for the Authorizing Agencies. It is expected that the specific activities and associated budgets will be prepared by WRA of Yolo County on an annual basis. Many of the roles and activities could be handled by the WRA of Yolo County, YSGA or RWMG staff; therefore, the specific budgetary requirements may change as implementation progresses.

6.2.1.2 Project Implementation Funding

As of November 2017, 28 projects are included in the SWRP. Twenty of the projects provided funding information, with a total estimated funding need of almost $32 million. Of the 28 projects, 17 are feasibility studies and/or planning-level projects, which suggest that the overall funding needs will only increase as these projects progress and are developed into implementable projects, programs, or actions, and as other projects are added to the SWRP. Table 6-2 summarizes financing needs and the availability of capital and operations and maintenance (O&M) funding sources based on information provided by project proponents. It is recommended that this table be updated and included in the annual report each year.

Throughout the implementation phase of the SWRP, additional grant funding will become available for planning-level projects. The WRA of Yolo County and YSGA will lead in the effort to pursue grant funds for implementation, identifying grant opportunities, selecting projects for inclusion in grant applications, preparation and submittal of grant applications and identifying fiscal agents to manage grant funds on behalf of the Authorizing Agents.

A list of grant opportunities with storm water-related benefits has been generated and is included in Appendix J for reference.

Table 6-2: Yolo County SWRP Implementation Projects Funding Needs

Project	Project	Funding Needs: Project Capital Amount	Project Capital Secured?[1]	O&M Annual Cost	O&M Source Identified?	Land Needed Secured?
2	Arboretum Waterway Wetland Restoration and Enhancement	$4,000,000	90%	$20,000	Yes	Yes
4	Davis Greenbelts Landscape Conversions (Davis Greenbelts Stormwater Improvements)	$235,000	No	Unknown	Yes	No
6	Dry Creek Bank Stabilization and Wastewater Re-use	$250,000	No	$5,000	Yes	Yes
8	Flood Monitoring Network Project	$350,000	No	Unknown	Yes	Yes
13	Moore Siphon Reliability/Restoration Project (Moore Siphon Stormwater Improvements)	$1,000,000	No	$20,000	Yes	Yes
14	North Regional Pond and Pump Station	$8,000,000	Yes	$100,000	Yes	Yes
17	Russell Boulevard Demonstration LID Project (Russell Boulevard Stormwater Treatment Project)	$667,000	Yes	Minimal	Yes	Yes
20	Thompson Canyon Stormwater Management	$500,000	No	$10,000	Yes	Yes
22	West Adams Canal Renovation and China Slough Rehabilitation Project	$16,000,000	No	Unknown	No	No
24	Winters Bioswales Project and Habitat Enhancement	$195,000	50%	$5,000	Yes	Yes
27	Madison Farmer Field Stormwater Capture and Groundwater Recharge	$400,000	No	Unknown	No	No
	Total Implementation Funding Needed:	**$31,597,000**				

Note:
[1]Percent secured as of August 2017

6.2.2 Decision Support Tools and Methods

Throughout the development of the SWRP for Yolo County, decision support tools and methods for benefit metrics analysis were explored and utilized to optimize opportunities for storm water management and aiding in balancing efforts between resource management and hazard management.

The tools and methodologies presented below will continue to be developed as more data is collected as part of implementation of this SWRP. A reference list of decision support tools, metrics, and data is provided in Appendix K. As the SWRP is implemented, additional decision support tools and methods may be explored and developed based on project needs.

6.2.2.1 Mapping and Geographic Data

Mapping and geographic data was used to aid in identifying existing infrastructure, natural features, and potential project locations for storm water management, including:

- Base data such as county, tribal and municipal boundaries; waterways and water bodies; and water conveyance infrastructure.
- Publicly-owned lands to show potential project sites that would avoid the additional cost and time of purchasing property or acquiring the right-of-way.
- Soil Agricultural Groundwater Banking Index (SAGBI), developed by the California Soil Resource Lab at UC Davis and University of California Agriculture and Natural Resources. SAGBI is a suitability index for groundwater recharge on agricultural land based on factors related to deep percolation, root zone residence

time, topography, chemical limitations, and soil surface condition (O'Geen et al., 2015).

The intersection of the above data is shown in Figure 6-1 and can be used to identify locations for potential projects such as detention basins, recharge basins or injection wells, or runoff conveyance systems.

6.2.2.2 Water Evaluation and Planning System (WEAP)

WEAP is an integrated water resources planning tool for resource management and policy analysis using climate-driven water balance. The WEAP model provides a full accounting of water flows throughout the watershed, including rainfall-runoff modeling; climate-driven evapotranspiration; snow accumulation/melt; and groundwater-surface water interaction. Water infrastructure and demands are nested within the underlying hydrological processes which represent water demands from all sectors and programmable operating rules for infrastructure (i.e. reservoirs, weirs, etc.). Model development and results using WEAP is summarized below and documented in Appendix I.

As part of the quantitative analysis for the SWRP, SEI used the Cache Creek WEAP model to assess the long term (35 year) groundwater recharge potential from diversions of Cache Creek winter flows into the District unlined canal system. Using the 1976-2010 historical period as a baseline, the WEAP model average net change in groundwater recharge from this strategy (assuming an infiltration rate of 150 cfs) is estimated as 24,893 acre-feet (AF), varying widely across the years from a minimum of 266 AF to a maximum of 38.9 thousand AF (TAF). See Chapter 3 of Appendix I for additional details of this WEAP analysis.

In recent years, the idea of capturing winter rainfall on agricultural fields has gained ground, due to its potential to provide both flood management and water supply benefits (through groundwater recharge). SEI used the Cache Creek WEAP model to assess a what-if scenario for capturing winter rainfall on agricultural fields using 8-inch high berms surrounding potential sites. Potential sites were identified by intersecting the WEAP model's spatial configuration of crop coverage by SAGBI.

SEI's documentation of the WEAP modeling efforts includes recommendations for either progressing towards an implementation project that would result in SWRP benefits or to improve understanding of the watershed, providing additional data for WEAP model improvement. These recommendations are presented in Appendix I, Chapters 3 and 4.

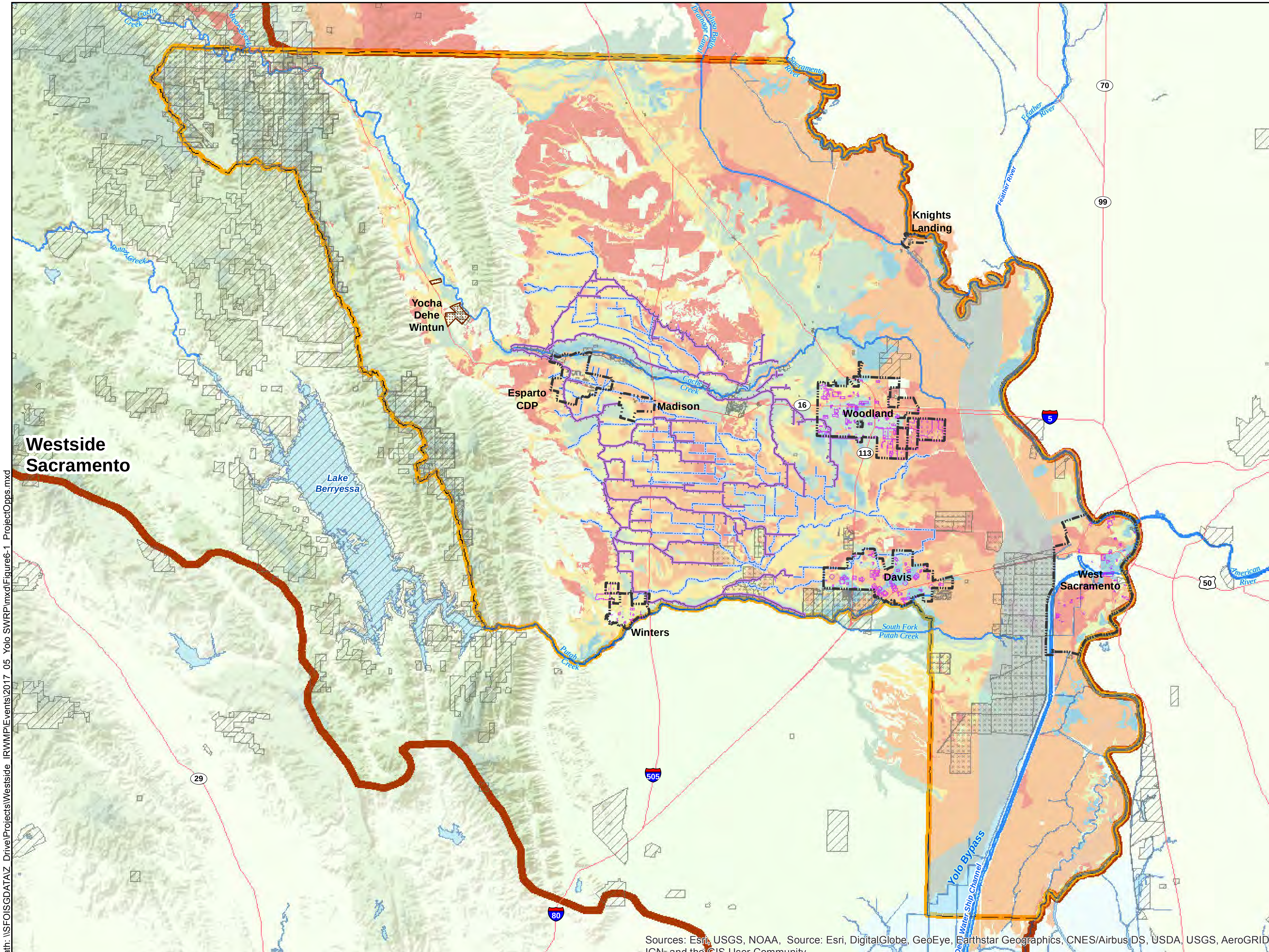
6.2.2.3 The Hydrologic Engineering Center (HEC) Hydrologic Modeling System (HMS)

HEC-HMS is a hydrologic modeling tool available by the US Army Corps of Engineers. HEC-HMS uses the input data sets for terrain, watershed delineations, landcover and soils, event precipitation, and design storm characteristics. The typical output of interest is the flow hydrograph at watershed outlets, in response to actual or design storms.

To address reports of consistent localized flooding in the area of Esparto and Madison, SEI created a HEC-HMS model for the Lamb Valley Slough, South Fork Willow Slough, Cottonwood Slough, and a small watershed that feeds into the Madison drain. The intent was to identify sources and causes of flooding to the area around the Town of Madison. Documentation of SEI's modeling efforts and results is provided in Appendix I, Chapter 2 and summarized below.

Modeling of the January 4, 2017 storm showed that a majority of the runoff originates from the upper portions of the model area (Cottonwood and South Fork Willow Sloughs above their intersection with the Winters Canal and Lamb Valley Slough above the bridge). Furthermore, Cottonwood Slough contributes the largest volume of water, both in the upstream area and overall model area, which is consistent with its area being the largest. From this modeling, SEI made the following recommendations:

1. Establish flow monitoring stations, locations recommended in Appendix I, Chapter 6.
2. Establish a Citizen Science data collection method until a flow monitoring network can be installed.
3. Implement upstream mitigation methods such as diversions, on- or off-channel detention ponds, check dams, or a combination of methods.
4. Investigate canal contributions to slough flows.
5. Implement on-farm mitigation methods to capture storm water runoff to reduce flooding by South Fork Willow Slough.



Path: \\SFOISGDATA\Z_Drive\Projects\Westside_IRWMP\Events\2017_05_Yolo_SWRP\mxd\Figure6-1_ProjectOpps.mxd

- Sloughs w/in YCFC&WCD Boundary
- Canals w/in YCFC&WCD Boundary
- City Public Properties
- County Zoning - Public
- Public Agency Jurisdiction
- Yolo SWRP Boundary
- Westside Region

Projects

- Conceptual/Planning
- Implementation
- Implementation
- Conceptual/Planning

SAGBI - Modified

- Excellent
- Good
- Moderately Good
- Moderately Poor
- Poor
- Very Poor

The Soil Agricultural Groundwater Banking Index (SAGBI) is a suitability index for groundwater recharge on agricultural land. The SAGBI is based on five major factors that are critical to successful agricultural groundwater banking: deep percolation, root zone residence time, topography, chemical limitations, and soil surface condition.

Modified overlay is theoretical; it shows SAGBI suitability groups when assuming that all soils with restrictive layers have been modified by deep tillage.

Source:
https://casoilresource.lawr.ucdavis.edu/sagbi/
SABGI overlay provided by
Toby O'Geen (atogeen@ucdavis.edu),
Professor & Soil Resource Specialist in Cooperative Extension, Dept. of Land, Air and Water Resources, UC Davis.

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Kennedy/Jenks Consultants

Storm Water Resource Plan For Yolo County

Geographic Information for Decision Support

K/J 1770002.00
May 2018

Figure 6-1

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6.2.2.4 Other Tools

Other tools and methodologies available for the development of implementation projects include the Rational Method, the Simple Method, and SUSTAIN, described below:

- Yolo City/County Drainage Manual, 2010: The Drainage Manual was prepared to provide consistent criteria and methodology for hydrologic and hydraulic analyses associated with storm runoff between rural and urban areas in Yolo County. This Manual can be accessed from the Yolo County Improvement Standards website (http://www.yolocounty.org/community-services/planning-public-works/public-works-division/improvement-standards) and provides the following:
  - Updated design rainfall (depth/duration/frequency and distribution patterns);
  - Rainfall-runoff parameters and methodology;
  - Criteria for addressing storm water quality;
  - Criteria for sizing hydraulic structures associated with roads and other infrastructure affecting storm runoff;
  - Hydrologic and hydraulic design criteria and guidelines for sloughs, creeks, and other anticipated types of storm drainage facilities, including direction for conveyance (peak) and storage (volume) design considerations; and
  - Tools for new development located in the unincorporated areas of the County to reduce pollutant discharge to the maximum extent practicable and to protect the beneficial uses of receiving waters.
- Modified Rational Method: The Modified Rational Method is recommended in the Yolo City/County Drainage Manual for designing local drainage facilities of limited size. The Modified Rational Method can be used to estimate runoff volumes using storm intensity, time of concentration, watershed imperviousness, and watershed size. The Yolo City/County Drainage Manual presents the equation and procedure for application for the recommended 10-year storm event.
- Simple Method: The Simple Method can be applied as a spreadsheet-based model that estimates storm water runoff pollutant loads and volumes for urban areas. Combined with characteristic pollutant removal efficiencies, it can provide a general planning estimate of likely storm pollutant reduction as a result of implementing projects at the scale of a development site, catchment or subwatershed. The technique requires a modest amount of information, including the subwatershed drainage area and impervious cover, storm water runoff pollutant concentrations, and annual precipitation to provide a general estimate of runoff volume and pollutant loading. Appendix K provides a description of the application of the Simple Method to calculate storm water runoff pollutant loads for the purposes of sizing a capture and treatment system.
- SUSTAIN: The US Environmental Protection Agency's (EPA's) System for Urban Stormwater Treatment and Analysis Integration (SUSTAIN) model focuses on the implementation of pollution control measures through green infrastructure, total maximum daily load requirements, and MS4 management practices. This system is still available for download from the EPA's website, however it is no longer supported; as a result, the SWRP development team opted to utilize the other decision support tools and methods described previously. Although this tool was not used in the development of the SWRP but was made available to the SWRP stakeholders and project proponents to assist in quantifying potential project benefits. SUSTAIN and documentation can be downloaded from the EPA website (https://www.epa.gov/water-research/system-urban-stormwater-treatment-and-analysis-integration-sustain).

6.2.3 Data Management System

Data management includes the collection, storage, processing, and sharing of information that is developed from project-specific performance monitoring. Data management for the Yolo County SWRP will adopt the strategy utilized by the Westside RWMG, as described in Westside IRWM Plan Section 11.3.2 Data Management. Water resources data are generated from multiple sources, in countless formats, and are reported in varying frequencies to jurisdictional bodies, nongovernmental agencies, water agencies, and regulators. The data management strategy is not meant to duplicate these efforts and does not serve as the central clearinghouse for this vast amount of information; rather, it has been developed to meet the following functions:

- Support the collection and sharing of information related to project implementation and progress in meeting objectives;

- Provide a means for interested stakeholders to locate needed information concerning project implementation; and
- Consider avenues to simplify the interconnection and sharing mechanisms between local and statewide data sources.

A list of data collection and monitoring programs that can be used throughout SWRP and project implementation is provided in Appendix K. This list is based on the Technical Memorandum prepared for the Westside IRWM Plan to identify information needs and potential information sources for tracking progress on the IRWM Plan objectives.[3] Appendix K is expected to be reviewed annually, and expanded, refined, and updated based on feedback received from SWRP stakeholders and project proponents. Links to access the data and monitoring programs will be maintained on the WRA of Yolo County website.

6.3 Implementation Projects and Programs

As described in Section 5, to identify and develop projects with clear storm water and dry weather runoff goals that also provide multiple public water quality and supply benefits, all projects submitted for inclusion of the SWRP for Yolo County must result in at least two storm water benefits, which can be achieved by meeting SWRP objectives introduced in Section 1.

6.3.1 Quantification of Storm Water Management

Section 5.4 summarized the projects submitted to the SWRP that were evaluated for implementation, including proposed benefit metrics analyses and expected associated quantification of benefits. In addition, quantitative analysis for the anticipated benefits was also presented.

Benefit quantification is an important measure of SWRP effectiveness. Quantification of storm water management actions show the balance between storm water as a resource and storm water as a hazard. The more that the storm water can be quantified, the more it can be put to use as a resource.

The tools and methods provided in Appendix K and discussed in the previous Subsection can be used to quantify project benefits and Plan overall benefits, as well as identify opportunities, size potential infrastructure, and communicate and educate the public.

6.3.2 Project Status Tracking

Project implementation monitoring data will be used to measure the SWRP's progress towards achieving both plans goals and objectives. As stated in Section 6.1.2, project proponents are responsible for collecting and reporting project monitoring data with the assistance of the WRA of Yolo County and YSGA.

Project-specific monitoring plans will be developed before the start of project implementation and will include the following components:

- Purpose and background for monitoring,
- Monitoring objectives,
- Description of monitoring site,
- Description of what will be monitored for each project,
- Methods for monitoring problems and their correction,
- Monitoring frequency,
- Monitoring protocols, procedures, and responsibilities,
- Reporting of data collected, and
- Procedures and funding assurances to document that the monitoring will take place during the entire monitoring period.

Additional information may be required depending on the project, and monitoring plans will need to include enough information in order to accurately evaluate project effectiveness.

It is intended that the monitoring plans will utilize Appendix K and the existing data collection and monitoring programs therein, as well as assess the ability of the existing programs to meet project monitoring needs. In this way Appendix K will continually be updated and data gaps will be identified.

It is anticipated that information collected as part of project monitoring will be shared and transferred formally through annual reporting and informally during the quarterly meetings. The data contained in the annual report will be shared with local, state, and federal

[3] Westside Sacramento IRWM Consultant Team. Technical Memorandum, Subject: Westside Sacramento IRWM Plan Information Needs, Potential Sources, and Suggested Implementation Steps for Tracking Progress on Plan Objectives. 10 April 2013.

agencies through posting to the WRA of Yolo County website.

From Section 5.4, implementation of the SWRP for Yolo County and the prioritized projects is anticipated to result in measurable benefits related to water quality, water supply, flood management, environmental, and community.

Table 6-3 presents the anticipated benefits as a result of implementation of the SWRP for Yolo County and how the projects' benefits will be measured.

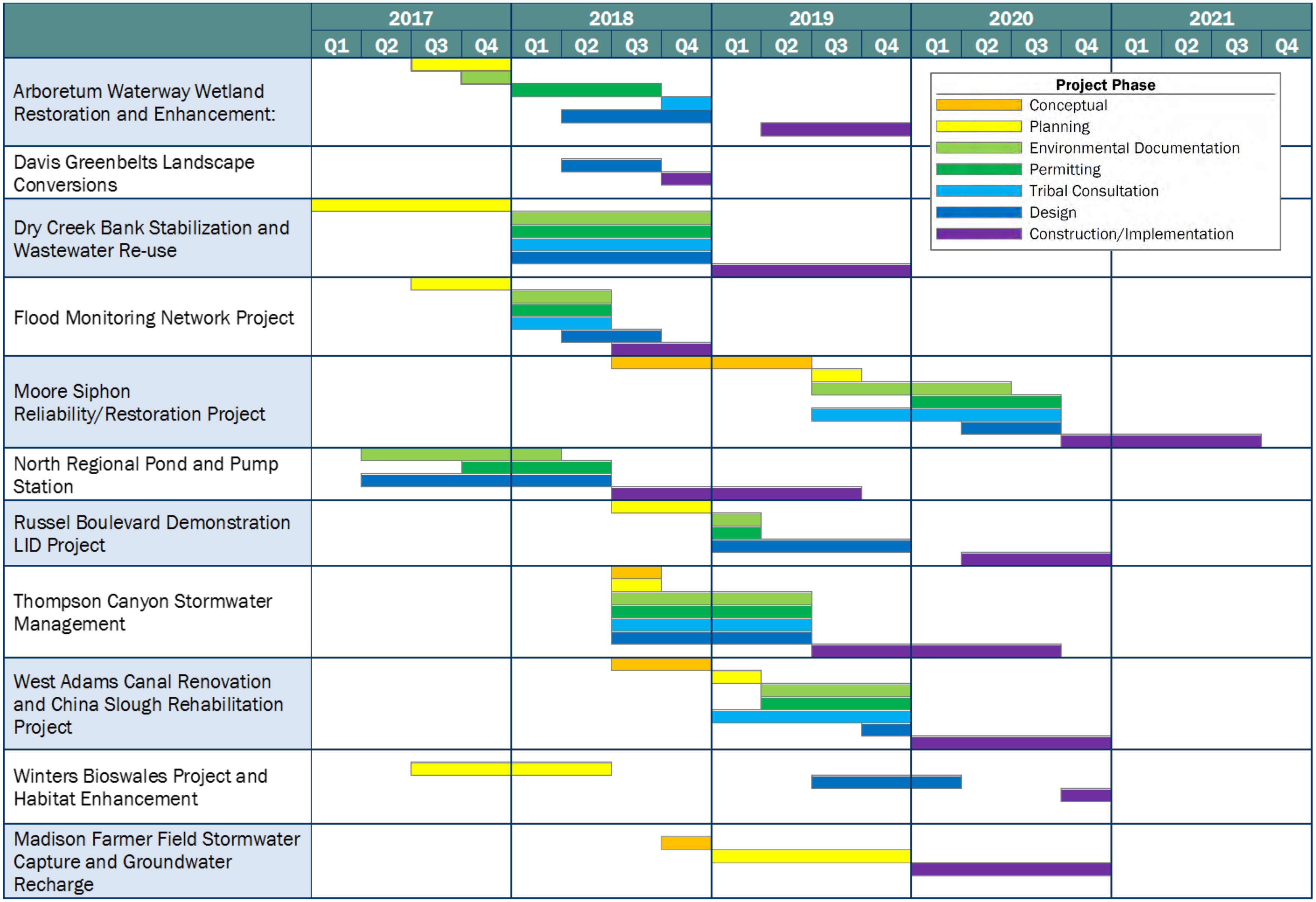
Implementation of the prioritized projects is anticipated to extend through 2021, depending on the availability of funding. Figure 6-2 presents the anticipated project timelines for those projects prioritized for implementation. It is assumed that implementation funding will be obtained prior to the Design and Construction/Implementation project phases, as applicable.

Table 6-3: **Yolo County SWRP Implementation Benefits**

Benefit Category	Project	Quantified Benefit	Performance Measure
Water Quality	2. Arboretum Waterway Wetland Restoration and Enhancement	935 acres of wetland treatment of runoff	Mapping/survey increase in vegetative cover
	6. Dry Creek Bank Stabilization and Wastewater Re-use	2 miles of sediment control	Mapping/survey of survival and growth of native vegetation
	14. North Regional Pond and Pump Station	120 cfs treatment prior to discharge	Water quality of WWTP outflow
Water Supply	2. Arboretum Waterway Wetland Restoration and Enhancement	2,000 gpm reclaimed water for arboretum irrigation/habitat	Flowmeter at WWTP discharge to Arboretum
	4. Davis Greenbelts Landscape Conversions	1,000,000 gallons/year/acre water conserved due to turf conversion	Advanced Metering Infrastructure (AMI)
	8. Flood Monitoring Network Project	24,893 AF/Y of additional recharge of storm water through the YCFC&WCD's canal system.	Stream gaging at specific locations
	13. Moore Siphon Reliability/Restoration Project	1,000 AFY of leak loss reduction due to repair of the Moore Siphon	Field measurement and engineering project report
		200 AF/day water supply reliability due to repair of Moore Siphon	Field measurement and engineering project report
	20. Thompson Canyon Stormwater Management	10,000 square feet of increased infiltration area due to native plantings	Visual monitoring/survey of survival and growth of native plantings
	27. Madison Farmer Field Stormwater Capture and Groundwater Recharge	300 AF - 1,100 AF per storm event (farmer fields - detention basin)	Rain gages and visual monitoring

Benefit Category	Project	Quantified Benefit	Performance Measure
Flood Management	2. Arboretum Waterway Wetland Restoration and Enhancement	1,800,000 cubic feet capacity to capture runoff	Visual monitoring of Arboretum Waterway to contain runoff
	8. Flood Monitoring Network Project	Reduce flooding due to Cache Creek by diverting up to 150 cfs of storm water runoff diverted from Cache Creek to YCFC&WCD canals.	Stream gaging at specific locations
	27. Madison Farmer Field Stormwater Capture and Groundwater Recharge	128,000 gpm reduced peak runoff to the town of Madison	Rain gages and visual monitoring
	17. Russell Boulevard Demonstration LID Project	0.05 AF of infiltration for a 24-hour storm event	Visual monitoring of discharge from swale
Environmental	4. Davis Greenbelts Landscape Conversions	1 acre of enhanced habitat per project site	Visual monitoring/survey of survival and growth of plantings and wildlife
	6. Dry Creek Bank Stabilization and Wastewater Re-use	2 acres of new riparian vegetation	Mapping/survey of survival and growth of native vegetation
	17. Russell Boulevard Demonstration LID Project	6,225 square feet of enhanced habitat	Visual monitoring/survey of survival and growth of plantings and wildlife
		7 trees planted	Visual monitoring/survey of survival and growth of plantings and wildlife
	20. Thompson Canyon Stormwater Management	1 river mile of restored trout spawning habitat for increased fish population	Average time to catch a trout
		10,000 square feet of habitat restoration	Visual monitoring/survey of survival and growth of native plantings
	24. Winters Bioswales Project and Habitat Enhancement	5 acres of habitat restoration	Visual monitoring/survey of plant community performance
Community	4. Davis Greenbelts Landscape Conversions	1 acre of recreation area per project site	Installation of interpretive signage
	17. Russell Boulevard Demonstration LID Project	1,000 volunteer hours and 3 class tours per year	Documentation of volunteers and class participation
	24. Winters Bioswales Project and Habitat Enhancement	3 community tours and 1 class visit per year	Documentation of tours and class participation

Figure 6-2: Yolo County SWRP Implementation Projects Timeline



6.4 Development of Future Projects

The projects in Section 6.3 were selected to be included in the SWRP for implementation based on its ability to result in storm water management benefits and objectives achieved, as well as based on if the project is ready for implementation. The remaining projects are included in this SWRP as conceptual projects that can be updated as project information (i.e. site selection, permitting, implementation cost estimates, schedule) is developed, moving them towards implementation.

In support of the development of the SWRP and benefit analysis, the Stockholm Environment Institute utilized multiple decision support tools and methods to identify possible storm water management opportunities and achieve SWRP objectives. SEI's efforts are documented in Appendix I and included:

- Modeling in the sloughs in the western portion of Yolo County to investigate regular flooding of Madison due to storm water runoff;
- Modeling of storm water conveyance using YCFC&WCD canals for groundwater recharge;
- Modeling of rainfall capture on agricultural fields;
- Review of potential farm field groundwater recharge strategies;
- Visits and photo-documentation of recommended sites for use in establishing and enhancing the existing flow monitoring network in Yolo County; and,
- Production of geographic data, HEC-HMS model files, WEAP model files, photo catalog of past flooding (high-water and rainfall runoff-driven).

SEI's efforts to support the development of the Yolo County SWRP also generated the following recommendations for future actions to address storm water management:

1) management and maintenance of storm drains at the local scale;
2) on-field management of winter runoff at the distributed, farm-field scale;
3) management of upstream storm flows in sloughs; and,
4) canal operations, because canals cut across all these scales.

These recommendations will be considered in the development of the submitted conceptual projects as well as any future projects submitted for inclusion in to the Plan.

Section 7: Education, Outreach, and Public Participation

Since its inception in 1993, the WRA of Yolo County has a history of local stakeholder and community engagement in planning, programs and activities for water resource planning in Yolo County. The term "stakeholder" refers to representatives of agencies, nonprofit groups, nongovernmental organizations, government organizations, and private citizens interested in or affected by the development of the Plan.

Specific outreach to non-government organizations (NGOs), disadvantaged communities (DACs), economically distressed areas (EDAs) and the general public built on the efforts initiated by the WRA of Yolo County, as detailed in the following subsections.

7.1 Local Stakeholders

As described in Sections 2 and 4, local stakeholders included non-profit organizations, municipal water agencies, reclamation districts, government agencies, community services districts, and non-governmental organizations. All stakeholders were invited to participate in the collaborative Plan development process, regardless of whether they were members of the WRA of Yolo County.

To maximize resources, SWRP development meetings were generally held following the monthly WRA of Yolo County Technical Committee meetings. Meeting announcements, agendas, materials, and draft sections of the Plan were developed and discussed by the SWRP Team prior to sending out by email and posting to the WRA of Yolo County website at http://www.yolowra.org/projects_swrp.html. See Appendix L for meeting agendas, materials, and sign-in sheets.

In addition to holding SWRP development meetings, the SWRP Team developed a survey to gauge potential project sponsor interest in submitting projects for storm water management. The results of the survey were used to track the submittal of project forms during the project solicitation period described in Section 5. To facilitate and encourage project submittals, project development workshops were held on July 10, 2017 and July 12, 2017. The purpose of these workshops was to provide in-depth reviews of potential projects for submission to the SWRP. These meetings were open to all local stakeholders. Discussion included identifying opportunities for storm water projects, how to estimate benefits, and potential funding mechanisms.

7.2 Disadvantaged Communities

Individuals from disadvantaged, small, and rural communities and other interested groups were frequently encouraged to participate. In addition to regular SWRP meetings, an in-person workshop was held with representatives from the Madison CSD and Yolo County on July 25, 2017 to discuss storm water challenges for the Town of Madison and other DACs in the County such as Knights Landing. The SWRP Team also provided assistance to the Town of Madison and the County of Yolo in developing project concepts and benefits, as well as project forms for submittal to the SWRP.

Although no organizations specifically addressing environmental justice (EJ) concerns have been identified in the Region, conversations regarding the challenges and opportunities of the Region and especially conversations with representatives of DACs were structured to identify and include EJ concerns.

7.3 Climate-Vulnerable Communities

Because of the large agricultural production in Yolo County and the heavy reliance on groundwater, the entire County of Yolo and its stakeholders are considered vulnerable to climate change impacts. The Westside IRWM Plan identified climate change vulnerability issues and those applicable to Yolo County include:

1.4: Groundwater supplies lack resiliency after drought events.

4.5: A portion of the Region floods at extreme high tides or storm surges.

During the outreach process, project development discussion and workshops included these considerations.

7.4 Other Stakeholders

In addition to local stakeholders, outreach efforts included invitations to storm water management agencies in upstream watersheds that discharge to Yolo County.

Solano County Water Agency (SCWA) manages water supply and flood control throughout the entire county of Solano, including the Lower Putah Creek subwatershed upstream of Yolo County. One conference call was held on July 17, 2017 with the SCWA to discuss projects related to the portion of the Lower Putah Creek subwatershed that discharges to Yolo County. The Lower Putah Creek subwatershed includes Dry Creek, a significant wildlife migration corridor, and Thompson Canyon, a significant contributor of sediment.

Finally, outreach to the Westside RWMG included participation in quarterly Westside IRWM Plan coordination calls and presenting updates on the Yolo SWRP progress.

7.5 Community Participation in Plan Implementation

Public outreach is part of the overall implementation strategy for the Yolo SWRP and may also be part of the implementation of individual components of the SWRP projects. The public outreach and stakeholder involvement process used by the WRA of Yolo County to implement the Westside IRWM Plan and other projects will be used for the implementation of the Yolo SWRP and are outlined in the following subsection.

7.5.1 Outreach

The WRA of Yolo County and implementing agencies will coordinate their public outreach efforts with ongoing stakeholder involvement efforts of the Westside IRWM Plan. WRA of Yolo County member agencies are involved both as agencies that plan the Yolo SWRP and as agencies that plan and implement their own independent storm water resource management activities—both processes are moving forward concurrently.

7.5.1.1 Public Education and Participation

The WRA of Yolo County Technical Committee is the working group for WRA of Yolo County activities. The Technical Committee is responsible for implementing foundational actions and coordinating actions for implementation of the Yolo SWRP. Member agencies will be partners in implementing this plan; member or non-member agencies may sponsor and implement projects.

Technical Committee meetings are open to the public and generally the first Thursday of every month, with the third Thursday held as an additional standing meeting date as needed. Agendas are posted 72 hours before the meeting date at http://www.yolowra.org/meeting_technical.html. Technical Committee functions in relation to implementation of the Yolo SWRP is described in Section 6.

Upon completion of the final SWRP, the Project Team will present their findings to the WRA of Yolo County and Westside IRWM group. This is expected to take place over a three-month period in the first quarter of 2018.

Other public involvement opportunities include implementation and maintenance of the submitted projects. Many of the projects submitted to the SWRP include volunteer and public education components. These public involvement opportunities can begin as soon as the project is funded or completed. For example, the Winters Bioswales Project and Habitat Enhancement project relies on volunteers to maintain bioswales plantings. The volunteer program will also include education on the function and importance of the bioswale.

Members of the public interested in finding opportunities to volunteer can email info@westsideirwm.com or visit the Westside Sac IRWM Website at http://www.westsideirwm.com/projects.html.

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Appendix A

Checklist and Self-Certification

Appendix A: Checklist and Self-Certification

Checklist Instructions:

For each element listed below, review the applicable section in the Storm Water Resource Plan Guidelines and enter ALL of the following information.

A. Mark the box if the Storm Water Resource Plan, or a functional equivalent Plan, meets the provision

B. In the provided space labeled References, enter:

1. Title of document(s) that contain the information;
2. The chapter/section, and page number(s) where the information is located within the document(s);
3. The entity(ies) that prepared the document(s);
4. The date the document(s) was prepared, and subsequent updates; and
5. Where each document can be accessed (website address or attached).

A.1 WATERSHED IDENTIFICATION (GUIDELINES SECTION VI.A)

<table>
<tr><td rowspan="2">a. Plan identifies watershed and subwatershed(s) for storm water resource planning. [10565(c), 10562(b)(1), 10565(c)]</td><td>Mandatory?</td><td>Yes</td></tr>
<tr><td>Meets Requirement?</td><td>Yes</td></tr>
<tr><td colspan="3">Yolo County is located within the Sacramento Hydrologic Region as defined by DWR and includes the lower portions of both the Putah Creek and Cache Creek watersheds, the Colusa Basin drain (a portion of the Sacramento-Stone Corral watershed) and Lower Sacramento watershed.</td></tr>
<tr><td colspan="3">References: Yolo County SWRP; Section 2.1 and Section 2.1.1, pgs 2-1 through 2-2; Water Resources Association of Yolo County and Kennedy/Jenks Consultants, Inc.; May 2018; http://www.yolowra.org/projects_swrp.html</td></tr>
<tr><td rowspan="2">b. 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.</td><td>Mandatory?</td><td>No</td></tr>
<tr><td>Meets Requirement?</td><td>Yes</td></tr>
<tr><td colspan="3">Development of the SWRP boundary started with the Westside IRWM Planning Region, and based on stakeholder interest, was focused to the drainages within Yolo County. The SWRP watershed delineation is based on the 12-digit (most detailed) United States Geological Survey (USGS) Watershed Boundary Dataset for subwatersheds.</td></tr>
<tr><td colspan="3">References: Yolo County SWRP; Section 2.1.1, pgs 2-1 through 2-2; Water Resources Association of Yolo County and Kennedy/Jenks Consultants, Inc.; May 2018; http://www.yolowra.org/projects_swrp.html</td></tr>
</table>

<table>
<tr><td rowspan="2">c. 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;</td><td>Mandatory?</td><td>No</td></tr>
<tr><td>Meets Requirement?</td><td>Yes</td></tr>
<tr><td colspan="3">The Yolo WRA, whose members include agricultural water suppliers and urban water suppliers in Yolo County, is an effective means for facilitating collaboration between water managers to maximize storm water management opportunities throughout Yolo County.</td></tr>
<tr><td colspan="3"><u>References:</u> Yolo County SWRP; Section 2, pg 2-1 Water Resources Association of Yolo County and Kennedy/Jenks Consultants, Inc.; May 2018; http://www.yolowra.org/projects_swrp.html</td></tr>
<tr><td rowspan="2">d. 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.; preferably provided in a geographic information system shape file);</td><td>Mandatory?</td><td>No</td></tr>
<tr><td>Meets Requirement?</td><td>Yes</td></tr>
<tr><td colspan="3">Figure 2-2 in Section 2.2 shows that groundwater basins in the SWRP planning area. Section 2.3.3 and Figure 2-4 presents the land use agencies, municipalities, and tribal lands within the County. Section 2.3.2, Figure 2-6, and Appendix C present the water and wastewater service providers within the County.</td></tr>
<tr><td colspan="3"><u>References:</u> Yolo County SWRP; Section 2.2, Section 2.3.3, Section 2.3.2, and Appendix C, pgs 2-5 through 2-6, pgs 2-8 through 2-13, and pg 2-17; Water Resources Association of Yolo County and Kennedy/Jenks Consultants, Inc.; May 2018; http://www.yolowra.org/projects_swrp.html</td></tr>
<tr><td rowspan="2">e. 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);</td><td>Mandatory?</td><td>No</td></tr>
<tr><td>Meets Requirement?</td><td>Yes</td></tr>
<tr><td colspan="3">Waste load allocations have been and will continue to be adopted as part of the development of total maximum daily loads (TMDLs) for 303(d) listed waterways within Yolo County</td></tr>
<tr><td colspan="3"><u>References:</u> Yolo County SWRP; Section 2.4.5, pgs 2-22 through 2-23; Water Resources Association of Yolo County and Kennedy/Jenks Consultants, Inc.; May 2018; http://www.yolowra.org/projects_swrp.html</td></tr>
<tr><td rowspan="2">f. Plan describes the general quality and identification of surface and ground water resources within the watershed (preferably provided in a geographic information system shape file);</td><td>Mandatory?</td><td>No</td></tr>
<tr><td>Meets Requirement?</td><td>Yes</td></tr>
<tr><td colspan="3">Surface Water: mercury, boron, pesticides, erosion and sedimentation, cyanobacteria. Groundwater: arsenic, boron, chromium, hexavalent chromium, iron, manganese, nitrate, TDS</td></tr>
<tr><td colspan="3"><u>References:</u> Yolo County SWRP; Section 2.2 and Section 2.4.5, pgs 2-5 and 2-23; Water Resources Association of Yolo County and Kennedy/Jenks Consultants, Inc.; May 2018; http://www.yolowra.org/projects_swrp.html</td></tr>
<tr><td rowspan="2">g. Plan describes the local entity or entities that provide potable water supplies and the estimated volume of potable water provided by the water suppliers;</td><td>Mandatory?</td><td>No</td></tr>
<tr><td>Meets Requirement?</td><td>Yes</td></tr>
<tr><td colspan="3">Section 2.3.2, Figure 2-6 and Appendix C present the water service providers within Yolo County. When available, estimated volume of water supplied is provided in Appendix C.</td></tr>
<tr><td colspan="3"><u>References:</u> Yolo County SWRP; Section 2.3.2, Figure 2-6, and Appendix C, pg 2-6, pg 2-17; Water Resources Association of Yolo County and Kennedy/Jenks Consultants, Inc.; May 2018; http://www.yolowra.org/projects_swrp.html</td></tr>
<tr><td rowspan="2">h. Plan includes map(s) showing location of native habitats, creeks, lakes, rivers, parks, and other natural or open space within the sub-watershed boundaries; and</td><td>Mandatory?</td><td>No</td></tr>
<tr><td>Meets Requirement?</td><td>Yes</td></tr>
</table>

Figure 2-3 shows land uses throughout the County including native (open space) and riparian land use designations. Figure 2-4 shows land use agencies and Figure 2-7 shows native habitats within the SWRP planning area.
References: Yolo County SWRP; Section 2.3 Figures 2-3 and 2-4, Section 2.4.1 Figure 2-7, pgs 2-11, 2-13, and 2-19; Water Resources Association of Yolo County and Kennedy/Jenks Consultants, Inc.; May 2018; http://www.yolowra.org/projects_swrp.html

i. Plan identifies (quantitative, if possible) the natural watershed processes that occur within the sub-watershed and a description of how those natural watershed processes have been disrupted within the sub-watershed (e.g., high levels of imperviousness convert the watershed processes of infiltration and interflow to surface runoff increasing runoff volumes; development commonly covers natural surfaces and often introduces non-native vegetation, preventing the natural supply of sediment from reaching receiving waters).	Mandatory?	No
	Meets Requirement?	Yes
Sections 2.1.1 and Subsections 2.1.1.1-2.1.1.4 described the watersheds of Yolo County including processes and man-made channelizations of the watersheds. Section 2.4 describes the issues affecting the Yolo County watersheds including interruptions to the natural process such as invasive species.		
References: Yolo County SWRP; Section 2.1.1 and Section 2.4, pgs 2-1 through 2-2 and 2-7 through 2-24; Water Resources Association of Yolo County and Kennedy/Jenks Consultants, Inc.; May 2018; http://www.yolowra.org/projects_swrp.html		

A.2 WATERSHED QUALITY COMPLIANCE (GUIDELINES SECTION V)

a. 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. [10562(d)(7)]	Mandatory?	Yes
	Meets Requirement?	Yes
Several surface water, groundwater, and wastewater/recycled water sources such as confined animal feeding operations, agricultural drains, urban drainage, residential drainage, industrial drainage, agricultural runoff, road construction activities, mining, agricultural irrigation, logging and other harvest activities, natural sources such as effects of fire, flood, and landslide, landfill leachate collection system, non-permitted direct connection and illicit discharges, construction, roads, streets, and highways operations and maintenance, drainage system operation and maintenance, waste handling and disposal, water and sewer utility operation and maintenance.		
References: Yolo County SWRP; Section 3.1 pgs 3-1 through 3-2; Water Resources Association of Yolo County and Kennedy/Jenks Consultants, Inc.; May 2018; http://www.yolowra.org/projects_swrp.html		
b. 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. [10562(b)(5)]	Mandatory?	Yes
	Meets Requirement?	Yes
Section 3.2 describes the TMDLs and NPDES permits applicable to Yolo County as well as how the SWRP will assist in achieving permit goals.		
References: Yolo County SWRP; Section 3.2 pgs 3-2 through 3-12; Water Resources Association of Yolo County and Kennedy/Jenks Consultants, Inc.; May 2018; http://www.yolowra.org/projects_swrp.html		
c. Plan identifies applicable permits and describes how it meets all applicable waste discharge permit requirements. [10562(b)(6)]	Mandatory?	Yes
	Meets Requirement?	Yes

Section 3.2.2 and Section 3.3.1 identify applicable municipal, individual, and industrial and construction permits and describe how they meet waste discharge permit requirements.
References: Yolo County SWRP; Section 3.2.2 and Section 3.3.1, pgs 3-7 through 3-13; Water Resources Association of Yolo County and Kennedy/Jenks Consultants, Inc.; May 2018; http://www.yolowra.org/projects_swrp.html

A.3 ORGANIZATION, COORDINATION, COLLABORATION (GUIDELINES SECTION VI.B)

a. Local agencies and nongovernmental organizations were consulted in Plan development. [10565(a)]	Mandatory?	Yes
	Meets Requirement?	Yes
The planning process used to develop the Yolo County SWRP included engagement with municipal and county governments, wholesale and retail water purveyors, wastewater agencies, flood management agencies, state and federal regulatory and resource agencies, the environmental community, tribal communities, and other special districts.		
References: Yolo County SWRP; Section 4.1 pg 4-1; Water Resources Association of Yolo County and Kennedy/Jenks Consultants, Inc.; May 2018; http://www.yolowra.org/projects_swrp.html		
b. Community participation was provided for in Plan development. [10562(b)(4)]	Mandatory?	Yes
	Meets Requirement?	Yes
Section 4.3 and Section 7 describe the community participation process for the development of the SWRP.		
References: Yolo County SWRP; Section 4.3 pg 4-3 and Section 7 pgs 7-1 through 7-2; Water Resources Association of Yolo County and Kennedy/Jenks Consultants, Inc.; May 2018; http://www.yolowra.org/projects_swrp.html		
c. Plan includes description of the existing integrated regional water management group(s) implementing an integrated regional water management plan.	Mandatory?	No
	Meets Requirement?	Yes
The SWRP is located within the Westside-Sacramento IRWM Planning Region, which is described in Section 1.1.1. Adjacent IRWM groups include the American River Basin Region and the North Sacramento Valley Region.		
References: Yolo County SWRP; Section 1.1.1 pg 1-1 and Section 1.1.1.1 pg 1-5; Water Resources Association of Yolo County and Kennedy/Jenks Consultants, Inc.; May 2018; http://www.yolowra.org/projects_swrp.html		
d. 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 watershed.	Mandatory?	No
	Meets Requirement?	Yes
Section 4.1 and 4.2 describe the local, state, and federal agencies that participated, monitored, or were invited to comment on the development of the SWRP and describes their storm water interests.		
References: Yolo County SWRP; Sections 4.1 and 4.2 pgs 4-1 through 4-3; Water Resources Association of Yolo County and Kennedy/Jenks Consultants, Inc.; May 2018; http://www.yolowra.org/projects_swrp.html		

e. Plan includes identification of nonprofit organizations working on storm water and dry weather resource planning or management in the watershed.	Mandatory?	No
	Meets Requirement?	Yes

Section 1.1.1 describes other related planning efforts in the County and Section 4.1 identifies the nonprofit organizations working on storm water and dry weather resource planning or management in the SWRP watershed.

References: Yolo County SWRP; Sections 1.1.1 and 4.1 pgs 1-1 through 1-6 and pgs 4-1 through 4-2; Water Resources Association of Yolo County and Kennedy/Jenks Consultants, Inc.; May 2018; http://www.yolowra.org/projects_swrp.html

f. Plan includes identification and discussion of public engagement efforts and community participation in Plan development.	Mandatory?	No
	Meets Requirement?	Yes

Section 7 discusses engagement efforts of various local communities within Yolo County.

References: Yolo County SWRP; Section 7.1-7.4, pgs 7-1 through 7-2; Water Resources Association of Yolo County and Kennedy/Jenks Consultants, Inc.; May 2018; http://www.yolowra.org/projects_swrp.html

g. 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.	Mandatory?	No
	Meets Requirement?	Yes

Section 4.4 presents the SWRP implementation process and Section 6.1.6 and Table 6-1 describes in detail the implementation strategy including required decisions and responsibilities.

References: Yolo County SWRP; Section 4.4 pgs 4-3 and Section 6.1.6 pgs 6-5 and 6-6; Water Resources Association of Yolo County and Kennedy/Jenks Consultants, Inc.; May 2018; http://www.yolowra.org/projects_swrp.html

h. 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.	Mandatory?	No
	Meets Requirement?	Yes

Section 6.1.2 describes the Authorizing Authorities for the Yolo SWRP and Table 6-1 describes the responsibilities of these entities.

References: Yolo County SWRP; Section 6.1.2 pgs 6-2 through 6-3; Water Resources Association of Yolo County and Kennedy/Jenks Consultants, Inc.; May 2018; http://www.yolowra.org/projects_swrp.html

i. Plan describes the relationship of the Plan to other existing planning documents, ordinances, and programs established by local agencies.	Mandatory?	No
	Meets Requirement?	Yes

Section 1.1.1 describes the Yolo County SWRP's relationship to other IRWMP Plan Regions, Groundwater Sustainability Authorities, Storm Water Management Planning, and concurrent studies.

References: Yolo County SWRP; Section 1.1.1 pgs 1-1 through 1-6; Water Resources Association of Yolo County and Kennedy/Jenks Consultants, Inc.; May 2018; http://www.yolowra.org/projects_swrp.html

j. (If applicable) Plan explains why individual agency participation in various isolated efforts is appropriate.	Mandatory?	No
	Meets Requirement?	Yes

The boundary for the SWRP is the entire Yolo County, based on discussion initiated by the Westside IRWM Coordinating Committee to discuss general interest in preparation of a SWRP and a follow-up Coordinating Committee Special Business Meeting that resulted in the Yolo WRA as the only entity that had sufficient stakeholder interest and resources to pursue preparation of a SWRP.

References: Yolo County SWRP; Section 1.1, pg 1-1; Water Resources Association of Yolo County and Kennedy/Jenks Consultants, Inc.; May 2018; http://www.yolowra.org/projects_swrp.html

A.4 QUANTITATIVE METHODS (GUIDELINES SECTION VI.C)

<table>
<tr><td rowspan="2">a. For all analyses: 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.</td><td>Mandatory?</td><td>No</td></tr>
<tr><td>Meets Requirement?</td><td>Yes</td></tr>
<tr><td colspan="3"></td></tr>
<tr><td colspan="3"><u>References:</u> Yolo County SWRP; Section 5.2, pgs. 5-13 through 5-17; Water Resources Association of Yolo County and Kennedy/Jenks Consultants, Inc.; May 2018; http://www.yolowra.org/projects_swrp.html</td></tr>
<tr><td rowspan="2">b. For water quality project analysis (section VI.C.2.a): Plan includes an analysis of how each project and program complies with or is consistent with an applicable NPDES permit. 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)</td><td>Mandatory?</td><td>No</td></tr>
<tr><td>Meets Requirement?</td><td>Yes</td></tr>
<tr><td colspan="3">Subsection 5.4.1.1 present the water quality benefits anticipated as a result of the implementation of the prioritized projects in Table 5-3.</td></tr>
<tr><td colspan="3"><u>References:</u> Yolo County SWRP; Section 5.4.1.1, pg 5-22; Water Resources Association of Yolo County and Kennedy/Jenks Consultants, Inc.; May 2018; http://www.yolowra.org/projects_swrp.html</td></tr>
<tr><td rowspan="2">c. For storm water capture and use project analysis (section VI.C.2.b): 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.</td><td>Mandatory?</td><td>No</td></tr>
<tr><td>Meets Requirement?</td><td>Yes</td></tr>
<tr><td colspan="3">Collective water supply benefits consist of 33,627 AFY of water that could infiltrate back into the groundwater plus and additional 1,000 gpm per storm event.</td></tr>
<tr><td colspan="3"><u>References:</u> Yolo County SWRP; Section 5.4.1.2, pg 5-24; Water Resources Association of Yolo County and Kennedy/Jenks Consultants, Inc.; May 2018; http://www.yolowra.org/projects_swrp.html</td></tr>
<tr><td rowspan="2">d. For water supply and flood management project analysis (section VI.C.2.c): Plan includes an analysis of how each project and program will maximize and/or augment water supply.</td><td>Mandatory?</td><td>No</td></tr>
<tr><td>Meets Requirement?</td><td>Yes</td></tr>
<tr><td colspan="3">Subsection 5.4.1.2 presents the projects that maximize and/or augment water supply and decrease risk of flood and sanitary sewer overflow.</td></tr>
<tr><td colspan="3"><u>References:</u> Yolo County SWRP; Section 5.4.1.2, pgs 5-22 through 5-25; Water Resources Association of Yolo County and Kennedy/Jenks Consultants, Inc.; May 2018; http://www.yolowra.org/projects_swrp.html</td></tr>
<tr><td rowspan="2">e. For environmental and community benefit analysis (section VI.C.2.d): Plan includes a narrative of how each project and program will benefit the environment and/or community, with some type of quantitative measurement.</td><td>Mandatory?</td><td>No</td></tr>
<tr><td>Meets Requirement?</td><td>Yes</td></tr>
<tr><td colspan="3">Subsections 5.4.1.4 and 5.4.1.5 present the projects that could result in environmental and community benefits.</td></tr>
<tr><td colspan="3"><u>References:</u> Yolo County SWRP; Section 5.4.1.4, pgs 5-25 through 5-27; Water Resources Association of Yolo County and Kennedy/Jenks Consultants, Inc.; May 2018; http://www.yolowra.org/projects_swrp.html</td></tr>
<tr><td rowspan="2">f. Data management (section VI.C.3): Plan describes data collection and management, including: a) mechanisms by which data will be managed</td><td>Mandatory?</td><td>No</td></tr>
<tr><td>Meets Requirement?</td><td>Yes</td></tr>
</table>

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.		
Section 6.2.3 presents the data management strategy for the Yolo County SWRP, which will adopt the same strategy that is used for the Westside IRWM Plan.		
References: Yolo County SWRP; Section 6.2.3, pgs 6-11 through 6-12; Water Resources Association of Yolo County and Kennedy/Jenks Consultants, Inc.; May 2018; http://www.yolowra.org/projects_swrp.html		

A.5 IDENTIFICATION AND PRIORITIZATION OF PROJECTS (GUIDELINES SECTION VI.D)

a. Plan identifies opportunities to augment local water supply through groundwater recharge or storage for beneficial use of storm water and dry weather runoff. [10562(d)(1)]	Mandatory? Meets Requirement?	Yes Yes
The Plan identifies 14 projects to augment local water supplies.		
References: Yolo County SWRP; Section 5.2, pg 5-19; Water Resources Association of Yolo County and Kennedy/Jenks Consultants, Inc.; May 2018; http://www.yolowra.org/projects_swrp.html		
b. 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. [10562(d)(2)]	Mandatory? Meets Requirement?	Yes Yes
The Plan identifies 25 projects for source control.		
References: Yolo County SWRP; Section 5.2, pg 5-19; Water Resources Association of Yolo County and Kennedy/Jenks Consultants, Inc.; May 2018; http://www.yolowra.org/projects_swrp.html		
c. Plan identifies projects that reestablish natural water drainage treatment and infiltration systems, or mimic natural system functions to the maximum extent feasible. [10562(d)(3)]	Mandatory? Meets Requirement?	Yes Yes
The Plan identifies 13 projects to reestablish natural water drainage treatment and infiltration systems.		
References: Yolo County SWRP; Section 5.2, pg 5-19; Water Resources Association of Yolo County and Kennedy/Jenks Consultants, Inc.; May 2018; http://www.yolowra.org/projects_swrp.html		
d. 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. [10562(d)(4)]	Mandatory? Meets Requirement?	Yes Yes
The Plan identifies 14 projects to develop, restore or enhance habitat and open space.		
References: Yolo County SWRP; Section 5.2, pg 5-19; Water Resources Association of Yolo County and Kennedy/Jenks Consultants, Inc.; May 2018; http://www.yolowra.org/projects_swrp.html		
e. 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. [10562(d)(5), 10562(b)(8)]	Mandatory? Meets Requirement?	Yes Yes

<table>
<tr><td colspan="3">The Plan identifies 17 projects that use existing publicly owned lands to capture stormwater.</td></tr>
<tr><td colspan="3"><u>References:</u> Yolo County SWRP; Section 5.2, pg 5-19; Water Resources Association of Yolo County and Kennedy/Jenks Consultants, Inc.; March 2018; http://www.yolowra.org/projects_swrp.html</td></tr>
<tr><td rowspan="2">f. For new development and redevelopments (if applicable): Plan identifies design criteria and best management practices 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. [10562(d)(6)]</td><td>Mandatory?</td><td>Yes</td></tr>
<tr><td>Meets Requirement?</td><td>NA</td></tr>
<tr><td colspan="3">Implementation of any project submitted to the Yolo SWRP will comply with the design criteria and/or best management practices specified by Yolo County and/or specific local jurisdictions and programs, including Yolo County City/County Drainage Manual (FloodSAFE Yolo, 2010); Stormwater Management Planning Programs and Design Standards/Criteria for the City of Davis, the City of West Sacramento, the City of Woodland, the University of California, Davis, and Yolo County; and Stormwater Best Management Practice Handbook, New Development and Redevelopment (California Stormwater Quality Association, 2003).</td></tr>
<tr><td colspan="3"><u>References:</u> Yolo County SWRP; Section 5.5, pg 5-27; Water Resources Association of Yolo County and Kennedy/Jenks Consultants, Inc.; May 2018; http://www.yolowra.org/projects_swrp.html</td></tr>
<tr><td rowspan="2">g. Plan uses appropriate quantitative methods for prioritization of projects. (This should be accomplished by using 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.) [10562(b)(2)]</td><td>Mandatory?</td><td>Yes</td></tr>
<tr><td>Meets Requirement?</td><td>Yes</td></tr>
<tr><td colspan="3">A total of 250 points are distributed between the three scoring categories with 80 points for Scoring Category 1; 50 points for Scoring Category 2 and 120 points for Scoring Category 3. The distribution of the total points to the three scoring categories reflects both the relative importance derived from the SWRP guidelines as well as a means of balancing the merits of each project. Points were assigned to a variety of elements within each scoring category and summed to give a total score per category. Each of the categories were then summed at the end to give a total project score. Projects were ranked based on their total scores.

Projects were evaluated based upon their project proposal forms submitted to the Westside IRWM and the Storm Water Addendum Form. Proponents were asked to support claims made for various benefits (both main and additional) as well as identify quantitative metrics-based benefits.</td></tr>
<tr><td colspan="3"><u>References:</u> Yolo County SWRP; Sections 5.3 and 5.4, pgs 5-19 through 5-27; Water Resources Association of Yolo County and Kennedy/Jenks Consultants, Inc.; May 2018; http://www.yolowra.org/projects_swrp.html</td></tr>
<tr><td rowspan="2">h. Overall: 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.</td><td>Mandatory?</td><td>No</td></tr>
<tr><td>Meets Requirement?</td><td>Yes</td></tr>
<tr><td colspan="3">Project ranking was conducted to identify and develop projects with clear storm water and dry weather runoff goals that also provide multiple public water quality and supply benefits, and have been identified, prioritized, and selected based on a metrics-driven analysis.</td></tr>
<tr><td colspan="3"><u>References:</u> Yolo County SWRP; Section 5.4, pgs 5-22 through 5-27; Water Resources Association of Yolo County and Kennedy/Jenks Consultants, Inc.; May 2018; http://www.yolowra.org/projects_swrp.html</td></tr>
<tr><td rowspan="2">i. Multiple benefits: Each project in accordance with the Plan contributes to at least two or more Main Benefits and the maximum number of</td><td>Mandatory?</td><td>No</td></tr>
<tr><td>Meets Requirement?</td><td>Yes</td></tr>
</table>

Additional Benefits as listed in Table 4 of the Guidelines. (Benefits are not counted twice if they apply to more than one category.)		
At a minimum, each project will contribute to at least two or more Main Benefits and the maximum number of Additional Benefits as listed in Table 4 of the SWRP Guidelines.		
References: Yolo County SWRP; Section 5.4, pgs 5-22 through 5-27; Water Resources Association of Yolo County and Kennedy/Jenks Consultants, Inc.; May 2018; http://www.yolowra.org/projects_swrp.html		

A.6 IMPLEMENTATION STRATEGY AND SCHEDULE (GUIDELINES SECTION VI.E)

a. 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.	Mandatory? Meets Requirement?	No Yes
Resources for implementation include funds contributed by the Yolo WRA, Yolo SGA, and the Westside RWMG, and project proponent. It is assumed that funds for project implementation will be obtained prior to the Design and Construction/Implementation project phases, as applicable.		
References: Yolo County SWRP; Section 6.2.1 and 6.3.2, pgs 6-7 through 6-8 and 6-12 through 6-15; Water Resources Association of Yolo County and Kennedy/Jenks Consultants, Inc.; May 2018; http://www.yolowra.org/projects_swrp.html		
b. 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. [10562(d)(8)]	Mandatory? Meets Requirement?	Yes Yes
Section 6.3 describes the strategy used for tracking implementation projects and Appendix I summarizes the tools, data, and monitoring programs available for project tracking.		
References: Yolo County SWRP; Section 6.3, pgs 6-12 through 6-15, and Appendix I; Water Resources Association of Yolo County and Kennedy/Jenks Consultants, Inc.; May 2018; http://www.yolowra.org/projects_swrp.html		
c. The Plan identifies the development of appropriate decision support tools and the data necessary to use the decision support tools. [10562(d)(8)]	Mandatory? Meets Requirement?	Yes Yes
Mapping and geographic data, the Water Evaluation and Planning System (WEAP), the Hydrologic Engineering Center Hydrologic Modeling System (HEC-HMS), Yolo City/County Drainage Manual, Modified Rational Method, and the Simple Method were all evaluated and developed as decision support tools for the development and implementation of the Yolo County SWRP.		
References: Yolo County SWRP; Section 6.2.2, pgs 6-7 through 6-12; Water Resources Association of Yolo County and Kennedy/Jenks Consultants, Inc.; May 2018; http://www.yolowra.org/projects_swrp.html		
d. Plan describes implementation strategy, including: a) Timeline for submitting Plan into existing plans, as applicable; b) Specific actions by which Plan will be implemented; c) All entities responsible for project implementation; d) Description of community participation strategy; e) Procedures to track status of each project; f) Timelines for all active or planned projects;	Mandatory? Meets Requirement?	No Yes

g) Procedures for ongoing review, updates, and adaptive management of the Plan; and h) A strategy and timeline for obtaining necessary federal, state, and local permits.		

The Yolo County SWRP will be submitted to the Westside RWMG in March 2018, and will be implemented by the Yolo WRA, the Yolo SGA, and the Westside RWMG. Implementation actions, including community participation, project status tracking, reviewing/updating the SWRP, and obtaining the necessary permits will utilizing existing Westside RWMG and Yolo WRA procedures.

References: Yolo County SWRP; Sections 6.1 and 6.3.2, pgs 6-1 through 6-6, 6-12 through 6-15; Water Resources Association of Yolo County and Kennedy/Jenks Consultants, Inc.; May 2018; http://www.yolowra.org/projects_swrp.html

e. Applicable IRWM plan: The Plan will be submitted, upon development, to the applicable integrated regional water management (IRWM) group for incorporation into the IRWM plan. [10562(b)(7)]	Mandatory?	Yes
	Meets Requirement?	Yes

The SWRP will be submitted to the Westside Sacramento Regional Water Management Group

References: Yolo County SWRP; Section 6.1.1, pg 6-1; Water Resources Association of Yolo County and Kennedy/Jenks Consultants, Inc.; May 2018; http://www.yolowra.org/projects_swrp.html

f. Plan describes how implementation performance measures will be tracked.	Mandatory?	No
	Meets Requirement?	Yes

Implementation performance measures will be tracked with project-specific monitoring plans and monitoring data. Appendix I is a list of data, monitoring programs, and tools that can be used to track performance measures.

References: Yolo County SWRP; Section 6.3.2, pgs 6-12 through 6-15, and Appendix I; Water Resources Association of Yolo County and Kennedy/Jenks Consultants, Inc.; May 2018; http://www.yolowra.org/projects_swrp.html

A.7 EDUCATION, OUTREACH, PUBLIC PARTICIPATION (GUIDELINES SECTION VI.F)

a. Outreach and Scoping: Community participation is provided for in Plan implementation. [10562(b)(4)]	Mandatory?	Yes
	Meets Requirement?	Yes

Section 7.5 describes the community participation process for the implementation of the SWRP, including strategies for outreach and public education and participation.

References: Yolo County SWRP; Section 7.5, pg 7-2; Water Resources Association of Yolo County and Kennedy/Jenks Consultants, Inc.; May 2018; http://www.yolowra.org/projects_swrp.html

b. 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.	Mandatory?	No
	Meets Requirement?	Yes

Public education and participation is facilitated by the WRA technical committee. Furthermore, outreach is being coordinated in conjunction with stakeholder involvement efforts of the Westside IRWMP. These processes are further described in Section 7.5.

References: Yolo County SWRP; Sections 7.5.1. and 7.5.1.1, pg 7-2; Water Resources Association of Yolo County and Kennedy/Jenks Consultants, Inc.; May 2018; http://www.yolowra.org/projects_swrp.html

	Mandatory?	No

<table>
<tr><td>c. 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.</td><td>Meets Requirement?</td><td>Yes</td></tr>
<tr><td colspan="3">Public stakeholder meetings and technical committee meetings were held regularly to facilitate public participation and communication.</td></tr>
<tr><td colspan="3"><u>References:</u> Yolo County SWRP; Section 7.5, pg 7-2 and Section 4.3, pg 4-3; Water Resources Association of Yolo County and Kennedy/Jenks Consultants, Inc.; May 2018; http://www.yolowra.org/projects_swrp.html</td></tr>
<tr><td rowspan="2">d. Plan describes mechanisms to engage communities in project design and implementation.</td><td>Mandatory?</td><td>No</td></tr>
<tr><td>Meets Requirement?</td><td>Yes</td></tr>
<tr><td colspan="3">Communities are invited to participate in Technical Advisory Committee meetings, where implementing foundational actions is planned. Furthermore, implementation of projects submitted to the SWRP include volunteer and public education components.</td></tr>
<tr><td colspan="3"><u>References:</u> Yolo County SWRP; 7.5.1.1, pg 7-2; Water Resources Association of Yolo County and Kennedy/Jenks Consultants, Inc.; May 2018; http://www.yolowra.org/projects_swrp.html</td></tr>
<tr><td rowspan="2">e. Plan identifies specific audiences including local ratepayers, developers, locally regulated commercial and industrial stakeholders, nonprofit organizations, and the general public.</td><td>Mandatory?</td><td>No</td></tr>
<tr><td>Meets Requirement?</td><td>Yes</td></tr>
<tr><td colspan="3">Sections 7.1 and 7.4 identify specific audiences, including local stakeholders and other stakeholders. Section 4.3 also identifies several groups that were focuses of outreach efforts, including local tribes, the general public and other more specific audiences.</td></tr>
<tr><td colspan="3"><u>References:</u> Yolo County SWRP; Section 7, pgs 7-1, 7-2 and Section 4.3, pg 4-3; Water Resources Association of Yolo County and Kennedy/Jenks Consultants, Inc.; May 2018; http://www.yolowra.org/projects_swrp.html</td></tr>
<tr><td rowspan="2">f. Plan describes strategies to engage disadvantaged and climate vulnerable communities within the Plan boundaries and ongoing tracking of their involvement in the planning process.</td><td>Mandatory?</td><td>No</td></tr>
<tr><td>Meets Requirement?</td><td>Yes</td></tr>
<tr><td colspan="3">Individuals from disadvantaged and small, rural communities were frequently encouraged to participate. These efforts are described in sections 7.2 and 7.3.</td></tr>
<tr><td colspan="3"><u>References:</u> Yolo County SWRP; Sections 7.2 and 7.3, pg 7-1; Water Resources Association of Yolo County and Kennedy/Jenks Consultants, Inc.; May 2018; http://www.yolowra.org/projects_swrp.html</td></tr>
<tr><td rowspan="2">g. Plan describes efforts to identify and address environmental injustice needs and issues within the watershed.</td><td>Mandatory?</td><td>No</td></tr>
<tr><td>Meets Requirement?</td><td>Yes</td></tr>
<tr><td colspan="3">Conversations regarding the challenges and opportunities of the Region (especially conversations with representatives of DACs) were structured to identify and include EJ concerns</td></tr>
<tr><td colspan="3"><u>References:</u> Yolo County SWRP; Section 7.2, pg 7-1; Water Resources Association of Yolo County and Kennedy/Jenks Consultants, Inc.; May 2018; http://www.yolowra.org/projects_swrp.html</td></tr>
<tr><td rowspan="2">h. Plan includes a schedule for initial public engagement and education.</td><td>Mandatory?</td><td>No</td></tr>
<tr><td>Meets Requirement?</td><td>Yes</td></tr>
<tr><td colspan="3">Initial public engagement and education were facilitated through scheduled meetings- these meetings were scheduled and announced ahead of time to increase attendance and participation.</td></tr>
<tr><td colspan="3"><u>References:</u> Yolo County SWRP; Section 4.3, pg 4-3; Water Resources Association of Yolo County and Kennedy/Jenks Consultants, Inc.; May 2018; http://www.yolowra.org/projects_swrp.html</td></tr>
</table>

DECLARATION AND SIGNATURE

I declare under penalty of perjury that all information provided is true and correct to the best of my knowledge and belief.

Signature	Title	Date
Signature	Title	Date

Appendix B

Yolo County SWRP Objectives and Benefits Matrices

Westside Sacramento IRWM Plan Objectives vs SWRP Guideline Objectives

Westside Sacramento IRWM Plan, June 2013.
Section 6: Goals and Objectives, 6.4 Plan Objectives

Storm Water Resources Plan Guidelines, December 2015
Multi-Benefit / Multiple Benefit Projects, Page 9

Storm water and dry weather runoff capture projects that provide more than one benefit or meets more than one objective.

Westside Sacramento IRWM Plan Objectives	SWRP Guideline Objectives													
	1. Creates and restores wetlands (Wat. Code, § 10561(g))	2. Riverside [riparian] habitats (Wat. Code, § 10561(g))	3. Instream flows (Wat. Code, § 10561(g))	4. Increase in park and recreation lands (Wat. Code, § 10561(g))	5. Urban green space (Wat. Code, § 10561(g))	6. Augments recreation opportunities for communities (Wat. Code, § 10561(h))	7. Increases tree canopy (Wat. Code, § 10561(h))	8. Reduces heat island effect (Wat. Code, § 10561(h))	9. Improves air quality (Wat. Code, § 10561(h)	10. Maximizes water quality (Wat. Code, § 10562(b)(2))	11. Maximizes water supply (Wat. Code, § 10562(b)(2))	12. Maximizes flood management (Wat. Code, § 10562(b)(2))	13. Maximizes environmental benefits (Wat. Code, § 10562(b)(2))	14. Maximizes other community benefits (Wat. Code, § 10562(b)(2))
Education and Awareness Focus														
1. Provide and promote use of educational curricula for K-12 students														x
2. Provide educational information to encourage stewardship by public														x
Habitat Focus														
3. Restore native vegetation/form/function along riparian/aquatic corridors	x	x												
4. Quantify the extent of suitable life-cycle habitat for Threatened/Endangered/Imperiled native fish			x										x	
5. Prioritize/plan/schedule improvements to suitable life-cycle habitat forto T/E/I native fish			x										x	
6. Increase availability of suitable life-cycle habitat for Threatened/Endangered/Imperiled native fish identified.			x										x	
Invasive Species Focus														
7. Prevent colonization by quagga mussels/zebra mussels and eliminate/prevent spread of New Zealand mud snails		x											x	
8. Establish invasive plant management plan		x											x	
9. Implement invasive plant management plan		x											x	
Infrastructure Focus														
10. Create asset management plan for key water management infrastructure										x	x	x		
Reasonable Use Focus														
11. Meet 20% by 2020 conservation targets			x								x			
12. Increase adoption of agricultural Best Management Practices		x	x							x	x			
Recreation Focus														
13. Maintain and increase water-related recreational opportunities				x	x	x								
Risk Management Focus														
14. Provide adequate flood protection												x		
15. Manage watershed activities to reduce large erosion events	x	x							x	x		x	x	
Understand Watershed Function Focus														
16. Monitor state/federal Delta programs														
17. Monitor conditions/improve understanding to support sustainable groundwater basins											x			
18. Maintain/enhance watershed and natural resource monitoring network and information sharing										x				
Water Quality Focus														
19. Address pollutant sources to meet runoff standards and Total Maximum Daily Load (TMDL) targets										x				
20. Minimize accidental wastewater spillage/discharges										x		x		x
21. Reduce public health risks by reducing contaminants in drinking water sources										x	x			x
22. Meet all drinking water and wastewater discharge standards											x			x
Water Supply Focus														
23. Provide 100% reliability of municipal and industrial water supplies										x	x			
24. Provide agricultural water supplies to support a robust agricultural industry										x	x			
Proposed Objective														
25. Convert paved and/or impervious areas and increase tree canopy and vegetation, reducing urban heat island effects.					x		x	x						
26. Optimize the rural storm water conveyance system to drain and retain storm water flows as necessary. Provide proper rural drainage and keep conveyance systems clear of debris to minimize county road flooding during storm events.												x		x
27. Enable proper rural retention and modify rural landscape to maximize groundwater recharge of excess storm water.											x	x		
Objective Totals	**2**	**6**	**5**	**1**	**2**	**1**	**1**	**1**	**1**	**9**	**9**	**6**	**7**	**6**

Westside Sacramento IRWM Plan Objectives vs SWRP Benefit Categories

Westside Sacramento IRWM Plan, June 2013.
Section 6: Goals and Objectives, 6.4 Plan Objectives

Storm Water Resources Plan Guidelines, December 2015
Multi-Benefit / Multiple Benefit Projects, Page 9

Storm water and dry weather runoff capture projects that provide more than one benefit or meets more than one objective.

	SWRP Guideline Benefit Categories																		
	Water Quality			Water Supply			Flood Management		Environmental								Community		
	Increase filtration and/or treatment of runoff	Nonpoint source pollution control	Reestablished natural water drainage and treatment	Water supply reliability	Water conservation	Conjunctive use	Decreased flood risk by reducing runoff rate and/or volume	Reduced sanitary sewer overflows	Environmental and habitat protection and improvement	Wetland enhancement/creation	Riparian enhancement	Instream flow improvement	Increased urban green space	Reduced energy use, greenhouse gas emissions, or provides a carbon sink	Reestablishment of the natural hydrograph	Water temperature improvements	Enhanced and/or created recreational and public use areas	Community involvement	Employment opportunities provided
Westside Sacramento IRWM Plan Objectives																			
Education and Awareness Focus																			
1. Provide and promote use of educational curricula for K-12 students																		x	
2. Provide educational information to encourage stewardship by public																		x	
Habitat Focus																			
3. Restore native vegetation/form/function along riparian/aquatic corridors			x						x	x	x	x			x				
4. Quantify the extent of suitable life-cycle habitat for Threatened/Endangered/Imperiled native fish									x	x	x	x				x			
5. Prioritize/plan/schedule improvements to suitable life-cycle habitat forto T/E/I native fish									x	x	x	x				x			
6. Increase availability of suitable life-cycle habitat for Threatened/Endangered/Imperiled native fish identified by Objective 5.									x	x	x	x				x			
Invasive Species Focus																			
7. Prevent colonization by quagga mussels/zebra mussels and eliminate/prevent spread of New Zealand mud snails									x		x								
8. Establish invasive plant management plan									x		x								
9. Implement invasive plant management plan									x		x								
Infrastructure Focus																			
10. Create asset management plan for key water management infrastructure				x															
Reasonable Use Focus																			
11. Meet 20% by 2020 conservation targets				x	x														
12. Increase adoption of agricultural Best Management Practices		x		x	x	x													
Recreation Focus																			
13. Maintain and increase water-related recreational opportunities																	x	x	
Risk Management Focus																			
14. Provide adequate flood protection							x	x											
15. Manage watershed activities to reduce large erosion events			x				x								x				
Understand Watershed Function Focus																			
16. Monitor state/federal Delta programs			x												x			x	
17. Monitor conditions/improve understanding to support sustainable groundwater basins	x			x		x												x	
18. Maintain/enhance watershed and natural resource monitoring network and information sharing	x			x		x			x	x	x	x				x		x	
Water Quality Focus																			
19. Address pollutant sources to meet runoff standards and Total Maximum Daily Load (TMDL) targets	x	x	x																
20. Minimize accidental wastewater spillage/discharges							x	x											
21. Reduce public health risks by reducing contaminants in drinking water sources	x	x	x	x			x	x											
22. Meet all drinking water and wastewater discharge standards	x	x	x	x			x	x											
Water Supply Focus																			
23. Provide 100% reliability of municipal and industrial water supplies				x															
24. Provide agricultural water supplies to support a robust agricultural industry				x															
Proposed Objective																			
25. Convert paved and/or impervious areas and increase tree canopy and vegetation, reducing urban heat island effects.													x	x			x		
26. Optimize the rural storm water conveyance system to drain and retain storm water flows as necessary. Provide proper rural drainage and keep conveyance systems clear of debris to minimize county road flooding during storm events.						x	x	x											
27. Enable proper rural retention and modify rural landscape to maximize groundwater recharge of excess storm water.						x	x												
Benefit Totals	**5**	**4**	**6**	**9**	**2**	**5**	**7**	**5**	**8**	**5**	**8**	**5**	**1**	**1**	**3**	**4**	**2**	**6**	**7**

Appendix C

Water and Wastewater Service Agencies within Yolo County

Appendix C: Water/Wastewater Providers within the Yolo County SWRP Boundaries

Cacheville Community Services District

The Cacheville Community Services District provides water service to the residents and commercial customers within the District's service area (the township of Cacheville). The District serves a population of approximately 476 customers within an 89-acre service area.

Source: Yolo County. "Cacheville Community Service District." Accessed 13 December 2017. <http://www.yolocounty.org/home/showdocument?id=17068>

California American Water Company, Dunnigan Water Works

Dunnigan Water Works, part of the California American Water Company, operates water and wastewater facilities in Yolo County, California. It provides services to a population of 400 in a mobile home park. Groundwater from three wells is supplied to 173 connections.
Source: California State Water Resources Control Board. "Safe Drinking Water Information System." Accessed 14 December 2017.
<https://sdwis.waterboards.ca.gov/PDWW/JSP/WaterSystemFacilities.jsp?tinwsys_is_number=8257&tinwsys_st_code=CA>

Central Valley Project Settlement Contracts

The following entities located in Yolo County contract with the United States Bureau of Reclamation for Central Valley Project Settlement Water:

- William A. Driver, Paula D. Shimada, and Mary A. McDermott: 160 AFY to irrigate 74 acres with water from the Sacramento River.
- Wallace L. Edson and Mary O. Edson: 104 AFY to irrigate 24 acres.
- B.E. Giovannetti: 520 AFY to irrigate 150 acres.
- Mildred M. Heidrick, Trustee of the Emmett E. Heidrick and Mildred M. Heidrick Trust: 120 AFY to irrigate 42 acres.
- Edith Heidrick, Trustee of the Joseph Heidrick, Sr. Family Trust: 560 AFY to irrigate 72 acres.
- Hersey Land Company: 3,020 AFY.
- Knaggs Walnut Ranches Company, L.P.: 630 AFY.
- Riverby Limited: 500 AFY to irrigate 177 acres.
- Fred Tenhunfeld, Trustee Of Trust Agreement Dated May 8, 1987, Between Jack Wallace, As Trustor And Fred Tenhunfeld, As Trustee; Jack Wallace And Pamela M. Emerson, Trustees Under Testamentary Trusts Created By Paragraphs Seven And Eight Of The Last Will And Testament Of Celeste Wallace, Deceased, And Yolo County Superior Court, Case No. 18073: 3,640 AFY.
- Wilson Ranch Partnership: 370 AFY.

Source:

1. United States Department of the Interior, Bureau of Reclamation. *Contract between the United States and William A. Driver, Paula D. Shimada, and Mary A. McDermott, Diverter of Water from*

Sacramento River Sources, Settling Water Rights Disputes and Providing for Project Water. Contract No. 14-06-200-939A-1-R-1. Accessed 14 December 2017. <https://www.usbr.gov/mp/cvpia/3404c/lt_contracts/2004_settle_foc/2004_sett_con_driver_william_10-07-03.pdf>

2. United States Department of the Interior, Bureau of Reclamation. *Contract between the United States and Wallace L. Edson and Mary O. Edson, Diverter of Water from Sacramento River Sources, Settling Water Rights Disputes and Providing for Project Water*. Contract No. 14-06-200-991A-R-1. Accessed 14 December 2017. <https://www.usbr.gov/mp/cvpia/3404c/lt_contracts/2004_settle_foc/2004_sett_con_edson_wallace_mary_10-24-03.pdf>

3. United States Department of the Interior, Bureau of Reclamation. *Contract between the United States and B.E. Giovannetti, Diverter of Water from Sacramento River Sources, Settling Water Rights Disputes and Providing for Project Water*. Contract No. 14-06-200-939A-1-R-1. Accessed 14 December 2017. <https://www.usbr.gov/mp/cvpia/3404c/lt_contracts/2004_settle_foc/2004_sett_con_giovannetti_be_10-16-03.pdf>

4. United States Department of the Interior, Bureau of Reclamation. *Contract between the United States and Mildred M. Heidrick, Trustee of the Emmett E. Heidrick and Mildred M. Heidrick Trust, Diverter of Water from Sacramento River Sources, Settling Water Rights Disputes and Providing for Project Water*. Contract No. 14-06-200-1616A-R-1. Accessed 14 December 2017. <https://www.usbr.gov/mp/cvpia/3404c/lt_contracts/2004_settle_foc/2004_sett_con_heidrick_mildred_1616a_10-20-03.pdf>

5. United States Department of the Interior, Bureau of Reclamation. *Contract between the United States and Edith Heidrick, Trustee of the Joseph Heidrick, Sr. Family Trust, Diverter of Water from Sacramento River Sources, Settling Water Rights Disputes and Providing for Project Water*. Contract No. 14-06-200-1176A-R-1. Accessed 14 December 2017. <https://www.usbr.gov/mp/cvpia/3404c/lt_contracts/2004_settle_foc/2004_sett_con_heidrick_edith_10-20-03.pdf>

6. United States Department of the Interior, Bureau of Reclamation. *Contract between the United States and Hersey Land Company, Diverter of Water from Sacramento River Sources, Settling Water Rights Disputes and Providing for Project Water*. Contract No. 14-06-200-7972A-R-1. Accessed 14 December 2017. <https://www.usbr.gov/mp/cvpia/3404c/lt_contracts/2004_settle_foc/2004_sett_con_hershey_land_04-03-03.pdf>

7. United States Department of the Interior, Bureau of Reclamation. *Contract between the United States and Knaggs Walnut Ranches Company, L.P., Diverter of Water from Sacramento River Sources, Settling Water Rights Disputes and Providing for Project Water*. Contract No. 14-06-200-2148A-R-1. Accessed 14 December 2017. <https://www.usbr.gov/mp/cvpia/3404c/lt_contracts/2004_settle_foc/2004_sett_con_knaggs_walnut_ranches_04-03-03.pdf>

8. United States Department of the Interior, Bureau of Reclamation. *Contract between the United States and Riverby Limited, Diverter of Water from Sacramento River Sources, Settling Water Rights Disputes and Providing for Project Water*. Contract No. 14-06-200-934A-R-1. Accessed 14 December 2017. <https://www.usbr.gov/mp/cvpia/3404c/lt_contracts/2004_settle_foc/2004_sett_con_riverby_limited_10-23-03.pdf>

9. United States Department of the Interior, Bureau of Reclamation. *Contract between the United States and Fred Tenhunfeld, Trustee Of Trust Agreement Dated May 8, 1987, Between Jack*

Wallace, As Trustor And Fred Tenhunfeld, As Trustee; Jack Wallace And Pamela M. Emerson, Trustees Under Testamentary Trusts Created By Paragraphs Seven And Eight Of The Last Will And Testament Of Celeste Wallace, Deceased, And Yolo County Superior Court, Case No. 18073, Diverter of Water from Sacramento River Sources, Settling Water Rights Disputes and Providing for Project Water. Contract No. 14-06-200-4604A-R-1. Accessed 14 December 2017. <https://www.usbr.gov/mp/cvpia/3404c/lt_contracts/2004_settle_foc/2004_sett_con_tenhunfeld_fred_wallace_jack_09-19-03.pdf>

10. United States Department of the Interior, Bureau of Reclamation. *Contract between the United States and Wilson Ranch Partnership, Diverter of Water from Sacramento River Sources, Settling Water Rights Disputes and Providing for Project Water*. Contract No. 14-06-200-4520A-R-1. Accessed 14 December 2017. <https://www.usbr.gov/mp/cvpia/3404c/lt_contracts/2004_settle_foc/2004_sett_con_wilson_ranch_partner_04-03-03.pdf>

City of Davis

The City of Davis provides water service to all residential (single and multi-family), commercial, industrial, and irrigation customers, and for open space and fire protection uses. The City has approximately 16,763 connections within a 9.8 square mile area. The 2015 annual water demand was 9,212 AF.

The City of Davis also provides wastewater service residents within the City of Davis. The approximate number of service connections is 15,231. The annual effluent flow to the treatment plant for FY 2015-2016 was 6,249 AF.

Source:

1. City of Davis. *2015 Urban Water Management Plan*. Brown and Caldwell, June 2016.
2. City of Davis. *Comprehensive Sewer Rate Study Report*. NBS, January 2017.

City of West Sacramento

The Bryte Bend Water Treatment Plant has been in operation since 1988. The Bryte Bend Water Treatment Plant diverts water from the Sacramento River and provides treatment at the recently upgraded and expanded facility. In addition to the plant, the city operates several water tanks to provide additional storage for fire and emergency needs. The City of West Sacramento provides water service to approximately 15,128 connections. The annual water demand is approximately 10,111 AF.

The City of West Sacramento runs and maintains a sewer collection system consisting of pump stations, and underlying sewer pipes across the city. The collected sewage is then delivered to the Sacramento County Regional Sanitation District for treatment. The average annual effluent flow to the treatment plant is 6,161 AF, serving approximately 31,341 customers.

Source:

1. City of West Sacramento. *2015 Urban Water Management Plan*. Carollo Engineers, October 2016.
2. City of West Sacramento. *Wastewater Master Plan and Connection to the Lower Northwest Interceptor*. April 2003.

City of Winters

The City of Winters pumps drinking water from five wells into a single system. The City of Winters currently serves approximately 7,000 customers and maintains approximately 20 miles of pipeline. The 2002 annual water demand was 1,680 AF.

The City was founded in 1875; as such, the wastewater collection system is assumed to have been initially constructed around that time frame. The wastewater collection system and WWTP are entirely owned by the City of Winters. The average annual effluent flow to the treatment plant is 1,075 AF, serving approximately 7,300 customers.

Source:

1. City of Winters. *Sewer System Management Plan*. Ponticello Enterprises, May 2010.
2. City of Winters. *Water Master Plan*. RMC Water and Environment, December 2006.

City of Woodland

The City serves the entire area encompassed by the City limits (approximately 14.5 square miles), including residential, commercial, industrial, and fire use. The City of Woodland provides water service to approximately 15,635 connections and approximately 57,000 residents. The annual water demand is approximately 8,650 AF.

The City's Department of Public Works (DPW) owns 180 miles of sanitary sewer piping which convey wastewater to the City water pollution control facility. The average annual effluent flow to the treatment plant is 5,041 AF, serving approximately 15,000 lateral sanitary sewer connections.

Source:

1. City of Woodland. *2015 Urban Water Management Plan*. West Yost Associates, June 2016.
2. City of Woodland. *Sewer System Management Plan (SSMP)*. Kimley-Horn and Associates, Inc., Revised May 2015.

Colusa County Water District

Colusa County Water District provides irrigation services for agricultural purposes. Water is diverted from the Tahema-Colusa Canal at eight locations, five by pump and three by gravity. The District includes 29,204 irrigated acres and diverts approximately 54,099 AFY. The District contracts with the United States Bureau of Reclamation and Westside Water District for surface water supplies and utilizes Bureau Warren Act Contracts for groundwater supply.

Source: United States Bureau of Reclamation. *Colusa County Water District Water Management Plan 2011 Criteria*. "Section 1: Description of the District." 2014.

Colusa Drain Mutual Water Company

USBR.gov

Colusa Drain Mutual Water Company (Company) is a Central Valley Project Water Contractor whose boundary encompasses approximately 57,500 acres within Glenn, Colusa, and Yolo Counties. The Company provides irrigation water to these lands from the Colusa Drain and its tributaries. The Colusa Drain is an earthen drainage channel approximately 70 miles long beginning in Willows, California, near the Sacramento River (River) and extending southerly flowing into the Sacramento River via the Knights Landing outfall gates at the River and Yolo Bypass via the Knights Landing Ridge Cut. The major water source is return flow or drainage water from districts in the northern part of the Colusa Basin, and some natural runoff from tributaries to the Colusa Drain.

Source:

1. United States Bureau of Reclamation. *Environmental Assessment, Transfer of Base Supply and Central Valley Project Water by Glenn-Colusa Irrigation District to the Colusa Drain Mutual Water Company*, "3.1 Land Use Resources, Affected Environment, Colusa Drain Mutual Water Company" and "3.2 Water Resources, Affected Environment, Colusa Drain Mutual Water

Company." EA-13-01-NCAO, November 2012. Accessed 14 December 2017. <https://www.usbr.gov/mp/nepa/includes/documentShow.php?Doc_ID=11611>

2. United States Bureau of Reclamation. "Central Valley Project (CVP) Water Contractors." Accessed 14 December 2017. <https://www.waterboards.ca.gov/waterrights/water_issues/programs/hearings/byron_bethany/docs/exhibits/wr/wr225.pdf>

Conaway Preservation Group

The Conaway Preservation Group owns the Conaway Ranch in Yolo County, which covers over 17,000 acres in Yolo County. The Ranch is operated for agricultural production and wildlife habitat.

Source: Giezentanner, Tovey. Letter dated May 30, 2008 to Ms. Delores Brown, Chief, Office of Environmental Compliance, California Department of Water Resources. "Introduction." Conaway Presentation Group.

Dunnigan Water District

Dunnigan Water District provides agricultural water from the Tehama-Colusa Canal and acquires and operates infrastructure for production, storage, transmission and distribution of water for irrigation, domestic, industrial and municipal purposes, as well as any drainage or reclamation works connected with such undertakings. Dunnigan Water District serves a population of approximately 1,000 people in a 15.6 square mile area (10,000 acres).

Source: Yolo County. "Dunnigan Water District." Accessed 14 December 2017. <http://www.yolocounty.org/home/showdocument?id=17158>

El Macero County Service Area

The El Macero County Service Area was established on February 16, 1969 in order to provide for the maintenance of and extended services to the El Macero community (includes sewer, water, drainage, street sweeping, lighting, roads and landscaping).

Source: Yolo County. "El Macero CSA." Accessed 13 December 2017. <http://www.yolocounty.org/general-government/general-government-departments/county-administrator/county-service-areas-csa/el-macero-csa>

Esparto Community Services District

The Esparto Community Services District provides water and sewer services to the residents and commercial customers within the District's service area (the township of Esparto). ECSD has 1,000 sewer connections and collects 90 MG of wastewater annually. The Esparto Community Services District has 991 water connections and produces 386,000 gallons of groundwater per day through 4 wells.

Source:

1. Yolo County. "Esparto Community Services District." Accessed 13 December 2017. <http://www.yolocounty.org/home/showdocument?id=17069>
2. Esparto Community Services District. "2016 Consumer Confidence Report." Water System Details for Esparto C.S.D. Accessed 13 December 2017. <http://www.ecsd-ca.org/wp-content/uploads/2016ccr.pdf>
3. California State Water Resources Control Board. "Safe Drinking Water Information System." Accessed 13 December 2017.

<https://sdwis.waterboards.ca.gov/PDWW/JSP/WaterSystemDetail.jsp?tinwsys_is_number=6212&tinwsys_st_code=CA>

Knights Landing Community Service District

The Knights Landing Community Service District (KLCSD) provides water, wastewater, streetlighting, park and recreation, and storm drainage control services to the customers within the District's 220 square mile service area. KLCSD serves a population of approximately 1,018 people.

Source: Yolo County. "Knights Landing Community Service District." Accessed 13 December 2017. <http://www.yolocounty.org/home/showdocument?id=17070>

Madison Community Service District

The Madison Community Service District provides water, wastewater, and park and recreation services to the residents and commercial customers within the District's 60-acre service area. MCSD serves a population of approximately 640 people.

Source: Yolo County. "Madison Community Service District." Accessed 13 December 2017. <http://www.yolocounty.org/home/showdocument?id=17071>

North Davis Meadows County Service Area

The North Davis Meadows County Service Area provides services to the North Davis Meadows Subdivision and the North Davis Meadows II Subdivision of Yolo County. The North Davis Meadows CSA provides sewer, water, drainage, street lighting and landscaping services. Water is supplied from two wells located on Fairway Drive and Blackhawk Place. A stand-by well is located east of 24375 Fairway Drive.

Source:

1. Yolo County. "2016 Consumer Confidence Report." North Davis Meadows CSA #10, March 2010. Accessed 14 December 2017. <http://www.yolocounty.org/home/showdocument?id=41380>
2. Yolo County. "North Davis Meadows CSA." Accessed 14 December 2017. <http://www.yolocounty.org/general-government/general-government-departments/county-administrator/county-service-areas/north-davis-meadows>

North Delta Water Agency

The North Delta Water Agency encompass approximately 302,000 acres which includes portions of Sacramento, Yolo, and Solano Counties. The Agency's responsibilities to the lands within its boundaries include to: (1) water supply protection against ocean saline intrusion, and (2) assure dependable supply to meet current and future reasonable beneficial uses.

Source: North Delta Water Agency. *Engineer's Report and Report of the Assessment Commissioners for the North Delta Water Agency Assessment Adjustment*. MBK Engineers, November 2010.

Reclamation District 108

Reclamation District No. 108 delivers agricultural water to 48,000 acres within southern Colusa County and northern Yolo County. RD 108 receives water from the Sacramento River under riparian water rights, licenses for appropriation of surface water, and a Settlement Contract with the US Bureau of Reclamation.

Source: Reclamation District 108. "RD 108." Accessed 14 December 2017. <http://www.rd108.org/rd-108/>

Reclamation District 150

Reclamation District 150 provides levee maintenance, drainage, and pumping and irrigation services to the residents of Merritt Island. The service area is approximately 7.8 square miles (5,000 acres) and contains about 18.1 miles of levees. Reclamation District 150 serves a population of approximately 125 permanent and 800 seasonal residents.

Source: Yolo County. "Reclamation District No 150." Accessed 14 December 2017. <http://www.yolocounty.org/home/showdocument?id=17162>

Reclamation District 307

Reclamation District 307 provides levee maintenance, drainage, pumping and irrigation services for Lisbon Island. Reclamation District 307 is approximately 9.2 square miles (5,941 acres) and contains about 6.7 miles of levees. RD 307 serves a population of approximately 73 people.

Source: Yolo County. "Reclamation District No 307." Accessed 14 December 2017. <http://www.yolocounty.org/home/showdocument?id=17163>

Reclamation District 537

Reclamation District 537 provides levee maintenance, drainage and irrigation services for the area known as Lovdal District. Reclamation District 537 is approximately 8.1 square miles (5,200 acres) and contains about 6.0 miles of levees. RD 537 serves a population of approximately 100 people.

Source: Yolo County. "Reclamation District No 537." Accessed 14 December 2017. <http://www.yolocounty.org/home/showdocument?id=17164>

Reclamation District 730

Reclamation District 730 provides drainage service for about 7 square miles (4,498 acres) of agricultural lands in Knights Landing. Reclamation District 730 contains about 450 acres of levees that are part of the Sacramento-San Joaquin Flood Control Project.

Source: Yolo County. "Reclamation District No 730." Accessed 14 December 2017. <http://www.yolocounty.org/home/showdocument?id=17165>

Reclamation District 765

Reclamation District 765 provides levee maintenance and drainage services for the area known as the Glide District. Reclamation District 765 is approximately 2.2 square miles (1,400 acres) of agricultural land and maintains about 1.7 miles of levees.

Source: Yolo County. "Reclamation District No 765." Accessed 14 December 2017. <http://www.yolocounty.org/home/showdocument?id=20063>

Reclamation District 785

Reclamation District 785 provides levee maintenance and drainage services for the area known as the Driver District. Reclamation District 785 is approximately 5 square miles (3,200 acres) of agricultural land and maintains about 5.6 miles of levees.

Source: Yolo County. "Reclamation District No. 785." Accessed 14 December 2017. <http://www.yolocounty.org/Home/ShowDocument?id=7078>

Reclamation District 787 River Garden Farms

Reclamation District 787 provides levee maintenance, drainage, and irrigation services to River Garden Farms. The service Area is approximately 15.8 square miles (9,494 acres) and contains about 4.4 miles of levees. Reclamation District 787 serves a population of approximately 50 people.

Source: Yolo County. "Reclamation District No 787." Accessed 14 December 2017. <http://www.yolocounty.org/home/showdocument?id=17168>

Reclamation District 827

Reclamation District 827 provides levee maintenance and drainage services to approximately 1.9 square miles (1,225 acres) and about 4.2 miles of levees. Reclamation District 827 serves a population of approximately 30 people.

Source: Yolo County. "Reclamation District No. 827." Accessed 14 December 2017. <http://www.yolocounty.org/Home/ShowDocument?id=14945>

Reclamation District 900

Reclamation District 900 operates and maintained levees and the internal drainage system for flood protection within it boundaries in the City of West Sacramento. The District maintains 13.6 miles of levees and its drainage system which is made up of 9 pumping stations, 33 pumps, 38 miles of canals and ditches, and 6 detention basins.

Source: Reclamation District 900. "About Us." Accessed 14 December 2017. <http://www.rd900.org/about/>

Reclamation District 999

Reclamation District 999 was formed to provide flood protection by maintaining 33 miles of levees, 260 miles of ditches and canals, and 15 discharge pumps. Reclamation District 999 provides irrigation for 22, 400 acres in by maintaining 5 inlet stations which draw water from the Sacramento River, Elk Slough, Sutter Slough, and the Sacramento Deep Water Ship Channel to fill their network of ditches and canals.

Source: Reclamation District 999. "About." Accessed 14 December 2017. <rd999.org>

Reclamation District 1600

Reclamation District 1600 provides levee maintenance and drainage services for the area known as the Mull District. Reclamation District 1600 is approximately 10.8 square miles (6,924 acres) or agricultural land and maintains about 14.7 miles of levees.

Source: Yolo County. "Reclamation District No 1600." Accessed 14 December 2017. <http://www.yolocounty.org/home/showdocument?id=17172>

Reclamation District 2035

Reclamation District 2035 provides levee maintenance, drainage, and irrigation services to the Conaway Conservancy. Reclamation District 2035 is approximately 32 square miles (20,445 acres) of rural/agricultural land and contains about 12.1 miles of levees.

Source: Yolo County. "Reclamation District No 2035." Accessed 14 December 2017. <http://www.yolocounty.org/home/showdocument?id=17173>

Reclamation District 2068

Reclamation District 2068 is a privately held company that provides drainage and irrigation services to 13,000 acres across Yolo and Solano County.

Source: Yolo County. "Reclamation District No. 2068." Accessed 14 December 2017. <http://www.yolocounty.org/home/showdocument?id=17130>

Reclamation District 2093

Reclamation District currently has minimal activity in recent years over their 5,221 acres (918 acres in Yolo County; 4,303 acres in Solano County). The District's service area consists of a 12,000 ft. by 200 ft. linear levee corridor on Liberty Island; however, the levees are in disrepair and largely eroded in the Solano County portion, and there is a large 100+-foot wide breach and several smaller breaches in the levee in the Yolo and Solano County portion.

Liberty Island has been in a flooded state for over a decade. The land was originally intended to be a part of a federal wildlife refuge, but the refuge was not established.

Source: Yolo County. "Reclamation District No. 2093." Accessed 14 December 2017. <http://www.yolocounty.org/Home/ShowDocument?id=7215>

Rolling Acres Mutual Water Company

The Rolling Acres Mutual Water Company provides groundwater supply (through 1 well) to 11 residential connections.

Source: California State Water Resources Control Board. "Safe Drinking Water Information System." Accessed 14 December 2017. <https://sdwis.waterboards.ca.gov/PDWW/JSP/WaterSystemDetail.jsp?tinwsys_is_number=8256&tinwsys_st_code=CA&wsnumber=CA5700707>

Rumsey Water Users' Association

The Rumsey Water Users' Association is a group of landowners that own about 600 acres in the upper Capay Valley of Yolo County. The Association provides irrigation water by diverting water from Cache Creek through the Association ditch.

Source: Water Resources Association of Yolo County. *Integrated Regional Water Management Plan*. Background Data and Information Appendix, Chapter 5 Land Use, Water Use, and Water Supplies of Yolo County, "5.4.1.9. Rumsey Water Users' Association." April 2007.

Wild Wings County Service Area

The Wild Wings County Service Area provides services to the newest of Woodland's planned subdivisions extending along Highway 16 to the West Side of Woodland. Wild Wings CSA currently provides water and sewer services to a 327-home subdivision and a golf course which runs through the subdivision. The Wild Wings CSA operates the only County-run Wastewater Treatment Plant (101,000 gallons per day capacity) which is fully self-sustained and complies with mandatory state regulations. The CSA also operates the corresponding Water System. Water is supplied through two groundwater wells: (1) Pintail Well Woodland, CA 95695, and (2) the Canvasback well (stand-by, not used for domestic supply in 2016).

Source:

1. Yolo County. "2016 Consumer Confidence Report." Wild Wings Community Water System, June 2017. Accessed 14 December 2017. <http://www.yolocounty.org/home/showdocument?id=43340>

2. Yolo County. “Wild Wings CSA.” Accessed 14 December 2017. <http://www.yolocounty.org/general-government/general-government-departments/county-administrator/county-service-areas/wild-wings>

Willowbank County Service Area

The Willowbank County Service Area was established to provide water service for a small portion of the City of Davis. Water supply is currently provided by the City of Davis.

Source: Yolo County. “Willowbank CSA.” Accessed 14 December 2017. <http://www.yolocounty.org/general-government/general-government-departments/county-administrator/county-service-areas/willowbank>

Yolo County Flood Control and Water Conservation District

In 1951, at the request of the Yolo County Supervisors, the Yolo County Flood Control and Water Conservation District (YCFC&WCD) was created by the California Legislature as an independent Special District. The primary purpose of the District was to seek new water sources and manage them efficiently. Currently YCFC&WCD manages a small hydroelectric plant, two reservoirs, more than 150 miles of canals and laterals, and three dams including the world's longest inflatable rubber dam. The District's boundaries cover 195,000 acres of Yolo County, including the cities of Woodland, Davis and Winters, and the towns of Capay, Esparto, Madison and other small communities within the Capay Valley.

Source: YCFC&WCD. “Description of the District.” Accessed 14 December 2017. <http://www.ycfcwcd.org/district.html>

Yolo County Housing Authority

The Yolo County Housing Authority is a government agency that provides affordable housing and community development services within its service area.

Source: Yolo County Housing Authority. “Welcome to Yolo County Housing.” Accessed 14 December 2017. <http://www.ych.ca.gov/about_us/index.php>

Yolo Land Trust

The Yolo Land Trust conserves farmland and ranchland through conservation easements by which landowners maintain ownership, but agree to never develop their land. The Yolo Land Trust has permanently protected 11,000 acres of farmland through over 60 conservation easements, and the fee ownership of an easement-restricted farm.

Source: Yolo Land Trust. “What We Do.” Accessed 14 December 2017. <http://theyololandtrust.org/about-us/what-we-do/>

University of California, Davis

The University of California, Davis (UC Davis) operates its own city-scale water systems to provide the campus with water for domestic use, industrial applications, fire-fighting, and irrigation. UC Davis domestic water is supplied by six on-campus wells. The water is not treated, aside from disinfection using chlorine. UC Davis provides water service to approximately 30,500 people. From April 2016 through March 2017, demand was about 779 million gallons (about 2,391 acre-feet).

A sanitary sewer collection system across the campus carries wastewater from office buildings, housing laboratories, food service facilities, and other support facilities to the wastewater treatment plant located in the south campus. Wastewater goes through advanced treatment and is then discharged into either North Putah Creek or the South Fork Putah Creek. With more than 21,000 students and 9,500 faculty/staff members on the campus, UC Davis generates approximately 1.6 million gallons of wastewater each day.

Source:

1. University of California, Davis. "2016 Drinking Water Quality Report." Facilities Management, Utilities, Accessed 13 December 2017. <http://utilities.ucdavis.edu/docs/2016.pdf>
2. University of California, Davis. "Water Dashboard." Accessed 13 December 2017. <https://water.ucdavis.edu/#!/>
3. University of California, Davis. "Sewer Disposal Guidelines, Overview of the UC Davis Wastewater Collection and Treatment System." Facilities Management, Utilities, Accessed 13 December 2017. <http://utilities.ucdavis.edu/sewer_disposal/index.html>

Other Entities with Land Use Authority in Yolo County

- Colusa Drain Water Users Association
- Deseret Farms of California - a private farm in West Sacramento
- Mesquite Investors, LLC and Family Real Property Limited Partnership

Small Community Service and Transient Community Water Service Providers

There are numerous other small community and transient community water service providers within Yolo County. The California State Water Resources Control Board "Safe Drinking Water Information System" Water System Search was used to identify those, summarized below:

The following water service providers serve approximately 15 residential service connections all year round, and 25 non-residential transient service connections. They use groundwater as their source of drinking water:

- Campers Inn - RV & Golf Course
- Westucky Water Association
- North Davis Meadows
- Monroe/Leinberger Center
- Wild Wings Golf Community
- Woodland-Davis Clean Water Agency

The following water service providers serve approximately 25 non-residential service connections at least 60 days per year. They use groundwater as their source of drinking water:

- Americas Best Value Inn
- Road Trip Bar & Grill
- Bogle Family Limited Partner
- Casa Ruiz
- Holland Market
- St Joseph's Church
- Yolo Bypass Wildlife Area
- Yolo Fruit Stand - Water
- Mumma (Thomas) Well
- California Motel
- Caltrans-Dunigan Rest Area
- Dunnigan Express
- Jack in The Box #3465
- River Garden Farms #1
- Club Pheasant
- Elkhorn Saloon
- SacWest RV Park & Campground
- Sacramento Yacht Club
- Fast & Easy Mart #54 - Water
- Canyon Creek Resort
- Inn at Park Winters
- Pacific Coast Producers
- Plainfield Station
- Yolo Sportsmen's Association
- La Amistad
- First Baptist Church
- Cache Creek Canyon-Middle Site
- Mountain Valley Golf Center
- Ceja-Reyes Inc
- Capay Open Space Park
- United Travel Plaza
- Dunnigan Chevron
- Grassland Park Host Well (Old Yolo Bowmen Well)
- Elkhorn Regional Park
- Fraternal Order of Eagles #2345
- Kentucky Avenue Industrial
- Sherwood Harbor Marina
- Farmer's Market
- Stan's Yolo Marina
- Nelson's Grove
- Clarksburg Community Church
- Zamora Shell & Mini Mart
- West Valley Baptist Church

- Jehovah's Witnesses - Kingdom Hall
- Jehovah's Witnesses - Southport
- Jehovah's Witnesses - Davis
- Satiety Winery
- Brannigan's Turkey Farm
- Faye Properties Inc
- Vega's Water System
- Wild Wings Wastewater Recycling Facility
- Cache Creek Resort

The following water service providers serve approximately 26 non-residential service connections at least 6 months per year. They use groundwater as their source of drinking water:

- Old Sugar Mill Winery
- Clarksburg Middle School
- Delta High School
- Harris Moran Seed Company - Water
- Davis Migrant Center
- Teichert Construction
- Pilot Travel Center #168 - Water
- Davis Joint Unified School District - Fairfield School
- Plainfield Elem School - Water
- Yolo Fliers Club
- Migrant Head Start Program - Water
- Yolo County Airport
- Crew Wine Company
- Dollar General Store #16171
- Clark Pacific – County Road 18C
- Syngenta Seeds Inc
- Unitarian Church of Davis
- Yolo County Central Landfill - Water
- Grace Valley Christian Center
- Seminis Vegetable Seed
- Pavestone
- Pioneer Hi-Bred International

Appendix D

Detailed 303(d) List - Yolo County

Appendix E - Active NPDES Permits in Yolo County

Agency	Facility Name	Facility Address	Regulatory Measure Type	WDID	NPDES No.
Ca Dept of Transportation District 3 R5S	Harbor Boulevard Bridge Widening	Harbor Blvd/Hwy 50, CA	Enrollee - NPDES	5S03CTC3388004	CAS000003
Pacific Gas & Electric Company San Ramon	PG&E R-300 Natural Gas Pipeline Projects - Yolo and Sutter Counties	Road 107A & Road 16, West Sacramento, CA 95691	Enrollee - NPDES	5A57NP00024	CAG995002
Reclamation District 900	Reclm Dist 900-AQ Pesticides	Woodland, CA 95695	Enrollee - NPDES	5A57NP00010	CAG990005
Reclamation District 999	Reclm Dist 999-AQ Pesticides	Clarksburg, CA 95612	Enrollee - NPDES	5A57NP00004	CAG990005
Sacramento-Yolo Mosquito & VCD	Sac-Yolo Mosquito-AQ Pesticide	Woodland, CA 95695	Enrollee - NPDES	5A34AP00009	CAG990004
Yolo Cnty Flood Control & WCD	Yolo Cnty Flood Control & WCD-Aq Pesticides	Yolo, CA 95697	Enrollee - NPDES	5A57NP00008	CAG990005
Davis City	City of Davis WWTP	45400 County Road 28H, Davis, CA 95776	NPDES Permit	5A570100001	CA0079049
UC Davis	Center for Aquatic Biology and Aquaculture	One Shields Avenue, Davis, CA 95616	NPDES Permit	5A570800003	CA0083348
40th District Agricultural Association	40th District Agricultural Association	1125 East Street, CA 95776	Phase II Small MS4	5S57M2000142	CAS000004
City of Davis	City of Davis	23 Russell Boulevard, Davis, CA 95616	Phase II Small MS4	5S57M2000243	CAS000004
City of West Sacramento	City of West Sacramento	1110 West Capitol Avenue 3rd Floor, West Sacramento, CA 95691	Phase II Small MS4	5S57M2000109	CAS000004
City of Woodland	City of Woodland	300 First Street, Woodland, CA 95695	Phase II Small MS4	5S57M2000115	CAS000004
University of California Davis	University of California Davis	One Shields Ave Environmental Health and Safety, Davis, CA 95616	Phase II Small MS4	5S57M2000021	CAS000004
Yolo County Planning & Public Works	Yolo County Planning & Public Works	292 West Beamer Street, Woodland, CA 95695	Phase II Small MS4	5S57M2000173	CAS000004
AKM Railroad LLC	Winters Hotel	310 Railroad Street, Winters, CA 95694	Storm water construction	5S57C374586	CAS000002
ANDCO Farms	Old Bryte Landfill	50035 County Road 126, West Sacramento, CA 95691	Storm water construction	5S57C364052	CAS000002
American Investors Group LLC	Napa Village Subdivision	Bryte Avenue, West Sacramento, CA 95691	Storm water construction	5S57C373659	CAS000002
Ashdon Development LLC	Hudson Ogando Subdivision No 4684	West Main Street and Aster Way, Winters, CA 95694	Storm water construction	5S57C371312	CAS000002
Bardis Homes	The Good Project B Street West	North of B Street between 4th and 5th, West Sacramento, CA 95655	Storm water construction	5S57C376246	CAS000002
Buzz Oates Construction Inc	Riverpoint Marketplace Tenant Improvements	752 764 Ikea Court, West Sacramento, CA 95630	Storm water construction	5S57C360461	CAS000002
CalAtlantic Group	The Cannery 1D and 2D	East Covell Blvd and Cannery Ave, Davis, CA 95616	Storm water construction	5S57C374161	CAS000002
Cannery Lofts Investors LP	The Cannery Apartments	900 Jacobsen Lane, Davis, CA 95616	Storm water construction	5S57C375518	CAS000002
City of West Sacramento	Bridge District Parking Lot	5874 Bridge Street, West Sacramento, CA 95691	Storm water construction	5S57C378780	CAS000002
City of West Sacramento	Village Parkway Extension Project	Village Parkway from Locks Drive to Stonegate Drive, West Sacramento, CA 95691	Storm water construction	5S57C374341	CAS000002
City of Winters	Walnut Park Phase 2	820 Walnut Ln, Winters, CA 95694	Storm water construction	5S57C377139	CAS000002
City of Woodland	Industrial Park Recycled Water Project	E Kentucky Ave to Cty Rd 24 WPCF, Woodland, CA 95776	Storm water construction	5S57C376179	CAS000002
Claudette Von Rusten	Von Rusten Horse Ranch	APN 069010055, Davis, CA 95616	Storm water construction	5S57C375860	CAS000002
Comstock Homes	The Villages at Willow Creek	southeast corner of Drummond Ave and Cowell Blvd, Davis, CA 95616	Storm water construction	5S57C375210	CAS000002
DNV Properties LLC	River Glen Estates	3245 Marshall Road, West Sacramento, CA 95691	Storm water construction	5S57C373769	CAS000002
DR Horton	Solara Ranch	County Road 101 south of County Road 25, Woodland, CA 95776	Storm water construction	5S57C370703	CAS000002
DR Horton	Marshall Crossings	Stable Drive, West Sacramento, CA 95691	Storm water construction	5S57C377041	CAS000002
Dthompson Properties LLC	TEC Equipment	4515 West Capitol Ave, West Sacramento, CA 95619	Storm water construction	5S57C377911	CAS000002
Evergreen Communities Inc	Myers Ranch	3035 Jefferson Blvd, West Sacramento, CA 95691	Storm water construction	5S57C373947	CAS000002
Fouts Landscape	The Villas at El Macero	northeast corner of Mace Blvd and San Marino Drive, Davis, CA 95618	Storm water construction	5S57C373186	CAS000002
Fouts Landscape	Grande Village Subdivision	southeast corner of Grande Avenue and Mercedes Avenue, Davis, CA 95616	Storm water construction	5S57C375915	CAS000002
GBD Promenade Developments LP	The Promenade	Southport Parkway, West Sacramento, CA 95691	Storm water construction	5S57C376040	CAS000002
Jamboree Housing Corporation	Delta Lane Apartments Phase I	810 820 Delta Lane 825 Tower Bridge Gateway, West Sacramento, CA 95691	Storm water construction	5S57C372722	CAS000002
Jim Huynh	33946 County Road 24	33946 County Road 24, Woodland, CA 95695	Storm water construction	5S57C378985	CAS000002
Lennar Homes of California Inc	Heidrick Ranch Units 2 and 3	East of County Road 101, Woodland, CA 95776	Storm water construction	5S57C370929	CAS000002
Lennar Homes of California Inc	Heritage Remainder	NW of Future County Rd 25A and County Rd 102, Woodland, CA 95776	Storm water construction	5S57C377717	CAS000002
Lennar Homes of California Inc	Cal West	SW of Harry Lorenzo Ave and Farm Rd, Woodland, CA 95776	Storm water construction	5S57C374555	CAS000002
Los Rios Community College District	SCC Davic Center Phase 2	Hutchinson Drive and Campbell Road, Davis, CA 95616	Storm water construction	5S57C377287	CAS000002
Mercy Housing California	West Beamer Street Apartments	20 North Cottonwood Street, Woodland, CA 95695	Storm water construction	5S57C378976	CAS000002
Mercy Housing California 76 LP	Esperanza Crossing Phase II	26766 Woodland Avenue, Esparto, CA 95627	Storm water construction	5S57C378489	CAS000002
Meritage Homes	Phase 1 Heritage Remainder Area and Heritage Park Unit 2 Subdivisions	Marston Road and Miekle Avenue, Woodland, CA 95776	Storm water construction	5S57C371102	CAS000002
Nihal Development LLC	Nihal Plaza	3425 Reed Avenue, West Sacramento, CA 95605	Storm water construction	5S57C375320	CAS000002
Pacific Gas and Electric Company	PG&E Gas Operations Technical Training Center GOTTC	East Grant Ave at Interstate 505 interchange cross Timber Crest Rd and Matsumoto Lane, Winters, CA 95694	Storm water construction	5S57C374702	CAS000002
Pacific Gas and Electric Company	Gas Transmission Pipeline L407 Pipeline Replacement R300	County Road 98 and 16A, Yolo, CA 95695	Storm water construction	5S57C375495	CAS000002
Paso Fino Partners LLC	Paso Fino Subdivision	2627 East Covell Blvd, Davis, CA 95618	Storm water construction	5S57C376637	CAS000002
Reclamation District 108	Wallace Weir Fish Rescue Facility	County Rd 17 / Levee Rd, Knights Landing, CA 95645	Storm water construction	5S57C376904	CAS000002
Reclamation District 2035	RD2035 Woodland Davis Clean Water Agency Joint Intake and Fish Screen Project	18019 County Road 117, West Sacramento, CA 95691	Storm water construction	5S57C369695	CAS000002
Red Door Building Company Inc	Del Rio Live Work	2751 Del Rio Place, Davis, CA 95616	Storm water construction	5S57C372761	CAS000002
River Landing Home Sales LLC	River Landing	1895 Sierra Road, Granite Bay, CA 95691	Storm water construction	5S57C365511	CAS000002
Russian Baptist Church	Additional Parking Lot Russian Baptist Church	1000 Sacramento Avenue, West Sacramento, CA 95605	Storm water construction	5S57C375294	CAS000002
Seecon Financial & Construction Co	Newport Estates Unit 10	Lake Washington Boulevard, West Sacramento, CA 95691	Storm water construction	5S57C372693	CAS000002
Shea Homes Limited Partnership	Persimmon and Tilton at The Cannery	Cannery Loop at Woodbury Lane, Davis, CA 95616	Storm water construction	5S57C372642	CAS000002
Skepner Development Corp	Jefferson Self Storage	3290 Jefferson Blvd., West Sacramento, CA 95691	Storm water construction	5S57C353680	CAS000002
Smart Growth Investors II LP	Bridge District Phase 2	Silo Alley, West Sacramento, CA 95691	Storm water construction	5S57C374346	CAS000002
Solano County Water Agency	Winters Putah Creek Nature Park	Putah Creek Road, Winters, CA 95694	Storm water construction	5S57C372955	CAS000002
Sukhjit Dhillon	Dhillon Residence	County Road 30B APN 033290001, Davis, CA 95616	Storm water construction	5S57C376577	CAS000002
Summerplace at Westgate	Summerplace at Westgate	northeast corner of Jefferson and Gateway Drive, West Sacramento, CA 95691	Storm water construction	5S57C372455	CAS000002
SunPower Corporation	SunPower	28110 Mace Boulevard Mace Boulevard, Davis, CA 95618	Storm water construction	5S57C375130	CAS000002
TAKHAR WEST AMPM	West Sacramento ARCO	2270 LAKE WASHINGTON BLVD, West Sacramento, CA 95651	Storm water construction	5S57C376655	CAS000002
Taylor Morrison of California LLC	Parkview	NEC of Miekle Ave and E Heritage Parkway, Woodland, CA 95776	Storm water construction	5S57C367295	CAS000002
The New Home Company Northern California LLC	Cannery	1111 East Covell Boulevard, Davis, CA 95616	Storm water construction	5S57C369193	CAS000002
Tracy & Mary Basso	Basso Home Site	Country Rd 97D, Davis, CA 95616	Storm water construction	5S57C342770	CAS000002
University of California Davis	Large Lecture Hall	One Shields Ave, Davis, CA 95616	Storm water construction	5S57C377268	CAS000002
University of California Davis	Silo Renovation	One Shields Ave, Davis, CA 95616	Storm water construction	5S57C376583	CAS000002
University of California Davis	Tercero Student Housing Phase 4	Bioletti Way and La Rue Road, Davis, CA 95616	Storm water construction	5S57C372008	CAS000002
University of California Davis	Putah Creek Lodge Parking Lot	One Shields Avenue, Davis, CA 95616	Storm water construction	5S57C370431	CAS000002
Vann Brothers	Vann Brothers - Dunnigan	County Road 8 and Interstate 5, Dunnigan, CA 95937	Storm water construction	5S57C377767	CAS000002
Westervelt Ecological Services	Bullock Bend Mitigation Bank	Road 97, Knights Landing, CA 95645	Storm water construction	5S57C375648	CAS000002
Woodland Biomass Power Ltd	Lillard Ranch	24998 County Road 102, Davis, CA 95776	Storm water construction	5S57C378592	CAS000002
Woodland Joint Unified School District	Spring Lake Elementary School	Miekle Avenue and Banks Drive, Woodland, CA 95776	Storm water construction	5S57C377898	CAS000002
Woodland Lodging LLC	Fairfield Inn and Suites	2100 Freeway Drive, Woodland, CA 95695	Storm water construction	5S57C370414	CAS000002
Woodland Spring Lake Partners LP	Spring Lake Central	Harry Lorenzo Avenue between Farmers Central Rd and E Heritage Pkwy, Woodland, CA 95776	Storm water construction	5S57C373172	CAS000002
Yolo County	Yolo County Juvenile Multipurpose Facility	2420 East Gibson Road, Woodland, CA 95695	Storm water construction	5S57C376286	CAS000002
Yolo County General Services Department	Old Yolo County General Hospital	170 West Beamer Street, Woodland, CA 95695	Storm water construction	5S57C378063	CAS000002
Yolo County Planning and Public Works	YCCL Soil Borrow Site	County Road 28H and County Road 104 44090 County Road 28H, Woodland, CA 95776	Storm water construction	5S57C373592	CAS000002
APL Logistics	APL Logistics SC Johnson & Son Inc	2030 Hanson Way, Woodland, CA 95776	Storm water industrial	5S57NEC001523	CAS000001
American Medical Response West	AMR West Sacramento	1255 Triangle Court, West Sacramento, CA 95605	Storm water industrial	5S57NEC003003	CAS000001

Source: California State Water Resources Control Board. "California Integrated Water Quality System Project (CIWQS)." Accessed 15 March 2017. <https://www.waterboards.ca.gov/water_issues/programs/ciwqs/publicreports.shtml>

Appendix E - Active NPDES Permits in Yolo County

Agency	Facility Name	Facility Address	Regulatory Measure Type	WDID	NPDES No.
Ames Co	Ames Co	1485 Tanforan Ave, Woodland, CA 95776	Storm water industrial	5S57I010581	CAS000001
BJ Gear Enterprise Inc	BJ Gear Enterprise Inc	501 Glide Ave, West Sacramento, CA 95691	Storm water industrial	5S57I012317	CAS000001
Bay State Milling Company	Bay State Milling Company	41970 E Main St, Woodland, CA 95776	Storm water industrial	5S57I027046	CAS000001
Beckman Coulter	Beckman Coulter	2040 Enterprise Blvd, West Sacramento, CA 95691	Storm water industrial	5S57NEC001324	CAS000001
Beckman Coulter	Beckman Coulter	1584 Enterprise Blvd, West Sacramento, CA 95691	Storm water industrial	5S57NEC001244	CAS000001
Berryessa Gap Vineyards	Berryessa Gap Vineyards	27260 Hwy 128, Winters, CA 95694	Storm water industrial	5S57I020681	CAS000001
Best Overnite Express	Best Overnite Express	850 F St, West Sacramento, CA 95691	Storm water industrial	5S57I016940	CAS000001
Bianchi Estates LLC	Bianchi Estates LLC	3020 3040 Duluth Street, West Sacramento, CA 95691	Storm water industrial	5S57I025277	CAS000001
Bike Dog Brewing	Bike Dog Brewing	2534 Industrial Blvd #110, West Sacramento, CA 95691	Storm water industrial	5S57I026965	CAS000001
Bob Hensley	Roy E Lay Trucking	1218 E Kentucky Ave, Woodland, CA 95776	Storm water industrial	5S57I004064	CAS000001
Bogle Delta Winery	Bogle Delta Winery	49762 Hamilton Rd, Clarksburg, CA 95612	Storm water industrial	5S57I023272	CAS000001
Bogle Vineyards	Bogle Vineyards ORV Site	38045 Netherlands Rd, Clarksburg, CA 95612	Storm water industrial	5S57I021547	CAS000001
Bogle Winery	Bogle Winery	37783 Co Rd 144, Clarksburg, CA 95612	Storm water industrial	5S57I020594	CAS000001
Brewhouse Concepts Land and Management Inc	Yolo Brewing Company	1520 Terminal Street, West Sacramento, CA 95691	Storm water industrial	5S57NEC000727	CAS000001
Bunge North America Inc	Pacific International Rice Mills	845 Kentucky Ave, Woodland, CA 95659	Storm water industrial	5S57I023004	CAS000001
Cemex Construction Materials Pacific LLC	CEMEX West Sac Facility	1890 Parkway Blvd, West Sacramento, CA 95619	Storm water industrial	5S57I024310	CAS000001
ClarkPacific	Clark Pacific Sacramento Plant	1980 S River Rd 880, West Sacramento, CA 95691	Storm water industrial	5S57I001496	CAS000001
ClarkPacific	Clark Pacific Woodland Plant	40600 Cnty Rd 18C, Woodland, CA 95691	Storm water industrial	5S57I022514	CAS000001
Cleanworld	Cleanworld	28068 County Rd 98, Davis, CA 95670	Storm water industrial	5S57I025878	CAS000001
Conco	Reliable Trucking	1420 East Kentucky Avenue, Woodland, CA 94520	Storm water industrial	5S57NEC001968	CAS000001
Constellation Brands Inc	RH Phillips Winery	26836 County Road 12A, Esparto, CA 95627	Storm water industrial	5S57I025269	CAS000001
Crew Wine Company LLC	Crew Wine Company LLC	12300 County Road 92B, Zamora, CA 95698	Storm water industrial	5S57I026479	CAS000001
DMG MORI	DMG MORI	3601 Faraday Ave, Davis, CA 95618	Storm water industrial	5S57NEC001506	CAS000001
Davis Waste Removal	Davis Waste Removal	2727 2nd St, Davis, CA 95618	Storm water industrial	5S57I013120	CAS000001
DeSilva Gates Construction Corporation Yard	DeSilva Gates Construction Corporation Yard	3201 W Capitol Ave, West Sacramento, CA 95691	Storm water industrial	5S57I025809	CAS000001
Del Dotto Vineyards Inc	Del Dotto Vineyards Atlas Peak	1055 Atlas Peak Road, Napa, CA 94558	Storm water industrial	5S57I026240	CAS000001
Dependable Highway Express Inc	Dependable Highway Express	820 830 E St, West Sacramento, CA 95605	Storm water industrial	5S57I023314	CAS000001
Devine Intermodal	Devine Intermodal	3870 Channel Dr, West Sacramento, CA 95691	Storm water industrial	5S57I020933	CAS000001
Econco Broadcast Service	Econco Broadcast Service	1318 Commerce Ave, Woodland, CA 95776	Storm water industrial	5S57I019653	CAS000001
Eric Jacobsen	Green Zone Recycling Center	225 Industrial Wy Ste C 225 industrial way, Woodland, CA 95776	Storm water industrial	5S57I023688	CAS000001
Eric Jacobsen	Palletmasters	104 Matmor Road, Woodland, CA 95776	Storm water industrial	5S57I026501	CAS000001
Estes Express West	Estes West	4200 W Capitol Ave, Sacramento, CA 95569	Storm water industrial	5S57I023133	CAS000001
Euro Star Auto Dismantling	Euro Star Auto Dismantling	3040 Duluth St 24, West Sacramento, CA 95691	Storm water industrial	5S57NEC001846	CAS000001
Farmers Rice Coop	Farmers Rice Coop	2224 Industrial Blvd, West Sacramento, CA 95691	Storm water industrial	5S57I006231	CAS000001
Fed Ex Freight Inc	FedEx Freight Sacramento	4075 Channel Dr, West Sacramento, CA 95691	Storm water industrial	5S57I020481	CAS000001
FedEx Ground Package System Inc	FedEx Ground ZROV	8501 Foothills Blvd, Roseville, CA 95747	Storm water industrial	5S57NEC002506	CAS000001
First Student Inc C O Strata Environmental	Greyhound Lines Inc 890030	1874 S River Rd, West Sacramento, CA 95691	Storm water industrial	5S57I004607	CAS000001
Gayle Manufacturing Co	Gayle Manufacturing Co	1455 E Kentucky Ave, Woodland, CA 95776	Storm water industrial	5S57I003891	CAS000001
Genesis Auto Enterprises Inc	Genesis Auto Enterprises Inc	525 Houston St, West Sacramento, CA 95691	Storm water industrial	5S57I021793	CAS000001
Greenwood Motor Lines Inc dba RL Carriers	RL Carriers SAC	1820 Parkway Blvd, West Sacramento, CA 95691	Storm water industrial	5S57I023835	CAS000001
IMSA Building Product	ASC Profiles	2110 Enterprise Blvd, West Sacramento, CA 95691	Storm water industrial	5S57I011210	CAS000001
International Paper WestSac Recycling	International Paper	1714 Cebrian St, West Sacramento, CA 95691	Storm water industrial	5S57I022094	CAS000001
J M Recycling Inc	J M Recycling Inc	1310 E Beamer St, Woodland, CA 95776	Storm water industrial	5S57I023619	CAS000001
J M Recycling Inc	J M Recycling Inc	2205 Rice Ave, Sacramento, CA 95691	Storm water industrial	5S57I023620	CAS000001
JM & S RECYCLING	JM & S RECYCLING	8110 JUNIPERO STREET, Sacramento, CA 95828	Storm water industrial	5S57NEC002407	CAS000001
KAG West LLC	KAG West LLC West Sacramento	4076 Seaport Blvd, West Sacramento, CA 95691	Storm water industrial	5S57I001614	CAS000001
Koy Builders	Old Sugar Mill	35265 Willow Ave PO Box 123, Clarksburg, CA 95612	Storm water industrial	5S57I023496	CAS000001
Leer West LLC	Leer West	1686 E Beamer St, Woodland, CA 95776	Storm water industrial	5S57I019897	CAS000001
M M Salvage Inc dba West Coast Auto Dismantling	West Coast Auto Dismantling	333 N Pioneer Ave, Woodland, CA 95776	Storm water industrial	5S57I022160	CAS000001
Nor Cal Beverage Company Inc	Nor Cal Beverage	2286 Stone Blvd, West Sacramento, CA 95691	Storm water industrial	5S57I009538	CAS000001
Northern Recycling Composting	Northern Recycling Composting Zamora	11220 County Road 94 3216 Vichy Ave, Zamora, CA 94559	Storm water industrial	5S57I023540	CAS000001
Northwest Pallets	Northwest Pallets	281 N Pioneer Ave, Woodland, CA 95776	Storm water industrial	5S57I026328	CAS000001
Old Dominion Freight Lines	Old Dominion Freight Lines	2920 Oates Dr, West Sacramento, CA 95691	Storm water industrial	5S57I022911	CAS000001
PGP International Inc	PGP International Inc	351 Hanson Wy, Woodland, CA 95776	Storm water industrial	5S57I023014	CAS000001
Pacific Coast Producers	Pacific Coast Producers Woodland	1376 Lemen Ave, Woodland, CA 95776	Storm water industrial	5S57I016697	CAS000001
Pacific States Ind DBA Redwood	Redwood Empire Woodland	22 N Pioneer Ave, Woodland, CA 95776	Storm water industrial	5S57I025356	CAS000001
Pavestone Co LLC	Pavestone Co LLC	27600 County Road 90, Winters, CA 95694	Storm water industrial	5S57I016412	CAS000001
Prime Conduit Inc	Prime Conduit Inc	1776 E Beamer St, Woodland, CA 95776	Storm water industrial	5S57I022372	CAS000001
QG Printing II LLC	QG Printing II Corp	1201 Shore Street, West Sacramento, CA 95691	Storm water industrial	5S57NEC000419	CAS000001
QG Printing II LLC	QG Printing II Corp	1630 Terminal Street, West Sacramento, CA 95691	Storm water industrial	5S57NEC000422	CAS000001
RJJ Resource Management Corp	RJJ Resource Management Corp	2895 Industrial Blvd, West Sacramento, CA 95691	Storm water industrial	5S57I026680	CAS000001
Ramos Oil Co	Ramos Oil Company Inc	1515 South River Rd, West Sacramento, CA 95691	Storm water industrial	5S57I024719	CAS000001
Ramos Oil Co	Ramos Oil Co Inc	597 N East St, Woodland, CA 95776	Storm water industrial	5S57I019596	CAS000001
Rite Aid	Rite Aid	1755 E Beamer St, Woodland, CA 95776	Storm water industrial	5S57I014488	CAS000001
Rolling Frito Lay Sales	Sacramento DC	3810 Seaport Blvd, West Sacramento, CA 95691	Storm water industrial	5S57I019007	CAS000001
Rubicon Brewing Company	Rubicon Brewing Company	885 Stillwater Road #100, West Sacramento, CA 95605	Storm water industrial	5S57NEC000446	CAS000001
SSA Pacific	SSA Pacific	2895 Industrial Blvd, West Sacramento, CA 95691	Storm water industrial	5S57I024481	CAS000001
SYAR Industries Inc	Syar Industries Inc Madison Sand Gravel	16560 County Rd 89, Madison, CA 95653	Storm water industrial	5S57I005384	CAS000001
Schilling Robotics	Schilling Robotics LLC	201 Cousteau Pl, Davis, CA 95618	Storm water industrial	5S57I021675	CAS000001
Sierra Chemical Co	Sierra Chemical Co	788 Northport Dr, West Sacramento, CA 95691	Storm water industrial	5S57I014812	CAS000001
Skyline Corp	Skyline Corp	1720 E Beamer St, Woodland, CA 95776	Storm water industrial	5S57I001960	CAS000001
Standard Register Inc	Standard Register West Sacramento	3885 Seaport Boulevard Suite 40, West Sacramento, CA 95691	Storm water industrial	5S57NEC002783	CAS000001
Sudwerk Brewing Co	Sudwerk Brewing Co	2001 2nd St, Davis, CA 95618	Storm water industrial	5S57NEC000937	CAS000001
Sundstrom Hill Winery	Sundstrom Hill Winery	2744 Del Rio Place Suite 130, Davis, CA 95618	Storm water industrial	5S57NEC001047	CAS000001
Sunfoods LLC	Sunfoods LLC	1620 East Kentucky Ave, Woodland, CA 95776	Storm water industrial	5S57I023513	CAS000001
Target Corp	Target Distribution Center Woodland	2050 E Beamer St, Woodland, CA 95776	Storm water industrial	5S57I009564	CAS000001
Teichert Concrete Product	Teichert Concrete Prod Winters	27710 County Road 90, Winters, CA 95694	Storm water industrial	5S57I016990	CAS000001
The Bainbridge Beverage Company West	The Bainbridge Beverage Company West	2335 Del Monte St, West Sacramento, CA 95691	Storm water industrial	5S57NEC002778	CAS000001
Tonys Fine Foods	Tonys Fine Foods	3575 Reed Avenue, West Sacramento, CA 95605	Storm water industrial	5S57I025594	CAS000001
Toyota Vlads Toy Inc	Toyota Vlads Toy Inc	2620 W Capitol Ave 2620 WEST CAPITOL AVE, West Sacramento, CA 95691	Storm water industrial	5S57I021383	CAS000001
Transdev Services Inc	Transdev Services Inc	352 Industrial Wy, Woodland, CA 95776	Storm water industrial	5S57I020844	CAS000001

Source: California State Water Resources Control Board. "California Integrated Water Quality System Project (CIWQS)." Accessed 15 March 2017. <https://www.waterboards.ca.gov/water_issues/programs/ciwqs/publicreports.shtml>

Agency	Facility Name	Facility Address	Regulatory Measure Type	WDID	NPDES No.
Two Rivers Cement LLC	Two Rivers Cement Terminal	2895 Industrial Blvd 180, West Sacramento, CA 95691	Storm water industrial	5S57I023012	CAS000001
US Postal Service	US Postal Service West Sacramento VMF	3780 Seaport Blvd, West Sacramento, CA 95691	Storm water industrial	5S57NEC000607	CAS000001
USF Reddaway Inc Yrc Worldwide Enterprise Services Inc	USF Reddaway Inc 515 Sac	620 Harbor Blvd, West Sacramento, CA 95691	Storm water industrial	5S57I022613	CAS000001
United Parcel Service Freight	UPS Sacramento CAWSR	917 Stillwater Rd, West Sacramento, CA 95605	Storm water industrial	5S57I009475	CAS000001
United Parcel Service Freight	UPS Sacramento CAWSA	900 E Street, West Sacramento, CA 95605	Storm water industrial	5S57I013618	CAS000001
United Parcel Service Oakland Hub	UPS Sacramento Hub CASAC	1380 Shore St, West Sacramento, CA 95691	Storm water industrial	5S57I002068	CAS000001
University of California Davis	Uc Davis Campus Landfill	Country Rd 98, Davis, CA 95616	Storm water industrial	5S57I009690	CAS000001
University of California Davis	UC Davis Airport	Hopkins And Airport Rd, Davis, CA 95616	Storm water industrial	5S57I016863	CAS000001
University of California Davis	UC Davis Unitrans	University Of California, Davis, CA 95616	Storm water industrial	5S57I015314	CAS000001
University of California Davis	University of California Davis	Office Of Env Health and Safety, Davis, CA 95616	Storm water industrial	5S57I002687	CAS000001
Valley Slurry Seal Emultech	VSS Emultech	3785 Channel Dr, West Sacramento, CA 95691	Storm water industrial	5S57I022410	CAS000001
Washington School District	Washington Sch Dist Maint Tr	1706 Grande Vista Ave, West Sacramento, CA 95691	Storm water industrial	5S57I001577	CAS000001
Waste Management of Woodland	Waste Management of Woodland	1324 Paddock Pl, Woodland, CA 95776	Storm water industrial	5S57I007105	CAS000001
Watts Woodland Airport Inc	Watts Woodland Airport	17992 County Road 94B, Woodland, CA 95695	Storm water industrial	5S57I002427	CAS000001
Woodland Biomass Power Ltd	Woodland Biomass Power Ltd	1786 East Kentucky Ave, Woodland, CA 95776	Storm water industrial	5S57I017451	CAS000001
Woodland City WPCF	Woodland City WPCF	42929 County Road 24, Woodland, CA 95776	Storm water industrial	5S57I005103	CAS000001
Woodland Joint Unified School District	Woodland Joint Unified School District Transportation	25 Matmor Rd, Woodland, CA 95776	Storm water industrial	5S57I017871	CAS000001
Yolo Cnty Airport	Yolo Cnty Airport	County Roads 29 and 95, Davis, CA 95695	Storm water industrial	5S57I000032	CAS000001
andrew auto body	andrew auto body	526 galveston #c, West Sacramento, CA 95691	Storm water industrial	5S57I026895	CAS000001

Source: California State Water Resources Control Board. "California Integrated Water Quality System Project (CIWQS)." Accessed 15 March 2017. <https://www.waterboards.ca.gov/water_issues/programs/ciwqs/publicreports.shtml>

Appendix E

List of Applicable, Active NPDES Permits in Yolo County

Appendix E - NPDES Regulated Facilities within Yolo County

Agency	Facility Name	Facility Address	Place/Project Type	Regulatory Measure Type	Order No.	WDID	NPDES No.
40th District Agricultural Association	40th District Agricultural Association	1125 East Street, CA 95776	Facility	Phase II Small MS4	2013-0001-DWQ	5S57M2000142	CAS000004
City of Davis	City of Davis	23 Russell Boulevard, Davis, CA 95616	Facility	Phase II Small MS4	2013-0001-DWQ	5S57M2000243	CAS000004
City of West Sacramento	City of West Sacramento	1110 West Capitol Avenue 3rd Floor, West Sacramento, CA 95691	Facility	Phase II Small MS4	2013-0001-DWQ	5S57M2000109	CAS000004
City of Woodland	City of Woodland	300 First Street, Woodland, CA 95695	Facility	Phase II Small MS4	2013-0001-DWQ	5S57M2000115	CAS000004
University of California Davis	University of California Davis	One Shields Ave Environmental Health and Safety, Davis, CA 95616	Facility	Phase II Small MS4	2013-0001-DWQ	5S57M2000021	CAS000004
Yolo County Planning & Public Works	Yolo County Planning & Public Works	292 West Beamer Street, Woodland, CA 95695	Facility	Phase II Small MS4	2013-0001-DWQ	5S57M2000173	CAS000004
AKM Railroad LLC	Winters Hotel	310 Railroad Street, Winters, CA 95694	Construction	Storm water construction	2009-0009-DWQ	5S57C374586	CAS000002
ANDCO Farms	Old Bryte Landfill	50035 County Road 126, West Sacramento, CA 95691	Construction - Other: Landfill Cap & Closure	Storm water construction	2009-0009-DWQ	5S57C364052	CAS000002
American Investors Group LLC	Napa Village Subdivision	Bryte Avenue, West Sacramento, CA 95691	Construction - Residential	Storm water construction	2009-0009-DWQ	5S57C373659	CAS000002
Ashdon Development LLC	Hudson Ogando Subdivision No 4684	West Main Street and Aster Way, Winters, CA 95694	Construction	Storm water construction	2009-0009-DWQ	5S57C371312	CAS000002
Bardis Homes	The Good Project B Street West	North of B Street between 4th and 5th, West Sacramento, CA 95655	Construction - Residential	Storm water construction	2009-0009-DWQ	5S57C376246	CAS000002
Buzz Oates Construction Inc	Riverpoint Marketplace Tenant Improvements	752 764 Ikea Court, West Sacramento, CA 95630	Construction - Commercial	Storm water construction	2009-0009-DWQ	5S57C360461	CAS000002
CalAtlantic Group	The Cannery 1D and 2D	East Covell Blvd and Cannery Ave, Davis, CA 95616	Construction	Storm water construction	2009-0009-DWQ	5S57C374161	CAS000002
Cannery Lofts Investors LP	The Cannery Apartments	900 Jacobsen Lane, Davis, CA 95616	Construction	Storm water construction	2009-0009-DWQ	5S57C375518	CAS000002
City of West Sacramento	Bridge District Parking Lot	5874 Bridge Street, West Sacramento, CA 95691	Construction - Commercial	Storm water construction	2009-0009-DWQ	5S57C378780	CAS000002
City of West Sacramento	Village Parkway Extension Project	Village Parkway from Locks Drive to Stonegate Drive, West Sacramento, CA 95691	Construction - Transportation	Storm water construction	2009-0009-DWQ	5S57C374341	CAS000002
City of Winters	Walnut Park Phase 2	820 Walnut Ln, Winters, CA 95694	Construction	Storm water construction	2009-0009-DWQ	5S57C377139	CAS000002
City of Woodland	Industrial Park Recycled Water Project	E Kentucky Ave to Cty Rd 24 WPCF, Woodland, CA 95776	Construction - Below Ground	Storm water construction	2009-0009-DWQ	5S57C376179	CAS000002
Claudette Von Rusten	Von Rusten Horse Ranch	APN 069010055, Davis, CA 95616	Construction - Residential	Storm water construction	2009-0009-DWQ	5S57C375860	CAS000002
Comstock Homes	The Villages at Willow Creek	southeast corner of Drummond Ave and Cowell Blvd, Davis, CA 95616	Construction - Residential	Storm water construction	2009-0009-DWQ	5S57C375210	CAS000002
DNV Properties LLC	River Glen Estates	3245 Marshall Road, West Sacramento, CA 95691	Construction - Residential	Storm water construction	2009-0009-DWQ	5S57C373769	CAS000002
DR Horton	Solara Ranch	County Road 101 south of County Road 25, Woodland, CA 95776	Construction - Residential	Storm water construction	2009-0009-DWQ	5S57C370703	CAS000002
DR Horton	Marshall Crossings	Stable Drive, West Sacramento, CA 95691	Construction - Residential	Storm water construction	2009-0009-DWQ	5S57C377041	CAS000002
Dthompson Properties LLC	TEC Equipment	4515 West Capitol Ave, West Sacramento, CA 95619	Construction	Storm water construction	2009-0009-DWQ	5S57C377911	CAS000002
Evergreen Communities Inc	Myers Ranch	3035 Jefferson Blvd, West Sacramento, CA 95691	Construction - Residential	Storm water construction	2009-0009-DWQ	5S57C373947	CAS000002
Fouts Landscape	The Villas at El Macero	northeast corner of Mace Blvd and San Marino Drive, Davis, CA 95618	Construction - Residential	Storm water construction	2009-0009-DWQ	5S57C373186	CAS000002
Fouts Landscape	Grande Village Subdivision	southeast corner of Grande Avenue and Mercedes Avenue, Davis, CA 95616	Construction - Residential	Storm water construction	2009-0009-DWQ	5S57C375915	CAS000002
GBD Promenade Developments LP	The Promenade	Southport Parkway, West Sacramento, CA 95691	Construction - Residential	Storm water construction	2009-0009-DWQ	5S57C376040	CAS000002
Jamboree Housing Corporation	Delta Lane Apartments Phase I	810 820 Delta Lane 825 Tower Bridge Gateway, West Sacramento, CA 95691	Construction - Residential	Storm water construction	2009-0009-DWQ	5S57C372722	CAS000002
Jim Huynh	33946 County Road 24	33946 County Road 24, Woodland, CA 95695	Construction - Commercial	Storm water construction	2009-0009-DWQ	5S57C378985	CAS000002
Lennar Homes of California Inc	Heidrick Ranch Units 2 and 3	East of County Road 101, Woodland, CA 95776	Construction - Residential	Storm water construction	2009-0009-DWQ	5S57C370929	CAS000002
Lennar Homes of California Inc	Heritage Remainder	NW of Future County Rd 25A and County Rd 102, Woodland, CA 95776	Construction - Residential	Storm water construction	2009-0009-DWQ	5S57C377717	CAS000002
Lennar Homes of California Inc	Cal West	SW of Harry Lorenzo Ave and Farm Rd, Woodland, CA 95776	Construction - Residential	Storm water construction	2009-0009-DWQ	5S57C374555	CAS000002

Source: California State Water Resources Control Board. "California Integrated Water Quality System Project (CIWQS)". Accessed 15 March 2017. <https://ciwqs.waterboards.ca.gov/ciwqs/readOnly/CiwqsReportServlet?reportID=6219639&inCommand=drilldown&reportName=RegulatedFacilityDetail&place=Yolo>

Appendix E - NPDES Regulated Facilities within Yolo County

Los Rios Community College District	SCC Davic Center Phase 2	Hutchinson Drive and Campbell Road, Davis, CA 95616	Construction - Commercial	Storm water construction	2009-0009-DWQ	5S57C377287	CAS000002
Mercy Housing California	West Beamer Street Apartments	20 North Cottonwood Street, Woodland, CA 95695	Construction - Residential	Storm water construction	2009-0009-DWQ	5S57C378976	CAS000002
Mercy Housing California 76 LP	Esperanza Crossing Phase II	26766 Woodland Avenue, Esparto, CA 95627	Construction - Commercial	Storm water construction	2009-0009-DWQ	5S57C378489	CAS000002
Meritage Homes	Phase 1 Heritage Remainder Area and Heritage Park Unit 2 Subdivisions	Marston Road and Miekle Avenue, Woodland, CA 95776	Construction - Residential	Storm water construction	2009-0009-DWQ	5S57C371102	CAS000002
Nihal Development LLC	Nihal Plaza	3425 Reed Avenue, West Sacramento, CA 95605	Construction - Commercial	Storm water construction	2009-0009-DWQ	5S57C375320	CAS000002
Pacific Gas and Electric Company	PG&E Gas Operations Technical Training Center GOTTC	East Grant Ave at Interstate 505 interchange cross Timber Crest Rd and Matsumoto Lane, Winters, CA 95694	Construction - Commercial, Utility: PGE - Gas Training Facility	Storm water construction	2009-0009-DWQ	5S57C374702	CAS000002
Pacific Gas and Electric Company	Gas Transmission Pipeline L407 Pipeline Replacement R300	County Road 98 and 16A, Yolo, CA 95695	Construction - Below Ground, Gas Line	Storm water construction	2009-0009-DWQ	5S57C375495	CAS000002
Paso Fino Partners LLC	Paso Fino Subdivision	2627 East Covell Blvd, Davis, CA 95618	Construction - Residential	Storm water construction	2009-0009-DWQ	5S57C376637	CAS000002
Reclamation District 108	Wallace Weir Fish Rescue Facility	County Rd 17 / Levee Rd, Knights Landing, CA 95645	Construction - Other: Reclamation District Waterway Improvements	Storm water construction	2009-0009-DWQ	5S57C376904	CAS000002
Reclamation District 2035	RD2035 Woodland Davis Clean Water Agency Joint Intake and Fish Screen Project	18019 County Road 117, West Sacramento, CA 95691	Construction	Storm water construction	2009-0009-DWQ	5S57C369695	CAS000002
Red Door Building Company Inc	Del Rio Live Work	2751 Del Rio Place, Davis, CA 95616	Construction - Residential	Storm water construction	2009-0009-DWQ	5S57C372761	CAS000002
River Landing Home Sales LLC	River Landing	1895 Sierra Road, Granite Bay, CA 95691	Construction	Storm water construction	2009-0009-DWQ	5S57C365511	CAS000002
Russian Baptist Church	Additional Parking Lot Russian Baptist Church	1000 Sacramento Avenue, West Sacramento, CA 95605	Construction - Below Ground, Water/Sewer Line, Other: Additional Parking lot for the existing church, Electrical, Commercial	Storm water construction	2009-0009-DWQ	5S57C375294	CAS000002
Seecon Financial & Construction Co	Newport Estates Unit 10	Lake Washington Boulevard, West Sacramento, CA 95691	Construction - Residential	Storm water construction	2009-0009-DWQ	5S57C372693	CAS000002
Shea Homes Limited Partnership	Persimmon and Tilton at The Cannery	Cannery Loop at Woodbury Lane, Davis, CA 95616	Construction - Residential	Storm water construction	2009-0009-DWQ	5S57C372642	CAS000002
Skepner Development Corp	Jefferson Self Storage	3290 Jefferson Blvd., West Sacramento, CA 95691	Construction - Commercial	Storm water construction	2009-0009-DWQ	5S57C353680	CAS000002
Smart Growth Investors II LP	Bridge District Phase 2	Silo Alley, West Sacramento, CA 95691	Construction - Residential	Storm water construction	2009-0009-DWQ	5S57C374346	CAS000002
Solano County Water Agency	Winters Putah Creek Nature Park	Putah Creek Road, Winters, CA 95694	Construction - Other: Creek Channel Realignment and Restoration	Storm water construction	2009-0009-DWQ	5S57C372955	CAS000002
Sukhjit Dhillon	Dhillon Residence	County Road 30B APN 033290001, Davis, CA 95616	Construction	Storm water construction	2009-0009-DWQ	5S57C376577	CAS000002
Summerplace at Westgate	Summerplace at Westgate	northeast corner of Jefferson and Gateway Drive, West Sacramento, CA 95691	Construction - Commercial	Storm water construction	2009-0009-DWQ	5S57C372455	CAS000002
SunPower Corporation	SunPower	28110 Mace Boulevard Mace Boulevard, Davis, CA 95618	Construction - Commercial	Storm water construction	2009-0009-DWQ	5S57C375130	CAS000002
TAKHAR WEST AMPM	West Sacramento ARCO	2270 LAKE WASHINGTON BLVD, West Sacramento, CA 95651	Construction - Commercial	Storm water construction	2009-0009-DWQ	5S57C376655	CAS000002
Taylor Morrison of California LLC	Parkview	NEC of Miekle Ave and E Heritage Parkway, Woodland, CA 95776	Construction - Residential	Storm water construction	2009-0009-DWQ	5S57C367295	CAS000002
The New Home Company Northern California LLC	Cannery	1111 East Covell Boulevard, Davis, CA 95616	Construction - Residential	Storm water construction	2009-0009-DWQ	5S57C369193	CAS000002
Tracy & Mary Basso	Basso Home Site	Country Rd 97D, Davis, CA 95616	Construction - Residential	Storm water construction	2009-0009-DWQ	5S57C342770	CAS000002
University of California Davis	Large Lecture Hall	One Shields Ave, Davis, CA 95616	Construction - Other: Education	Storm water construction	2009-0009-DWQ	5S57C377268	CAS000002
University of California Davis	Silo Renovation	One Shields Ave, Davis, CA 95616	Construction - Reconstruction	Storm water construction	2009-0009-DWQ	5S57C376583	CAS000002
University of California Davis	Tercero Student Housing Phase 4	Bioletti Way and La Rue Road, Davis, CA 95616	Construction - Other: Higher Education	Storm water construction	2009-0009-DWQ	5S57C372008	CAS000002
University of California Davis	Putah Creek Lodge Parking Lot	One Shields Avenue, Davis, CA 95616	Construction - Other: Education	Storm water construction	2009-0009-DWQ	5S57C370431	CAS000002
Vann Brothers	Vann Brothers - Dunnigan	County Road 8 and Interstate 5, Dunnigan, CA 95937	Construction - Commercial	Storm water construction	2009-0009-DWQ	5S57C377767	CAS000002
Westervelt Ecological Services	Bullock Bend Mitigation Bank	Road 97, Knights Landing, CA 95645	Construction - Other: Habitat Restoration	Storm water construction	2009-0009-DWQ	5S57C375648	CAS000002
Woodland Biomass Power Ltd	Lillard Ranch	24998 County Road 102, Davis, CA 95776	Construction - Other: Site Remediation	Storm water construction	2009-0009-DWQ	5S57C378592	CAS000002
Woodland Joint Unified School District	Spring Lake Elementary School	Miekle Avenue and Banks Drive, Woodland, CA 95776	Construction - Commercial	Storm water construction	2009-0009-DWQ	5S57C377898	CAS000002

Source: California State Water Resources Control Board. "California Integrated Water Quality System Project (CIWQS)". Accessed 15 March 2017. <https://ciwqs.waterboards.ca.gov/ciwqs/readOnly/CiwqsReportServlet?reportID=6219639&inCommand=drilldown&reportName=RegulatedFacilityDetail&place=Yolo>

Appendix E - NPDES Regulated Facilities within Yolo County

Woodland Lodging LLC	Fairfield Inn and Suites	2100 Freeway Drive, Woodland, CA 95695	Construction - Commercial	Storm water construction	2009-0009-DWQ	5S57C370414	CAS000002
Woodland Spring Lake Partners LP	Spring Lake Central	Harry Lorenzo Avenue between Farmers Central Rd and E Heritage Pkwy, Woodland, CA 95776	Construction - Residential	Storm water construction	2009-0009-DWQ	5S57C373172	CAS000002
Yolo County	Yolo County Juvenile Multipurpose Facility	2420 East Gibson Road, Woodland, CA 95695	Construction - Other: County Jail	Storm water construction	2009-0009-DWQ	5S57C376286	CAS000002
Yolo County General Services Department	Old Yolo County General Hospital	170 West Beamer Street, Woodland, CA 95695	Construction - Other: Demolition	Storm water construction	2009-0009-DWQ	5S57C378063	CAS000002
Yolo County Planning and Public Works	YCCL Soil Borrow Site	County Road 28H and County Road 104 44090 County Road 28H, Woodland, CA 95776	Construction - Other: Soil Mining	Storm water construction	2009-0009-DWQ	5S57C373592	CAS000002
APL Logistics	APL Logistics SC Johnson & Son Inc	2030 Hanson Way, Woodland, CA 95776	Industrial - General Warehousing and Storage	Storm water industrial	2014-0057-DWQ	5S57NEC001523	CAS000001
American Medical Response West	AMR West Sacramento	1255 Triangle Court, West Sacramento, CA 95605	Industrial - Local Passenger Transportation, NEC	Storm water industrial	2014-0057-DWQ	5S57NEC003003	CAS000001
Ames Co	Ames Co	1485 Tanforan Ave, Woodland, CA 95776	Industrial - Valves and Pipe Fittings, NEC	Storm water industrial	2014-0057-DWQ	5S57I010581	CAS000001
BJ Gear Enterprise Inc	BJ Gear Enterprise Inc	501 Glide Ave, West Sacramento, CA 95691	Industrial - Motor Vehicle Parts, Used	Storm water industrial	2014-0057-DWQ	5S57I012317	CAS000001
Bay State Milling Company	Bay State Milling Company	41970 E Main St, Woodland, CA 95776	Industrial - Flour and Other Grain Mill Products	Storm water industrial	2014-0057-DWQ	5S57I027046	CAS000001
Beckman Coulter	Beckman Coulter	2040 Enterprise Blvd, West Sacramento, CA 95691	Industrial - In Vitro and In Vivo Diagnostic Substances	Storm water industrial	2014-0057-DWQ	5S57NEC001324	CAS000001
Beckman Coulter	Beckman Coulter	1584 Enterprise Blvd, West Sacramento, CA 95691	Industrial - In Vitro and In Vivo Diagnostic Substances	Storm water industrial	2014-0057-DWQ	5S57NEC001244	CAS000001
Berryessa Gap Vineyards	Berryessa Gap Vineyards	27260 Hwy 128, Winters, CA 95694	Industrial - Wines, Brandy, and Brandy Spirits	Storm water industrial	2014-0057-DWQ	5S57I020681	CAS000001
Best Overnite Express	Best Overnite Express	850 F St, West Sacramento, CA 95691	Industrial - Trucking, Except Local	Storm water industrial	2014-0057-DWQ	5S57I016940	CAS000001
Bianchi Estates LLC	Bianchi Estates LLC	3020 3040 Duluth Street, West Sacramento, CA 95691	Industrial - Motor Vehicle Parts, Used	Storm water industrial	2014-0057-DWQ	5S57I025277	CAS000001
Bike Dog Brewing	Bike Dog Brewing	2534 Industrial Blvd #110, West Sacramento, CA 95691	Industrial - Malt Beverages	Storm water industrial	2014-0057-DWQ	5S57I026965	CAS000001
Bob Hensley	Roy E Lay Trucking	1218 E Kentucky Ave, Woodland, CA 95776	Industrial - Local Trucking Without Storage	Storm water industrial	2014-0057-DWQ	5S57I004064	CAS000001
Bogle Delta Winery	Bogle Delta Winery	49762 Hamilton Rd, Clarksburg, CA 95612	Industrial - Wines, Brandy, and Brandy Spirits	Storm water industrial	2014-0057-DWQ	5S57I023272	CAS000001
Bogle Vineyards	Bogle Vineyards ORV Site	38045 Netherlands Rd, Clarksburg, CA 95612	Industrial - Wines, Brandy, and Brandy Spirits	Storm water industrial	2014-0057-DWQ	5S57I021547	CAS000001
Bogle Winery	Bogle Winery	37783 Co Rd 144, Clarksburg, CA 95612	Industrial - Wines, Brandy, and Brandy Spirits	Storm water industrial	2014-0057-DWQ	5S57I020594	CAS000001
Brewhouse Concepts Land and Management Inc	Yolo Brewing Company	1520 Terminal Street, West Sacramento, CA 95691	Industrial - Malt Beverages	Storm water industrial	2014-0057-DWQ	5S57NEC000727	CAS000001
Bunge North America Inc	Pacific International Rice Mills	845 Kentucky Ave, Woodland, CA 95659	Industrial - Rice Milling	Storm water industrial	2014-0057-DWQ	5S57I023004	CAS000001
Cemex Construction Materials Pacific LLC	CEMEX West Sac Facility	1890 Parkway Blvd, West Sacramento, CA 95619	Industrial - Ready-Mixed Concrete	Storm water industrial	2014-0057-DWQ	5S57I024310	CAS000001
ClarkPacific	Clark Pacific Sacramento Plant	1980 S River Rd 880, West Sacramento, CA 95691	Industrial - Concrete Products, Except Block and Brick	Storm water industrial	2014-0057-DWQ	5S57I001496	CAS000001
ClarkPacific	Clark Pacific Woodland Plant	40600 Cnty Rd 18C, Woodland, CA 95691	Industrial - Concrete Products, Except Block and Brick	Storm water industrial	2014-0057-DWQ	5S57I022514	CAS000001
Cleanworld	Cleanworld	28068 County Rd 98, Davis, CA 95670	Industrial - Fabricated Plate Work (Boiler Shops)	Storm water industrial	2014-0057-DWQ	5S57I025878	CAS000001
Conco	Reliable Trucking	1420 East Kentucky Avenue, Woodland, CA 94520	Industrial - Local Trucking with Storage	Storm water industrial	2014-0057-DWQ	5S57NEC001968	CAS000001
Constellation Brands Inc	RH Phillips Winery	26836 County Road 12A, Esparto, CA 95627	Industrial - Wines, Brandy, and Brandy Spirits	Storm water industrial	2014-0057-DWQ	5S57I025269	CAS000001
Crew Wine Company LLC	Crew Wine Company LLC	12300 County Road 92B, Zamora, CA 95698	Industrial - Wines, Brandy, and Brandy Spirits	Storm water industrial	2014-0057-DWQ	5S57I026479	CAS000001
DMG MORI	DMG MORI	3601 Faraday Ave, Davis, CA 95618	Industrial - Machine Tools, Metal Cutting Type	Storm water industrial	2014-0057-DWQ	5S57NEC001506	CAS000001
Davis Waste Removal	Davis Waste Removal	2727 2nd St, Davis, CA 95618	Industrial - Scrap and Waste Materials	Storm water industrial	2014-0057-DWQ	5S57I013120	CAS000001
DeSilva Gates Construction Corporation Yard	DeSilva Gates Construction Corporation Yard	3201 W Capitol Ave, West Sacramento, CA 95691	Industrial - Local Trucking with Storage	Storm water industrial	2014-0057-DWQ	5S57I025809	CAS000001
Del Dotto Vineyards Inc	Del Dotto Vineyards Atlas Peak	1055 Atlas Peak Road, Napa, CA 94558	Industrial - Wines, Brandy, and Brandy Spirits	Storm water industrial	2014-0057-DWQ	5S57I026240	CAS000001
Dependable Highway Express Inc	Dependable Highway Express	820 830 E St, West Sacramento, CA 95605	Industrial - Trucking, Except Local	Storm water industrial	2014-0057-DWQ	5S57I023314	CAS000001
Devine Intermodal	Devine Intermodal	3870 Channel Dr, West Sacramento, CA 95691	Industrial - Trucking, Except Local	Storm water industrial	2014-0057-DWQ	5S57I020933	CAS000001
Econco Broadcast Service	Econco Broadcast Service	1318 Commerce Ave, Woodland, CA 95776	Industrial - Electron Tubes	Storm water industrial	2014-0057-DWQ	5S57I019653	CAS000001
Eric Jacobsen	Green Zone Recycling Center	225 Industrial Wy Ste C 225 industrial way, Woodland, CA 95776	Industrial - Scrap and Waste Materials	Storm water industrial	2014-0057-DWQ	5S57I023688	CAS000001
Eric Jacobsen	Palletmasters	104 Matmor Road, Woodland, CA 95776	Industrial - Wood Pallets and Skids	Storm water industrial	2014-0057-DWQ	5S57I026501	CAS000001

Estes Express West	Estes West	4200 W Capitol Ave, Sacramento, CA 95569	Industrial - Trucking, Except Local	Storm water industrial	2014-0057-DWQ	5S57I023133	CAS000001
Euro Star Auto Dismantling	Euro Star Auto Dismantling	3040 Duluth St 24, West Sacramento, CA 95691	Industrial - Motor Vehicle Parts, Used	Storm water industrial	2014-0057-DWQ	5S57NEC001846	CAS000001
Farmers Rice Coop	Farmers Rice Coop	2224 Industrial Blvd, West Sacramento, CA 95691	Industrial - Rice Milling	Storm water industrial	2014-0057-DWQ	5S57I006231	CAS000001
Fed Ex Freight Inc	FedEx Freight Sacramento	4075 Channel Dr, West Sacramento, CA 95691	Industrial - Terminal and Joint Terminal Maintenance Facilities for Motor Freight Transportation	Storm water industrial	2014-0057-DWQ	5S57I020481	CAS000001
FedEx Ground Package System Inc	FedEx Ground ZROV	8501 Foothills Blvd, Roseville, CA 95747	Industrial - Courier Services Except by Air	Storm water industrial	2014-0057-DWQ	5S57NEC002506	CAS000001
First Student Inc C O Strata Environmental	Greyhound Lines Inc 890030	1874 S River Rd, West Sacramento, CA 95691	Industrial - Intercity and Rural Bus Transportation	Storm water industrial	2014-0057-DWQ	5S57I004607	CAS000001
Gayle Manufacturing Co	Gayle Manufacturing Co	1455 E Kentucky Ave, Woodland, CA 95776	Industrial - Fabricated Structural Metal	Storm water industrial	2014-0057-DWQ	5S57I003891	CAS000001
Genesis Auto Enterprises Inc	Genesis Auto Enterprises Inc	525 Houston St, West Sacramento, CA 95691	Industrial - Motor Vehicle Parts, Used	Storm water industrial	2014-0057-DWQ	5S57I021793	CAS000001
Greenwood Motor Lines Inc dba RL Carriers	RL Carriers SAC	1820 Parkway Blvd, West Sacramento, CA 95691	Industrial - Trucking, Except Local	Storm water industrial	2014-0057-DWQ	5S57I023835	CAS000001
IMSA Building Product	ASC Profiles	2110 Enterprise Blvd, West Sacramento, CA 95691	Industrial - Architectural and Ornamental Metal Work	Storm water industrial	2014-0057-DWQ	5S57I011210	CAS000001
International Paper WestSac Recycling	International Paper	1714 Cebrian St, West Sacramento, CA 95691	Industrial - Scrap and Waste Materials	Storm water industrial	2014-0057-DWQ	5S57I022094	CAS000001
J M Recycling Inc	J M Recycling Inc	1310 E Beamer St, Woodland, CA 95776	Industrial - Scrap and Waste Materials	Storm water industrial	2014-0057-DWQ	5S57I023619	CAS000001
J M Recycling Inc	J M Recycling Inc	2205 Rice Ave, Sacramento, CA 95691	Industrial - Scrap and Waste Materials	Storm water industrial	2014-0057-DWQ	5S57I023620	CAS000001
JM & S RECYCLING	JM & S RECYCLING	8110 JUNIPERO STREET, Sacramento, CA 95828	Industrial - Nonclassifiable Establishments	Storm water industrial	2014-0057-DWQ	5S57NEC002407	CAS000001
KAG West LLC	KAG West LLC West Sacramento	4076 Seaport Blvd, West Sacramento, CA 95691	Industrial - Terminal and Joint Terminal Maintenance Facilities for Motor Freight Transportation	Storm water industrial	2014-0057-DWQ	5S57I001614	CAS000001
Koy Builders	Old Sugar Mill	35265 Willow Ave PO Box 123, Clarksburg, CA 95612	Industrial - Wines, Brandy, and Brandy Spirits	Storm water industrial	2014-0057-DWQ	5S57I023496	CAS000001
Leer West LLC	Leer West	1686 E Beamer St, Woodland, CA 95776	Industrial - Travel Trailers and Campers	Storm water industrial	2014-0057-DWQ	5S57I019897	CAS000001
M M Salvage Inc dba West Coast Auto Dismantling	West Coast Auto Dismantling	333 N Pioneer Ave, Woodland, CA 95776	Industrial - Motor Vehicle Parts, Used	Storm water industrial	2014-0057-DWQ	5S57I022160	CAS000001
Nor Cal Beverage Company Inc	Nor Cal Beverage	2286 Stone Blvd, West Sacramento, CA 95691	Industrial - Bottled and Canned Soft Drinks and Carbonated Waters	Storm water industrial	2014-0057-DWQ	5S57I009538	CAS000001
Northern Recycling Composting	Northern Recycling Composting Zamora	11220 County Road 94 3216 Vichy Ave, Zamora, CA 94559	Industrial - Fertilizers, Mixing Only	Storm water industrial	2014-0057-DWQ	5S57I023540	CAS000001
Northwest Pallets	Northwest Pallets	281 N Pioneer Ave, Woodland, CA 95776	Industrial - Wood Pallets and Skids	Storm water industrial	2014-0057-DWQ	5S57I026328	CAS000001
Old Dominion Freight Lines	Old Dominion Freight Lines	2920 Oates Dr, West Sacramento, CA 95691	Industrial - Trucking, Except Local	Storm water industrial	2014-0057-DWQ	5S57I022911	CAS000001
PGP International Inc	PGP International Inc	351 Hanson Wy, Woodland, CA 95776	Industrial - Flour and Other Grain Mill Products	Storm water industrial	2014-0057-DWQ	5S57I023014	CAS000001
Pacific Coast Producers	Pacific Coast Producers Woodland	1376 Lemen Ave, Woodland, CA 95776	Industrial - Canned Fruits, Vegetables, Preserves, Jams, and Jellies	Storm water industrial	2014-0057-DWQ	5S57I016697	CAS000001
Pacific States Ind DBA Redwood	Redwood Empire Woodland	22 N Pioneer Ave, Woodland, CA 95776	Industrial - Sawmills and Planing Mills, General	Storm water industrial	2014-0057-DWQ	5S57I025356	CAS000001
Pavestone Co LLC	Pavestone Co LLC	27600 County Road 90, Winters, CA 95694	Industrial - Concrete Products, Except Block and Brick	Storm water industrial	2014-0057-DWQ	5S57I016412	CAS000001
Prime Conduit Inc	Prime Conduit Inc	1776 E Beamer St, Woodland, CA 95776	Industrial - Plastics Pipe	Storm water industrial	2014-0057-DWQ	5S57I022372	CAS000001
QG Printing II LLC	QG Printing II Corp	1201 Shore Street, West Sacramento, CA 95691	Industrial - Commercial Printing, Lithographic	Storm water industrial	2014-0057-DWQ	5S57NEC000419	CAS000001
QG Printing II LLC	QG Printing II Corp	1630 Terminal Street, West Sacramento, CA 95691	Industrial - Bookbinding and Related Work	Storm water industrial	2014-0057-DWQ	5S57NEC000422	CAS000001
RJJ Resource Management Corp	RJJ Resource Management Corp	2895 Industrial Blvd, West Sacramento, CA 95691	Industrial - Logging	Storm water industrial	2014-0057-DWQ	5S57I026680	CAS000001
Ramos Oil Co	Ramos Oil Company Inc	1515 South River Rd, West Sacramento, CA 95691	Industrial - Petroleum Bulk Stations and Terminals	Storm water industrial	2014-0057-DWQ	5S57I024719	CAS000001
Ramos Oil Co	Ramos Oil Co Inc	597 N East St, Woodland, CA 95776	Industrial - Petroleum Bulk Stations and Terminals	Storm water industrial	2014-0057-DWQ	5S57I019596	CAS000001
Rite Aid	Rite Aid	1755 E Beamer St, Woodland, CA 95776	Industrial - Trucking, Except Local	Storm water industrial	2014-0057-DWQ	5S57I014488	CAS000001
Rolling Frito Lay Sales	Sacramento DC	3810 Seaport Blvd, West Sacramento, CA 95691	Industrial - Trucking, Except Local	Storm water industrial	2014-0057-DWQ	5S57I019007	CAS000001

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Appendix E - NPDES Regulated Facilities within Yolo County

Rubicon Brewing Company	Rubicon Brewing Company	885 Stillwater Road #100, West Sacramento, CA 95605	Industrial - Malt Beverages	Storm water industrial	2014-0057-DWQ	5S57NEC000446	CAS000001
SSA Pacific	SSA Pacific	2895 Industrial Blvd, West Sacramento, CA 95691	Industrial - Marine Cargo Handling	Storm water industrial	2014-0057-DWQ	5S57I024481	CAS000001
SYAR Industries Inc	Syar Industries Inc Madison Sand Gravel	16560 County Rd 89, Madison, CA 95653	Industrial - Construction Sand and Gravel	Storm water industrial	2014-0057-DWQ	5S57I005384	CAS000001
Schilling Robotics	Schilling Robotics LLC	201 Cousteau Pl, Davis, CA 95618	Industrial - General Industrial Machinery and Equipment, NEC	Storm water industrial	2014-0057-DWQ	5S57I021675	CAS000001
Sierra Chemical Co	Sierra Chemical Co	788 Northport Dr, West Sacramento, CA 95691	Industrial - Chemicals and Chemical Preparations, NEC	Storm water industrial	2014-0057-DWQ	5S57I014812	CAS000001
Skyline Corp	Skyline Corp	1720 E Beamer St, Woodland, CA 95776	Industrial - Mobile Homes	Storm water industrial	2014-0057-DWQ	5S57I001960	CAS000001
Standard Register Inc	Standard Register West Sacramento	3885 Seaport Boulevard Suite 40, West Sacramento, CA 95691	Industrial - Commercial Printing, NEC	Storm water industrial	2014-0057-DWQ	5S57NEC002783	CAS000001
Sudwerk Brewing Co	Sudwerk Brewing Co	2001 2nd St, Davis, CA 95618	Industrial - Malt Beverages	Storm water industrial	2014-0057-DWQ	5S57NEC000937	CAS000001
Sundstrom Hill Winery	Sundstrom Hill Winery	2744 Del Rio Place Suite 130, Davis, CA 95618	Industrial - Wines, Brandy, and Brandy Spirits	Storm water industrial	2014-0057-DWQ	5S57NEC001047	CAS000001
Sunfoods LLC	Sunfoods LLC	1620 East Kentucky Ave, Woodland, CA 95776	Industrial - Rice Milling	Storm water industrial	2014-0057-DWQ	5S57I023513	CAS000001
Target Corp	Target Distribution Center Woodland	2050 E Beamer St, Woodland, CA 95776	Industrial - Trucking, Except Local	Storm water industrial	2014-0057-DWQ	5S57I009564	CAS000001
Teichert Concrete Product	Teichert Concrete Prod Winters	27710 County Road 90, Winters, CA 95694	Industrial - Ready-Mixed Concrete	Storm water industrial	2014-0057-DWQ	5S57I016990	CAS000001
The Bainbridge Beverage Company West	The Bainbridge Beverage Company West	2335 Del Monte St, West Sacramento, CA 95691	Industrial - Frozen Fruits, Fruit Juices, and Vegetables	Storm water industrial	2014-0057-DWQ	5S57NEC002778	CAS000001
Tonys Fine Foods	Tonys Fine Foods	3575 Reed Avenue, West Sacramento, CA 95605	Industrial - Refrigerated Warehousing and Storage	Storm water industrial	2014-0057-DWQ	5S57I025594	CAS000001
Toyota Vlads Toy Inc	Toyota Vlads Toy Inc	2620 W Capitol Ave 2620 WEST CAPITOL AVE, West Sacramento, CA 95691	Industrial - Motor Vehicle Parts, Used	Storm water industrial	2014-0057-DWQ	5S57I021383	CAS000001
Transdev Services Inc	Transdev Services Inc	352 Industrial Wy, Woodland, CA 95776	Industrial - Intercity and Rural Bus Transportation	Storm water industrial	2014-0057-DWQ	5S57I020844	CAS000001
Two Rivers Cement LLC	Two Rivers Cement Terminal	2895 Industrial Blvd 180, West Sacramento, CA 95691	Industrial - Concrete Block and Brick	Storm water industrial	2014-0057-DWQ	5S57I023012	CAS000001
US Postal Service	US Postal Service West Sacramento VMF	3780 Seaport Blvd, West Sacramento, CA 95691	Industrial - United States Postal Service	Storm water industrial	2014-0057-DWQ	5S57NEC000607	CAS000001
USF Reddaway Inc Yrc Worldwide Enterprise Services Inc	USF Reddaway Inc 515 Sac	620 Harbor Blvd, West Sacramento, CA 95691	Industrial - Trucking, Except Local	Storm water industrial	2014-0057-DWQ	5S57I022613	CAS000001
United Parcel Service Freight	UPS Sacramento CAWSR	917 Stillwater Rd, West Sacramento, CA 95605	Industrial - Local Trucking Without Storage	Storm water industrial	2014-0057-DWQ	5S57I009475	CAS000001
United Parcel Service Freight	UPS Sacramento CAWSA	900 E Street, West Sacramento, CA 95605	Industrial - Local Trucking Without Storage	Storm water industrial	2014-0057-DWQ	5S57I013618	CAS000001
United Parcel Service Oakland Hub	UPS Sacramento Hub CASAC	1380 Shore St, West Sacramento, CA 95691	Industrial - Courier Services Except by Air	Storm water industrial	2014-0057-DWQ	5S57I002068	CAS000001
University of California Davis	Uc Davis Campus Landfill	Country Rd 98, Davis, CA 95616	Industrial - Refuse Systems	Storm water industrial	2014-0057-DWQ	5S57I009690	CAS000001
University of California Davis	UC Davis Airport	Hopkins And Airport Rd, Davis, CA 95616	Industrial - Airports, Flying Fields, and Airport Terminal Services	Storm water industrial	2014-0057-DWQ	5S57I016863	CAS000001
University of California Davis	UC Davis Unitrans	University Of California, Davis, CA 95616	Industrial - Local and Suburban Transit	Storm water industrial	2014-0057-DWQ	5S57I015314	CAS000001
University of California Davis	University of California Davis	Office Of Env Health and Safety, Davis, CA 95616	Industrial - Refuse Systems	Storm water industrial	2014-0057-DWQ	5S57I002687	CAS000001
Valley Slurry Seal Emultech	VSS Emultech	3785 Channel Dr, West Sacramento, CA 95691	Industrial - Asphalt Paving Mixtures and Blocks	Storm water industrial	2014-0057-DWQ	5S57I022410	CAS000001
Washington School District	Washington Sch Dist Maint Tr	1706 Grande Vista Ave, West Sacramento, CA 95691	Industrial - School Buses	Storm water industrial	2014-0057-DWQ	5S57I001577	CAS000001
Waste Management of Woodland	Waste Management of Woodland	1324 Paddock Pl, Woodland, CA 95776	Industrial - Local Trucking Without Storage	Storm water industrial	2014-0057-DWQ	5S57I007105	CAS000001
Watts Woodland Airport Inc	Watts Woodland Airport	17992 County Road 94B, Woodland, CA 95695	Industrial - Airports, Flying Fields, and Airport Terminal Services	Storm water industrial	2014-0057-DWQ	5S57I002427	CAS000001
Woodland Biomass Power Ltd	Woodland Biomass Power Ltd	1786 East Kentucky Ave, Woodland, CA 95776	Industrial - Electric Services	Storm water industrial	2014-0057-DWQ	5S57I017451	CAS000001
Woodland City WPCF	Woodland City WPCF	42929 County Road 24, Woodland, CA 95776	Industrial - Sewerage Systems	Storm water industrial	2014-0057-DWQ	5S57I005103	CAS000001
Woodland Joint Unified School District	Woodland Joint Unified School District Transportation	25 Matmor Rd, Woodland, CA 95776	Industrial - School Buses	Storm water industrial	2014-0057-DWQ	5S57I017871	CAS000001
Yolo Cnty Airport	Yolo Cnty Airport	County Roads 29 and 95, Davis, CA 95695	Industrial - Airports, Flying Fields, and Airport Terminal Services	Storm water industrial	2014-0057-DWQ	5S57I000032	CAS000001
andrew auto body	andrew auto body	526 galveston #c, West Sacramento, CA 95691	Industrial - Motor Vehicle Parts, Used	Storm water industrial	2014-0057-DWQ	5S57I026895	CAS000001
Ca Dept of Transportation District 3 R5S	Harbor Boulevard Bridge Widening	Harbor Blvd/Hwy 50, CA	MS4	Enrollee - NPDES	99-06-DWQ	5S03CTC3388004	CAS000003

Source: California State Water Resources Control Board. "California Integrated Water Quality System Project (CIWQS)". Accessed 15 March 2017. <https://ciwqs.waterboards.ca.gov/ciwqs/readOnly/CiwqsReportServlet?reportID=6219639&inCommand=drilldown&reportName=RegulatedFacilityDetail&place=Yolo>

Pacific Gas & Electric Company San Ramon	PG&E R-300 Natural Gas Pipeline Projects - Yolo and Sutter Counties	Road 107A & Road 16, West Sacramento, CA 95691	Groundwater Cleanup Site	Enrollee - NPDES	R5-2013-0073-01	5A57NP00024	CAG995002
Reclamation District 900	Reclm Dist 900-AQ Pesticides	Woodland, CA 95695	Waterway/Shoreline Mod Site	Enrollee - NPDES	2013-0002-DWQ	5A57NP00010	CAG990005
Reclamation District 999	Reclm Dist 999-AQ Pesticides	Clarksburg, CA 95612	Waterway/Shoreline Mod Site	Enrollee - NPDES	2013-0002-DWQ	5A57NP00004	CAG990005
Sacramento-Yolo Mosquito & VCD	Sac-Yolo Mosquito-AQ Pesticide	Woodland, CA 95695	Waterway/Shoreline Mod Site	Enrollee - NPDES	2016-0039-DWQ	5A34AP00009	CAG990004
Yolo Cnty Flood Control & WCD	Yolo Cnty Flood Control & WCD-Aq Pesticides	Yolo, CA 95697	Waterway/Shoreline Mod Site	Enrollee - NPDES	2013-0002-DWQ	5A57NP00008	CAG990005
Davis City	City of Davis WWTP	45400 County Road 28H, Davis, CA 95776	Wastewater Treatment Facility	NPDES Permit	R5-2013-0127	5A570100001	CA0079049
UC Davis	Center for Aquatic Biology and Aquaculture	One Shields Avenue, Davis, CA 95616	Aquaculture/Hatchery	NPDES Permit	R5-2012-0053	5A570800003	CA0083348
Bariani Olive Oil	Bariani Olive Oil	30400 County Road 16, Zamora, CA 95698	Food Processing	Enrollee - Waiver	R5-2015-0005	5A57NC00025	null
Crew Wine Company LLC - County Road	Crew Wine Company	12300 County Road 92B, Zamora, CA 95698	Winery	Enrollee - Waiver	R5-2015-0005	5A57NC00028	null
Gargiulo Inc./BHN Research	BHN Research & Seed	37648 County Road 19A, Woodland, CA 95695	Nursery/Hydroponics	Enrollee - Waiver	R5-2015-0005	5A57NC00038	null
Hooby's Brewing, LLC	Hooby's Brewing, LLC	25635 State Hwy 128, Winters, CA 95694	Food Processing	Enrollee - Waiver	R5-2015-0005	5A57NC00047	null
Martinez, Dan	Berryessa Gap Vineyards	27260 Hwy 128, Winters, CA 95694	Winery	Enrollee - Waiver	R5-2015-0005	5A57NC00019	null
Amiri, Haleh	Amiri Oil Company Dunnigan Station	28700 Road 6, Dunnigan, CA 95987	Wastewater Treatment Facility	Enrollee - WDR	97-010-DWQ	5A571013001	null
Fugro Consultants, Inc	Former Mercury Cleaners	1419 16th Street, West Sacramento, CA 95691	Service/Commercial Site, NEC	Enrollee - WDR	R5-2015-0012	5A34NC00082	null
United Fuels	United Fuels WWTF	29770 County Rd #8, Dunnigan, CA 95937	Wastewater Treatment Facility	Enrollee - WDR	97-010-DWQ	5A571014001	null
Winters City	Winters Land Application Area	County Road 32A, Winters, CA 95694	Recycled Water Use Area	Enrollee - WDR	2016-0068-DDW	5A57NC00040	null
Winters City	Winters City WTF	27999 County Road 32A, Winters, CA 95694	Wastewater Treatment Facility	Enrollee - WDR	2016-0068-DDW	5A57NC00040	null
Woodland City	Woodland Land Application Area	County Road 24, Woodland, CA 95776	Recycled Water Use Area	Enrollee - WDR	2016-0068-DDW	5A57NC00046	null
Woodland City	Woodland Water Pollution Control Facility	42929 County Road 24, Woodland, CA 95776	Wastewater Treatment Facility	Enrollee - WDR	2016-0068-DDW	5A57NC00046	null
Ca Dept of Water Resources Sacramento Headquarters	Fremont Weir	Head of Yolo bypass, approx 9 miles SE of Knights Landing, Knights Landing, CA 95645	Dredge/Fill Site	Waiver	R5-2006-0042	5A57SC00006	null
Bill & Kathy's Inc	Bill/Kathy's WWTF	4070 Rd 89, Dunnigan, CA 95937	Wastewater Treatment Facility	WDR	87-089	5A571008001	null
Bogle Vineyards	Bogle Delta Winery	Jefferson Blvd. at Hamilton Rd, Clarksburg, CA 95612	Winery	WDR	R5-2011-0033	5A57NC00034	null
CA Department of Housing and Community Development	Davis Migrant Center WWTF	Rd 36 & Rd 105, Davis, CA 95616	Wastewater Treatment Facility	WDR	01-030	5A570112001	null
Ca Dept of Transportation District 3 R5S	Dunnigan Roadside Rest WWTF	Interstate 5, Woodland, CA 95695	Wastewater Treatment Facility	WDR	85-191	5A570801001	null
California American Water Company Sacramento	Dunnigan Wastewater Treatment Facility	5011 Road 7, Dunnigan, CA 95937	Mobile Home Park	WDR	R5-2010-0013	5A571005001	null
Cottonwood Investors Inc	Cottonwood Plaza	628 Cottonwood Street, Woodland, CA 95695	Service/Commercial Site, NEC	WDR	04-015	5A57NC00008	null
D-Q University	D-Q University WWTF	33250 County Rd 31, Davis, CA 95616	Educational Facilities	WDR	96-128	5A571009001	null
Dunnigan Co-Brands, Inc.	Pilot Travel Center 168 WWTF	30003 County Rd 8, Dunnigan, CA 95937	Gasoline Service Station	WDR	01-266	5A572082001	null
Esparto CSD	Esparto CSD WWTF	27228 Hwy 16, Esparto, CA 95627	Wastewater Treatment Facility	WDR	01-112	5A570108001	null
Granite Construction Company Sacramento	Capay Facility	15560 County Road 87, Esparto, CA 95627	Sand and Gravel Mining	WDR	R5-2008-0146	5A572096001	null
HM.Clause, Inc.	HM.Clause, Inc. Davis Research Station	28605 County Rd 104, Davis, CA 95616	Food Processing	WDR	R5-2003-0136	5A57NC00011	null
Jack in The Box /Mumma/Ankoor	Best Western Hotel/Jib/Mumma	County Rd 6 & County Rd 89, Dunnigan, CA 95737	Wastewater Treatment Facility	WDR	98-015	5A571010001	null
Jauregui, Alex	Camper's Inn RV Park	2501 Rd 88, Dunnigan, CA 95937	Campground	WDR	91-193	5A571000001	null
Knights Landing Service Dist	Knights Landing CSD WWTP	1/2 M south of Cnty Rd 116, just east of Knights Landing, Knights Landing, CA 95645	Wastewater Treatment Facility	WDR	R5-2007-0149	5A570101001	null
Madison Service District	Madison WWTF	9 Hwy 16 & Co Rd 89, Madison, CA 95653	Wastewater Treatment Facility	WDR	5-00-039	5A570102001	null
Pilot Corporation	Pilot Travel Center 168 WWTF	30003 County Rd 8, Dunnigan, CA 95937	Gasoline Service Station	WDR	01-266	5A572082001	null
Seminis Vegetable Seeds Inc	Woodland Research Station	37437 Hwy 16, Woodland, CA 95695	Food Processing	WDR	97-137	5A572093001	null
Solano Concrete Company Inc	Madison Plant	30288 State Highway 16, Madison, CA 95653	Sand and Gravel Mining	WDR	03-113	5A572071001	null
Sunsweet Dryers Inc	Winters Dryer Facility	29485 County Rd 27, Winters, CA 95694	Food Processing	WDR	93-207	5A572087001	null
Syar Industries Inc	Syar Madison Plant	16560 County Road 89, Madison, CA 95653	Sand and Gravel Mining	WDR	R5-2006-0069	5A572016001	null
Syngenta Seeds, Inc.	Woodland Seed Processing Facility	21435 County Road 98, Woodland, CA 95695	Food Processing	WDR	R5-2014-0110	5A57NC00017	null
Teichert Aggregates	Esparto Plant	27944 County Rd 19A, Esparto, CA 95627	Sand and Gravel Mining	WDR	04-106	5A572085001	null
Teichert Aggregates	Woodland Plant	CO. Rd 20, Woodland, CA 95695	Sand and Gravel Mining	WDR	86-052	5A572013001	null
Teichert Aggregates	Teichert Schwarzgruber Aggregate Plant	16500 County Rd 96, Woodland, CA 95695	Sand and Gravel Mining	WDR	86-054	5A572010001	null

Source: California State Water Resources Control Board. "California Integrated Water Quality System Project (CIWQS)". Accessed 15 March 2017. <https://ciwqs.waterboards.ca.gov/ciwqs/readOnly/CiwqsReportServlet?reportID=6219639&inCommand=drilldown&reportName=RegulatedFacilityDetail&place=Yolo>

Appendix E - NPDES Regulated Facilities within Yolo County

UC Davis	CABA Aquatic Center, Aquatic Weed Lab & Hydraulics Lab	2625 Garrod Drive, Davis, CA 95616	Aquaculture/Hatchery	WDR	R5-2016-0099	5A570800005	null
Univar USA Inc & River City Baseball Group	Former Van Waters&Rogers/Raley	Third Street, West Sacramento, CA 95605	Service/Commercial Site, NEC	WDR	R5-2007-0089	5A57NC00002	null
West Sacramento City	George Kristoff WTP	400 North Harbor Boulevard, West Sacramento, CA 95605	Water Treatment Plant	WDR	R5-2015-0130	5A57NC00045	null
Wild Wings Cnty Service Area	Wild Wings Water Recycling Facility	State Hwy 16 & County Rd 94B, Woodland, CA 95695	Wastewater Treatment Facility	WDR	02-077	5A57NC00004	null
Winters City	Winters WWTF	201 East Street, Winters, CA 95694	Wastewater Treatment Facility	WDR	02-136	5A570104001	null
Woodland City	Pacific Coast Producers	7916 Lemen Avenue, Woodland, CA 95776	Food Processing	WDR	02-122	5A570105002	null
Woodland-Davis Clean Water Agency (WDCWA)	Davis Woodland Regional Water Treatment Facility	855 County Road 102, Woodland, CA 95776	Water Treatment Plant	WDR	R5-2015-0108	5A57NC00039	null
Yocha Dehe Wintun Nation	Seka Hills Olive Mill	19326 County Road 78, Brooks, CA 95606	Food Processing	WDR	R5-2013-0137	5A57NC00035	null
Yolo Cnty Housing Authority	Davis Migrant Center WWTF	Rd 36 & Rd 105, Davis, CA 95616	Wastewater Treatment Facility	WDR	01-030	5A570112001	null
Yolo Cnty Planning & Public Works Dept.	Yolo Cnty Central LF GW Extraction & TRMT Sys, Storage Reservoir & Land App Area	44090 County Road 28H, Woodland, CA 95776	Service/Commercial Site, NEC	WDR	02-078	5A57NC00006	null

Source: California State Water Resources Control Board. "California Integrated Water Quality System Project (CIWQS)". Accessed 15 March 2017. <https://ciwqs.waterboards.ca.gov/ciwqs/readOnly/CiwqsReportServlet?reportID=6219639&inCommand=drilldown&reportName=RegulatedFacilityDetail&place=Yolo>

Appendix F

List of Adopted WDR Orders in Yolo County

Appendix F: Adopted Waste Discharge Orders – Yolo County

California State Water Resources Control Board, “Adopted and/or Issued Orders.” Accessed 14 December 2017. <https://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/index.html#yolo>

- Air Force Real Property Agency, Former McClellan Air Force Base, Davis Global Communications Site
    - Order No. R5-2005-0178, Waste Discharge Requirements/Monitoring & Reporting Program, Adopted on 29 November 2005
- Bariani Olive Oil, LLC, Bariani Olive Oil Processing Facility
    - Order No. R5-2007-0832, Monitoring & Reporting Program, Issued by the Executive Officer on 30 November 2007
- Beneto, Inc., USA Gasoline Station No. 806, 2434 West Capitol Avenue, West Sacramento
    - Order No. R5-2010-0826, Technical Reporting Order/California Water Code Section 13267, Issued by the Executive Officer on 27 October 2010
- Bill & Kathy's Wastewater Facility
    - Order No. R5-2017-0083, Rescinding Waste Discharge Requirements Order No. 87-089, Adopted on 9 June 2017
- Bogle Vineyards, Inc., Bogle Delta Winery
    - Order No. R5-2011-0033, Waste Discharge Requirements/Monitoring & Reporting Program, Adopted on 9 June 2011
- California American Water; Audie Foster, (former Grant Park Development, Inc., Dunnigan Water Works Wastewater Treatment Facility)
    - Order No. R5-2016-0074, Change of Name and/or Ownership of Facilities, Adopted on 19 August 2016
    - Order No. R5-2010-0013, Waste Discharge Requirements/Monitoring & Reporting Program, Adopted on 29 January 2010
    - Revised MRP No. 93-176, Revised Monitoring & Reporting Program, Issued by the Executive Officer on 30 March 2007 - Rescinded by Order No. R5-2010-0013
- California Department of Transportation, Dunnigan Safety Roadside Rest Area
    - Order No. R5-2011-0801, Monitoring & Reporting Program, Issued by the Executive Officer on 11 April 2007
- California Department of Transportation, Interstate 80 and State Route 50, Richards Boulevard to Reed Avenue
    - Order No. R5-2011-0047, Conditional Waiver of Waste Discharge Requirements, Adopted on 10 June 2011
- California Department of Water Resources, Fremont Weir Sediment Removal Project

- Resolution No. R5-2006-0042, Resolution Waiving Waste Discharge Requirements, Adopted on 5 May 2006

- Campbell Soup Supply Company, LLC, Seed Research and Development Facility
  - Revised Order No. R5-2003-0136, Revised Monitoring & Reporting Program No. R5-2003-0136, Issued by the Executive Officer on 24 August 2011
  - Order No. R5-2003-0136, Waste Discharge Requirements/Monitoring & Reporting Program, Adopted on 5 September 2003
- Chevron Environmental Management Company (Chevron), Celoni Oil Company (Celoni), Ramos Oil Company (Ramos), and Union Pacific Railroad Company (UPRR), Former Chevron Fuel Terminal #1001546
  - Order No. R5-2007-0722, Cleanup and Abatement Order, Issued by the Executive Officer on 28 September 2007
- City of Davis, Wastewater Treatment Plant
  - Complaint No. R5-2017-0547, Administrative Civil Liability Complaint/Mandatory Minimum Penalty, Issued by the Assistant Executive Officer on 11 September 2017 - Settled by Payment
  - Complaint No. R5-2016-0555, Administrative Civil Liability Complaint/Mandatory Minimum Penalty, Issued by the Assistant Executive Officer on 7 September 2016 - Settled by Payment
  - Complaint No. R5-2016-0515, Administrative Civil Liability Complaint/Mandatory Minimum Penalty, Issued by the Assistant Executive Officer on 28 March 2016 - Settled by Payment
  - Complaint No. R5-2015-0513, Administrative Civil Liability Complaint/Mandatory Minimum Penalty, Issued by the Assistant Executive Officer on 9 March 2015 - Settled by Payment
  - Order No. R5-2014-0159, Time Schedule Order, Adopted on 5 December 2014
  - Order R5-2013-0127-01, Amended Waste Discharge Requirements/NPDES Permit CA0079049, Adopted on 4 October 2013, and amended by Order R5-2014-0122 on 9 October 2014
  - Order R5-2014-0122, Amending Waste Discharge Requirements R5-2013-0127, Adopted 9 October 2014
  - Complaint No. R5-2014-0552, Administrative Civil Liability Complaint/Mandatory Minimum Penalty, Issued by the Assistant Executive Officer on 8 September 2014 - Settled by Payment
  - Order No. R5-2010-0029-02, Amended Time Schedule Order (as amended by Order No. R5-2013-0129), Adopted on 18 March 2010, amended on 23 September 2010 and 4 October 2013 - Rescinded by Order No. R5-2014-0159
  - Order No. R5-2013-0129, Amending Time Schedule Order, Adopted on 4 October 2013
  - Order No. R5-2013-0128, Time Schedule Order, Adopted on 4 October 2013
  - Order No. R5-2013-0127, Waste Discharge Requirements/Monitoring & Reporting Program/NPDES Permit CA0079049, Adopted on 4 October 2013 - Amended by R5-2014-0122 on 9 October 2014

- Complaint No. R5-2013-0507, Administrative Civil Liability Complaint/Mandatory Minimum Penalty, Issued by the Assistant Executive Officer on 11 January 2013 - Settled by Payment
- Complaint No. R5-2010-0550, Administrative Civil Liability Complaint/Mandatory Minimum Penalty, Issued by the Assistant Executive Officer on 4 November 2010 - Settled by Payment
- Order No. R5-2010-0029-01, Time Schedule Order (as amended by Order No. R5-2010-0098), Adopted on 18 March 2010 and amended on 23 September 2010 - Amended by Order R5-2013-0129 on 4 October 2013
- Order No. R5-2010-0098, Amending Time Schedule Order R5-2010-0029 (NPDES Permit No. CA0079049), Adopted on 23 September 2010
- Order No. R5-2007-0132-02, Amended Waste Discharge Requirements/Monitoring & Reporting Program/NPDES Permit CA0079049 (as amended by Order No. R5-2010-0097), Adopted on 25 October 2007 and amended on 23 September 2010 - Rescinded by Order R5-2013-0127
- Order No. R5-2010-0097, Amending Waste Discharge Requirements Order No. R5-2007-0132-01 (NPDES Permit CA0079049), Adopted on 23 September 2010
- Order No. R5-2010-0029, Time Schedule Order, Adopted on 18 March 2010
- Order No. R5-2007-0132-01, Amended Waste Discharge Requirements/Monitoring & Reporting Program/NPDES Permit CA0079049, Amended on 5 February 2009, Amended on 23 September 2010
- Complaint No. R5-2008-0601, Administrative Civil Liability Complaint/Mandatory Minimum Penalty, Issued by the Assistant Executive Officer on 10 November 2008
- Order No. R5-2007-0132, Waste Discharge Requirements/Monitoring & Reporting Program/NPDES Permit CA0079049, Adopted on 25 October 2007, Amended on 5 February 2009
- State Water Board Order No. WQO2003-0018, Adopted on 19 November 2003, Rescinded by Order No. R5-2007-0132
- Stipulation for Order Resolving Petition for Review, Signed on 7 May 2003, Rescinded by Order No. R5-2007-0132
- Order No. 5-01-067, Waste Discharge Requirements/Monitoring & Reporting Program/NPDES Permit No. CA0079049, Adopted on 16 March 2001, Rescinded by Order No. R5-2007-0132

- City of West Sacramento, George Kristoff Water Treatment Plant
  - Order No. R5-2015-0130, Waste Discharge Requirements/Monitoring & Reporting Program, Adopted on 11 December 2015
- City of West Sacramento, Wastewater Treatment Plant
  - Complaint No. R5-2010-0551, Administrative Civil Liability Complaint/Mandatory Minimum Penalty, Issued by the Assistant Executive Officer on 4 November 2010 - Settled by Payment
  - Complaint No. R5-2008-0526, Administrative Civil Liability Complaint/Mandatory Minimum Penalty, Issued by the Assistant Executive Officer on 5 May 2008 - Settled by Payment

Source: California Water Boards, Central Valley - R5. "Adopted and/or Issued Orders." Accessed 15 March 2017. <https://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/index.html#yolo>

- Order No. R5-2003-0088, Cease and Desist Order, Adopted on 6 June 2003
- Order No. R5-2003-0087, Waste Discharge Requirements/Monitoring & Reporting Program, Adopted on 6 June 2003

- City of Winters, Winters Wastewater Treatment Facility
  - Revised MRP No. R5-2002-0136 (REV 3), Revised Monitoring & Reporting Program (REV 3), Issued by the Executive Officer on 28 July 2014
  - Revised MRP No. R5-2002-0136 (REV 2), Revision 2 of Monitoring & Reporting Program, Issued by the Executive Officer on 8 July 2011
  - Order No. R5-2007-0525, Administrative Civil Liability Order, Issued by the Executive Officer on 18 September 2007
  - Complaint No. R5-2007-0502, Administrative Civil Liability Complaint, Issued by the Executive Officer on 22 February 2007
  - Order No. R5-2007-0002, Cease and Desist Order, Adopted on 25 January 2007
  - Revised Order No. R5-2002-0136, Revised Monitoring & Reporting Program, Adopted on 24 January 2007
  - Order No. R5-2002-0136, Waste Discharge Requirements, Adopted on 19 July 2002
- City of Woodland, Water Pollution Control Facility
  - Order No. R5-2014-0120-01, Waste Discharge Requirements/NPDES Permit No. CA0077950 as Amended by Order R5-2016-0006, Issued by the Executive Officer on 18 February 2016
  - Order No. R5-2016-0006, Waste Discharge Requirements Amending Waste Discharge Requirements Order No. R5-2014-0120, Issued by the Executive Officer on 18 February 2016
  - Complaint No. R5-2015-0535, Administrative Civil Liability Complaint/Mandatory Minimum Penalty, Issued by the Assistant Executive Officer on 14 September 2015 - Settled by Payment
  - Order No. R5-2014-0120, Modified Waste Discharge Requirements/NPDES Permit No. CA0077950, Issued by the Executive Officer on 27 February 2015 - Amended by R5-2016-0006 on 18 February 2016
  - Minor Modification Letter, Minor Modification to Order R5-2014-0120, Issued by the Executive Officer on 27 February 2015
  - Order No. R5-2011-0907-01, Amended Time Schedule Order as amended by Order R5-2014-0121, Adopted on 9 October 2014
  - Order No. R5-2014-0121, Amending Time Schedule Order, Adopted on 9 October 2014
  - Order No. R5-2014-0120, Waste Discharge Requirements/Monitoring & Reporting Program/NPDES Permit No. CA0077950, Adopted on 9 October 2014 - Modified on 27 February 2015
  - Order No. R5-2013-0034, , Rescission of Cease and Desist Order 98-022, Cease and Desist Order R5-2003-0032, and Cease and Desist Order R5-2003-0032-R01, Adopted on 12 April 2013

Source: California Water Boards, Central Valley - R5. "Adopted and/or Issued Orders." Accessed 15 March 2017. <https://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/index.html#yolo>

- Complaint No. R5-2013-0508, Administrative Civil Liability Complaint/Mandatory Minimum Penalty, Issued by the Executive Officer on 11 January 2013 - Settled by Payment
- Order No. R5-2011-0907, Time Schedule Order, Issued by the Executive Officer on 21 September 2011 - Amended on 9 October 2014 by R5-2014-0121
- Complaint No. R5-2011-0568, Administrative Civil Liability Complaint/Mandatory Minimum Penalty, Issued by the Executive Officer on 6 May 2011 - Settled by Payment
- Complaint No. R5-2011-0504, Administrative Civil Liability Complaint/Mandatory Minimum Penalty, Issued by the Executive Officer on 7 January 2011 - Settled by Payment
- Complaint No. R5-2008-0604, Administrative Civil Liability Complaint/Mandatory Minimum Penalty, Issued by the Assistant Executive Officer on 10 November 2008 - Settled by Payment
- Order No. R5-2009-0010, Waste Discharge Requirements/Monitoring & Reporting Program/NPDES Permit No. CA0077950, Adopted on 5 February 2009
- Order No. R5-2003-0032-R01, Cease and Desist Order, Adopted on 16 September 2005 - Rescinded by Order R5-2013-0034 on 12 April 2013
- Order No. R5-2003-0031-R01, Waste Discharge Requirements/Monitoring & Reporting Program/NPDES Permit No. CA0077950, Adopted on 16 September 2005
- Order No. R5-2003-0032, Cease and Desist Order, Adopted on 13 March 2003 - Rescinded by Order R5-2013-0034 on 12 April 2013
- Order No. R5-2003-0031, Waste Discharge Requirements/Monitoring & Reporting Program/NPDES Permit No. CA0077950, Adopted on 13 March 2003, Rescinded 16 September 2005 by R5-2003-0031-R01
- Order No. 98-022, Cease and Desist Order, Adopted on 23 January 1998 - Rescinded by Order R5-2013-0034 on 12 April 2013

- Clark Structural, LLC and Clark Pacific General Partnership, Former Spreckels Sugar Company Facility
  - Order No. R5-2012-0092, Cease and Desist Order, Adopted on 4 October 2012
- Cottonwood Investors, Inc., Cottonwood Plaza Enhanced Bioremediation Pump and Treat System
  - Order No. R5-2004-0015, Waste Discharge Requirements/Monitoring & Reporting Program, Adopted on 29 January 2004
- County of Yolo Planning and Public Works Department; Yolo County Central Landfill, Yolo County
  - Order No. R5-2016-0094, Waste Discharge Requirements/Monitoring & Reporting Program for Construction, Post-Closure Maintenance and Corrective Action, Adopted on 6 December 2016
  - Approval of Time Extension for Order No. R5-2011-0076, Issued by the Executive Officer on 31 July 2013
  - Order No. R5-2011-0076, Cease and Desist Order, Adopted on 13 October 2011

Source: California Water Boards, Central Valley - R5. "Adopted and/or Issued Orders." Accessed 15 March 2017.
<https://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/index.html#yolo>

- Order No. R5-2007-0180, Waste Discharge Requirements/Monitoring & Reporting Program, Adopted on 6 December 2007 - Rescinded by Order No. R5--2016-0094
- Order No. R5-2004-0134, Waste Discharge Requirements/Monitoring & Reporting Program, Adopted on 10 September 2004 - Rescinded by Order No. R5-2007-0180

- Deganawidah Quetzalcoatl University
  - Complaint No. R5-2004-0511, Administrative Civil Liability Complaint, Issued by the Executive Officer on 4 May 2004
- Former Spreckel's Agricultural Repair Shop and Farm Shop, 40600 County Road 18C, Woodland
  - Order No. R5-570342-13267, Order to Submit Technical Reports, Issued by the Executive Officer on 27 August 2008
- Granite Construction Company, Capay Aggregate Plant
  - Order No. R5-2008-0146, Waste Discharge Requirements/Monitoring & Reporting Program, Adopted on 11 September 2008
- Homestake Mining Company of California, McLaughlin Mine
  - Order No. R5-2012-0010-01, Waste Discharge Requirements as Amended by Order R5-2013-0030, Adopted on 12 April 2013
  - Order No. R5-2013-0030, Amending Waste Discharge Requirements Order No. R5-2012-0010, Adopted on 12 April 2013
  - Order No. R5-2012-0010, Waste Discharge Requirements/Monitoring & Reporting Program, Adopted on 25 April 2008 - Amended by Order R5-2013-0030 on 12 April 2013
- Homestake Mining Company of California, Reed Mine and Upper Davis Creek
  - Order No. R5-2017-0710, Cleanup and Abatement Order, Issued by the Assistant Executive Officer on 23 October 2017
- I Street Development Company
  - Revised MRP No. R5-2008-0823, Revised Monitoring & Reporting Program, Issued by the Executive Officer on 19 September 2013
- Knights Landing Community Services District, Knights Landing Wastewater Treatment Facility
  - Order No. R5-2007-0149, Waste Discharge Requirements/Monitoring & Reporting Program, Adopted on 26 October 2007
  - Revised MRP No. 94-020, Revised Monitoring & Reporting Program, Issued by the Executive Officer on 16 February 2007
- Knights Landing Grocery Facility, 9518 Locust Street, Knights Landing
  - Order No. R5-570343-13267, Order to Submit Technical Reports, Issued by the Executive Officer on 27 August 2008
- Madison Community Services District, Madison Wastewater Treatment Facility
  - Order No. R5-2007-0020, California Water Code Section 13308 Time Schedule and Cease and Desist Order, Adopted on 16 March 2007

Source: California Water Boards, Central Valley - R5. "Adopted and/or Issued Orders." Accessed 15 March 2017. <https://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/index.html#yolo>

- Revised Order No. 5-00-039, Revised Monitoring and Reporting Program, Adopted on 26 March 2007

- Northern Recycling, LLC, Northern Recycling Compost - Zamora
  - Order No. R5-2016-0073, Rescinding Waste Discharge Requirements Order R5-2015-0081, Adopted on 19 August 2016
  - Order No. R5-2015-0081, Waste Discharge Requirements, Adopted on 5 June 2015 - Rescinded by Order R5-2016-0073
- Pacific Life Insurance Company, Roebbelen Land Company, Mr. Hans Roebbelen, Mr. David Thuleen, Mr. Kenneth Roebbelen, Mr. Terence Street, Mr. George Carrere, Mr. Jerry Enwald, Ms. Caralee Enwald, Enwald Enterprises, Inc., and Bay Granite, Inc. Former Service Cleaners, The County Fair Mall Woodland
  - Order No. R5-2004-0044, Cleanup and Abatement Order, Adopted on 23 April 2004
  - Reverse Property Exchange, Former Spreckles Sugar Company
  - Order No. R5-2012-0091, Change of Name and/or Ownership of Facilities, Adopted on 4 October 2012
- Ritchie Brothers Properties, Inc, Dunnigan Auction Yard Wastewater Treatment Facility
  - Order No. R5-2004-0037, Waste Discharge Requirements/Monitoring & Reporting Program, Adopted on 19 March 2004 and Rescinded by Order No. R5-2011-0030 on 8 April 2011
- Rumsey Band of Wintun Indians, Cache Creek Golf Club
  - MRP Order No. R5-2006-0121 (REV1), Revised Monitoring & Reporting Program Order No. R5-2006-0121, Issued by the Executive Officer on 19 July 2013
  - Order No. R5-2008-0074, Change of Name and/or Ownership of Facilities, Adopted on 25 April 2008
  - Order No. R5-2006-0121, Waste Discharge Requirements/Monitoring & Reporting Program, Adopted on 26 October 2006
- Rumsey Band of Wintun Indians, Yocha De He Golf Club
  - Resolution No. R5-2008-0130, Amending Waste Discharge Requirements Order No. R5-2006-0121, Adopted on 31 July 2008
- Sacramento-Yolo Port District and the City of West Sacramento
  - Order No. R5-2017-0836, Monitoring & Reporting Order/California Water Code Section 13267, Issued by the Executive Officer on 9 October 2017
- Solano Concrete Company, Inc, Madison Plant
  - Order No. R5-2003-0113, Waste Discharge Requirements/Monitoring & Reporting Program, Adopted on 11 July 2003
- Steven R. Bair and Pamela A. Bair, Cigna Esparto Ranch/Valle Vista Farms/Nevis Ranch, 26361 County Roads 25 & 86A, Esparto
  - Order No. R5-2010-0827, Technical Reporting Order/California Water Code Section 13267, Issued by the Executive Officer on 7 October 2010
- Sugarland Farms, LLC, Former Spreckels Sugar Company Facility

Source: California Water Boards, Central Valley - R5. "Adopted and/or Issued Orders." Accessed 15 March 2017. <https://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/index.html#yolo>

- Order No. R5-2016-0016, Rescinding Waste Discharge Requirements Order No. R5-2003-0047, Adopted on 19 February 2016
- Order No. R5-2008-0074, Change of Name and/or Ownership of Facilities, Adopted on 25 April 2008
- Order No. R5-2003-0047, Waste Discharge Requirements/Monitoring & Reporting Program, Adopted on 13 March 2003 **-** Rescinded by R5-2016-0016

- Syar Industries Inc, Syar Madison Plant
  - Revised Order No. R5-2006-0069, Revised Monitoring & Reporting Program, Adopted on 23 June 2006 and Revised on 10 February 2012
  - Order No. R5-2006-0069, Waste Discharge Requirements/Monitoring & Reporting Program, Adopted on 23 June 2006 - Revised by r5-2006-0069
- Syngenta Seeds, Inc., Woodland Seed Processing Facility
  - Order No. R5-2014-0110, Waste Discharge Requirements/Monitoring & Reporting Program, Adopted on 8 August 2014
  - Order No. R5-2008-0158, Waste Discharge Requirements/Monitoring & Reporting Program, Adopted on 23 October 2008 - Rescinded and Replaced by R5-2008-0158
- Teichert Aggregates, Teichert Land Company and Calvin and Delavandra Mast Esparto Aggregate Plant
  - Order No. R5-2004-0106 (Rev.1), Revised Monitoring & Reporting Program, Issued by the Executive Officer on 23 March 2012
  - Order No. R5-2004-0106, Waste Discharge Requirements/Monitoring & Reporting Program, Adopted on 9 July 2004
  - R5-2004-0106AttachA, Attachment A
  - R5-2004-0106AttachB, Attachment B
  - R5-2004-0106AttachCDE, Attachments C, D, & E
- Univar USA Inc. and River City Baseball Group, Raley Field/Former Van Waters & Rogers Facility Site, Groundwater Treatment and Disposal System, West Sacramento
  - Order No. R5-2007-0089, Waste Discharge Requirements/Monitoring & Reporting Program, Adopted on 22 June 2007
- University of California, Center For Aquatic Biology And Aquaculture
  - Order No. R5-2012-0054, Time Schedule Order, Adopted on 8 June 2012
  - Order No. R5-2012-0053, Waste Discharge Requirements/Monitoring & Reporting Program/NPDES Permit No. CA0083348, Adopted on 8 June 2012
  - Order No. R5-2006-0126, Waste Discharge Requirements/Monitoring & Reporting Program/NPDES Permit No. CA0083348, Adopted on 8 December 2006
- University of California, Davis; J. Amorocho Hydraulics Lab, USDA Aquatic Weed Control Lab, and CABA Aquatic Center
  - Order No. R5-2016-0099, Waste Discharge Requirements/Monitoring & Reporting Program, Adopted on 6 December 2016

Source: California Water Boards, Central Valley - R5. "Adopted and/or Issued Orders." Accessed 15 March 2017.
<https://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/index.html#yolo>

- Order No. R5-2015-0137, Waste Discharge Requirements/Monitoring & Reporting Program, Adopted on 11 December 2015 - Rescinded and replaced by Order R5-2016-0099 to include CABA Aquatic Center
- Order No. R5-2014-0060, Rescinding NPDES/Waste Discharge Requirements, Adopted on 28 March 2014
- Order No. R5-2008-0131, Waste Discharge Requirements/Monitoring & Reporting Program, Adopted on 31 June 2008 - Rescinded and replaced by Order R5-2015-0137 to include USDA Aquatic Weed Lab
- Order No. R5-2008-0107, Waste Discharge Requirements/Monitoring & Reporting Program/NPDES Permit No. CA0083364, Adopted on 31 July 2008 - Rescinded by Order R5-2014-0060
- Order No. R5-2008-0088, Waste Discharge Requirements/Monitoring & Reporting Program/NPDES Permit No. CA0084182, Adopted on 12 June 2008 - Rescinded and replaced by Order R5-2008-0131

- University of California, Davis; Wastewater Treatment Plant
    - Order No. R5-2014-0152, Waste Discharge Requirement/Monitoring & Reporting Program/NPDES Permit No. CA0077895, Adopted on 5 December 2014
    - Complaint No. R5-2013-0504, Administrative Civil Liability Complaint/Mandatory Minimum Penalty, Issued by the Executive Officer on11 January 2013 **-** Settled by Payment
    - Order No. R5-2012-0134, Rescission of Cease and Desist Order R5-2003-0004 & R5-2003-0004 Amendment No. 1, Adopted on 7 December 2012
    - Complaint No. R5-2011-0503, Administrative Civil Liability Complaint/Mandatory Minimum Penalty, Issued by the Executive Officer on 7 January 2011 - Settled by Payment
    - Complaint No. R5-2009-0564, Administrative Civil Liability Complaint/Mandatory Minimum Penalty Issued by the Assistant Executive Officer on 12 November 2009 - Settled by Payment
    - Complaint No. R5-2009-0513, Administrative Civil Liability Complaint/Mandatory Minimum Penalty, Issued by the Executive Officer on 16 March 2009 - Settled by Payment
    - Order No. R5-2008-0183, Waste Discharge Requirement/Monitoring & Reporting Program/NPDES Permit No. CA0077895, Adopted on 5 December 2008
    - Complaint No. R5-2008-0577, Administrative Civil Liability Complaint/Mandatory Minimum Penalty, Issued by the Assistant Executive Officer on 19 September 2008 - Settled by Payment
    - Order No. R5-2004-0004-Amendment No.1 , Amending Cease and Desist Order, Adopted on 18 March 2004 - Rescinded by Order No. R5-2012-0134 on 7 December 2012
    - Order No. R5-2003-0003-Amendment No.1 , Amending Waste Discharge Requirements/Monitoring & Reporting Program/NPDES Permit No. CA0077895, Adopted on 18 March 2004
    - Order No. R5-2003-0004, Cease and Desist Order, Adopted on 30 January 2003 - Rescinded by Order No. R5-2012-0134 on 7 December 2012

Source: California Water Boards, Central Valley - R5. "Adopted and/or Issued Orders." Accessed 15 March 2017. <https://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/index.html#yolo>

- Order No. R5-2003-0003, Waste Discharge Requirements/Monitoring & Reporting Program/NPDES Permit No. CA0077895, Adopted on 30 January 2003 superceded by R5-2003-0003-Amended

- University of California, Davis; UC Davis Class III Landfill
  - Order No. R5-2003-0077, Waste Discharge Requirements/Monitoring & Reporting Program for Construction, Post-Closure Maintenance and Corrective Action, Adopted on 25 April 2003
- United States Army Corps of Engineers, Port of Sacramento and Port of Stockton, Sacramento Deep Water Ship Channel Maintenance Dredging Activities Channel Mile 0.00 to 15.0
  - Order No. R5-2003-0046, Amending Waste Discharge Requirements, Adopted on 11 July 2003
- Woodland-Davis Clean Water Agency, Davis Woodland Regional Water Treatment Facility
  - Order No. R5-2015-0108, Waste Discharge Requirements/Monitoring & Reporting Program, Adopted on 31 July 2015
- Yocha Dehe Win Tun Nation, Seka Hills Olive Mill
  - Revised MRP Order No. R5-2013-0137, Revised Monitoring & Reporting Program, Issued by the Executive Officer on 11 October 2016
  - Order No. R5-2013-0137, Waste Discharge Requirements/Monitoring & Reporting Program, Adopted on 4 October 2013
- Yolo County Department of Community Services, Environmental Health Division
  - Resolution No. R5-2016-0071, Resolution Approving the Local Agency Management Program (LAMP attached) for Onsite Wastewater Treatment Systems, Adopted on 19 August 2016

Source: California Water Boards, Central Valley - R5. "Adopted and/or Issued Orders." Accessed 15 March 2017. <https://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/index.html#yolo>

Appendix G

Public Comments from Stakeholder Meetings

Appendix G: Comments Received on Draft Yolo County SWRP Sections

Comment	Response
Juliana Tadano, City of West Sacramento, 12/8/2017	
… section 5.4.1.6 there's a turd where there should be a turf! Its in Project 4, analysis section.	Change made, page 5-27
Pg. 6-6 … defining the terms in 6.1.6 such as broad agreement, reasonable time, etc. Maybe this won't be such a contentious process to bother with that though?	Comment noted. These terms have not been defined by the Westside RWMG.
… it seems to me that the model needs some factor to account for crop rotation. If tomatoes are only in 1 of 4 years, that's only 25% of the implementation of groundwater recharge efforts than the model would present, no? I understand they can't get further ahead than 2014 on the data that's available, so conversion to trees would be harder to predict, but it seems like crop rotation is a standard and known practice here.	**Response provided by SEI:** Every year, we have the ability to input any landuse we want in the model. For the historical period (1975-2014), we currently have, in the model, different landuse every year extracted from the Crop Reports from the county Ag Commissioner's office. So, assuming that the reports are capturing the rotation, we do have it in the model.
Kristin Sicke, Yolo County Flood Control & Water Conservation District, 1/12/2018	
Page 1-5: 1.1.1.2 YSGA – website link should be home page because of changes – http://yologroundwater.org	Change made, page 1-5
Page 3-14: 3.4.2 YC ILP – Willow Slough Bypass at County Road 102 (becomes Pole Line Road just south at City boundary)	Change made, page 3-14
Page 4-2: Table 4-1 – Cities aren't considered water suppliers? Maybe because it's not their preliminary responsibility?	Change made, page 4-2
Please revise YCFC&WCD interests/responsibilities to be "water supplier" first, and add "storm water reuse" and "storm drainage control".	Change made, page 4-2
Esparto CSD maintains detention basins within the newer development of Esparto, I think "storm drainage control" should be added to their responsibilities	Change made, page 4-2
Page 5-6: 5.1.1.8 Flood Monitoring Network Project – "install 4 ELEVATION (or stage) staff gauges in sloughs that interact with YCFC&WCD canals"; unfortunately, we can't put flow gauges into the sloughs because of technical difficulties. "These gauges will be used to monitor stage in the slough system and will assist YCFC&WCD's information management and decision-making process for storm	Change made, page 5-6

Comment	Response
conveyance through the canal and slough systems. The precipitation gauges will provide data for Yolo-County agencies to distinguish the type and quantity of rainfall events, providing information on where an increase in slough capacity is needed.”	
Page 5-8: 5.1.1.13 Moore Siphon Reliability/Restoration Project –“Due to the age and exposure of the 66” corrugated metal pipe, as well as Cache Creek erosion issues at both ends of the siphon, the siphon will need to be replaced in the near future.”	Change made, page 5-8
Page 5-9: 5.1.1.17 Russell Boulevard – needs to be carried forward to other parts of the document	Change made, global fix
5.1.1.21 Upstream Flow Management to Prevent Madison Flooding and to Facilitate GW Recharge – “The Canal system can potentially be used to convey water…”	Change made, page 5-10
Page 5-11: 5.1.1.22 West Adams Canal Renovation and China Slough Rehabilitation Project – Please round cost up to $16M; needs to be carried forward in other parts of the document	Change made, global fix
Page 5-19: Knights Landing Drainage Study box – “…advancing the goal of achieving improved storm drainage and reducing flooding along with improving water quality and maintaining beneficial uses.”	Change made, page 5-19
Page 5-25: Project 8. Flood Monitoring Network Project – the range of 91-2,686 AF is quite large should we try to qualify the difference with additional information?	Change made, page 5-23 Addressed based on updated information in Appendix I
Page 6-3: 6.1.2.4 and 6.1.2.5 – labels need parity; either revise to “SWRP Project Proponents” or revise to “Stakeholders”	Change made, page 6-3
Kristin Sicke, Yolo County Flood Control & Water Conservation District, 1/16/2018	
… include the following language [for the Winters North Area Retention Pond. “This project would offer an opportunity to measure rainfall-runoff relationships and the effectiveness of this size of retention pond in attenuating flood peaks and retaining sediment. Automation and SCADA control would allow for real-time decision making in pond operation and would allow pond stage and outlet flows to be tracked and controlled during and following storm events. Additionally, given the right conditions and appropriate storage in the pond, groundwater percolation can be monitored and tracked to ensure groundwater recharge in the region. If successful, a similar pond could be constructed and installed to capture storm flows in the low-lying areas of Yolo County.”	Change made, page 5-12

Comment	Response
Also, I believe it was on our original list of resources when we started the SWRP process, but in case not, please be sure to include the Yolo Slough Integrated Resources Management Plan in our reference list.	Added reference for Willow Slough Watershed Integrated Resources Management Plan to Section 8: References.
Juliana Tadano, City of West Sacramento, 1/17/2018	
Table 4-1 – West Sacramento cell should include the following as per Cities of Davis, Winters, Woodland: Water Quality Control, Water Resources Management, Storm Water Reuse, Pollution/Sediment Control, Public Education and Outreach (in addition to others already listed)	Change made, page 4-2
Page 6-3, section 6.1.2.5. – expand who the stakeholders are, not just what they do. Or, reference section 7 for further detail?	See Section 4 and Appendix C for description of stakeholders. Added reference, page 6-3.
Page 6-7, Table 6-2: Propose adding date somewhere in table to clarify when the "Secured?" assessments were taken (i.e. 90% funded as of ____) – might be easiest to include date in header or footnote rather than for each entry.	This information was not collected in the project information form. Project costs will be verified/updated at the time the project is included in a grant application or funding request.
Page 7-2, Section 7.5.1.1 Public involvement: Is there a way for volunteers to learn about project opportunities that could be described or linked here? Or instructions to how to reach out with interest in helping? Or is this not the target audience so doesn't need to be spelled out?	When projects are implemented, project proponents will be responsible for advertising/providing public information for volunteer opportunities as needed.
Page 3-3 has a remnant section title (I think?) at the bottom right: "local permits" just above 3.3 Other Permits.	Change made, page 3-12
Page 5-21 has a grammar inconsistency: Left column, first black bullet point, then first blue bullet point: A score of zero (0) was assigned if a project was not able to identify a benefits metrics ("identity a benefits metric" or "identify benefits metrics").	Change made, page 5-20
Page 5-21, top of right column, this sentence seems to be missing a verb: Projects [are/were?] kept from a higher rating (see above) if the value quantities were low, the metrics had minimal….	Change made, page 5-22
Page 5-21, right column, first full green bullet, remove "s" in values: at least one corresponding quantified values.	Change made, page 5-22
Page 5-21, right column, first full green bullet, next sentence is missing a verb: Projects [are/were?] given this rating if they had higher quantity values or had more impactful or significant storm…	Change made, page 5-21
Page 5-21, right column, second green bullet: Section beginning: A score of 120 was assigned.. does not read well and there are more missing/inconsistent words than is worth typing up here. ☐email me if you	Change made, page 5-21

Comment	**Response**
want more specifics but I think a fresh read through will catch them.	
Page 5-21, general: This section does not read clearly, and could use a editorial read through in general. For example, there are five ratings categories, but the last category references the “3 prior ratings”. There are missing verbs, inconsistent uses of rating names, and confusing singular/plural inconsistencies. Email me if you need more detail, but again a fresh read through should catch these.	Change made, page 5-20
Page 6-2, propose changing sentence below (left column, first green bullet) to read as written below: Existing: New projects from stakeholders are received on a continuous basis, as well as revisions, updates, and removal (completed projects) of existing Projects. Proposed: Project revisions, updates, and completions, as well as new projects, are received from stakeholders on a continual basis.	Change made, pages 6-1 and 6-2
Page 6-2, right column, first black bullet, AND Page 6-3, left column, first black bullet: change Encouraging to encourage to match verb format for rest of list.	Addressed by other action, page 6-2
Page 6-5 section 6.1.4, propose changing sentence below to read as written below:	Change made, page 6-5
Existing: One of the most important aspects of Plan implementation is processes to ensure that the public and interested stakeholders continue to be involved.	
Proposed: Continuing public involvement, including interested stakeholders and the general public, is one of the most important aspects implementing the Plan.	
Page 6-5, section 6.1.4, midway through first paragraph: remove comma at end of this fragment: Community participation during Plan implementation,	Change made, page 6-5
Page 6-7, top of page, left column: “has be” should be “has been”:	Change made, page 6-6
A list of grant opportunities with storm water-related benefits has be generated and is included in Appendix H for reference.	
Page 6-7, Section 6.2.2.1, first sentence: This sentence doesn’t really introduce the bullet points that follow. Add a clarification sentence after that explains the following list? Or, add to front of this introductory sentence “The following…”	Change made, page 6-7
Page 6-8, left column, top paragraph: missing a word or table reference:	Change made, page 6-8
The intersection of the above data is shown in [missing word?] and can be used to identify locations for potential projects such as…	
Page 6-11, Section 6.2.3, first paragraph: inconsistent is/are use in this sentence:	Change made, page 6-12

Comment	**Response**
Page 7-1, left column, second paragraph, sentence is missing a verb.	Change made, page 7-1
Page 7-1, right column, Section 7.2 first sentence, remove comma after small: Individuals from disadvantaged, small, and rural communities, and other interested groups	Change made, page 7-1
Appendices – suggest adding Appendix A-1 type page numbers to footers	Change made.
Carol Scianna, City of Winters, 1/22/2018	
Pg 21: the creek is the county line so it flows into Yolo county too, should that be included?	Change made, page 2-3
Pg 24: Add Winters	Change made, page 2-5
Pg 30, the map of crops planted north of Winters is not showing all of the almonds that have been planted	Change made, page 2-10
App c: pg 4 of 12. this is not accurate, the City staff has been doing the O & M on our WW collection system for several years, pls delete this line re: SW water.	Change made, App. C, Page C-3
Dawn Calciano, City of Davis, 1/26/2018	
In the table of contents, Section 2 is listed twice.	Change made, TOC
Page 1-1, Section 1.1, should there be "the" in front of Westside-Sacramento. The selected boundary for this SWRP is Yolo County located in northern California. Yolo County falls within "the" Westside-Sacramento…	Change made, page 1-1
Page 1-6, last sentence of first paragraph, This study will ~~fill~~ provide useful data…	Change made, page 1-5
Page 2-6, Under 2.3.1, The Yocha Dehe… It currently says Yooha	Change made, page 2-6
Page 2-23, second paragraph in right column, Surface waters in ~~the~~ Yolo County are 303 (d) listed…	Change made, page 2-23
Page 3-12, spell out WDRs in the title for 3.3.1	Change made, page 3-12
Page 4-1, section 4.1, The Yolo WRA member agencies ~~members~~ are: City of Davis…	Change made, page 4-1
Page 5-21, under bullet at top of right hand column, Projects were assigned a yes..	Change made, page 5-21
Page 6-2, First bullet in right-hand column, Ecouragi~~ng~~e public engagement and maintain a contact~~s~~ list of stakeholders. Under 7th bullet, Working with local county and city officials and project proponents…	Addressed by other action, page 6-2
Page 6-8, second paragraph, there is an extra space between "in" and "and"	Change made, page 6-8
On table 6-2 on page 6-7 Russell is spelled "Russel". Russell is misspelled a few other places in the document also.	Change made, global fix
Section 1.1.1 Relation to Other Planning Efforts (Page 1-1) Should the City of Woodland's Water Recycling Program and Yolo WRA's Groundwater Monitoring	Change made, page 1-1

Comment	**Response**
Network be included in this list if they don't specifically address stormwater issues? "There is a list of on-going efforts to address stormwater issues: • FloodSAFE Yolo; • ~~City of Woodland's Water Recycling Program;~~ • ~~Yolo WRA's Groundwater Monitoring Network;~~ • Yolo WRA's Subsidence Network Monitoring • Westside IRWM grant to address mercury • contamination in watersheds above the SWRP • area; and • Continued participation in the broader Westside IRWM"	
Section 2.2 Groundwater Resources (Page 2-5) Remove the word "small" prior to agriculture because there are also larger agricultural operations in the area. Update the information highlighted in blue below for Davis, Woodland and UC Davis in regards to groundwater as the sole supply source. It could say that historically groundwater was the sole supply with a recent transition to surface water from the Sacramento River as the primary source. "… Thousands of groundwater wells exist within the county, and most of these groundwater wells are used to supply individual domestic demands or ~~small~~ agricultural operations. ... Some of the communities within the county such as Davis, UC Davis, and Woodland currently rely on groundwater as their sole supply source.	Change made, page 2-5
Section 2.4.6 (Page 2-23) Same update as in section 2.2 above. In a normal year, nearly all urban water users in the county, except the City of West Sacramento, rely on groundwater as their primary source of water supply.	Change made, page 2-23
Section 3.2.2.1 (Page 3-8) The cities of Davis and Woodland were removed from Attachment G of the MS4 Permit, we are unsure if West Sacramento was also removed.	Change made, page 3-11
Section 3.2.2.2 Municipal Permits (Page 3-8) Repeats portions of 3.2.2.1 on Municipal Separate Storm Sewer System Permits-suggest rewording or combining portions of the two sections.	Change made, pages 3-7 thru 3-11
5.1.1.16 D~~Ret~~etention Pond Feasibility Study (Page 5-9) This was our error but retention should be detention instead in the title above and description below. Looking to study feasibility for design enhancements for the seven separate storm drain d~~r~~etention ponds to	Change made, page 5-9

Comment	Response
improve evapotranspiration and water quality in the City's discharge.	
5.1.1.17 Russel Boulevard Demonstration LID Project (Page 5-9) Updates to Project information are highlighted below. **Capital Cost:** ~~$42,763~~ $667,200 **Secured Funding/Source:** ~~None~~ Yes **Benefit Metrics Value(s):** Treat 2,355 cu. Ft/24 hours, with up to12,300 cu ft of infiltration/24 hours, 6,225 sq. ft. habitat, 7 trees, 500-1000 volunteer hrs/yr **Project Summary:** … The surface area it will treat is 43,470 ~~8,000~~ square feet. …	Change made, page 5-9
Community Benefits (Section 5.4.1.5) Replace "turd" with "turf"	Change made, page 5-29
Table 5-3 Update Russel to "Russell", permanent funding is allocated for this project so should be "Y" which would change the scoring to "80" from "40".	Change made, page 5-31
Table 5-4 Update Russel to "Russell", total score would be "232" with the additional 40 points added	The final score was is 192, pages 5-31 and 5-32
Table 6-2 Update Russel to "Russell", amount should be $667,200.	Change made, page 6-7
Harish Bagha, State Water Resources Control Board, February 14, 2018	
Section 5.3.3 Scoring Category 3 – SWRP Quantitative Benefits Metric Analyses discusses that projects get a score of 90 or higher depending on the impact or significant storm water benefits. " Projects given this rating if they had higher quantity value or had more impactful or significant storm water benefit.." (p5.21) To make this planning effort as transparent as possible, I would request that you provide some additional discussion on how the "impact or significant storm water benefits" was defined, and what was considered a high quantity value vs. a low quantity value.	Change made, page 5-22
Per the guidelines section (VI.C.2.b) "The Plan should include 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"(pg. 25 guidelines). I did see that the quantification were provided at the projects specific level, but I did not see an overall estimate of the amount of storm water and dry weather runoff captured. Please provide an estimate of the amount of stormwater and/or dry weather runoff captured by implementing the storm water capture and use projects in the plan.	Change made, page 5-25

Comment	Response

Appendix H

SWRP Project Forms

Project Information Form

The Westside Region is accepting suggestions for projects for inclusion in the Westside Integrated Regional Water Management (IRWM) Plan. Projects submitted for consideration should contribute to the attainment of the IRWM Plan Goals and Objectives. To have your project considered for inclusion, please complete this project information form in its entirety and submit the completed form to info@westsideirwm.com .

Please provide information in the tables below:

I. Project Proponent Information

Lead Agency/ Organization	
Name of Primary Contact	
Mailing Address	
E-mail	
Phone (###)###-####	
Other Cooperating Agencies/Organizations	
Is your agency committed to the project through completion? If not, please explain	

II. General Project Information

Project Title	
Project Description (Briefly describe the project, in 300 words or less,)	

Project Location:	
Latitude:	
Longitude:	
Can you provide a map of the project location including boundaries upon request?	☐ Yes ☐ N/A ☐ No
Project Location Description:	
County:	
City/Community:	
Watershed:	
Groundwater Basin:	
Planning Area:	
Additional Comments:	
Project Status (Check only one)	☐ Conceptual ☐ Planning ☐ CEQA/NEPA ☐ Permitting ☐ Design ☐ Construction/Implementation ☐ Study/Other ☐ Maintenance/Monitoring
Earliest expected start date (mm/dd/yr)	

III. Plan Goals/Objectives Addressed

For each of the goals/objectives addressed by the project, provide a one to two sentence description of how the project contributes to attaining the objective. Information related to the proposed goals and objectives can be found at www.westsideirw.com/irwmplan . If the project does not address any of the draft IRWM plan objectives, provide a one to two sentence description of how the project relates to a challenge or opportunity of the region.

Goal(s) that the Project will contribute to:	
Objective(s) that the Project will help accomplish:	

Explanation of Project linkage to goals and objectives	
How will the project be measured to ensure the goals and objectives are being fulfilled?	

IV. Resource Management Strategies

For each resource management strategy employed by the project, provide a one to two sentence description in the table below of how the project incorporates the strategy. A description of the Resource Management Strategies can be found in Volume 2 of the 2009 California Water Plan here: http://www.waterplan.water.ca.gov/cwpu2009/index.cfm

Reduce Water Demand	
Agricultural Water Use Efficiency	
Urban Water Use Efficiency	
Improve Operational Efficiency and Transfers	
Conveyance - Delta	
Conveyance - Regional / local	
System Reoperation	
Water Transfers	
Increase Water Supply	
Conjunctive Management & Groundwater	
Desalination	
Precipitation Enhancement	
Recycled Municipal Water	
Surface Storage -- CALFED	
Surface Storage -- Regional / Local	

WESTSIDE SAC IRWM
Integrated Regional Water Management Plan

Improve Water Quality	
Drinking Water Treatment and Distribution	
Groundwater and Aquifer Remediation	
Matching Water Quality to Use	
Pollution Prevention	
Salt and Salinity Management	
Urban Runoff Management	
Practice Resources Stewardship	
Agricultural Lands Stewardship	
Economic Incentives (Loans, Grants, and Water Pricing)	
Ecosystem Restoration	
Forest Management	
Land Use Planning and Management	
Recharge Areas Protection	
Water-dependent Recreation	
Watershed Management	
Improve Flood Management	
Flood Risk Management	

V. Project Impacts and Benefits

Please select all the project benefit categories that apply and provide a brief explanation. If the project benefits do not fit any of the listed categories, please explain in the box below. Suggested benefit descriptions are included in the Project Information Form instructions sheet.

Benefit Categories:		**Brief Explanation of Selected Benefits**	**Quantification (e.g. acre-feet of water supplied, acres of habitat restored)**
Increase Water Supply			
Improve Water Quality			
Groundwater Improvements			
Water Conservation and Reuse	☐		

Watershed Rehabilitation	☐		
Habitat Improvements			
Flood Management			

Other Benefits:

Please provide a summary of the expected project benefits and impacts in the table below.

a. Describe any expected impacts of the project	
b. If applicable, describe benefits or impacts of the project with respect to Native American Tribal Community considerations.	
c. If applicable, describe benefits or impacts of the project with respect to Disadvantaged Communities*.	
d. If applicable, describe benefits or impacts of the project with respect to Environmental Justice ** considerations.	

e. If applicable, describe how the project assists the region in adapting to effects of climate change.	
f. If applicable, describe the generation or reduction of greenhouse gas emissions associated with the project.	

*A Disadvantaged Community is defined as a community with an annual median household (MHI) income that is less than 80 percent of the Statewide annual MHI. A map identifying DACs in the Westside Region is available at www.westsideirwm.com.

** Environmental Justice is 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.

VI. Statewide Program Preferences and Priorities

Please select the Program Preferences and Statewide Priorities that apply to the proposed project (choose all that apply).

Program Preferences

☐ Include regional projects or programs (CWC §10544)

☐ Effectively integrate water management programs and projects within a hydrologic region identified in the California Water Plan; the Regional Water Quality Control Board (RWQCB) region or subdivision; or other region or sub-region specifically identified by DWR

☐ Effectively resolve significant water-related conflicts within or between regions

☐ Contribute to attainment of one or more of the objectives of the CALFED Bay-Delta Program

☐ Address critical water supply or water quality needs of disadvantaged communities within the region

☐ Effectively integrate water management with land use planning

☐ For eligible SWFM funding, projects which: a) are not receiving State funding for flood control or flood prevention projects pursuant to PRC §5096.824 or §75034 or b) provide multiple benefits, including, but not limited to, water quality improvements, ecosystem benefits, reduction of instream erosion and sedimentation, and groundwater recharge.

Statewide Priorities

Drought Preparedness

- ☐ Promote water conservation, conjunctive use, reuse and recycling
- ☐ Improve landscape and agricultural irrigation efficiencies
- ☐ Achieve long term reduction of water use
- ☐ Efficient groundwater basin management
- ☐ System interties

Use and Reuse Water More Efficiently

- ☐ Increase urban and agricultural water use efficiency measures such as conservation and recycling
- ☐ Capture, store, treat, and use urban stormwater runoff (such as percolation to usable aquifers, underground storage beneath parks, small surface basins, domestic stormwater capture systems, or the creation of catch basins or sumps downhill of development
- ☐ Incorporate and implement low impact development (LID) design features, techniques, and practices to reduce or eliminate stormwater runoff

Climate Change Response Actions

- ☐ Adaptation to Climate Change: Advance and expand conjunctive management of multiple water supply sources
- ☐ Adaptation to Climate Change: Use and reuse water more efficiently
- ☐ Adaptation to Climate Change: Water management system modifications that address anticipated climate
  - ☐ Adaptation to Climate Change: Establish migration corridors, re-establish river-floodplain hydrologic continuity, re-introduce anadromous fish populations to upper watersheds, enhance and protect upper watershed forests and meadow systems
- ☐ Reduction of Greenhouse Gas (GHG) Emissions: Reduce energy consumption of water systems and uses
- ☐ Reduction of Greenhouse Gas (GHG) Emissions: Use cleaner energy sources to move and treat water
- ☐ Reduce Energy Consumption: Water use efficiency
- ☐ Reduce Energy Consumption: Water recycling
- ☐ Reduce Energy Consumption: Water system energy efficiency

Expand Environmental Stewardship

- ☐ Expand Environmental Stewardship to protect and enhance the environment by improving watershed, floodplain, and instream functions and to sustain water and flood management

ecosystems.

Practice Integrated Flood Management

- ☐ Better emergency preparedness and response
- ☐ Improved flood protection
- ☐ More sustainable flood and water management systems
- ☐ Enhanced floodplain ecosystems
- ☐ LID techniques that store and infiltrate runoff while protecting groundwater

Protect Surface Water and Groundwater Quality

- ☐ Protecting and restoring surface water and groundwater quality to safeguard public and environmental health and secure water supplies for beneficial uses
- ☐ Salt/nutrient management planning as a components of an IRWM Plan

Improve Tribal Water and Natural Resources

- ☐ Improve Tribal Water and Natural Resources and include the development of Tribal consultation, collaboration, and access to funding for water programs.

Ensure Equitable Distribution of Benefits

- ☐ Increase the participation of small and disadvantaged communities in the IRWM process.
- ☐ Develop multi-benefit projects with consideration of affected disadvantaged communities and vulnerable populations.
- ☐ Contain projects that address safe drinking water and wastewater treatment needs of DACs.
- ☐ Address critical water supply or water quality needs of California Native American Tribes within the region.

VII. Project Cost and Financing

Please provide any estimates of project cost, sources of funding, and operation and maintenance costs as well as the source of the project cost in the table below.

a. Project Costs		
1. Capital (2014 Dollars)		
2. Annual Operations and Maintenance (O&M)		
b. List secured source(s) of funding	**Source(s)**	**Amount**

c. List proposed source(s) of funding and certainty of the sources.		
d. For capital projects, explain how operation and maintenance costs will be financed.		
e. Basis for project cost		
f. Can a detailed cost estimate be provided upon request?	☐ Yes ☐ No	

VIII. Project Status and Schedule

Please provide a status of the project, level of completion as well as a description of the activities planned for each project stage.

Project Stage	Description of Activities in Each Project Stage	Planned/Actual Start Date	Planned/Actual Completion Date
a. Conceptual			
b. Planning			
c. Environmental Documentation (CEQA/NEPA)			
d. Permitting			
e. Tribal Consultation			
f. Design			
g. Construction/Implementation			

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Integrated Regional Water Management Plan

IX. Project Technical Feasibility

Please provide any related documents (date, title, author, and page numbers) that describe and confirm the technical feasibility of the project.

a. List water planning documents that specifically identify this project.	
b. List the adopted planning documents the proposed project is consistent with (e.g. General Plans, UWMPs, GWMPs, Water Master Plans, Habitat Conservation Plans, etc.)	
c. List technical reports and studies supporting the feasibility of this project.	
d. If you are an Urban Water Supplier:	
1. Have you completed an Urban Water Management Plan and submitted to DWR?	☐ Yes ☐ No ☐ N/A
2. Are you in compliance with AB1420?	☐ Yes ☐ No ☐ N/A
3. Do you comply with the water meter requirements (CWC §525)	☐ Yes ☐ No ☐ N/A
4. If the answer to any of the questions above is "no", do you intend to comply prior to receiving Project funding	☐ Yes ☐ No ☐ N/A
e. If you are an Agricultural Water Supplier:	
1. Have you completed and submitted an AWMP (due 12/31/12)?	☐ Yes ☐ No ☐ N/A
2. If not, will you complete and submit an AWMP prior to receiving project funding?	☐ Yes ☐ No ☐ N/A
f. If the project is related to groundwater:	
1. Has a GWMP been completed and submitted for the subject basin?	☐ Yes ☐ No ☐ N/A
2. If not will a GWMP be completed within 1 year of the grant submittal date?	☐ Yes ☐ No ☐ N/A

Project Information Form

SWRP Projects Addendum

The Yolo WRA is accepting suggestions for projects for inclusion in the Yolo Storm Water Resource Plan (SWRP). Projects submitted for consideration should contribute to the attainment of the IRWM Plan and SWRP Objectives. To have your project considered for inclusion, please complete this project information form in its entirety and submit the completed form by **July 28, 2017** to **Kristin Sicke (ksicke@ycfcwcd.org)**.

Please provide information below:

I. Has this project been submitted to the Westside IRWMP previously?

○ Yes Please provide the Project Name as submitted on the Westside Sac IRWMP Project Information Form:

○ No If you answered no, the Westside Sac IRWMP Project Information Form must be completed and submitted with this form. The form can be downloaded at: http://www.westsideirwm.com/Westside%20IRWMP%20Web%20Page/documents/Projects/Project%20Update%20Form-09-01-14.pdf

If you answered yes to the above question, please provide any additional project description/details not provided in the original Westside IRWMP Project Form related to storm water:

II. Land Availability

a. Is the project located on lands with Public ownership?	☐ Yes	☐ No	☐ N/A
b. Have easements and/or all required land use agreements been obtained or are pending?	☐ Yes	☐ No	☐ N/A

c. Describe how this project will result in immediate or downstream storm water benefit to Yolo County:

III. SWRP Objectives – In addition to IRWMP Objectives

Please mark (x) the SWRP Objectives that apply to the proposed project (choose all that apply).

☐ Convert paved and/or impervious areas and increase tree canopy and vegetation, reducing urban heat island effects.

☐ Optimize the rural storm water conveyance system to drain and retain storm water flows as necessary. Provide proper rural drainage and keep conveyance systems clear of debris to minimize county road flooding during storm events.

☐ Enable proper rural retention and modify rural landscape to maximize groundwater recharge of excess storm water.

IV. SWRP Guideline Benefit Categories

Please mark (x) all the project benefit categories that apply and provide a brief explanation. Suggested benefit descriptions are included in the SWRP Guidelines Tables 3 and 4.

MAIN BENEFIT(S)

	x	Brief Explanation of Benefit	Quantification (e.g. acre---feet of water supplied, acres of habitat restored)
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 improvement			
Environmental – Increased urban green space			
Community – Employment opportunities provided			
Community – Public education			

SECONDARY BENEFIT(S)

	x	Brief Explanation of Benefit	Quantification (e.g. acre---feet of water supplied, acres of habitat restored)
Water Quality – Nonpoint source pollutant control			
Water Quality – Reestablished natural water drainage and treatment			
Water Supply – Water conservation			
Flood Management – Reduced sanitary sewer overflows			
Environmental – Reduced energy use, greenhouse gas emissions, or provides			
Environmental – Reestablishment of the natural hydrograph			
Environmental – Water temperature improvements			
Community – Community involvement			
Community – Enhance and/or create recreational and public use areas			

Table 3. Benefit Metrics		
Benefit	**Example**	**Metric Unit(s)**
Water Quality *while contributing to compliance with applicable permit and/or TMDL requirements*	Increased filtration and/or treatment of runoff Nonpoint source pollution control Reestablished natural water drainage and treatment	**Pollutant Load Reduction** pounds (lbs)/day kilograms (kg)/day milligram/Liter microgram /Liter most probable number of bacteria or indicator organisms (mpn)/mL **Volume Treated** million gallons per day (mgd) acre-feet per year (afy)
Water Supply *through groundwater management and/or runoff capture and use*[11]	Water supply reliability Water conservation Conjunctive use	**Volume Captured** *in terms of augmentation/replacement of water supply, or reduced dependence on imported water* million gallons per day (mgd) acre-feet per year (afy) **Cost** dollars per volume per year (of augmented water supply)
Flood Management	Decreased flood risk by reducing runoff rate and/or volume Reduced sanitary sewer overflows	**Rate, Volume, and/or Size** cubic feet per second (cfs) acre-feet (af) cubic feet (cf) acres or linear feet
Environmental	Environmental and habitat protection and improvement, including: - wetland enhancement/creation; - riparian enhancement; and/or - instream flow improvement	**Size and/or Rate** acres cubic feet per second (cfs) carbon sequestration (megagrams of carbon per area)

[11] Groundwater management and/or runoff capture and use also includes “on-farm” flood flow capture and recharge projects located on suitable agricultural lands.

TABLE 3. BENEFIT METRICS		
Benefit	**Example**	**Metric Unit(s)**
Environmental *(continued)*	Increased urban green space Reduced energy use, greenhouse gas emissions, or provides a carbon sink Reestablishment of the natural hydrograph Water temperature improvements	**Other**[12] area units of landscape and buffer measure of improved hydrology number of biotic structure number of physical structures reduced temperature (degrees)
Community	Enhanced and/or created recreational and public use areas Community involvement Employment opportunities provided	**Size** size of population served number of people number of jobs acres

2. Integrated Metrics-Based Analysis

The Storm Water Resource Plan should include an integrated watershed-based and metrics-based analysis demonstrating that the proposed storm water and dry weather runoff capture projects and programs within the watershed will collectively address the Plan's storm water management objectives and produce the proposed multiple benefits identified per the guidance in Section VI.D. The following guidance provides the minimum level of information to be included in an integrated metrics-based analysis for different types of projects within the watershed.

a. Water Quality Projects Analysis

The Storm Water Resource Plan should include a watershed-based analysis of how existing and proposed projects/programs comply with or are consistent with Total Maximum Daily Loads, applicable NPDES permit and/or waste discharge requirements. The analysis for water quality projects should simulate the proposed watershed-based outcomes using modeling, calculations, pollutant mass balances, water volume balances and/or other methods of analysis that provide the following, as applicable:

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[12] California Wetlands Monitoring Workgroup (CWMW). 2013. California Rapid Assessment Method (CRAM) for Wetlands, Version 6.1 pp. 67:

- **Landscape and buffer** metrics includes aquatic area abundance (for bar-built estuaries this includes stream corridor continuity, aquatic area in adjacent landscape, and marine connectivity) and buffer (percent of area with buffer, average buffer width, and buffer condition).
- **Hydrology** metrics includes water source, hydroperiod or channel stability, and hydrologic connectivity.
- **Biotic structure** metrics includes plant community (number of plant layers present or endemic species richness (vernal pools only), number of co-dominant species, and percent invasion), vertical biotic structure, horizontal interspersion, and native plant species richness.
- **Physical structure** metrics includes structural patch richness and topographic complexity.

TABLE 4. STORM WATER MANAGEMENT BENEFITS

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

E. <u>PLAN IMPLEMENTATION STRATEGY AND SCHEDULING OF PROJECTS</u>

1. Resources for Plan Implementation

A Storm Water Resource Plan should identify the resources that the participating entities are committing for implementation of the Plan. The Plan should include the following items to ensure its effective implementation. (Wat. Code, § 10562, subd. (d)(8).):

a. Projection of additional funding needs and sources for administration and project implementation needs, above and beyond the needs of the existing storm water management plans and/or integrated regional water management plans; and

b. Schedule for arranging and securing Plan financing for project implementation, including identification of phased Plan and/or project implementation.

Project Information Form

The Westside Region is accepting suggestions for projects for inclusion in the Westside Integrated Regional Water Management (IRWM) Plan. Projects submitted for consideration should contribute to the attainment of the IRWM Plan Goals and Objectives. To have your project considered for inclusion, please complete this project information form in its entirety and submit the completed form to info@westsideirwm.com .

Please provide information in the tables below:

I. Project Proponent Information

Lead Agency/ Organization	University of California, Davis
Name of Primary Contact	Lisa Moretti
Mailing Address	EH&S, One Shield Ave, Davis, CA 95616
E---mail	lmoretti@ucdavis.edu
Phone (###)###---####	530-752-0177
Other Cooperating Agencies/Organizations	
Is your agency committed to the project through completion? If not, please explain	Yes

II. General Project Information

Project Title	Agricultural Stormwater Improvements
Project Description (Briefly describe the project, in 300 words or less,)	Agricultural runoff currently enters the storm drain system directly. This projects would create retention basins and vegetated ditches to collect stormwater and irrigation runoff along edges of agricultural fields.

Project Location:	Davis, CA
Latitude:	
Longitude:	
Can you provide a map of the project location including boundaries upon request?	☒ Yes ☐ N/A ☐ No
Project Location Description:	From Russell Blvd to Putah Creek from Hwy 113 to Rd 98
County:	Yolo County
City/Community:	Davis
Watershed:	Putah Creek
Groundwater Basin:	
Planning Area:	
Additional Comments:	
Project Status (Check only one)	☐ Conceptual ☒ Planning ☐ CEQA/NEPA ☐ Permitting ☒ Design ☐ Construction/Implementation ☐ Study/Other ☐ Maintenance/Monitoring
Earliest expected start date (mm/dd/yr)	2019

III. Plan Goals/Objectives Addressed

For each of the goals/objectives addressed by the project, provide a one to two sentence description of how the project contributes to attaining the objective. Information related to the proposed goals and objectives can be found at www.westsideirw.com/irwmplan . If the project does not address any of the draft IRWM plan objectives, provide a one to two sentence description of how the project relates to a challenge or opportunity of the region.

Goal(s) that the Project will contribute to:	Improve water quality of receiving water and reduce stormwater runoff.
Objective(s) that the Project will help accomplish:	Capture and infiltrate stormwater and reduce pollutant runoff.

Explanation of Project linkage to goals and objectives	Project's retention basin will capture stormwater and allow for settling of sediment to ultimate reduce the amount of stormwater runoff and limit pollutants discharging to Putah Creek.
How will the project be measured to ensure the goals and objectives are being fulfilled?	Project will be measured in the amount of stormwater captured and/or treated prior to discharge.

IV. Resource Management Strategies

For each resource management strategy employed by the project, provide a one to two sentence description in the table below of how the project incorporates the strategy. A description of the Resource Management Strategies can be found in Volume 2 of the 2009 California Water Plan here: http://www.waterplan.water.ca.gov/cwpu2009/index.cfm

Reduce Water Demand	
Agricultural Water Use Efficiency	Capture and reuse of irrigation water
Urban Water Use Efficiency	N/A
Improve Operational Efficiency and Transfers	
Conveyance --- Delta	N/A
Conveyance --- Regional / local	N/A
System Reoperation	N/A
Water Transfers	N/A
Increase Water Supply	
Conjunctive Management & Groundwater	Increased infiltration to groundwater
Desalination	N/A
Precipitation Enhancement	N/A
Recycled Municipal Water	N/A
Surface Storage ------ CALFED	N/A
Surface Storage ------ Regional / Local	N/A

Improve Water Quality	
Drinking Water Treatment and Distribution	N/A
Groundwater and Aquifer Remediation	N/A
Matching Water Quality to Use	N/A
Pollution Prevention	Improve water quality of stormwater runoff
Salt and Salinity Management	N/A
Urban Runoff Management	N/A
Practice Resources Stewardship	
Agricultural Lands Stewardship	Improvements to agricultural land
Economic Incentives (Loans, Grants, and Water Pricing)	
Ecosystem Restoration	N/A
Forest Management	N/A
Land Use Planning and Management	N/A
Recharge Areas Protection	N/A
Water---dependent Recreation	Improve water quality to receiving water
Watershed Management	Water quality improvement
Improve Flood Management	
Flood Risk Management	Increased water storage

V. Project Impacts and Benefits

Please select all the project benefit categories that apply and provide a brief explanation. If the project benefits do not fit any of the listed categories, please explain in the box below. Suggested benefit descriptions are included in the Project Information Form instructions sheet.

Benefit Categories:		**Brief Explanation of Selected Benefits**	**Quantification (e.g. acre---feet of water supplied, acres of habitat restored)**
Increase Water Supply			
Improve Water Quality		Reduced discharge of sediment, fertilizer and pesticides	
Groundwater Improvements			
Water Conservation and Reuse	✔	Capture and infiltration of excess irrigation and stormwater	

Watershed Rehabilitation	✔	Creates wetland habitat and Improves water quality of discharges to Putah Creek	water quality sampling will verify improvement
Habitat Improvements			
Flood Management		Reducing flooding potential with increased stormwater storage	

Other Benefits:

Please provide a summary of the expected project benefits and impacts in the table below.

a. Describe any expected impacts of the project	Improvement of water quality, increase in storage
b. If applicable, describe benefits or impacts of the project with respect to Native American Tribal Community considerations.	N/A
c. If applicable, describe benefits or impacts of the project with respect to Disadvantaged Communities*.	N/A
d. If applicable, describe benefits or impacts of the project with respect to Environmental Justice ** considerations.	N/A

e. If applicable, describe how the project assists the region in adapting to effects of climate change.	Provides increased flood storage for expected intense rainfall events
f. If applicable, describe the generation or reduction of greenhouse gas emissions associated with the project.	N/A

*A Disadvantaged Community is defined as a community with an annual median household (MHI) income that is less than 80 percent of the Statewide annual MHI. A map identifying DACs in the Westside Region is available at www.westsideirwm.com.

** Environmental Justice is 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.

VI. Statewide Program Preferences and Priorities

Please select the Program Preferences and Statewide Priorities that apply to the proposed project (choose all that apply).

Program Preferences

- ☐ Include regional projects or programs (CWC §10544)
- ☑ Effectively integrate water management programs and projects within a hydrologic region identified in the California Water Plan; the Regional Water Quality Control Board (RWQCB) region or subdivision; or other region or sub---region specifically identified by DWR
- ☐ Effectively resolve significant water---related conflicts within or between regions
- ☑ Contribute to attainment of one or more of the objectives of the CALFED Bay---Delta Program
- ☐ Address critical water supply or water quality needs of disadvantaged communities within the region
- ☑ Effectively integrate water management with land use planning
- ☑ For eligible SWFM funding, projects which: a) are not receiving State funding for flood control or flood prevention projects pursuant to PRC §5096.824 or §75034 or b) provide multiple benefits, including, but not limited to, water quality improvements, ecosystem benefits, reduction of instream erosion and sedimentation, and groundwater recharge.

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Integrated Regional Water Management Plan

Statewide Priorities

Drought Preparedness

- [x] Promote water conservation, conjunctive use, reuse and recycling
- [x] Improve landscape and agricultural irrigation efficiencies Achieve
- [ ] long term reduction of water use
- [x] Efficient groundwater basin management
- [ ] System interties

Use and Reuse Water More Efficiently

- [x] Increase urban and agricultural water use efficiency measures such as conservation and recycling
- [x] Capture, store, treat, and use urban stormwater runoff (such as percolation to usable aquifers, underground storage beneath parks, small surface basins, domestic stormwater capture systems, or the creation of catch basins or sumps downhill of development
- [x] Incorporate and implement low impact development (LID) design features, techniques, and practices to reduce or eliminate stormwater runoff

Climate Change Response Actions

- [ ] Adaptation to Climate Change: Advance and expand conjunctive management of multiple water supply sources
- [x] Adaptation to Climate Change: Use and reuse water more efficiently
- [ ] Adaptation to Climate Change: Water management system modifications that address anticipated climate
  - [ ] Adaptation to Climate Change: Establish migration corridors, re---establish river---floodplain hydrologic continuity, re---introduce anadromous fish populations to upper watersheds, enhance and protect upper watershed forests and meadow systems
- [ ] Reduction of Greenhouse Gas (GHG) Emissions: Reduce energy consumption of water systems and uses
- [ ] Reduction of Greenhouse Gas (GHG) Emissions: Use cleaner energy sources to move and treat water
- [ ] Reduce Energy Consumption: Water use efficiency
- [x] Reduce Energy Consumption: Water recycling
- [ ] Reduce Energy Consumption: Water system energy efficiency

Expand Environmental Stewardship

- [x] Expand Environmental Stewardship to protect and enhance the environment by improving watershed, floodplain, and instream functions and to sustain water and flood management

ecosystems.

Practice Integrated Flood Management

- ☑ Better emergency preparedness and response
- ☑ Improved flood protection
- ☑ More sustainable flood and water management systems
- ☑ Enhanced floodplain ecosystems
- ☑ LID techniques that store and infiltrate runoff while protecting groundwater

Protect Surface Water and Groundwater Quality

- ☑ Protecting and restoring surface water and groundwater quality to safeguard public and environmental health and secure water supplies for beneficial uses
- ☑ Salt/nutrient management planning as a components of an IRWM Plan

Improve Tribal Water and Natural Resources

- ☐ Improve Tribal Water and Natural Resources and include the development of Tribal consultation, collaboration, and access to funding for water programs.

Ensure Equitable Distribution of Benefits

- ☐ Increase the participation of small and disadvantaged communities in the IRWM process.
- ☐ Develop multi---benefit projects with consideration of affected disadvantaged communities and vulnerable populations.
- ☐ Contain projects that address safe drinking water and wastewater treatment needs of DACs.
- ☐ Address critical water supply or water quality needs of California Native American Tribes within the region.

VII. Project Cost and Financing

Please provide any estimates of project cost, sources of funding, and operation and maintenance costs as well as the source of the project cost in the table below.

a. Project Costs		
1. Capital (2014 Dollars)	$250,000	
2. Annual Operations and Maintenance (O&M)	$10,000	
b. List secured source(s) of funding	**Source(s)**	**Amount**

c. List proposed source(s) of funding and certainty of the sources.	UC Davis Deferred Maintenance	
d. For capital projects, explain how operation and maintenance costs will be financed.	Funded by general funds. Staff already hired.	
e. Basis for project cost		
f. Can a detailed cost estimate be provided upon request?	☑ Yes ☐ No	

VIII. **Project Status and Schedule**

Please provide a status of the project, level of completion as well as a description of the activities planned for each project stage.

Project Stage	Description of Activities in Each Project Stage	Planned/Actual Start Date	Planned/Actual Completion Date
a. Conceptual	Develop scope	2017	2017
b. Planning	coordinating timeline	2017	2017
c. Environmental Documentation (CEQA/NEPA)	In-house environmental review and	2018	2019
d. Permitting	Obtain NPDES permits	2018	2019
e. Tribal Consultation	During CEQA	2018	12/20172017
f. Design	Develop plans	2018	2019
g. Construction/Implementation	implement project	2019	2020

IX. Project Technical Feasibility

Please provide any related documents (date, title, author, and page numbers) that describe and confirm the technical feasibility of the project.

a. List water planning documents that specifically identify this project.	UC Davis Long Range Development Plan
b. List the adopted planning documents the proposed project is consistent with (e.g. General Plans, UWMPs, GWMPs, Water Master Plans, Habitat Conservation Plans, etc.)	UC Davis Long Range Development Plan
c. List technical reports and studies supporting the feasibility of this project.	TBD
d. If you are an Urban Water Supplier:	
1. Have you completed an Urban Water Management Plan and submitted to DWR?	☐ Yes ☐ No ☑ N/A
2. Are you in compliance with AB1420?	☐ Yes ☐ No ✔ N/A
3. Do you comply with the water meter requirements (CWC §525)	☐ Yes ☐ No ☑ N/A
4. If the answer to any of the questions above is "no", do you intend to comply prior to receiving Project funding	☐ Yes ☐ No ☑ N/A
e. If you are an Agricultural Water Supplier:	
1. Have you completed and submitted an AWMP (due 12/31/12)?	☐ Yes ☐ No ☑ N/A
2. If not, will you complete and submit an AWMP prior to receiving project funding?	☐ Yes ☐ No ☑ N/A
f. If the project is related to groundwater:	
1. Has a GWMP been completed and submitted for the subject basin?	☐ Yes ☐ No ☑ N/A
2. If not will a GWMP be completed within 1 year of the grant submittal date?	☐ Yes ☐ No ☑ N/A

Project Information Form

SWRP Projects Addendum

The Yolo WRA is accepting suggestions for projects for inclusion in the Yolo Storm Water Resource Plan (SWRP). Projects submitted for consideration should contribute to the attainment of the IRWM Plan and SWRP Objectives. To have your project considered for inclusion, please complete this project information form in its entirety and submit the completed form by **July 28, 2017** to **Kristin Sicke (ksicke@ycfcwcd.org)**.

Please provide information below:

I. Has this project been submitted to the Westside IRWMP previously?

○ Yes Please provide the Project Name as submitted on the Westside Sac IRWMP Project Information Form:

◉ No If you answered no, the Westside Sac IRWMP Project Information Form must be completed and submitted with this form. The form can be downloaded at: http://www.westsideirwm.com/Westside%20IRWMP%20Web%20Page/documents/Projects/Project%20Update%20Form-09-01-14.pdf

If you answered yes to the above question, please provide any additional project description/details not provided in the original Westside IRWMP Project Form related to storm water:

II. Land Availability

a. Is the project located on lands with Public ownership?	☑ Yes	☐ No	☐ N/A
b. Have easements and/or all required land use agreements been obtained or are pending?	☐ Yes	☐ No	☑ N/A

c. Describe how this project will result in immediate or downstream storm water benefit to Yolo County:

Constructing retention basins will improve water quality of stormwater discharge to Putah Creek, resulting in improved water quality of the downstream receiving water and reduction of peak flow runoff.

III. SWRP Objectives – In addition to IRWMP Objectives

Please mark (x) the SWRP Objectives that apply to the proposed project (choose all that apply).

☐ Convert paved and/or impervious areas and increase tree canopy and vegetation, reducing urban heat island effects.

☑ Optimize the rural storm water conveyance system to drain and retain storm water flows as necessary. Provide proper rural drainage and keep conveyance systems clear of debris to minimize county road flooding during storm events.

☑ Enable proper rural retention and modify rural landscape to maximize groundwater recharge of excess storm water.

IV. SWRP Guideline Benefit Categories

Please mark (x) all the project benefit categories that apply and provide a brief explanation. Suggested benefit descriptions are included in the SWRP Guidelines Tables 3 and 4.

MAIN BENEFIT(S)

	x	Brief Explanation of Benefit	Quantification (e.g. acre---feet of water supplied, acres of habitat restored)
Water Quality – Increased filtration and/or treatment of runoff	x	Provides treatment of stormwater runoff, increase in stormwater retention	
Water Supply – Water supply reliability	x	Reuse of excess irrigation water	
Water Supply – Conjunctive use			
Flood Management – Decreased flood risk by reducing runoff rate and/or volume	x	Increase of stormwater retention, reduces peak flow	
Environmental – Environmental and habitat protection and improvement			
Environmental – Increased urban green space			
Community – Employment opportunities provided	x	Employment opportunities during the construction and continued O&M	
Community – Public education	x	Signage and outreach programs will educate public on stormwater runoff	

SECONDARY BENEFIT(S)

	x	Brief Explanation of Benefit	Quantification (e.g. acre---feet of water supplied, acres of habitat restored)
Water Quality – Nonpoint source pollutant control	x	Reduction in nitrate levels and suspended sediment	ongoing pre and post project monitoring will determine results.
Water Quality – Reestablished natural water drainage and treatment	x	Provide natural treatment of stormwater	ongoing pre and post project monitoring will determine results.
Water Supply – Water conservation	X	Reuse of excess irrigation water	
Flood Management – Reduced sanitary sewer overflows			
Environmental – Reduced energy use, greenhouse gas emissions, or provides			
Environmental – Reestablishment of the natural hydrograph	x	Increase in stormwater detention	
Environmental – Water temperature improvements			
Community – Community involvement	x	Public outreach about stormwater	
Community – Enhance and/or create recreational and public use areas	x	Existing areas will be enhanced through improved aesthetics in areas used by public	

Project Information Form

The Westside Region is accepting suggestions for projects for inclusion in the Westside Integrated Regional Water Management (IRWM) Plan. Projects submitted for consideration should contribute to the attainment of the IRWM Plan Goals and Objectives. To have your project considered for inclusion, please complete this project information form in its entirety and submit the completed form to info@westsideirwm.com .

Please provide information in the tables below:

I. Project Proponent Information

Lead Agency/ Organization	University of California, Davis
Name of Primary Contact	Lisa Moretti
Mailing Address	EH&S, One Shield Ave, Davis, CA 95616
E-mail	lmoretti@ucdavis.edu
Phone (###)###---####	530-752-0177
Other Cooperating Agencies/Organizations	
Is your agency committed to the project through completion? If not, please explain	Yes

II. General Project Information

Project Title	Arboretum Waterway Wetland Restoration and Enhancement
Project Description (Briefly describe the project, in 300 words or less,)	UC Davis is proposing to enhance the Arboretum Waterway, which captures stormwater discharge from 900 acres of the UC Davis campus, by establishing a wetland area to treat stormwater discharge and recycled water prior to discharge to Putah Creek. This project will include establishing wetlands, increasing stormwater retention, slope stabilization, enhancing a recreation area for the public, utilization of recycled water for irrigation, and creating public education opportunities.

Project Location:	Davis, CA
Latitude:	
Longitude:	
Can you provide a map of the project location including boundaries upon request?	■ Yes ☐ N/A ☐ No
Project Location Description:	
County:	Yolo County
City/Community:	Davis
Watershed:	Putah Creek
Groundwater Basin:	
Planning Area:	
Additional Comments:	
Project Status (Check only one)	☐ Conceptual ■ Planning ■ CEQA/NEPA ☐ Permitting ■ Design ☐ Construction/Implementation ☐ Study/Other ☐ Maintenance/Monitoring
Earliest expected start date (mm/dd/yr)	

III. Plan Goals/Objectives Addressed

For each of the goals/objectives addressed by the project, provide a one to two sentence description of how the project contributes to attaining the objective. Information related to the proposed goals and objectives can be found at www.westsideirw.com/irwmplan . If the project does not address any of the draft IRWM plan objectives, provide a one to two sentence description of how the project relates to a challenge or opportunity of the region.

Goal(s) that the Project will contribute to:	Preserve and enhance water-related recreational opportunities, Protect and enhance habitat and biological diversity of native and migratory species.
Objective(s) that the Project will help accomplish:	Provide adequate flood protection for all urban and rural areas within the Region by December 31, 2050, Restore native vegetation and form and function along riparian corridors, canals, and other aquatic sites throughout the Region through 2035 to provide stream shading, habitat enhancement, and increased biological diversity.

Explanation of Project linkage to goals and objectives	Project will provide new habitat for migrating species, and increase the water-related birdwatching opportunities in an urban area. It will also provide enhanced flood storage and protection. The addition of native riparian and emergent marsh vegetation will increase habitat for wildlife, clean the water in the Arboretum, and provide opportunity for the public to participate in restoration and management of the resource.
How will the project be measured to ensure the goals and objectives are being fulfilled?	Project will be measured in percent increase in vegetative cover, provision of amenities that foster increased positive recreation and visitor experience.

IV. Resource Management Strategies

For each resource management strategy employed by the project, provide a one to two sentence description in the table below of how the project incorporates the strategy. A description of the Resource Management Strategies can be found in Volume 2 of the 2009 California Water Plan here: http://www.waterplan.water.ca.gov/cwpu2009/index.cfm

Reduce Water Demand	
Agricultural Water Use Efficiency	N/A
Urban Water Use Efficiency	Use of recycled water for irrigation
Improve Operational Efficiency and Transfers	
Conveyance --- Delta	
Conveyance --- Regional / local	
System Reoperation	
Water Transfers	
Increase Water Supply	
Conjunctive Management & Groundwater	
Desalination	
Precipitation Enhancement	
Recycled Municipal Water	
Surface Storage ------ CALFED	
Surface Storage ------ Regional / Local	

Improve Water Quality	
Drinking Water Treatment and Distribution	
Groundwater and Aquifer Remediation	
Matching Water Quality to Use	
Pollution Prevention	Improve water quality of stormwater runoff
Salt and Salinity Management	Reduction of nitrogen loading
Urban Runoff Management	Treatment of urban runoff
Practice Resources Stewardship	
Agricultural Lands Stewardship	N/A
Economic Incentives (Loans, Grants, and Water Pricing)	
Ecosystem Restoration	Habitation creation
Forest Management	N/A
Land Use Planning and Management	
Recharge Areas Protection	N/A
Water---dependent Recreation	Improve water quality to receiving water
Watershed Management	Habitat creation, water quality improvement
Improve Flood Management	
Flood Risk Management	Reducing flood risk by increasing storage

V. Project Impacts and Benefits

Please select all the project benefit categories that apply and provide a brief explanation. If the project benefits do not fit any of the listed categories, please explain in the box below. Suggested benefit descriptions are included in the Project Information Form instructions sheet.

Benefit Categories:		**Brief Explanation of Selected Benefits**	**Quantification (e.g. acre---feet of water supplied, acres of habitat restored)**
Increase Water Supply			
Improve Water Quality		Lowering of levels of nitrates and increase in oxygen levels in discharge to Putah Creek	1.2 MGD water cleaned daily.
Groundwater Improvements			
Water Conservation and Reuse	✔	Recycled water will be used for irrigation water to supplement storm water	1.2 MGD reused daily.

Watershed Rehabilitation	✔	Creates wetland habitat and improves water quality of discharges to Putah Creek	water quality sampling will verify improvement
Habitat Improvements		Creates wetland habitat	15 acres of restored habitat
Flood Management		Reducing flooding potential	10 acre-feet of storage created.

Other Benefits:

Creates a recreational area for public viewing of wildlife and provides education opportunities for the public and students on wetland and riparian habitats in an urban setting.

Please provide a summary of the expected project benefits and impacts in the table below.

a. Describe any expected impacts of the project	Improvement of water quality, habitat creatation
b. If applicable, describe benefits or impacts of the project with respect to Native American Tribal Community considerations.	N/A
c. If applicable, describe benefits or impacts of the project with respect to Disadvantaged Communities*.	N/A
d. If applicable, describe benefits or impacts of the project with respect to Environmental Justice ** considerations.	N/A

e. If applicable, describe how the project assists the region in adapting to effects of climate change.	Provides increased flood storage for expected intense rainfall events, increases vegetation and shade to cool surrounding areas, increases wildlife habitat in an area that will have increased stress on wildlife populations.
f. If applicable, describe the generation or reduction of greenhouse gas emissions associated with the project.	Greenhouse gas sequestration in wetlands

*A Disadvantaged Community is defined as a community with an annual median household (MHI) income that is less than 80 percent of the Statewide annual MHI. A map identifying DACs in the Westside Region is available at www.westsideirwm.com.

** Environmental Justice is 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.

VI. Statewide Program Preferences and Priorities

Please select the Program Preferences and Statewide Priorities that apply to the proposed project (choose all that apply).

Program Preferences

- ☐ Include regional projects or programs (CWC §10544)
- ☑ Effectively integrate water management programs and projects within a hydrologic region identified in the California Water Plan; the Regional Water Quality Control Board (RWQCB) region or subdivision; or other region or sub---region specifically identified by DWR
- ☐ Effectively resolve significant water---related conflicts within or between regions
- ☑ Contribute to attainment of one or more of the objectives of the CALFED Bay---Delta Program
- ☐ Address critical water supply or water quality needs of disadvantaged communities within the region
- ☑ Effectively integrate water management with land use planning
- ☑ For eligible SWFM funding, projects which: a) are not receiving State funding for flood control or flood prevention projects pursuant to PRC §5096.824 or §75034 or b) provide multiple benefits, including, but not limited to, water quality improvements, ecosystem benefits, reduction of instream erosion and sedimentation, and groundwater recharge.

Statewide Priorities

Drought Preparedness

- [x] Promote water conservation, conjunctive use, reuse and recycling
- [x] Improve landscape and agricultural irrigation efficiencies Achieve
- [ ] long term reduction of water use
- [ ] Efficient groundwater basin management
- [ ] System interties

Use and Reuse Water More Efficiently

- [x] Increase urban and agricultural water use efficiency measures such as conservation and recycling
- [x] Capture, store, treat, and use urban stormwater runoff (such as percolation to usable aquifers, underground storage beneath parks, small surface basins, domestic stormwater capture systems, or the creation of catch basins or sumps downhill of development
- [x] Incorporate and implement low impact development (LID) design features, techniques, and practices to reduce or eliminate stormwater runoff

Climate Change Response Actions

- [x] Adaptation to Climate Change: Advance and expand conjunctive management of multiple water supply sources
- [x] Adaptation to Climate Change: Use and reuse water more efficiently
- [ ] Adaptation to Climate Change: Water management system modifications that address anticipated climate
  - [x] Adaptation to Climate Change: Establish migration corridors, re---establish river---floodplain hydrologic continuity, re---introduce anadromous fish populations to upper watersheds, enhance and protect upper watershed forests and meadow systems
- [ ] Reduction of Greenhouse Gas (GHG) Emissions: Reduce energy consumption of water systems and uses
- [ ] Reduction of Greenhouse Gas (GHG) Emissions: Use cleaner energy sources to move and treat water
- [ ] Reduce Energy Consumption: Water use efficiency
- [x] Reduce Energy Consumption: Water recycling
- [ ] Reduce Energy Consumption: Water system energy efficiency

Expand Environmental Stewardship

- [x] Expand Environmental Stewardship to protect and enhance the environment by improving watershed, floodplain, and instream functions and to sustain water and flood management

ecosystems.

Practice Integrated Flood Management

- ☑ Better emergency preparedness and response
- ☑ Improved flood protection
- ☑ More sustainable flood and water management systems
- ☑ Enhanced floodplain ecosystems
- ☑ LID techniques that store and infiltrate runoff while protecting groundwater

Protect Surface Water and Groundwater Quality

- ☑ Protecting and restoring surface water and groundwater quality to safeguard public and environmental health and secure water supplies for beneficial uses
- ☑ Salt/nutrient management planning as a components of an IRWM Plan

Improve Tribal Water and Natural Resources

- ☐ Improve Tribal Water and Natural Resources and include the development of Tribal consultation, collaboration, and access to funding for water programs.

Ensure Equitable Distribution of Benefits

- ☐ Increase the participation of small and disadvantaged communities in the IRWM process.
- ☐ Develop multi---benefit projects with consideration of affected disadvantaged communities and vulnerable populations.
- ☐ Contain projects that address safe drinking water and wastewater treatment needs of DACs.
- ☐ Address critical water supply or water quality needs of California Native American Tribes within the region.

VII. Project Cost and Financing

Please provide any estimates of project cost, sources of funding, and operation and maintenance costs as well as the source of the project cost in the table below.

a. Project Costs		
1. Capital (2014 Dollars)	$4 million	
2. Annual Operations and Maintenance (O&M)	$20,000	
	Source(s)	**Amount**
b. List secured source(s) of funding	UC Davis	$3 million

c. List proposed source(s) of funding and certainty of the sources.	UC Davis	90%
d. For capital projects, explain how operation and maintenance costs will be financed.	Funded by general funds. Staff already hired.	
e. Basis for project cost	Previous construction costs for Phase 1.	
f. Can a detailed cost estimate be provided upon request?	☑ Yes ☐ No	

VIII. Project Status and Schedule

Please provide a status of the project, level of completion as well as a description of the activities planned for each project stage.

Project Stage	Description of Activities in Each Project Stage	Planned/Actual Start Date	Planned/Actual Completion Date
a. Conceptual	developed project	Done	Done
b. Planning	coordinating timeline and schedule	8/2017	12/2017
c. Environmental Documentation (CEQA/NEPA)	In-house environmental review and administration	11/2017	12/2017
d. Permitting	obtain permits. only one required is CDFW 1600	1/2018	5/2018
e. Tribal Consultation	Coordinate with tribal representative on construction	11/2017	12/2017
f. Design	design and engineer final project - prepare construction drawings and engineer	6/2018	12/2018
g. Construction/Implementation	implement project	6/2019	12/2019

WESTSIDE SAC IRWM

Integrated Regional Water Management Plan

IX. Project Technical Feasibility

Please provide any related documents (date, title, author, and page numbers) that describe and confirm the technical feasibility of the project.

a. List water planning documents that specifically identify this project.	UC Davis Stormwater Master Plan Update
b. List the adopted planning documents the proposed project is consistent with (e.g. General Plans, UWMPs, GWMPs, Water Master Plans, Habitat Conservation Plans, etc.)	UC Davis Long Range Development Plan
c. List technical reports and studies supporting the feasibility of this project.	UC Davis Stormwater Master Plan Update - technical sections
d. If you are an Urban Water Supplier:	
1. Have you completed an Urban Water Management Plan and submitted to DWR?	☐ Yes ☐ No ☑ N/A
2. Are you in compliance with AB1420?	☐ Yes ☐ No ✔ N/A
3. Do you comply with the water meter requirements (CWC §525)	☐ Yes ☐ No ☑ N/A
4. If the answer to any of the questions above is "no", do you intend to comply prior to receiving Project funding	☐ Yes ☐ No ☑ N/A
e. If you are an Agricultural Water Supplier:	
1. Have you completed and submitted an AWMP (due 12/31/12)?	Yes ☐ No ☑ N/A
2. If not, will you complete and submit an AWMP prior to receiving project funding?	☐ Yes ☐ No ☑ N/A
f. If the project is related to groundwater:	
1. Has a GWMP been completed and submitted for the subject basin?	☐ Yes ☐ No ☑ N/A
2. If not will a GWMP be completed within 1 year of the grant submittal date?	☐ Yes ☐ No ☑ N/A

Project Information Form

SWRP Projects Addendum

The Yolo WRA is accepting suggestions for projects for inclusion in the Yolo Storm Water Resource Plan (SWRP). Projects submitted for consideration should contribute to the attainment of the IRWM Plan and SWRP Objectives. To have your project considered for inclusion, please complete this project information form in its entirety and submit the completed form by **July 28, 2017** to **Kristin Sicke (ksicke@ycfcwcd.org)**.

Please provide information below:

I. Has this project been submitted to the Westside IRWMP previously?

○ Yes Please provide the Project Name as submitted on the Westside Sac IRWMP Project Information Form:

◉ No If you answered no, the Westside Sac IRWMP Project Information Form must be completed and submitted with this form. The form can be downloaded at: http://www.westsideirwm.com/Westside%20IRWMP%20Web%20Page/documents/Projects/Project%20Update%20Form-09-01-14.pdf

If you answered yes to the above question, please provide any additional project description/details not provided in the original Westside IRWMP Project Form related to storm water:

II. Land Availability

a. Is the project located on lands with Public ownership?	☑ Yes	☐ No	☐ N/A
b. Have easements and/or all required land use agreements been obtained or are pending?	☐ Yes	☐ No	☑ N/A

c. Describe how this project will result in immediate or downstream storm water benefit to Yolo County:

Establishing wetland will improve water quality of stormwater discharge to Putah Creek, resulting in improved water quality of the downstream receiving water and reduction of peak flow runoff.

III. SWRP Objectives – In addition to IRWMP Objectives

Please mark (x) the SWRP Objectives that apply to the proposed project (choose all that apply).

☐ Convert paved and/or impervious areas and increase tree canopy and vegetation, reducing urban heat island effects.

☐ Optimize the rural storm water conveyance system to drain and retain storm water flows as necessary. Provide proper rural drainage and keep conveyance systems clear of debris to minimize county road flooding during storm events.

☐ Enable proper rural retention and modify rural landscape to maximize groundwater recharge of excess storm water.

IV. SWRP Guideline Benefit Categories

Please mark (x) all the project benefit categories that apply and provide a brief explanation. Suggested benefit descriptions are included in the SWRP Guidelines Tables 3 and 4.

MAIN BENEFIT(S)

	x	Brief Explanation of Benefit	Quantification (e.g. acre---feet of water supplied, acres of habitat restored)
Water Quality – Increased filtration and/or treatment of runoff	x	Provides treatment of stormwater runoff, increase in stormwater retention	Treatment of stormwater from 935 acres
Water Supply – Water supply reliability	x	Use of recycled water for irrigation	An average use of 2,000 GPM of recycled water from the UC Davis WWTP
Water Supply – Conjunctive use			
Flood Management – Decreased flood risk by reducing runoff rate and/or volume	x	Increase of stormwater retention, reduces peak flow	Currently the Arboretum Waterway can contain 1.8MCF
Environmental – Environmental and habitat protection and improvement	x	Establishes wetland habitat	
Environmental – Increased urban green space			
Community – Employment opportunities provided	x	Employment opportunities during the construction	
Community – Public education	x	Signage and outreach programs will educate public on wetland habitat and stormwater runoff	

SECONDARY BENEFIT(S)

	x	Brief Explanation of Benefit	Quantification (e.g. acre---feet of water supplied, acres of habitat restored)
Water Quality – Nonpoint source pollutant control	x	Reduction in nitrate levels, suspended sediment, and increase in dissolved oxygen	ongoing pre and post project monitoring will determine results.
Water Quality – Reestablished natural water drainage and treatment	x	Wetland area will provide natural treatment of stormwater and recycled water	ongoing pre and post project monitoring will determine results.
Water Supply – Water conservation	x	Irrigation will be provided by recycled water	
Flood Management – Reduced sanitary sewer overflows			
Environmental – Reduced energy use, greenhouse gas emissions, or provides	x	Greenhouse gas sequestration by wetlands	
Environmental – Reestablishment of the natural hydrograph	x	Increase in stormwater detention	10 acre-feet of storage
Environmental – Water temperature improvements			
Community – Community involvement	x	Volunteers assist in planting; public outreach about stormwater and wetland habitat	
Community – Enhance and/or create recreational and public use areas	x	Existing public use area will be enhanced through improved aesthetics and access to wetland habitat viewing	

Project Information Form

The Westside Region is accepting suggestions for projects for inclusion in the Westside Integrated Regional Water Management (IRWM) Plan. Projects submitted for consideration should contribute to the attainment of the IRWM Plan Goals and Objectives. To have your project considered for inclusion, please complete this project information form in its entirety and submit the completed form to info@westsideirwm.com .

Please provide information in the tables below:

I. Project Proponent Information

Lead Agency/ Organization	City of Davis
Name of Primary Contact	Rhys Rowland
Mailing Address	1717 Fifth Street Davis, CA 95616
E---mail	rrowland@cityofdavis.org
Phone (###)###---####	(530)757-5638
Other Cooperating Agencies/Organizations	None
Is your agency committed to the project through completion? If not, please explain	The City is committed to looking at the feasibility of stormwater measures city-wide which could include opportunities to redesign the current drainage and landscaping near greenbelt bike tunnels to prevent flooding.

II. General Project Information

Project Title	Bike Tunnel Landscaping Redesign for Stormwater Quality Improvement
Project Description (Briefly describe the project, in 300 words or less,)	Redesign the current drainage and landscaping near greenbelt bike tunnels to prevent flooding from stormwater. Assess the top highly-trafficked tunnels with drainage issues within the greenbelt system. Improved drainage would include re-landscaping the areas surrounding these tunnels to prevent flood events and improve stormwater quality discharges through the use of different stormwater low impact design methods through infiltration, transpiration and evaporation. Each site could showcase a different method; signage near the tunnels would illustrate the project and highlight elements of the project design.

Project Location:	
Latitude:	38.55
Longitude:	121.75
Can you provide a map of the project location including boundaries upon request?	☒ Yes ☐ N/A ☐ No
Project Location Description:	Various locations throughout the City.
County:	Yolo
City/Community:	Davis
Watershed:	Covell Drain
Groundwater Basin:	Yolo Subbasin
Planning Area:	Yolo County
Additional Comments:	None
Project Status (Check only one)	☐ Conceptual ☐ Planning ☐ CEQA/NEPA ☐ Permitting ☐ Design ☐ Construction/Implementation ☒ Study/Other ☐ Maintenance/Monitoring
Earliest expected start date (mm/dd/yr)	Spring 2018

III. Plan Goals/Objectives Addressed

For each of the goals/objectives addressed by the project, provide a one to two sentence description of how the project contributes to attaining the objective. Information related to the proposed goals and objectives can be found at www.westsideirw.com/irwmplan. If the project does not address any of the draft IRWM plan objectives, provide a one to two sentence description of how the project relates to a challenge or opportunity of the region.

Goal(s) that the Project will contribute to:	Goals include #2, 7, 9 and 11.
Objective(s) that the Project will help accomplish:	Objectives include #2,14, 17, and 19.

Explanation of Project linkage to goals and objectives	By installing the project, the City will provide enhanced water quality for existing drainage within the area of the project. Improvements to the identified sites would decrease the risk of localized flooding on highly trafficked bike paths.
How will the project be measured to ensure the goals and objectives are being fulfilled?	Visual monitoring of the discharge from the sites during rain events. Visual monitoring triggers whether or not sampling is necessary in accordance with the Permit. Ultimately a combination of both recording visual monitoring and sampling would be how the project would be measured if developed.

IV. Resource Management Strategies

For each resource management strategy employed by the project, provide a one to two sentence description in the table below of how the project incorporates the strategy. A description of the Resource Management Strategies can be found in Volume 2 of the 2009 California Water Plan here: http://www.waterplan.water.ca.gov/cwpu2009/index.cfm

Reduce Water Demand	
Agricultural Water Use Efficiency	N/A
Urban Water Use Efficiency	May help with aquifer recharge. Impact otherwise unknown and likely small.
Improve Operational Efficiency and Transfers	
Conveyance -- Delta	Negligible impact.
Conveyance -- Regional / local	Some minor local impact as some additional water may be infiltrated or evapotranspirated.
System Reoperation	N/A
Water Transfers	N/A
Increase Water Supply	
Conjunctive Management & Groundwater	Some unknown but minor amount of ground water recharge.
Desalination	N/A
Precipitation Enhancement	N/A
Recycled Municipal Water	N/A
Surface Storage -- CALFED	N/A

Surface Storage ------ Regional / Local	N/A

Improve Water Quality	
Drinking Water Treatment and Distribution	N/A
Groundwater and Aquifer Remediation	Unknown but likely insignificant.
Matching Water Quality to Use	Improved water quality for the uses that drain into this facility.
Pollution Prevention	Some improvement of receiving water quality by filtering pollutants.
Salt and Salinity Management	N/A
Urban Runoff Management	Some improvement of urban runoff quality and reduced quantity due to improved evoptranspiration.
Practice Resources Stewardship	
Agricultural Lands Stewardship	N/A
Economic Incentives (Loans, Grants, and Water Pricing)	N/A
Ecosystem Restoration	Some minor improvement for downstream enhancement for habitat quality due to improved water quality.
Forest Management	N/A
Land Use Planning and Management	N/A
Recharge Areas Protection	N/A
Water---dependent Recreation	Will aid in improving water quality for downstream beneficial uses such as recreation.
Watershed Management	Will aid in improving overall water quality, habitat enhancement and reduced runoff if developed within the watershed.
Improve Flood Management	
Flood Risk Management	Reduction in flood risk on highly trafficked bike paths.

V. Project Impacts and Benefits

Please select all the project benefit categories that apply and provide a brief explanation. If the project benefits do not fit any of the listed categories, please explain in the box below. Suggested benefit descriptions are included in the Project Information Form instructions sheet.

Benefit Categories:	☐	Brief Explanation of Selected Benefits	Quantification (e.g. acre---feet of water supplied, acres of habitat restored)
Increase Water Supply		May have some benefit to underground aquifer recharge if	Unknown

		developed.	
Improve Water Quality		Improved water quality due to reduced contaminants entering the stormwater system.	Unknown amount
Groundwater Improvements		Unknown	Unknown
Water Conservation and Reuse		N/A	N/A
Watershed Rehabilitation		Some impact to watershed rehabilitation by improved water quality within the watershed.	Unknown amount.
Habitat Improvements		Improves habitat both locally and downstream by improving water quality.	Unknown amount.
Flood Management		Reduced flooding during storm events in highly trafficked bike pathways.	Unknown amount.

Other Benefits:

Likely to improve aesthetic quality of the project area. Education to the public on pollution prevention and stormwater runoff awareness. Encourage microhabitats and beneficial insects.

Please provide a summary of the expected project benefits and impacts in the table below.

a. Describe any expected impacts of the project	During construction some local impacts or temporary bike path closures.
b. If applicable, describe benefits or impacts of the project with respect to Native American Tribal Community considerations.	Some benefit to Plains and Bay Miwok tribal communities that live in the Sacramento River and Bay Delta Region downstream of the project site.
c. If applicable, describe	None known.

benefits or impacts of the project with respect to Disadvantaged Communities*.	
d. If applicable, describe benefits or impacts of the project with respect to Environmental Justice ** considerations.	None known.

e. If applicable, describe how the project assists the region in adapting to effects of climate change.	None known.
f. If applicable, describe the generation or reduction of greenhouse gas emissions associated with the project.	None known.

*A Disadvantaged Community is defined as a community with an annual median household (MHI) income that is less than 80 percent of the Statewide annual MHI. A map identifying DACs in the Westside Region is available at www.westsideirwm.com.

** Environmental Justice is 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.

VI. Statewide Program Preferences and Priorities

Please select the Program Preferences and Statewide Priorities that apply to the proposed project (choose all that apply).

Program Preferences

- ☐ Include regional projects or programs (CWC §10544)
- ☐ Effectively integrate water management programs and projects within a hydrologic region identified in the California Water Plan; the Regional Water Quality Control Board (RWQCB) region or subdivision; or other region or sub---region specifically identified by DWR
- ☐ Effectively resolve significant water---related conflicts within or between regions Contribute to
- ☑ attainment of one or more of the objectives of the CALFED Bay---Delta Program
- ☐ Address critical water supply or water quality needs of disadvantaged communities within the region
- ☑ Effectively integrate water management with land use planning

- [x] For eligible SWFM funding, projects which: a) are not receiving State funding for flood control or flood prevention projects pursuant to PRC §5096.824 or §75034 or b) provide multiple benefits, including, but not limited to, water quality improvements, ecosystem benefits, reduction of instream erosion and sedimentation, and groundwater recharge.

Statewide Priorities

Drought Preparedness

- [ ] Promote water conservation, conjunctive use, reuse and recycling
- [ ] Improve landscape and agricultural irrigation efficiencies Achieve long
- [ ] term reduction of water use Efficient
- [x] groundwater basin management
- [ ] System interties

Use and Reuse Water More Efficiently

- [x] Increase urban and agricultural water use efficiency measures such as conservation and recycling
- [x] Capture, store, treat, and use urban stormwater runoff (such as percolation to usable aquifers, underground storage beneath parks, small surface basins, domestic stormwater capture systems, or the creation of catch basins or sumps downhill of development
- [x] Incorporate and implement low impact development (LID) design features, techniques, and practices to reduce or eliminate stormwater runoff

Climate Change Response Actions

- [ ] Adaptation to Climate Change: Advance and expand conjunctive management of multiple water supply sources
- [ ] Adaptation to Climate Change: Use and reuse water more efficiently
- [ ] Adaptation to Climate Change: Water management system modifications that address anticipated climate
  - [ ] Adaptation to Climate Change: Establish migration corridors, re---establish river--- floodplain hydrologic continuity, re---introduce anadromous fish populations to upper watersheds, enhance and protect upper watershed forests and meadow systems
- [ ] Reduction of Greenhouse Gas (GHG) Emissions: Reduce energy consumption of water systems and uses
- [ ] Reduction of Greenhouse Gas (GHG) Emissions: Use cleaner energy sources to move and treat water
- [ ] Reduce Energy Consumption: Water use efficiency Reduce
- [ ] Energy Consumption: Water recycling
- [ ] Reduce Energy Consumption: Water system energy efficiency

Expand Environmental Stewardship

- [x] Expand Environmental Stewardship to protect and enhance the environment by improving

watershed, floodplain, and instream functions and to sustain water and flood management ecosystems.

Practice Integrated Flood Management

- [ ] Better emergency preparedness and response
- [x] Improved flood protection
- [x] More sustainable flood and water management systems
- [x] Enhanced floodplain ecosystems
- [x] LID techniques that store and infiltrate runoff while protecting groundwater

Protect Surface Water and Groundwater Quality

- [x] Protecting and restoring surface water and groundwater quality to safeguard public and environmental health and secure water supplies for beneficial uses
- [ ] Salt/nutrient management planning as a components of an IRWM Plan

Improve Tribal Water and Natural Resources

- [ ] Improve Tribal Water and Natural Resources and include the development of Tribal consultation, collaboration, and access to funding for water programs.

Ensure Equitable Distribution of Benefits

- [ ] Increase the participation of small and disadvantaged communities in the IRWM process.
- [ ] Develop multi---benefit projects with consideration of affected disadvantaged communities and vulnerable populations.
- [ ] Contain projects that address safe drinking water and wastewater treatment needs of DACs.
- [ ] Address critical water supply or water quality needs of California Native American Tribes within the region.

VII. Project Cost and Financing

Please provide any estimates of project cost, sources of funding, and operation and maintenance costs as well as the source of the project cost in the table below.

a. Project Costs		
1. Capital (2014 Dollars)	Estimate of $40,000 for site survey and initial project design	
2. Annual Operations and Maintenance (O&M)	Unknown, but unlikley to be a significant increase in current costs.	
	Source(s)	**Amount**
b. List secured source(s) of funding	None.	

c. List proposed source(s) of funding and certainty of the sources.	Some combination of General and Enterprise funds are likely sources.	Required matching amount would be provided.
d. For capital projects, explain how operation and maintenance costs will be financed.	The sites and facilities are already maintained. Additional costs for O & M are anticipated to be small if development occurs.	
e. Basis for project cost	Similar site surveys	
f. Can a detailed cost estimate be provided upon request?	✔ **Yes** ☐ **No**	

VIII. Project Status and Schedule

Please provide a status of the project, level of completion as well as a description of the activities planned for each project stage.

Project Stage	**Description of Activities in Each Project Stage**	**Planned/Actual Start Date**	**Planned/Actual Completion Date**
a. Conceptual	Site survey would be the initial step and projects would be developed from the results of the survey.	Spring 2018	Spring 2019
b. Planning			
c. Environmental Documentation (CEQA/NEPA)			
d. Permitting			
e. Tribal Consultation			
f. Design			
g. Construction/Implementation			

IX. Project Technical Feasibility

Please provide any related documents (date, title, author, and page numbers) that describe and confirm the technical feasibility of the project.

a. List water planning documents that specifically identify this project.	None
b. List the adopted planning documents the proposed project is consistent with (e.g. General Plans, UWMPs, GWMPs, Water Master Plans, Habitat Conservation Plans, etc.)	UWMP, Stormwater Plan
c. List technical reports and studies supporting the feasibility of this project.	None
d. If you are an Urban Water Supplier:	
1. Have you completed an Urban Water Management Plan and submitted to DWR?	☑ Yes ☐ No ☐ N/A
2. Are you in compliance with AB1420?	☐ Yes ☐ No ✔ N/A
3. Do you comply with the water meter requirements (CWC §525)	☑ Yes ☐ No ☐ N/A
4. If the answer to any of the questions above is "no", do you intend to comply prior to receiving Project funding	☐ Yes ☐ No ☑ N/A
e. If you are an Agricultural Water Supplier:	
1. Have you completed and submitted an AWMP (due 12/31/12)?	Yes No ☑ N/A
2. If not, will you complete and submit an AWMP prior to receiving project funding?	☐ Yes ☐ No ☑ N/A
f. If the project is related to groundwater:	
1. Has a GWMP been completed and submitted for the subject basin?	☐ Yes ☐ No ☑ N/A
2. If not will a GWMP be completed within 1 year of the grant submittal date?	☐ Yes ☐ No ☑ N/A

WESTSIDE SAC IRWM
Integrated Regional Water Management Plan

Project Information Form

SWRP Projects Addendum

The Yolo WRA is accepting suggestions for projects for inclusion in the Yolo Storm Water Resource Plan (SWRP). Projects submitted for consideration should contribute to the attainment of the IRWM Plan and SWRP Objectives. To have your project considered for inclusion, please complete this project information form in its entirety and submit the completed form by **July 28, 2017** to **Kristin Sicke (ksicke@ycfcwcd.org)**.

Please provide information below:

I. Has this project been submitted to the Westside IRWMP previously?

○ Yes Please provide the Project Name as submitted on the Westside Sac IRWMP Project Information Form:

◉ No If you answered no, the Westside Sac IRWMP Project Information Form must be completed and submitted with this form. The form can be downloaded at: http://www.westsideirwm.com/Westside%20IRWMP%20Web%20Page/documents/Projects/Project%20Update%20Form-09-01-14.pdf

If you answered yes to the above question, please provide any additional project description/details not provided in the original Westside IRWMP Project Form related to storm water:

II. Land Availability

a. Is the project located on lands with Public ownership?	☑ Yes	☐ No	☐ N/A
b. Have easements and/or all required land use agreements been obtained or are pending?	☐ Yes	☐ No	☑ N/A

c. Describe how this project will result in immediate or downstream storm water benefit to Yolo County:

The project would allow for greater infiltration of stormwater in greenbelts and parks reducing stormwater run-off to downstream sources. Reduced pollutant load to receiving waters via increased infiltration, transpiration and evaporation.

III. SWRP Objectives – In addition to IRWMP Objectives

Please mark (x) the SWRP Objectives that apply to the proposed project (choose all that apply).

☐ Convert paved and/or impervious areas and increase tree canopy and vegetation, reducing urban heat island effects.

☐ Optimize the rural storm water conveyance system to drain and retain storm water flows as necessary. Provide proper rural drainage and keep conveyance systems clear of debris to minimize county road flooding during storm events.

☐ Enable proper rural retention and modify rural landscape to maximize groundwater recharge of excess storm water.

WESTSIDE
SAC IRWM
Integrated Regional Water Management Plan

IV. SWRP Guideline Benefit Categories

Please mark (x) all the project benefit categories that apply and provide a brief explanation. Suggested benefit descriptions are included in the SWRP Guidelines Tables 3 and 4.

MAIN BENEFIT(S)

	x	Brief Explanation of Benefit	Quantification (e.g. acre---feet of water supplied, acres of habitat restored)
Water Quality – Increased filtration and/or treatment of runoff	X	By installing the project, the City will provide enhanced water quality for existing drainage within the area of the project.	Feasibility study to determine options and quantification measures.
Water Supply – Water supply reliability			
Water Supply – Conjunctive use			
Flood Management – Decreased flood risk by reducing runoff rate and/or volume	X	Reduced risk of localized flooding near bike paths in greenbelts.	Feasibility study to determine options and quantification measures.
Environmental – Environmental and habitat protection and improvement	X	Potential for increasing microhabitats for beneficial insects and urban wildlife.	Feasibility study to determine options and quantification measures.
Environmental – Increased urban green space			
Community – Employment opportunities provided			
Community – Public education	X	Likely to improve aesthetic quality of the project area. Education to the public on pollution prevention and stormwater runoff awareness.	Feasibility study to determine options and quantification measures.

SECONDARY BENEFIT(S)

	x	Brief Explanation of Benefit	Quantification (e.g. acre---feet of water supplied, acres of habitat restored)
Water Quality – Nonpoint source pollutant control			
Water Quality – Reestablished natural water drainage and treatment			
Water Supply – Water conservation	X	Potential reduction in water needed for nearby landscaping.	Feasibility study to determine options and quantification measures.
Flood Management – Reduced sanitary sewer overflows			
Environmental – Reduced energy use, greenhouse gas emissions, or provides			
Environmental – Reestablishment of the natural hydrograph			
Environmental – Water temperature improvements			
Community – Community involvement			
Community – Enhance and/or create recreational and public use areas			

Project Information Form

The Westside Region is accepting suggestions for projects for inclusion in the Westside Integrated Regional Water Management (IRWM) Plan. Projects submitted for consideration should contribute to the attainment of the IRWM Plan Goals and Objectives. To have your project considered for inclusion, please complete this project information form in its entirety and submit the completed form to info@westsideirwm.com .

Please provide information in the tables below:

I. Project Proponent Information

Lead Agency/ Organization	City of Davis
Name of Primary Contact	Martin Jones
Mailing Address	1818 Fifth Street Davis, CA 95616
E---mail	mjones@cityofdavis.org
Phone (###)###---####	(530)757-5656
Other Cooperating Agencies/Organizations	
Is your agency committed to the project through completion? If not, please explain	Some turf conversions are currently underway. This project would allow for additional acreage to be converted.

II. General Project Information

Project Title	Davis Greenbelts Landscape Conversions
Project Description (Briefly describe the project, in 300 words or less,)	One of the greatest assets to the Davis park system is the network of more than 60 miles of Green Belts with bike trails that connect parks and neighborhoods throughout the City. Each belt is typically between 100 to 200 feet across with an 8-foot bike path meandering through the middle. Most of the landscape consists of irrigated turf and shade trees. Large open turf areas are greatly appreciated as multi-use event areas for local neighbors, but a majority of the space is mostly utilized by the public as aesthetic while passing through on the bike path. It is these spaces that are great candidates to convert existing turf to a low water use, drought tolerant landscape with interpretive learning opportunities to show the general public ways of converting their landscapes at home.

Project Location:	Various locations in the City of Davis
Latitude:	38.56
Longitude:	121.73
Can you provide a map of the project location including boundaries upon request?	☒ Yes ☐ N/A ☐ No
Project Location Description:	
County:	Yolo
City/Community:	Davis
Watershed:	Covell Drain
Groundwater Basin:	Yolo Sub-basin
Planning Area:	Yolo County
Additional Comments:	
Project Status (Check only one)	☐ Conceptual ☐ Planning ☐ CEQA/NEPA ☐ Permitting ☐ Design ☒ Construction/Implementation ☐ Study/Other ☐ Maintenance/Monitoring
Earliest expected start date (mm/dd/yr)	

III. Plan Goals/Objectives Addressed

For each of the goals/objectives addressed by the project, provide a one to two sentence description of how the project contributes to attaining the objective. Information related to the proposed goals and objectives can be found at www.westsideirw.com/irwmplan . If the project does not address any of the draft IRWM plan objectives, provide a one to two sentence description of how the project relates to a challenge or opportunity of the region.

Goal(s) that the Project will contribute to:	Goals 2, 6, 8, 9 and 10.
Objective(s) that the Project will help accomplish:	Objectives 2,10, 11, 13 and 23.

Explanation of Project linkage to goals and objectives	Reducing the amount of turf within the Davis Greenbelts will decrease the need for potable water for irrigation, helping to meet the 20% by 2020 water conservation goals. The implementation of low-impact design principles will help to keep water on site. Low water use wildlife and pollinator plants will increase habitat within the area. Interpretive signs will inform and provide outreach to the public on the project and low water landscaping methods.
How will the project be measured to ensure the goals and objectives are being fulfilled?	The water usage at the sites will be measured using AMI (advanced metering infrastructure) to compare water usage after the project is completed to baseline water usage. Estimated water savings of 1.2 million gallons of water per year for each acre converted.

IV. Resource Management Strategies

For each resource management strategy employed by the project, provide a one to two sentence description in the table below of how the project incorporates the strategy. A description of the Resource Management Strategies can be found in Volume 2 of the 2009 California Water Plan here: http://www.waterplan.water.ca.gov/cwpu2009/index.cfm

Reduce Water Demand	
Agricultural Water Use Efficiency	
Urban Water Use Efficiency	Decrease water used for irrigation in parks and greenbelts.
Improve Operational Efficiency and Transfers	
Conveyance --- Delta	
Conveyance --- Regional / local	
System Reoperation	
Water Transfers	
Increase Water Supply	
Conjunctive Management & Groundwater	
Desalination	
Precipitation Enhancement	
Recycled Municipal Water	
Surface Storage ------ CALFED	
Surface Storage ------ Regional / Local	Will reduce the need for surface water for larger irrigated areas.

Improve Water Quality	
Drinking Water Treatment and Distribution	
Groundwater and Aquifer Remediation	
Matching Water Quality to Use	
Pollution Prevention	Decrease the amount of urban runoff with the conversion to drip irrigation and low water use plants.
Salt and Salinity Management	
Urban Runoff Management	Decrease the amount of urban runoff with the conversion to drip irrigation and low water use plants.
Practice Resources Stewardship	
Agricultural Lands Stewardship	
Economic Incentives (Loans, Grants, and Water Pricing)	
Ecosystem Restoration	
Forest Management	
Land Use Planning and Management	Prioritizing heavily used parks to remain as turf areas while converting lesser used park areas and greenbelts to water-wise plantings to reduce water use.
Recharge Areas Protection	
Water---dependent Recreation	Reducing water needed to maintain heavily used turf areas.
Watershed Management	
Improve Flood Management	
Flood Risk Management	

V. Project Impacts and Benefits

Please select all the project benefit categories that apply and provide a brief explanation. If the project benefits do not fit any of the listed categories, please explain in the box below. Suggested benefit descriptions are included in the Project Information Form instructions sheet.

Benefit Categories:		**Brief Explanation of Selected Benefits**	**Quantification (e.g. acre---feet of water supplied, acres of habitat restored)**
Increase Water Supply			
Improve Water Quality	☐		
Groundwater Improvements			
Water Conservation	✔	Upgrades to the irrigation system	Dependent upon the

and Reuse		and conversion of turf areas to low water use plants will decrease overall City water use.	acreage converted from turf to low water landscaping.

Watershed Rehabilitation	☐		
Habitat Improvements		Increase wildlife and pollinator habitat within the greenbelt network by planting wildlife and pollinator friendly low water use plants.	Dependent upon the acreage converted from turf to wildlife/pollinator friendly landscaping.
Flood Management			

Other Benefits:

Please provide a summary of the expected project benefits and impacts in the table below.

a. Describe any expected impacts of the project	Some minor impacts to park/greenbelt areas during turf conversions.
b. If applicable, describe benefits or impacts of the project with respect to Native American Tribal Community considerations.	
c. If applicable, describe benefits or impacts of the project with respect to Disadvantaged Communities*.	
d. If applicable, describe benefits or impacts of the project with respect	

to Environmental Justice ** considerations.	

e. If applicable, describe how the project assists the region in adapting to effects of climate change.	
f. If applicable, describe the generation or reduction of greenhouse gas emissions associated with the project.	

*A Disadvantaged Community is defined as a community with an annual median household (MHI) income that is less than 80 percent of the Statewide annual MHI. A map identifying DACs in the Westside Region is available at www.westsideirwm.com.

** Environmental Justice is 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.

VI. Statewide Program Preferences and Priorities

Please select the Program Preferences and Statewide Priorities that apply to the proposed project (choose all that apply).

Program Preferences

☐ Include regional projects or programs (CWC §10544)

☐ Effectively integrate water management programs and projects within a hydrologic region identified in the California Water Plan; the Regional Water Quality Control Board (RWQCB) region or subdivision; or other region or sub---region specifically identified by DWR

☐ Effectively resolve significant water---related conflicts within or between regions

☐ Contribute to attainment of one or more of the objectives of the CALFED Bay---Delta Program

☐ Address critical water supply or water quality needs of disadvantaged communities within the region

☐ Effectively integrate water management with land use planning

☐ For eligible SWFM funding, projects which: a) are not receiving State funding for flood control or flood prevention projects pursuant to PRC §5096.824 or §75034 or b) provide multiple benefits, including, but not limited to, water quality improvements, ecosystem benefits, reduction of instream erosion and sedimentation, and groundwater recharge.

Statewide Priorities

Drought Preparedness

- ☑ Promote water conservation, conjunctive use, reuse and recycling
- ☑ Improve landscape and agricultural irrigation efficiencies Achieve
- ☑ long term reduction of water use
- ☐ Efficient groundwater basin management
- ☐ System interties

Use and Reuse Water More Efficiently

- ☑ Increase urban and agricultural water use efficiency measures such as conservation and recycling
- ☑ Capture, store, treat, and use urban stormwater runoff (such as percolation to usable aquifers, underground storage beneath parks, small surface basins, domestic stormwater capture systems, or the creation of catch basins or sumps downhill of development
- ☑ Incorporate and implement low impact development (LID) design features, techniques, and practices to reduce or eliminate stormwater runoff

Climate Change Response Actions

- ☐ Adaptation to Climate Change: Advance and expand conjunctive management of multiple water supply sources
- ☑ Adaptation to Climate Change: Use and reuse water more efficiently
- ☐ Adaptation to Climate Change: Water management system modifications that address anticipated climate
  - ☐ Adaptation to Climate Change: Establish migration corridors, re---establish river---floodplain hydrologic continuity, re---introduce anadromous fish populations to upper watersheds, enhance and protect upper watershed forests and meadow systems
- ☐ Reduction of Greenhouse Gas (GHG) Emissions: Reduce energy consumption of water systems and uses
- ☐ Reduction of Greenhouse Gas (GHG) Emissions: Use cleaner energy sources to move and treat water
- ☑ Reduce Energy Consumption: Water use efficiency
- ☐ Reduce Energy Consumption: Water recycling
- ☑ Reduce Energy Consumption: Water system energy efficiency

Expand Environmental Stewardship

- ☐ Expand Environmental Stewardship to protect and enhance the environment by improving watershed, floodplain, and instream functions and to sustain water and flood management

ecosystems.

Practice Integrated Flood Management

- ☐ Better emergency preparedness and response
- ☐ Improved flood protection
- ☐ More sustainable flood and water management systems
- ☐ Enhanced floodplain ecosystems
- ☑ LID techniques that store and infiltrate runoff while protecting groundwater

Protect Surface Water and Groundwater Quality

- ☐ Protecting and restoring surface water and groundwater quality to safeguard public and environmental health and secure water supplies for beneficial uses
- ☐ Salt/nutrient management planning as a components of an IRWM Plan

Improve Tribal Water and Natural Resources

- ☐ Improve Tribal Water and Natural Resources and include the development of Tribal consultation, collaboration, and access to funding for water programs.

Ensure Equitable Distribution of Benefits

- ☐ Increase the participation of small and disadvantaged communities in the IRWM process.
- ☐ Develop multi---benefit projects with consideration of affected disadvantaged communities and vulnerable populations.
- ☐ Contain projects that address safe drinking water and wastewater treatment needs of DACs.
- ☐ Address critical water supply or water quality needs of California Native American Tribes within the region.

VII. Project Cost and Financing

Please provide any estimates of project cost, sources of funding, and operation and maintenance costs as well as the source of the project cost in the table below.

a. Project Costs	$234,819 per acre converted	
1. Capital (2014 Dollars)		
2. Annual Operations and Maintenance (O&M)	Staff and/or contractor time to maintain drip irrigation systems and low water use landscapes.	
	Source(s)	**Amount**
b. List secured source(s) of funding	None	converted.

c. **List proposed source(s) of funding and certainty of the sources.**	Grant Funding	$234,819/acre
d. **For capital projects, explain how operation and maintenance costs will be financed.**		
e. **Basis for project cost**	Conservation Projects Plan	
f. **Can a detailed cost estimate be provided upon request?**	✔ Yes ☐ No	

VIII. Project Status and Schedule

Please provide a status of the project, level of completion as well as a description of the activities planned for each project stage.

Project Stage	**Description of Activities in Each Project Stage**	**Planned/Actual Start Date**	**Planned/Actual Completion Date**
a. **Conceptual**			
b. **Planning**			
c. **Environmental Documentation (CEQA/NEPA)**			
d. **Permitting**			
e. **Tribal Consultation**			
f. **Design**	Preliminary design completed. More detailed design would be needed for each area undergoing conversion.	Dependent upon funding	Dependent upon funding
g. **Construction/Implementation**	Remove existing turf, modify irrigation system, grading, install landscape (including planting and mulch), and install interpretive panels.	Dependent upon funding	Dependent upon funding

IX. Project Technical Feasibility

Please provide any related documents (date, title, author, and page numbers) that describe and confirm the technical feasibility of the project.

a. List water planning documents that specifically identify this project.	Davis-Woodland Schools and Parks Water Conservation Projects Plan
b. List the adopted planning documents the proposed project is consistent with (e.g. General Plans, UWMPs, GWMPs, Water Master Plans, Habitat Conservation Plans, etc.)	City of Davis General Plan and UWMP
c. List technical reports and studies supporting the feasibility of this project.	Davis-Woodland Schools and Parks Water Conservation Projects Plan
d. If you are an Urban Water Supplier:	
1. Have you completed an Urban Water Management Plan and submitted to DWR?	☑ Yes ☐ No ☐ N/A
2. Are you in compliance with AB1420?	☐ Yes ☐ No ✔ N/A
3. Do you comply with the water meter requirements (CWC §525)	☑ Yes ☐ No ☐ N/A
4. If the answer to any of the questions above is "no", do you intend to comply prior to receiving Project funding	☐ Yes ☐ No ☑ N/A
e. If you are an Agricultural Water Supplier:	
1. Have you completed and submitted an AWMP (due 12/31/12)?	Yes No ☐ N/A
2. If not, will you complete and submit an AWMP prior to receiving project funding?	☐ Yes ☐ No ☐ N/A
f. If the project is related to groundwater:	
1. Has a GWMP been completed and submitted for the subject basin?	☐ Yes ☐ No ☐ N/A
2. If not will a GWMP be completed within 1 year of the grant submittal date?	☐ Yes ☐ No ☐ N/A

Project Information Form

SWRP Projects Addendum

The Yolo WRA is accepting suggestions for projects for inclusion in the Yolo Storm Water Resource Plan (SWRP). Projects submitted for consideration should contribute to the attainment of the IRWM Plan and SWRP Objectives. To have your project considered for inclusion, please complete this project information form in its entirety and submit the completed form by **July 28, 2017** to **Kristin Sicke (ksicke@ycfcwcd.org)**.

Please provide information below:

I. Has this project been submitted to the Westside IRWMP previously?

(●) Yes Please provide the Project Name as submitted on the Westside Sac IRWMP Project Information Form:

Davis Greenbelts Landscape Conversions

( ) No If you answered no, the Westside Sac IRWMP Project Information Form must be completed and submitted with this form. The form can be downloaded at: http://www.westsideirwm.com/Westside%20IRWMP%20Web%20Page/documents/Projects/Project%20Update%20Form-09-01-14.pdf

If you answered yes to the above question, please provide any additional project description/details not provided in the original Westside IRWMP Project Form related to storm water:

Remove turf in greenbelts and convert to stormwater low impact development and low water use landscaping. An example greenbelt area was examined as part of the Davis-Woodland Schools and Parks Water Conservation Project Plan. This section of greenbelt was used as an example of turf conversion to a water conservation and stormwater quality demonstration site. This stormwater quality implementation project would mimic the process above to look for the best sites for greenbelt conversions and use the above example project as the basis to estimate costs and improvements for selected greenbelt conversions. Turf will be removed and replaced with drought tolerant native plants and a network of oak woodland and pollinator plants. Bioswales will be utilized to improve water quality in runoff, enhance habitat, recharge aquifers through infiltration and reduce water in the City's storm drain system. Impervious pathways will be converted to decomposed granite with interpretive signs illustrating public benefits of the project.

II. Land Availability

a. Is the project located on lands with Public ownership?	☑ Yes	☐ No	☐ N/A
b. Have easements and/or all required land use agreements been obtained or are pending?	☐ Yes	☐ No	☑ N/A

c. Describe how this project will result in immediate or downstream storm water benefit to Yolo County:

Incorporating low-impact design measures during turf conversions in City greenbelt areas which help to retain water on-site. This will reduce pollutants into the stormwater system that are instead infiltrated into the landscape.

III. SWRP Objectives – In addition to IRWMP Objectives

Please mark (x) the SWRP Objectives that apply to the proposed project (choose all that apply).

- [x] Convert paved and/or impervious areas and increase tree canopy and vegetation, reducing urban heat island effects.
- [ ] Optimize the rural storm water conveyance system to drain and retain storm water flows as necessary. Provide proper rural drainage and keep conveyance systems clear of debris to minimize county road flooding during storm events.
- [ ] Enable proper rural retention and modify rural landscape to maximize groundwater recharge of excess storm water.

IV. SWRP Guideline Benefit Categories

Please mark (x) all the project benefit categories that apply and provide a brief explanation. Suggested benefit descriptions are included in the SWRP Guidelines Tables 3 and 4.

MAIN BENEFIT(S)

	x	Brief Explanation of Benefit	Quantification (e.g. acre---feet of water supplied, acres of habitat restored)
Water Quality – Increased filtration and/or treatment of runoff	X	Bioswales to prevent runoff, enhance habitat, recharge aquifers and reduce water in city storm drain system.	Further study of specific sites needed to determine potential stormwater benefits.
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 improvement	X	Restore native, pollinator habitat within the greenbelt system.	Increased habitat-1 acre for each site converted.
Environmental – Increased urban green space			
Community – Employment opportunities provided			
Community – Public education	X	Opportunity for interpretive signage on low impact design and water-wise landscapes	Potential to reach hundreds of residents per year with information on stormwater quality and water conservation.

SECONDARY BENEFIT(S)

	x	Brief Explanation of Benefit	Quantification (e.g. acre---feet of water supplied, acres of habitat restored)
Water Quality – Nonpoint source pollutant control			
Water Quality – Reestablished natural water drainage and treatment	X	The implementation of low impact design measures has the potential to allow for more natural water drainage and treatment.	Further study of specific sites needed to determine potential stormwater benefits.
Water Supply – Water conservation	X	Turf removal and replacement with drought tolerant native plants and a network of oak woodland and pollinator plants on a drip irrigation system.	Potential water savings of 1.2 million gallons per year per 1 acre site converted from turf to native plants/low water-use plants.
Flood Management – Reduced sanitary sewer overflows			
Environmental – Reduced energy use, greenhouse gas emissions, or provides			
Environmental – Reestablishment of the natural hydrograph			
Environmental – Water temperature improvements			
Community – Community involvement			
Community – Enhance and/or create recreational and public use areas	X	Enhanced green space from turf to demonstration areas with increased wildlife viewing and educational opportunities.	Enhanced green space of 1 acre per site converted.

Project Information Form

The Westside Region is accepting suggestions for projects for inclusion in the Westside Integrated Regional Water Management (IRWM) Plan. Projects submitted for consideration should contribute to the attainment of the IRWM Plan Goals and Objectives. To have your project considered for inclusion, please complete this project information form in its entirety and submit the completed form to info@westsideirwm.com .

Please provide information in the tables below:

I. Project Proponent Information

Lead Agency/ Organization	City of Davis
Name of Primary Contact	Rhys Rowland
Mailing Address	1717 Fifth Street Davis, CA 95616
E---mail	rrowland@cityofdavis.org
Phone (###)###---####	(530)757-5638
Other Cooperating Agencies/Organizations	None
Is your agency committed to the project through completion? If not, please explain	Not as of yet. The City is searching for sources of funding to determine feasibility and then implementation based upon assurance of an obtainable and economical goal.

II. General Project Information

Project Title	Drainage Channel Feasibility Study
Project Description (Briefly describe the project, in 300 words or less,)	Looking to study feasibility to enhance the five separate storm drain conveyance channels to improve evoptranspiration through design improvements. This feasibility study would provide specific ways to improve the design of the existing facilities to improve water quality for the discharges that occur from each channel. The facilities are located Citywide. The study may yield that only one channel is worthy of modification. In particular, the City would like to study the El Macero Drainage Channel in southeast Davis as it is believed to be the channel with that would benefit the most from design improvements. A map can be provided to aid in located each of these drainage channels. If project is developed an educational component can be added.

Project Location:	
Latitude:	38.56
Longitude:	121.73
Can you provide a map of the project location including boundaries upon request?	X yes
Project Location Description:	Citywide, but the most interest is for the El Macero Drainage Channel located in southeast Davis.
County:	Yolo
City/Community:	Davis
Watershed:	Covell Drain
Groundwater Basin:	Yolo Subbasin
Planning Area:	Yolo County
Additional Comments:	None
Project Status (Check only one)	Study/Other
Earliest expected start date (mm/dd/yr)	Unknown until funding can be secured

III. Plan Goals/Objectives Addressed

For each of the goals/objectives addressed by the project, provide a one to two sentence description of how the project contributes to attaining the objective. Information related to the proposed goals and objectives can be found at www.westsideirw.com/irwmplan . If the project does not address any of the draft IRWM plan objectives, provide a one to two sentence description of how the project relates to a challenge or opportunity of the region.

Goal(s) that the Project will contribute to:	Goals include #7, 9 and 11.
Objective(s) that the Project will help accomplish:	Objectives include #6, 14, 17, and 19.

Explanation of Project linkage to goals and objectives	Feasibility will provide determination if the existing facilities can be improved in both design and management. If the project is developed, enhanced water quality for the existing drainage channels will follow. It is not certain that enhanced infiltration will result. The project will enhance quality of habitat and aesthetic value of each facility. Any improvement of water quality to receiving water facilitates meeting the requirement of the City's Permit. Goals 7, 9, and 11. Objectives 6, 14, 17 and 19.
How will the project be measured to ensure the goals and objectives are being fulfilled?	Visual monitoring of the discharge from the channels during storm events already occurs. Visual monitoring triggers whether or not sampling is necessary in accordance with the Permit. Ultimately a combination of both recording visual monitoring and sampling would be how the project would be measured if developed.

IV. Resource Management Strategies

For each resource management strategy employed by the project, provide a one to two sentence description in the table below of how the project incorporates the strategy. A description of the Resource Management Strategies can be found in Volume 2 of the 2009 California Water Plan here: http://www.waterplan.water.ca.gov/cwpu2009/index.cfm

Reduce Water Demand	
Agricultural Water Use Efficiency	N/A
Urban Water Use Efficiency	May help with aquifer recharge. Impact otherwise unknown and likely small.
Improve Operational Efficiency and Transfers	
Conveyance --- Delta	Negligible impact.
Conveyance --- Regional / local	Some minor local impact as some additional water may be infiltrated or evapotranspirated.
System Reoperation	N/A
Water Transfers	N/A
Increase Water Supply	
Conjunctive Management & Groundwater	Unknown
Desalination	N/A
Precipitation Enhancement	N/A
Recycled Municipal Water	N/A
Surface Storage ------ CALFED	N/A

Surface Storage ----- Regional / Local	N/A
Improve Water Quality	
Drinking Water Treatment and Distribution	N/A
Groundwater and Aquifer Remediation	Unknown
Matching Water Quality to Use	Improved water quality for the urban uses that drain into these facilities.
Pollution Prevention	Some improvement of receiving water quality by filtering pollutants.
Salt and Salinity Management	N/A
Urban Runoff Management	Some improvement of urban runoff quality and reduced quantity due to improved evoptranspiration.
Practice Resources Stewardship	
Agricultural Lands Stewardship	N/A
Economic Incentives (Loans, Grants, and Water Pricing)	N/A
Ecosystem Restoration	Some local and downstream enhancement for habitat quality.
Forest Management	N/A
Land Use Planning and Management	N/A
Recharge Areas Protection	N/A
Water---dependent Recreation	Will aid in improving water quality for downstream beneficial uses such as recreation.
Watershed Management	Will aid in improving overall water quality, habitat enhancement and reduced runoff if developed within the watershed.
Improve Flood Management	
Flood Risk Management	Minor reduction in flood risk.

V. Project Impacts and Benefits

Please select all the project benefit categories that apply and provide a brief explanation. If the project benefits do not fit any of the listed categories, please explain in the box below. Suggested benefit descriptions are included in the Project Information Form instructions sheet.

Benefit Categories:		**Brief Explanation of Selected Benefits**	**Quantification (e.g. acre---feet of water supplied, acres of habitat restored)**
Increase Water Supply		May have some benefit to underground aquifer recharge if developed.	Unknown
Improve Water Quality		Minor to significant	Unknown amount

Groundwater Improvements		Unknown	Unknown
Water Conservation and Reuse		N/A	N/A
Watershed Rehabilitation		Some impact to watershed rehabilitation by improved water quality within the watershed.	Unknown amount.
Habitat Improvements		Improves habitat both locally and downstream by improving water quality.	Unknown amount.
Flood Management		Minor impact in creating additional opportunity for stormwater runoff to evoptranspirate.	Unknown amount.

Other Benefits:

Likely to improve aesthetic quality of the project area.

Please provide a summary of the expected project benefits and impacts in the table below.

a. Describe any expected impacts of the project	During development if it were to occur in the second phase, some local impacts related to construction noise, wildlife disturbance and potential to contribute pollutants in the channels.
b. If applicable, describe benefits or impacts of the project with respect to Native American Tribal Community considerations.	Some benefit to Plains and Bay Miwok tribal communities that live in the Sacramento River and Bay Delta Region downstream of the project site.
c. If applicable, describe benefits or impacts of the project with respect	None known.

to Disadvantaged Communities*.	
d. If applicable, describe benefits or impacts of the project with respect to Environmental Justice ** considerations.	None known.
e. If applicable, describe how the project assists the region in adapting to effects of climate change.	None known.
f. If applicable, describe the generation or reduction of greenhouse gas emissions associated with the project.	None known.

*A Disadvantaged Community is defined as a community with an annual median household (MHI) income that is less than 80 percent of the Statewide annual MHI. A map identifying DACs in the Westside Region is available at www.westsideirwm.com.

** Environmental Justice is 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.

VI. Statewide Program Preferences and Priorities

Please select the Program Preferences and Statewide Priorities that apply to the proposed project (choose all that apply).

Program Preferences

- ☐ Include regional projects or programs (CWC §10544)
- ☐ Effectively integrate water management programs and projects within a hydrologic region identified in the California Water Plan; the Regional Water Quality Control Board (RWQCB) region or subdivision; or other region or sub---region specifically identified by DWR
- ☐ Effectively resolve significant water---related conflicts within or between regions
- ☑ Contribute to attainment of one or more of the objectives of the CALFED Bay---Delta Program
- ☐ Address critical water supply or water quality needs of disadvantaged communities within the region
- ☐ Effectively integrate water management with land use planning
- ☐ For eligible SWFM funding, projects which: a) are not receiving State funding for flood control or flood prevention projects pursuant to PRC §5096.824 or §75034 or b) provide multiple benefits, including, but not limited to, water quality improvements, ecosystem

benefits, reduction of instream erosion and sedimentation, and groundwater recharge.

Statewide Priorities

Drought Preparedness

- [ ] Promote water conservation, conjunctive use, reuse and recycling
- [ ] Improve landscape and agricultural irrigation efficiencies Achieve
- [ ] long term reduction of water use
- [ ] Efficient groundwater basin management
- [ ] System interties

Use and Reuse Water More Efficiently

- [ ] Increase urban and agricultural water use efficiency measures such as conservation and recycling
- [ ] Capture, store, treat, and use urban stormwater runoff (such as percolation to usable aquifers, underground storage beneath parks, small surface basins, domestic stormwater capture systems, or the creation of catch basins or sumps downhill of development
- [x] Incorporate and implement low impact development (LID) design features, techniques, and practices to reduce or eliminate stormwater runoff

Climate Change Response Actions

- [ ] Adaptation to Climate Change: Advance and expand conjunctive management of multiple water supply sources
- [ ] Adaptation to Climate Change: Use and reuse water more efficiently
- [ ] Adaptation to Climate Change: Water management system modifications that address anticipated climate
  - [ ] Adaptation to Climate Change: Establish migration corridors, re---establish river---floodplain hydrologic continuity, re---introduce anadromous fish populations to upper watersheds, enhance and protect upper watershed forests and meadow systems
- [ ] Reduction of Greenhouse Gas (GHG) Emissions: Reduce energy consumption of water systems and uses
- [ ] Reduction of Greenhouse Gas (GHG) Emissions: Use cleaner energy sources to move and treat water
- [ ] Reduce Energy Consumption: Water use efficiency
- [ ] Reduce Energy Consumption: Water recycling
- [ ] Reduce Energy Consumption: Water system energy efficiency

Expand Environmental Stewardship

- [x] Expand Environmental Stewardship to protect and enhance the environment by improving watershed, floodplain, and instream functions and to sustain water and flood management

ecosystems.

Practice Integrated Flood Management

- [ ] Better emergency preparedness and response
- [ ] Improved flood protection
- [x] More sustainable flood and water management systems
- [x] Enhanced floodplain ecosystems
- [x] LID techniques that store and infiltrate runoff while protecting groundwater

Protect Surface Water and Groundwater Quality

- [x] Protecting and restoring surface water and groundwater quality to safeguard public and environmental health and secure water supplies for beneficial uses
- [ ] Salt/nutrient management planning as a components of an IRWM Plan

Improve Tribal Water and Natural Resources

- [ ] Improve Tribal Water and Natural Resources and include the development of Tribal consultation, collaboration, and access to funding for water programs.

Ensure Equitable Distribution of Benefits

- [ ] Increase the participation of small and disadvantaged communities in the IRWM process.
- [ ] Develop multi---benefit projects with consideration of affected disadvantaged communities and vulnerable populations.
- [ ] Contain projects that address safe drinking water and wastewater treatment needs of DACs.
- [ ] Address critical water supply or water quality needs of California Native American Tribes within the region.

VII. Project Cost and Financing

Please provide any estimates of project cost, sources of funding, and operation and maintenance costs as well as the source of the project cost in the table below.

a. Project Costs		
1. Capital (2014 Dollars)	80,000 for feasibility study	
2. Annual Operations and Maintenance (O&M)	None anticipated, but if project is developed, then O & M costs would be determined in the study.	
	Source(s)	**Amount**
b. List secured source(s) of funding	None.	

c. **List proposed source(s) of funding and certainty of the sources.**	City Enterprise funds are likely source. Uncertain if funding would be allocated at this time.	Required matching amount would be provided.
d. **For capital projects, explain how operation and maintenance costs will be financed.**	The sites and facilities are already maintained. Additional costs for O & M are anticipated to be small if development occurs.	
e. **Basis for project cost**	Estimates based upon prior experience.	
f. **Can a detailed cost estimate be provided upon request?**	☐ **Yes** ☑ **No**	

VIII. Project Status and Schedule

Please provide a status of the project, level of completion as well as a description of the activities planned for each project stage.

Project Stage	Description of Activities in Each Project Stage	Planned/Actual Start Date	Planned/Actual Completion Date
a. **Conceptual**	Design, Planning	Winter 2017	Spring 2017
b. **Planning**	Funding being sought	Spring 2017	Winter 2018
c. **Environmental Documentation (CEQA/NEPA)**	Likely to be Cat Ex.	Winter 2018	Spring 2018
d. **Permitting**	Follows Planning.	Winter 2018	Spring 2018
e. **Tribal Consultation**	N/A	N/A	N/A
f. **Design**	Follows study.	Winter 2017	Spring 2017
g. **Construction/Implementation**	Follows permitting.	Spring 2018	Fall 2018

IX. Project Technical Feasibility

Please provide any related documents (date, title, author, and page numbers) that describe and confirm the technical feasibility of the project.

a. List water planning documents that specifically identify this project.	None
b. List the adopted planning documents the proposed project is consistent with (e.g. General Plans, UWMPs, GWMPs, Water Master Plans, Habitat Conservation Plans, etc.)	None
c. List technical reports and studies supporting the feasibility of this project.	None
d. If you are an Urban Water Supplier:	
1. Have you completed an Urban Water Management Plan and submitted to DWR?	☑ Yes ☐ No ☐ N/A
2. Are you in compliance with AB1420?	☐ Yes ☐ No ✔ N/A
3. Do you comply with the water meter requirements (CWC §525)	☑ Yes ☐ No ☐ N/A
4. If the answer to any of the questions above is "no", do you intend to comply prior to receiving Project funding	☐ Yes ☐ No ☑ N/A
e. If you are an Agricultural Water Supplier:	
1. Have you completed and submitted an AWMP (due 12/31/12)?	Yes No ☑ N/A
2. If not, will you complete and submit an AWMP prior to receiving project funding?	☐ Yes ☐ No ☑ N/A
f. If the project is related to groundwater:	
1. Has a GWMP been completed and submitted for the subject basin?	☐ Yes ☑ No ☐ N/A
2. If not will a GWMP be completed within 1 year of the grant submittal date?	☐ Yes ☑ No ☐ N/A

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Integrated Regional Water Management Plan

Project Information Form

SWRP Projects Addendum

The Yolo WRA is accepting suggestions for projects for inclusion in the Yolo Storm Water Resource Plan (SWRP). Projects submitted for consideration should contribute to the attainment of the IRWM Plan and SWRP Objectives. To have your project considered for inclusion, please complete this project information form in its entirety and submit the completed form by **July 28, 2017** to **Kristin Sicke (ksicke@ycfcwcd.org)**.

Please provide information below:

I. Has this project been submitted to the Westside IRWMP previously?

(●) Yes Please provide the Project Name as submitted on the Westside Sac IRWMP Project Information Form:

Drainage Channel Feasibility Study

( ) No If you answered no, the Westside Sac IRWMP Project Information Form must be completed and submitted with this form. The form can be downloaded at: http://www.westsideirwm.com/Westside%20IRWMP%20Web%20Page/documents/Projects/Project%20Update%20Form-09-01-14.pdf

If you answered yes to the above question, please provide any additional project description/details not provided in the original Westside IRWMP Project Form related to storm water:

Feasibility study to determine the best ways to enhance the existing stormwater channels for water quality purposes. The study would provide specific ways to improve the design of all six existing drainage channels to improve water quality, through opportunities to enhance infiltration and aquatic habitat. The study would also explore ways to educate the public on water quality and other project benefits.

II. Land Availability

a. Is the project located on lands with Public ownership?	☑ Yes	☐ No	☐ N/A
b. Have easements and/or all required land use agreements been obtained or are pending?	☐ Yes	☐ No	☑ N/A

c. Describe how this project will result in immediate or downstream storm water benefit to Yolo County:

If the project is developed, enhanced water quality for the existing drainage channels will follow. The project will enhance quality of habitat and aesthetic value of each facility and aid in downstream flood management and increased water quality. Any improvement of water quality to receiving water facilitates will meet the requirements of the City's Permit.

III. SWRP Objectives – In addition to IRWMP Objectives

Please mark (x) the SWRP Objectives that apply to the proposed project (choose all that apply).

- ☐ Convert paved and/or impervious areas and increase tree canopy and vegetation, reducing urban heat island effects.
- ☐ Optimize the rural storm water conveyance system to drain and retain storm water flows as necessary. Provide proper rural drainage and keep conveyance systems clear of debris to minimize county road flooding during storm events.
- ☐ Enable proper rural retention and modify rural landscape to maximize groundwater recharge of excess storm water.

IV. SWRP Guideline Benefit Categories

Please mark (x) all the project benefit categories that apply and provide a brief explanation. Suggested benefit descriptions are included in the SWRP Guidelines Tables 3 and 4.

MAIN BENEFIT(S)

	x	**Brief Explanation of Benefit**	**Quantification (e.g. acre---feet of water supplied, acres of habitat restored)**
Water Quality – Increased filtration and/or treatment of runoff	X	The primary purpose of the drainage channels is stormwater treatment and flood risk management. Any enhancements to the ponds would increase infiltration and allow for enhanced treatment of runoff.	Feasibility study to determine options and quantification measures.
Water Supply – Water supply reliability			
Water Supply – Conjunctive use			
Flood Management – Decreased flood risk by reducing runoff rate and/or volume	X	The drainage channels would be enhanced to increase stormwater infiltration and reduce runoff rate.	Feasibility study to determine options and quantification measures.
Environmental – Environmental and habitat protection and improvement			
Environmental – Increased urban green space			
Community – Employment opportunities provided			
Community – Public education			

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SECONDARY BENEFIT(S)

	x	Brief Explanation of Benefit	Quantification (e.g. acre---feet of water supplied, acres of habitat restored)
Water Quality – Nonpoint source pollutant control	X	Water from non-point sources is a component of water that flows into the drainage channels. Enhancing the channels could aid in nonpoint source pollutant control.	Feasibility study to determine options and quantification measures.
Water Quality – Reestablished natural water drainage and treatment	X	Enhancing the drainage channels and potential reconfiguration could reestablish more natural water drainage and treatment.	Feasibility study to determine options and quantification measures.
Water Supply – Water conservation			
Flood Management – Reduced sanitary sewer overflows			
Environmental – Reduced energy use, greenhouse gas emissions, or provides			
Environmental – Reestablishment of the natural hydrograph			
Environmental – Water temperature improvements			
Community – Community involvement			
Community – Enhance and/or create recreational and public use areas			

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Project Information Form

The Westside Region is accepting suggestions for projects for inclusion in the Westside Integrated Regional Water Management (IRWM) Plan. Projects submitted for consideration should contribute to the attainment of the IRWM Plan Goals and Objectives. To have your project considered for inclusion, please complete this project information form in its entirety and submit the completed form to info@westsideirwm.com .

Please provide information in the tables below:

I. Project Proponent Information

Lead Agency/ Organization	Solano County Water Agency
Name of Primary Contact	Rich Marovich
Mailing Address	810 Vaca Valley Parkway, Suite 203, Vacaville, CA 95688
E---mail	rmarovich@scwa2.com
Phone (###)###---####	(530) 902-1794
Other Cooperating Agencies/Organizations	Putah Creek Council, City of Winters
Is your agency committed to the project through completion? If not, please explain	Yes

II. General Project Information

Project Title	Dry Creek Bank Stabilization and Wastewater Re-use
Project Description (Briefly describe the project, in 300 words or less,)	Dry Creek is a significant wildlife migration corridor that forms the western boundary of Winters with urban property to the north and east and agricultural land to the south and west. It is a deeply incised gully that is actively eroding both urban and agricultural properties. The City of Winters wastewater treatment plant is adjacent to Dry Creek at the northeastern corner of the city and could provide treated wastewater for bioengineering projects to enhance both stability of the banks and wildlife habitat along two miles of creek channel.

Project Location:	Dry Creek from the confluence with Lower Putah Creek to two miles upstream.
Latitude:	38.51875
Longitude:	-122.98475°
Can you provide a map of the project location including boundaries upon request?	☒ Yes ☐ N/A ☐ No
Project Location Description:	Western boundary of the City of Winters
County:	Yolo
City/Community:	Winters
Watershed:	Lower Putah Creek
Groundwater Basin:	Solano Sub-Basin
Planning Area:	Lower Putah Creek Watershed Management Action Plan
Additional Comments:	
Project Status (Check only one)	☐ Conceptual ☐ Planning ☐ CEQA/NEPA ☐ Permitting ☐ Design ☒ Construction/Implementation ☐ Study/Other ☐ Maintenance/Monitoring
Earliest expected start date (mm/dd/yr)	07/01/18

III. Plan Goals/Objectives Addressed

For each of the goals/objectives addressed by the project, provide a one to two sentence description of how the project contributes to attaining the objective. Information related to the proposed goals and objectives can be found at www.westsideirw.com/irwmplan . If the project does not address any of the draft IRWM plan objectives, provide a one to two sentence description of how the project relates to a challenge or opportunity of the region.

Goal(s) that the Project will contribute to:	Ensure high quality surface water; Enhance, improve, and maintain aquatic and riparian ecosystems; Reduce the risk to the people and property of Yolo County from hazards associated with storm runoff and flooding
Objective(s) that the Project will help accomplish:	Enhance the aquatic and riparian environment; use recycled water; coordinate and conjunctively manage surface water and groundwater supplies to avoid the potential adverse impacts from surface water supply development

Explanation of Project linkage to goals and objectives	Dry Creek is eroding due to the effects of surface water storage at Lake Berryessa. Erosion has accelerated since the Solano Project was completed. Bioengineering with willows and other native vegetation can stabilize eroding banks and provide cover for migrating wildlife. Native vegetation is limited by summer water. The location of the Winters WWTP is ideal for a gravity flow system to irrigate willows and other native vegetation using bioengineering methods.
How will the project be measured to ensure the goals and objectives are being fulfilled?	Survival and growth of native vegetation as recorded by drone flights.

IV. Resource Management Strategies

For each resource management strategy employed by the project, provide a one to two sentence description in the table below of how the project incorporates the strategy. A description of the Resource Management Strategies can be found in Volume 2 of the 2009 California Water Plan here: http://www.waterplan.water.ca.gov/cwpu2009/index.cfm

Reduce Water Demand	
Agricultural Water Use Efficiency	
Urban Water Use Efficiency	re-use of wastewater for irrigation
Improve Operational Efficiency and Transfers	
Conveyance --- Delta	
Conveyance --- Regional / local	
System Reoperation	
Water Transfers	
Increase Water Supply	
Conjunctive Management & Groundwater	
Desalination	
Precipitation Enhancement	
Recycled Municipal Water	
Surface Storage ------ CALFED	
Surface Storage ------ Regional / Local	

Improve Water Quality	
Drinking Water Treatment and Distribution	
Groundwater and Aquifer Remediation	
Matching Water Quality to Use	
Pollution Prevention	
Salt and Salinity Management	
Urban Runoff Management	
Practice Resources Stewardship	
Agricultural Lands Stewardship	
Economic Incentives (Loans, Grants, and Water Pricing)	
Ecosystem Restoration	Stabilize eroding banks
Forest Management	
Land Use Planning and Management	
Recharge Areas Protection	
Water---dependent Recreation	
Watershed Management	protect benthic habitat from siltation
Improve Flood Management	
Flood Risk Management	

V. Project Impacts and Benefits

Please select all the project benefit categories that apply and provide a brief explanation. If the project benefits do not fit any of the listed categories, please explain in the box below. Suggested benefit descriptions are included in the Project Information Form instructions sheet.

Benefit Categories:		**Brief Explanation of Selected Benefits**	**Quantification (e.g. acre---feet of water supplied, acres of habitat restored)**
Increase Water Supply			
Improve Water Quality		Reduced sediment loading	two river miles of channel enhanced
Groundwater Improvements			
Water Conservation and Reuse	☐		

Watershed Rehabilitation	☐	systemic benefit from reduced fine sediment loading	benthic invertebrate surveys
Habitat Improvements		cover for migrating wildlife	2 river miles of restored riparian vegetation
Flood Management			

Other Benefits:

The City of Winters requires a 50 foot setback from the top of the bank of Dry Creek for any residential structures but most properties are non-conforming. Stabilizing eroding banks would reduce property loss and more directly address bank erosion and security of residential properties especially in high flow events.

Please provide a summary of the expected project benefits and impacts in the table below.

a. Describe any expected impacts of the project	no adverse impacts
b. If applicable, describe benefits or impacts of the project with respect to Native American Tribal Community considerations.	not applicable
c. If applicable, describe benefits or impacts of the project with respect to Disadvantaged Communities*.	not applicable
d. If applicable, describe benefits or impacts of the project with respect to Environmental Justice ** considerations.	not applicable

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e. If applicable, describe how the project assists the region in adapting to effects of climate change.	Resilience to the increased frequency and intensity of high rainfall events
f. If applicable, describe the generation or reduction of greenhouse gas emissions associated with the project.	Tree plantings will help to absorb carbon dioxide

*A Disadvantaged Community is defined as a community with an annual median household (MHI) income that is less than 80 percent of the Statewide annual MHI. A map identifying DACs in the Westside Region is available at www.westsideirwm.com.

** Environmental Justice is 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.

VI. Statewide Program Preferences and Priorities

Please select the Program Preferences and Statewide Priorities that apply to the proposed project (choose all that apply).

Program Preferences

- ☐ Include regional projects or programs (CWC §10544)
- ☐ Effectively integrate water management programs and projects within a hydrologic region identified in the California Water Plan; the Regional Water Quality Control Board (RWQCB) region or subdivision; or other region or sub---region specifically identified by DWR
- ☐ Effectively resolve significant water---related conflicts within or between regions
- ☑ Contribute to attainment of one or more of the objectives of the CALFED Bay---Delta Program
- ☐ Address critical water supply or water quality needs of disadvantaged communities within the region
- ☑ Effectively integrate water management with land use planning
- ☑ For eligible SWFM funding, projects which: a) are not receiving State funding for flood control or flood prevention projects pursuant to PRC §5096.824 or §75034 or b) provide multiple benefits, including, but not limited to, water quality improvements, ecosystem benefits, reduction of instream erosion and sedimentation, and groundwater recharge.

Statewide Priorities

Drought Preparedness

- [x] Promote water conservation, conjunctive use, reuse and recycling
- [x] Improve landscape and agricultural irrigation efficiencies Achieve
- [ ] long term reduction of water use
- [ ] Efficient groundwater basin management
- [ ] System interties

Use and Reuse Water More Efficiently

- [x] Increase urban and agricultural water use efficiency measures such as conservation and recycling
- [ ] Capture, store, treat, and use urban stormwater runoff (such as percolation to usable aquifers, underground storage beneath parks, small surface basins, domestic stormwater capture systems, or the creation of catch basins or sumps downhill of development
- [ ] Incorporate and implement low impact development (LID) design features, techniques, and practices to reduce or eliminate stormwater runoff

Climate Change Response Actions

- [ ] Adaptation to Climate Change: Advance and expand conjunctive management of multiple water supply sources
- [x] Adaptation to Climate Change: Use and reuse water more efficiently
- [x] Adaptation to Climate Change: Water management system modifications that address anticipated climate
  - [x] Adaptation to Climate Change: Establish migration corridors, re---establish river---floodplain hydrologic continuity, re---introduce anadromous fish populations to upper watersheds, enhance and protect upper watershed forests and meadow systems
- [ ] Reduction of Greenhouse Gas (GHG) Emissions: Reduce energy consumption of water systems and uses
- [ ] Reduction of Greenhouse Gas (GHG) Emissions: Use cleaner energy sources to move and treat water
- [ ] Reduce Energy Consumption: Water use efficiency
- [x] Reduce Energy Consumption: Water recycling
- [ ] Reduce Energy Consumption: Water system energy efficiency

Expand Environmental Stewardship

- [x] Expand Environmental Stewardship to protect and enhance the environment by improving watershed, floodplain, and instream functions and to sustain water and flood management

ecosystems.

Practice Integrated Flood Management

- [x] Better emergency preparedness and response
- [x] Improved flood protection
- [x] More sustainable flood and water management systems
- [x] Enhanced floodplain ecosystems
- [ ] LID techniques that store and infiltrate runoff while protecting groundwater

Protect Surface Water and Groundwater Quality

- [ ] Protecting and restoring surface water and groundwater quality to safeguard public and environmental health and secure water supplies for beneficial uses
- [ ] Salt/nutrient management planning as a components of an IRWM Plan

Improve Tribal Water and Natural Resources

- [ ] Improve Tribal Water and Natural Resources and include the development of Tribal consultation, collaboration, and access to funding for water programs.

Ensure Equitable Distribution of Benefits

- [ ] Increase the participation of small and disadvantaged communities in the IRWM process.
- [ ] Develop multi---benefit projects with consideration of affected disadvantaged communities and vulnerable populations.
- [ ] Contain projects that address safe drinking water and wastewater treatment needs of DACs.
- [ ] Address critical water supply or water quality needs of California Native American Tribes within the region.

VII. Project Cost and Financing

Please provide any estimates of project cost, sources of funding, and operation and maintenance costs as well as the source of the project cost in the table below.

a. Project Costs		
1. Capital (2014 Dollars)	$250,000	
2. Annual Operations and Maintenance (O&M)	$5,000	
b. List secured source(s) of funding	**Source(s)**	**Amount**
	LPCCC	$5,000 annually

c. List proposed source(s) of funding and certainty of the sources.	LPCCC Vegetation Management	Perpetually funded
d. For capital projects, explain how operation and maintenance costs will be financed.		
e. Basis for project cost	experience with similar projects	
f. Can a detailed cost estimate be provided upon request?	✔ Yes ☐ No	

VIII. Project Status and Schedule

Please provide a status of the project, level of completion as well as a description of the activities planned for each project stage.

Project Stage	Description of Activities in Each Project Stage	Planned/Actual Start Date	Planned/Actual Completion Date
a. Conceptual		2009	2009
b. Planning		2009	2009
c. Environmental Documentation (CEQA/NEPA)		2018	2018
d. Permitting		2018	2018
e. Tribal Consultation		2018	2018
f. Design		2018	2018
g. Construction/Implementation		2019	2019

IX. Project Technical Feasibility

Please provide any related documents (date, title, author, and page numbers) that describe and confirm the technical feasibility of the project.

a. List water planning documents that specifically identify this project.	
b. List the adopted planning documents the proposed project is consistent with (e.g. General Plans, UWMPs, GWMPs, Water Master Plans, Habitat Conservation Plans, etc.)	Lower Putah Creek Watershed Management Action Plan
c. List technical reports and studies supporting the feasibility of this project.	
d. If you are an Urban Water Supplier:	
1. Have you completed an Urban Water Management Plan and submitted to DWR?	☑ Yes ☐ No ☐ N/A
2. Are you in compliance with AB1420?	☑ Yes ☐ No N/A
3. Do you comply with the water meter requirements (CWC §525)	☐ Yes ☐ No ☑ N/A
4. If the answer to any of the questions above is "no", do you intend to comply prior to receiving Project funding	☐ Yes ☐ No ☑ N/A
e. If you are an Agricultural Water Supplier:	
1. Have you completed and submitted an AWMP (due 12/31/12)?	☐ Yes ☐ No ☑ N/A
2. If not, will you complete and submit an AWMP prior to receiving project funding?	☐ Yes ☐ No ☑ N/A
f. If the project is related to groundwater:	
1. Has a GWMP been completed and submitted for the subject basin?	☐ Yes ☐ No ☑ N/A
2. If not will a GWMP be completed within 1 year of the grant submittal date?	☐ Yes ☐ No ☑ N/A

Project Information Form

SWRP Projects Addendum

The Yolo WRA is accepting suggestions for projects for inclusion in the Yolo Storm Water Resource Plan (SWRP). Projects submitted for consideration should contribute to the attainment of the IRWM Plan and SWRP Objectives. To have your project considered for inclusion, please complete this project information form in its entirety and submit the completed form by **July 28, 2017** to **Kristin Sicke (ksicke@ycfcwcd.org)**.

Please provide information below:

I. Has this project been submitted to the Westside IRWMP previously?

(●) Yes — Please provide the Project Name as submitted on the Westside Sac IRWMP Project Information Form:

Dry Creek Bank Stabilization and Wastewater Re-use

( ) No — If you answered no, the Westside Sac IRWMP Project Information Form must be completed and submitted with this form. The form can be downloaded at: http://www.westsideirwm.com/Westside%20IRWMP%20Web%20Page/documents/Projects/Project%20Update%20Form-09-01-14.pdf

If you answered yes to the above question, please provide any additional project description/details not provided in the original Westside IRWMP Project Form related to storm water:

II. Land Availability

	Yes	No	N/A
a. Is the project located on lands with Public ownership?	☐	☑	☐
b. Have easements and/or all required land use agreements been obtained or are pending?	☑	☐	☐

c. Describe how this project will result in immediate or downstream storm water benefit to Yolo County:

Stabilizing the banks of Dry Creek with bioengineering (strategic plantings of willows with or without rock revetments) will reduce the ongoing mass wasting of banks and reduce the loading of fine sediments into Lower Putah Creek.

III. SWRP Objectives – In addition to IRWMP Objectives

Please mark (x) the SWRP Objectives that apply to the proposed project (choose all that apply).

☑ Convert paved and/or impervious areas and increase tree canopy and vegetation, reducing urban heat island effects.

☑ Optimize the rural storm water conveyance system to drain and retain storm water flows as necessary. Provide proper rural drainage and keep conveyance systems clear of debris to minimize county road flooding during storm events.

☐ Enable proper rural retention and modify rural landscape to maximize groundwater recharge of excess storm water.

IV. SWRP Guideline Benefit Categories

Please mark (x) all the project benefit categories that apply and provide a brief explanation. Suggested benefit descriptions are included in the SWRP Guidelines Tables 3 and 4.

MAIN BENEFIT(S)

	x	**Brief Explanation of Benefit**	**Quantification (e.g. acre---feet of water supplied, acres of habitat restored)**
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 improvement	x	Provide cover for migrating wildlife	two river miles of riparian vegetation
Environmental – Increased urban green space	x	Provide a shady corridor in what is now a dry gully	two river miles of riparian vegetation
Community – Employment opportunities provided			
Community – Public education	x	Enhance public policy from non-conforming setbacks to effective bank stabilization	two miles of eroding banks stabilized by vegetation

SECONDARY BENEFIT(S)

	x	Brief Explanation of Benefit	Quantification (e.g. acre---feet of water supplied, acres of habitat restored)
Water Quality – Nonpoint source pollutant control			
Water Quality – Reestablished natural water drainage and treatment			
Water Supply – Water conservation	x	re-use treated wastewater to irrigate riparian plantings	1-2 acres of new riparian habitat
Flood Management – Reduced sanitary sewer overflows			
Environmental – Reduced energy use, greenhouse gas emissions, or provides	x	riparian vegetation is a carbon sink	1-2 acres of new riparian vegetation
Environmental – Reestablishment of the natural hydrograph			
Environmental – Water temperature improvements			
Community – Community involvement	x	Inform Dry Creek landowners of a cost effective bank stabilization method	Number of enrolled landowners
Community – Enhance and/or create recreational and public use areas			

Project Information Form

The Westside Region is accepting suggestions for projects for inclusion in the Westside Integrated Regional Water Management (IRWM) Plan. Projects submitted for consideration should contribute to the attainment of the IRWM Plan Goals and Objectives. To have your project considered for inclusion, please complete this project information form in its entirety and submit the completed form to info@westsideirwm.com .

Please provide information in the tables below:

I. Project Proponent Information

Lead Agency/ Organization	City of Davis
Name of Primary Contact	Rhys Rowland
Mailing Address	1717 Fifth Street Davis, CA 95616
E---mail	rrowland@cityofdavis.org
Phone (###)###---####	(530)757-5638
Other Cooperating Agencies/Organizations	None
Is your agency committed to the project through completion? If not, please explain	Not as of yet. The City is searching for sources of funding to determine feasibility and then implementation based upon assurance of an obtainable and economical goal.

II. General Project Information

Project Title	Feasibility Study for Stormwater Trash Control Measures
Project Description (Briefly describe the project, in 300 words or less,)	Feasibility study to assess options for stormwater trash control measures. This study will assess the best method(s) to help the City meet mandatory requirements for trash screening to prevent trash from entering waterways. One particular area of concern is Channel A. An option for this area is to install trash racks/debris cages in the Wildhorse Basin to address issues with trash flowing from the area directly into Channel A. There is currently no barrier between the stormwater from the basin and the channel. This study would provide an assessment of potential options to comply with the trash amendment requirements of the Small MS4 permit.

Project Location:	
Latitude:	38.55
Longitude:	121.73
Can you provide a map of the project location including boundaries upon request?	☒ Yes ☐ N/A ☐ No
Project Location Description:	Citywide, but primarily in the northern majority of the City.
County:	Yolo
City/Community:	Davis
Watershed:	Covell Drain
Groundwater Basin:	Yolo Subbasin
Planning Area:	Yolo County
Additional Comments:	None
Project Status (Check only one)	☐ Conceptual ☐ Planning ☐ CEQA/NEPA ☐ Permitting ☐ Design ☐ Construction/Implementation ☒ Study/Other ☐ Maintenance/Monitoring
Earliest expected start date (mm/dd/yr)	Fall/Winter 2018

III. Plan Goals/Objectives Addressed

For each of the goals/objectives addressed by the project, provide a one to two sentence description of how the project contributes to attaining the objective. Information related to the proposed goals and objectives can be found at www.westsideirw.com/irwmplan . If the project does not address any of the draft IRWM plan objectives, provide a one to two sentence description of how the project relates to a challenge or opportunity of the region.

Goal(s) that the Project will contribute to:	Goals include #4, 7, 9 and 11.
Objective(s) that the Project will help accomplish:	Objectives include #3, 6, 14, 17, and 19.

Explanation of Project linkage to goals and objectives	Feasibility study to assess options for stormwater trash control measures. Trash control measures will benefit water quality and aquatic habitats by keeping small particles of trash out of the conveyance system.
How will the project be measured to ensure the goals and objectives are being fulfilled?	Visual monitoring of the discharge from the channels during storm events already occurs. Visual monitoring triggers whether or not sampling is necessary in accordance with the Permit. Ultimately a combination of both recording visual monitoring and sampling would be how the project would be measured if developed.

IV. Resource Management Strategies

For each resource management strategy employed by the project, provide a one to two sentence description in the table below of how the project incorporates the strategy. A description of the Resource Management Strategies can be found in Volume 2 of the 2009 California Water Plan here: http://www.waterplan.water.ca.gov/cwpu2009/index.cfm

Reduce Water Demand	
Agricultural Water Use Efficiency	N/A
Urban Water Use Efficiency	N/A
Improve Operational Efficiency and Transfers	
Conveyance --- Delta	N/A
Conveyance --- Regional / local	N/A
System Reoperation	N/A
Water Transfers	N/A
Increase Water Supply	
Conjunctive Management & Groundwater	Unknown
Desalination	N/A
Precipitation Enhancement	N/A
Recycled Municipal Water	N/A
Surface Storage ------ CALFED	N/A
Surface Storage ------ Regional / Local	N/A

Improve Water Quality	
Drinking Water Treatment and Distribution	N/A
Groundwater and Aquifer Remediation	Unknown
Matching Water Quality to Use	Improved water quality for the urban uses that drain into these facilities.
Pollution Prevention	Some improvement of receiving water quality by capturing pollutants.
Salt and Salinity Management	N/A
Urban Runoff Management	Some improvement of urban runoff quality and reduced quantity due to improved evoptranspiration.
Practice Resources Stewardship	
Agricultural Lands Stewardship	N/A
Economic Incentives (Loans, Grants, and Water Pricing)	N/A
Ecosystem Restoration	Some local and downstream enhancement for habitat quality.
Forest Management	N/A
Land Use Planning and Management	N/A
Recharge Areas Protection	N/A
Water---dependent Recreation	Will aid in improving water quality for downstream beneficial uses such as recreation.
Watershed Management	Will aid in improving overall water quality, habitat enhancement and reduced runoff if developed within the watershed.
Improve Flood Management	
Flood Risk Management	Reduction in flood risk possible by keeping trash out of the system that might impede flows.

V. Project Impacts and Benefits

Please select all the project benefit categories that apply and provide a brief explanation. If the project benefits do not fit any of the listed categories, please explain in the box below. Suggested benefit descriptions are included in the Project Information Form instructions sheet.

Benefit Categories:	☐	**Brief Explanation of Selected Benefits**	**Quantification (e.g. acre---feet of water supplied, acres of habitat restored)**
Increase Water Supply		May have some benefit to underground aquifer recharge if developed.	Unknown

Improve Water Quality		Improve quality by keeping trash out of the system and any leachates from that trash.	Unknown amount
Groundwater Improvements		Unknown	Unknown
Water Conservation and Reuse		N/A	N/A

Watershed Rehabilitation	✔	Some impact to watershed rehabilitation by improved water quality within the watershed.	Unknown amount.
Habitat Improvements		Improves habitat both locally and downstream by improving water quality and enhanced native vegetation.	Unknown amount.
Flood Management		achannels would allow flow to be unimpeded and potentially reduce flood risk.	Unknown amount.

Other Benefits:

Likely to improve aesthetic quality of the project area and help the City to meet trash control requirements for stormwater quality purposes.

Please provide a summary of the expected project benefits and impacts in the table below.

a. Describe any expected impacts of the project	No expected impacts from the feasibility study.
b. If applicable, describe benefits or impacts of the project with respect to Native American Tribal Community considerations.	Some benefit to Plains and Bay Miwok tribal communities that live in the Sacramento River and Bay Delta Region downstream of the project site.

c. If applicable, describe benefits or impacts of the project with respect to Disadvantaged Communities*.	None known.
d. If applicable, describe benefits or impacts of the project with respect to Environmental Justice ** considerations.	None known.

e. If applicable, describe how the project assists the region in adapting to effects of climate change.	None known.
f. If applicable, describe the generation or reduction of greenhouse gas emissions associated with the project.	None known.

*A Disadvantaged Community is defined as a community with an annual median household (MHI) income that is less than 80 percent of the Statewide annual MHI. A map identifying DACs in the Westside Region is available at www.westsideirwm.com.

** Environmental Justice is 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.

VI. Statewide Program Preferences and Priorities

Please select the Program Preferences and Statewide Priorities that apply to the proposed project (choose all that apply).

Program Preferences

- ☐ Include regional projects or programs (CWC §10544)
- ☐ Effectively integrate water management programs and projects within a hydrologic region identified in the California Water Plan; the Regional Water Quality Control Board (RWQCB) region or subdivision; or other region or sub---region specifically identified by DWR
- ☐ Effectively resolve significant water---related conflicts within or between regions Contribute to
- ☑ attainment of one or more of the objectives of the CALFED Bay---Delta Program
- ☐ Address critical water supply or water quality needs of disadvantaged communities within the region

☐ Effectively integrate water management with land use planning

☑ For eligible SWFM funding, projects which: a) are not receiving State funding for flood control or flood prevention projects pursuant to PRC §5096.824 or §75034 or b) provide multiple benefits, including, but not limited to, water quality improvements, ecosystem benefits, reduction of instream erosion and sedimentation, and groundwater recharge.

Statewide Priorities

Drought Preparedness

☐ romote water conservation, conjunctive use, reuse and recycling

☐ nprove landscape and agricultural irrigation efficiencies Achieve long

☐ erm reduction of water use Efficient

☐ roundwater basin management

☐ ystem interties

Use and Reuse Water More Efficiently

☐ ncrease urban and agricultural water use efficiency measures such as conservation and recycling

☐ apture, store, treat, and use urban stormwater runoff (such as percolation to usable aquifers, underground storage beneath parks, small surface basins, domestic stormwater capture systems, or the creation of catch basins or sumps downhill of development

☐ ncorporate and implement low impact development (LID) design features, techniques, and practices to reduce or eliminate stormwater runoff

Climate Change Response Actions

☐ daptation to Climate Change: Advance and expand conjunctive management of multiple water supply sources

☐ daptation to Climate Change: Use and reuse water more efficiently

☐ daptation to Climate Change: Water management system modifications that address anticipated climate

☐ daptation to Climate Change: Establish migration corridors, re---establish river--- floodplain hydrologic continuity, re---introduce anadromous fish populations to upper watersheds, enhance and protect upper watershed forests and meadow systems

☐ eduction of Greenhouse Gas (GHG) Emissions: Reduce energy consumption of water systems and uses

☐ eduction of Greenhouse Gas (GHG) Emissions: Use cleaner energy sources to move and treat water

☐ educe Energy Consumption: Water use efficiency Reduce

☐ nergy Consumption: Water recycling

☐ educe Energy Consumption: Water system energy efficiency

Expand Environmental Stewardship

- [x] xpand Environmental Stewardship to protect and enhance the environment by improving watershed, floodplain, and instream functions and to sustain water and flood management ecosystems.

Practice Integrated Flood Management

- [ ] Better emergency preparedness and response
- [x] Improved flood protection
- [x] More sustainable flood and water management systems
- [x] Enhanced floodplain ecosystems
- [ ] LID techniques that store and infiltrate runoff while protecting groundwater

Protect Surface Water and Groundwater Quality

- [x] Protecting and restoring surface water and groundwater quality to safeguard public and environmental health and secure water supplies for beneficial uses
- [ ] Salt/nutrient management planning as a components of an IRWM Plan

Improve Tribal Water and Natural Resources

- [ ] Improve Tribal Water and Natural Resources and include the development of Tribal consultation, collaboration, and access to funding for water programs.

Ensure Equitable Distribution of Benefits

- [ ] Increase the participation of small and disadvantaged communities in the IRWM process.
- [ ] Develop multi---benefit projects with consideration of affected disadvantaged communities and vulnerable populations.
- [ ] Contain projects that address safe drinking water and wastewater treatment needs of DACs.
- [ ] Address critical water supply or water quality needs of California Native American Tribes within the region.

VII. Project Cost and Financing

Please provide any estimates of project cost, sources of funding, and operation and maintenance costs as well as the source of the project cost in the table below.

a. Project Costs		
1. Capital (2014 Dollars)	150,000 for feasibility study	
2. Annual Operations and Maintenance (O&M)	None anticipated, but if project is developed, then O & M costs would be determined in the study.	
	Source(s)	**Amount**

b. List secured source(s) of funding	None.	

c. List proposed source(s) of funding and certainty of the sources.	City Stormwater funds are likely source. Uncertain if funding would be allocated at this time.	Required matching amount would be provided.
d. For capital projects, explain how operation and maintenance costs will be financed.	The sites and facilities are already maintained. Additional costs for O & M are anticipated to be small if development occurs.	
e. Basis for project cost	Estimates based upon prior experience.	
f. Can a detailed cost estimate be provided upon request?	☑ Yes ☐ No	

VIII. Project Status and Schedule

Please provide a status of the project, level of completion as well as a description of the activities planned for each project stage.

Project Stage	Description of Activities in Each Project Stage	Planned/Actual Start Date	Planned/Actual Completion Date
a. Conceptual	Feasibility Study	Spring 2018	Summer 2018
b. Planning			
c. Environmental Documentation (CEQA/NEPA)			
d. Permitting			
e. Tribal Consultation			
f. Design			
g. Construction/Implementation			

WESTSIDE SAC IRWM
Integrated Regional Water Management Plan

IX. Project Technical Feasibility

Please provide any related documents (date, title, author, and page numbers) that describe and confirm the technical feasibility of the project.

a. List water planning documents that specifically identify this project.	None
b. List the adopted planning documents the proposed project is consistent with (e.g. General Plans, UWMPs, GWMPs, Water Master Plans, Habitat Conservation Plans, etc.)	None
c. List technical reports and studies supporting the feasibility of this project.	None
d. If you are an Urban Water Supplier:	
1. Have you completed an Urban Water Management Plan and submitted to DWR?	☑ Yes ☐ No ☐ N/A
2. Are you in compliance with AB1420?	☐ Yes ☐ No ✔ N/A
3. Do you comply with the water meter requirements (CWC §525)	☑ Yes ☐ No ☐ N/A
4. If the answer to any of the questions above is "no", do you intend to comply prior to receiving Project funding	☐ Yes ☐ No ☑ N/A
e. If you are an Agricultural Water Supplier:	
1. Have you completed and submitted an AWMP (due 12/31/12)?	☐ Yes ☐ No ☑ N/A
2. If not, will you complete and submit an AWMP prior to receiving project funding?	☐ Yes ☐ No ☑ N/A
f. If the project is related to groundwater:	
1. Has a GWMP been completed and submitted for the subject basin?	☐ Yes ☐ No ☑ N/A
2. If not will a GWMP be completed within 1 year of the grant submittal date?	☐ Yes ☐ No ☑ N/A

Project Information Form

SWRP Projects Addendum

The Yolo WRA is accepting suggestions for projects for inclusion in the Yolo Storm Water Resource Plan (SWRP). Projects submitted for consideration should contribute to the attainment of the IRWM Plan and SWRP Objectives. To have your project considered for inclusion, please complete this project information form in its entirety and submit the completed form by **July 28, 2017** to **Kristin Sicke (ksicke@ycfcwcd.org)**.

Please provide information below:

I. Has this project been submitted to the Westside IRWMP previously?

○ Yes Please provide the Project Name as submitted on the Westside Sac IRWMP Project Information Form:

◉ No If you answered no, the Westside Sac IRWMP Project Information Form must be completed and submitted with this form. The form can be downloaded at: http://www.westsideirwm.com/Westside%20IRWMP%20Web%20Page/documents/Projects/Project%20Update%20Form-09-01-14.pdf

If you answered yes to the above question, please provide any additional project description/details not provided in the original Westside IRWMP Project Form related to storm water:

II. Land Availability

a. Is the project located on lands with Public ownership? ☑ Yes ☐ No ☐ N/A

b. Have easements and/or all required land use agreements been obtained or are pending? ☐ Yes ☐ No ☑ N/A

c. Describe how this project will result in immediate or downstream storm water benefit to Yolo County:

Trash control measures will benefit water quality and aquatic habitats by keeping small particles of trash out of the conveyance system.

III. SWRP Objectives – In addition to IRWMP Objectives

Please mark (x) the SWRP Objectives that apply to the proposed project (choose all that apply).

☐ Convert paved and/or impervious areas and increase tree canopy and vegetation, reducing urban heat island effects.

☐ Optimize the rural storm water conveyance system to drain and retain storm water flows as necessary. Provide proper rural drainage and keep conveyance systems clear of debris to minimize county road flooding during storm events.

☐ Enable proper rural retention and modify rural landscape to maximize groundwater recharge of excess storm water.

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Integrated Regional Water Management Plan

IV. SWRP Guideline Benefit Categories

Please mark (x) all the project benefit categories that apply and provide a brief explanation. Suggested benefit descriptions are included in the SWRP Guidelines Tables 3 and 4.

MAIN BENEFIT(S)

	x	Brief Explanation of Benefit	Quantification (e.g. acre---feet of water supplied, acres of habitat restored)
Water Quality – Increased filtration and/or treatment of runoff	X	Improve water quality by keeping trash out of the system and any leachates from that trash.	Feasibility study to determine options and quantification measures.
Water Supply – Water supply reliability			
Water Supply – Conjunctive use			
Flood Management – Decreased flood risk by reducing runoff rate and/or volume	X	Reduced risk of localized flooding if the stormwater conveyance systems are not blocked by trash.	Feasibility study to determine options and quantification measures.
Environmental – Environmental and habitat protection and improvement	X	Improve habitat by excluding trash that might otherwise degrade habitat value.	Feasibility study to determine options and quantification measures.
Environmental – Increased urban green space			
Community – Employment opportunities provided			
Community – Public education			

SECONDARY BENEFIT(S)

	x	Brief Explanation of Benefit	Quantification (e.g. acre---feet of water supplied, acres of habitat restored)
Water Quality – Nonpoint source pollutant control			
Water Quality – Reestablished natural water drainage and treatment			
Water Supply – Water conservation			
Flood Management – Reduced sanitary sewer overflows			
Environmental – Reduced energy use, greenhouse gas emissions, or provides			
Environmental – Reestablishment of the natural hydrograph			
Environmental – Water temperature improvements			
Community – Community involvement			
Community – Enhance and/or create recreational and public use areas			

Project Information Form

The Westside Region is accepting suggestions for projects for inclusion in the Westside Integrated Regional Water Management (IRWM) Plan. Projects submitted for consideration should contribute to the attainment of the IRWM Plan Goals and Objectives. To have your project considered for inclusion, please complete this project information form in its entirety and submit the completed form to info@westsideirwm.com .

Please provide information in the tables below:

I. Project Proponent Information

Lead Agency/ Organization	Yolo County Flood Control & Water Conservation District
Name of Primary Contact	Kristin Sicke
Mailing Address	34274 State Highway 16
E---mail	ksicke@ycfcwcd.org
Phone (###)###---####	(530)662-0265
Other Cooperating Agencies/Organizations	
Is your agency committed to the project through completion? If not, please explain	Yes

II. General Project Information

Project Title	Flood Monitoring Network Project
Project Description (Briefly describe the project, in 300 words or less,)	This project will install four (4) elevation (or stage) staff gages in sloughs that interact with YCFC&WCD canals as well as nine (9) precipitation gages. The goal of the project is to optimize the YCFC&WCD's conveyance system through monitoring flow and precipitation. These gages will be incorporated into the YCFC&WCD's existing SCADA system. The stage gages will be used to monitor stage in the slough system and will assist YCFC&WCD's information management and decision-making process for storm conveyance through the canal and slough systems. The precipitation gages will provide data for Yolo-County agencies to distinguish the type and quantity of rainfall events, providing information on where an increase in slough capacity is needed.

Project Location:	Countywide - intersection w/ winters canal and Lamb Valley Slough and winters canal
Latitude:	
Longitude:	
Can you provide a map of the project location including boundaries upon request?	☒ Yes ☐ N/A ☐ No
Project Location Description:	Western Yolo sloughs: Lamb Valley, Cottonwood, and South Fork Willow Sloughs
County:	Yolo
City/Community:	
Watershed:	Lamb Valley, Cottonwood, and South Fork Willow Sloughs
Groundwater Basin:	Yolo
Planning Area:	Valley Floor
Additional Comments:	See SEI document "Supporting the Yolo Storm Water Resources Plan" for recommended locations
Project Status (Check only one)	☐ Conceptual ☒ Planning ☐ CEQA/NEPA ☐ Permitting ☐ Design ☐ Construction/Implementation ☐ Study/Other ☐ Maintenance/Monitoring
Earliest expected start date (mm/dd/yr)	10/01/2018

III. Plan Goals/Objectives Addressed

For each of the goals/objectives addressed by the project, provide a one to two sentence description of how the project contributes to attaining the objective. Information related to the proposed goals and objectives can be found at www.westsideirw.com/irwmplan . If the project does not address any of the draft IRWM plan objectives, provide a one to two sentence description of how the project relates to a challenge or opportunity of the region.

Goal(s) that the Project will contribute to:	2. Plan Goals 2 (improve education & awareness), 3 (improve collective understanding of watershed characteristics & functions), 4 (improve the form & function of degraded channels), 7 (preserve, improve & manage water quality), 10 (provide reliable water supplies), 11 (reduce the risks of disruptive natural disturbances), 12 (support improved regional water management)
Objective(s) that the Project will help accomplish:	Education and Awareness Objective 2; Risk Management Focus Objective 14 and 15; Understand Watershed Function Focus Objective 17 and 18; Water Supply Focus Objective 24

Explanation of Project linkage to goals and objectives	Establishing new flow networks upstream as well as close to canal and road intersections in the valley floor will help close a major knowledge gap that is documented 1995. This project will collect data that will help both flood managers and water supply/reliability managers and can be used to see how flows are coming in from precipitation events, as well as how flows circulate during irrigation season.
How will the project be measured to ensure the goals and objectives are being fulfilled?	The monitoring system will be integrated into the District's Water Resource Information Database. The project will be measured by the number of sites monitored and data collected.

IV. Resource Management Strategies

For each resource management strategy employed by the project, provide a one to two sentence description in the table below of how the project incorporates the strategy. A description of the Resource Management Strategies can be found in Volume 2 of the 2009 California Water Plan here: http://www.waterplan.water.ca.gov/cwpu2009/index.cfm

Reduce Water Demand	
Agricultural Water Use Efficiency	Improve understanding of flows being delivered vs infiltrating/evaporating
Urban Water Use Efficiency	
Improve Operational Efficiency and Transfers	
Conveyance --- Delta	
Conveyance --- Regional / local	Improve understanding of the storm conveyance system and irrigation flows
System Reoperation	
Water Transfers	
Increase Water Supply	
Conjunctive Management & Groundwater	Improve understanding of flows being delivered vs infiltrating/evaporating
Desalination	
Precipitation Enhancement	
Recycled Municipal Water	
Surface Storage ------ CALFED	
Surface Storage ------ Regional / Local	

Improve Water Quality	
Drinking Water Treatment and Distribution	
Groundwater and Aquifer Remediation	
Matching Water Quality to Use	
Pollution Prevention	
Salt and Salinity Management	
Urban Runoff Management	
Practice Resources Stewardship	
Agricultural Lands Stewardship	
Economic Incentives (Loans, Grants, and Water Pricing)	
Ecosystem Restoration	
Forest Management	
Land Use Planning and Management	improve land use planning and management by improving knowledge of slough conditions and storm water flows.
Recharge Areas Protection	
Water---dependent Recreation	
Watershed Management	Bolstering information management, improve watershed management, management actions for improved water management
Improve Flood Management	
Flood Risk Management	increase in local knowledge of the behaviors of sloughs and storm flows

V. Project Impacts and Benefits

Please select all the project benefit categories that apply and provide a brief explanation. If the project benefits do not fit any of the listed categories, please explain in the box below. Suggested benefit descriptions are included in the Project Information Form instructions sheet.

Benefit Categories:		**Brief Explanation of Selected Benefits**	**Quantification (e.g. acre---feet of water supplied, acres of habitat restored)**
Increase Water Supply			
Improve Water Quality			
Groundwater Improvements			
Water Conservation and Reuse	☐		

Watershed Rehabilitation	☐		
Habitat Improvements			
Flood Management		Increased knowledge of existing flooding issues can help water managers and	Conceptual project, but will result in action that can reduce localized flooding

Other Benefits:

Please provide a summary of the expected project benefits and impacts in the table below.

a. Describe any expected impacts of the project	
b. If applicable, describe benefits or impacts of the project with respect to Native American Tribal Community considerations.	Highway 16 at Madison is often flooded, and this is the highway giving access to the Cache Creek Casino, owned and operated by the Yocha Dehe Wintun Nation. When the highway is closed due to flooding, the casino and the Yocha Dehe Wintun Nation's land in the Capay Valley is inaccessible from the rest of Yolo County.
c. If applicable, describe benefits or impacts of the project with respect to Disadvantaged Communities*.	Madison is a Disadvantaged Community and the project aims to gain information that will eventually lead to alleviating flooding in Madison.
d. If applicable, describe benefits or impacts of the project with respect to Environmental Justice ** considerations.	Madison already experiences inequitable effects of California's weather patterns with the evident regular flooding, as compared to the larger, wealthier cities in Yolo County such as Davis and Woodland which do not experience flooding to the same extent or frequency.

e. If applicable, describe how the project assists the region in adapting to effects of climate change.	As climate change further exacerbates floods and droughts in California, Madison, a small Disadvantaged Community will continue to feel these effects though means of worse and more frequent flooding. Additional information to allow water managers to plan for and mitigate this flooding will make Madison more resilient in the face of climate change.
f. If applicable, describe the generation or reduction of greenhouse gas emissions associated with the project.	

*A Disadvantaged Community is defined as a community with an annual median household (MHI) income that is less than 80 percent of the Statewide annual MHI. A map identifying DACs in the Westside Region is available at www.westsideirwm.com.

** Environmental Justice is 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.

VI. Statewide Program Preferences and Priorities

Please select the Program Preferences and Statewide Priorities that apply to the proposed project (choose all that apply).

Program Preferences

- ☐ Include regional projects or programs (CWC §10544)
- ☐ Effectively integrate water management programs and projects within a hydrologic region identified in the California Water Plan; the Regional Water Quality Control Board (RWQCB) region or subdivision; or other region or sub---region specifically identified by DWR
- ☑ Effectively resolve significant water---related conflicts within or between regions
- ☐ Contribute to attainment of one or more of the objectives of the CALFED Bay---Delta Program
- ☐ Address critical water supply or water quality needs of disadvantaged communities within the region
- ☑ Effectively integrate water management with land use planning
- ☐ For eligible SWFM funding, projects which: a) are not receiving State funding for flood control or flood prevention projects pursuant to PRC §5096.824 or §75034 or b) provide multiple benefits, including, but not limited to, water quality improvements, ecosystem benefits, reduction of instream erosion and sedimentation, and groundwater recharge.

Statewide Priorities

Drought Preparedness

- [ ] Promote water conservation, conjunctive use, reuse and recycling
- [x] Improve landscape and agricultural irrigation efficiencies Achieve
- [ ] long term reduction of water use
- [ ] Efficient groundwater basin management
- [ ] System interties

Use and Reuse Water More Efficiently

- [ ] Increase urban and agricultural water use efficiency measures such as conservation and recycling
- [ ] Capture, store, treat, and use urban stormwater runoff (such as percolation to usable aquifers, underground storage beneath parks, small surface basins, domestic stormwater capture systems, or the creation of catch basins or sumps downhill of development
- [ ] Incorporate and implement low impact development (LID) design features, techniques, and practices to reduce or eliminate stormwater runoff

Climate Change Response Actions

- [ ] Adaptation to Climate Change: Advance and expand conjunctive management of multiple water supply sources
- [ ] Adaptation to Climate Change: Use and reuse water more efficiently
- [x] Adaptation to Climate Change: Water management system modifications that address anticipated climate
  - [ ] Adaptation to Climate Change: Establish migration corridors, re---establish river---floodplain hydrologic continuity, re---introduce anadromous fish populations to upper watersheds, enhance and protect upper watershed forests and meadow systems
- [ ] Reduction of Greenhouse Gas (GHG) Emissions: Reduce energy consumption of water systems and uses
- [ ] Reduction of Greenhouse Gas (GHG) Emissions: Use cleaner energy sources to move and treat water
- [x] Reduce Energy Consumption: Water use efficiency
- [ ] Reduce Energy Consumption: Water recycling
- [ ] Reduce Energy Consumption: Water system energy efficiency

Expand Environmental Stewardship

- [x] Expand Environmental Stewardship to protect and enhance the environment by improving watershed, floodplain, and instream functions and to sustain water and flood management

ecosystems.

Practice Integrated Flood Management

- [ ] Better emergency preparedness and response
- [x] Improved flood protection
- [x] More sustainable flood and water management systems
- [ ] Enhanced floodplain ecosystems
- [x] LID techniques that store and infiltrate runoff while protecting groundwater

Protect Surface Water and Groundwater Quality

- [ ] Protecting and restoring surface water and groundwater quality to safeguard public and environmental health and secure water supplies for beneficial uses
- [ ] Salt/nutrient management planning as a components of an IRWM Plan

Improve Tribal Water and Natural Resources

- [x] Improve Tribal Water and Natural Resources and include the development of Tribal consultation, collaboration, and access to funding for water programs.

Ensure Equitable Distribution of Benefits

- [ ] Increase the participation of small and disadvantaged communities in the IRWM process.
- [x] Develop multi---benefit projects with consideration of affected disadvantaged communities and vulnerable populations.
- [ ] Contain projects that address safe drinking water and wastewater treatment needs of DACs.
- [ ] Address critical water supply or water quality needs of California Native American Tribes within the region.

VII. Project Cost and Financing

Please provide any estimates of project cost, sources of funding, and operation and maintenance costs as well as the source of the project cost in the table below.

a. Project Costs		
1. Capital (2014 Dollars)	$350,000 (2017)	
2. Annual Operations and Maintenance (O&M)	TBD	
b. List secured source(s) of funding	**Source(s)**	**Amount**
	TBD	TBD

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Integrated Regional Water Management Plan

c. List proposed source(s) of funding and certainty of the sources.	TDB	TDB
d. For capital projects, explain how operation and maintenance costs will be financed.	Part of District's existing monitoring system	
e. Basis for project cost	Estimates from District's existing monitoring system	
f. Can a detailed cost estimate be provided upon request?	✔ Yes ☐ No	

VIII. Project Status and Schedule

Please provide a status of the project, level of completion as well as a description of the activities planned for each project stage.

Project Stage	Description of Activities in Each Project Stage	Planned/Actual Start Date	Planned/Actual Completion Date
a. Conceptual	Identify potential locations/data needed	3/8/18	10/1/18
b. Planning		10/1/18	2/1/18
c. Environmental Documentation (CEQA/NEPA)		10/1/18	2/1/18
d. Permitting		10/1/18	2/1/18
e. Tribal Consultation		10/1/18	2/1/18
f. Design		2/1/19	3/1/19
g. Construction/Implementation		3/1/19	9/1/19

IX. **Project Technical Feasibility**

Please provide any related documents (date, title, author, and page numbers) that describe and confirm the technical feasibility of the project.

a. List water planning documents that specifically identify this project.	Supporting the Yolo Storm Water Resources Plan (Yolo SWRP), SEI 2018
b. List the adopted planning documents the proposed project is consistent with (e.g. General Plans, UWMPs, GWMPs, Water Master Plans, Habitat Conservation Plans, etc.)	
c. List technical reports and studies supporting the feasibility of this project.	
d. If you are an Urban Water Supplier:	
1. Have you completed an Urban Water Management Plan and submitted to DWR?	☐ Yes ☐ No ☑ N/A
2. Are you in compliance with AB1420?	☐ Yes ☐ No ✔ N/A
3. Do you comply with the water meter requirements (CWC §525)	☐ Yes ☐ No ☑ N/A
4. If the answer to any of the questions above is "no", do you intend to comply prior to receiving Project funding	☐ Yes ☐ No ☑ N/A
e. If you are an Agricultural Water Supplier:	
1. Have you completed and submitted an AWMP (due 12/31/12)?	☐ Yes ☐ No ☑ N/A
2. If not, will you complete and submit an AWMP prior to receiving project funding?	☐ Yes ☐ No ☑ N/A
f. If the project is related to groundwater:	
1. Has a GWMP been completed and submitted for the subject basin?	☐ Yes ☐ No ☑ N/A
2. If not will a GWMP be completed within 1 year of the grant submittal date?	☐ Yes ☐ No ☑ N/A

WESTSIDE SAC IRWM
Integrated Regional Water Management Plan

Project Information Form

SWRP Projects Addendum

The Yolo WRA is accepting suggestions for projects for inclusion in the Yolo Storm Water Resource Plan (SWRP). Projects submitted for consideration should contribute to the attainment of the IRWM Plan and SWRP Objectives. To have your project considered for inclusion, please complete this project information form in its entirety and submit the completed form by **July 28, 2017** to **Kristin Sicke (ksicke@ycfcwcd.org)**.

Please provide information below:

I. Has this project been submitted to the Westside IRWMP previously?

(●) Yes Please provide the Project Name as submitted on the Westside Sac IRWMP Project Information Form:

Flood Monitoring Network Project

( ) No If you answered no, the Westside Sac IRWMP Project Information Form must be completed and submitted with this form. The form can be downloaded at: http://www.westsideirwm.com/Westside%20IRWMP%20Web%20Page/documents/Projects/Project%20Update%20Form-09-01-14.pdf

If you answered yes to the above question, please provide any additional project description/details not provided in the original Westside IRWMP Project Form related to storm water:

Would be complimented by Project 28

II. Land Availability

a. Is the project located on lands with Public ownership? ☑ Yes ☐ No ☐ N/A

b. Have easements and/or all required land use agreements been obtained or are pending? ☐ Yes ☑ No ☐ N/A

c. Describe how this project will result in immediate or downstream storm water benefit to Yolo County:

Would inform conveyance capability of District sloughs and canals

III. SWRP Objectives – In addition to IRWMP Objectives

Please mark (x) the SWRP Objectives that apply to the proposed project (choose all that apply).

☐ Convert paved and/or impervious areas and increase tree canopy and vegetation, reducing urban heat island effects.

☑ Optimize the rural storm water conveyance system to drain and retain storm water flows as necessary. Provide proper rural drainage and keep conveyance systems clear of debris to minimize county road flooding during storm events.

☑ Enable proper rural retention and modify rural landscape to maximize groundwater recharge of excess storm water.

IV. SWRP Guideline Benefit Categories

Please mark (x) all the project benefit categories that apply and provide a brief explanation. Suggested benefit descriptions are included in the SWRP Guidelines Tables 3 and 4.

MAIN BENEFIT(S)

	x	Brief Explanation of Benefit	Quantification (e.g. acre---feet of water supplied, acres of habitat restored)
Water Quality – Increased filtration and/or treatment of runoff	X	By knowing the conveyance capacity of the system, the District can divert storm runoff into the canals when there is space available, which will retail runoff for percolation into the groundwater.	24,893 AF/Y of additional recharge of storm water through the YCFC&WCD's canal system.
Water Supply – Water supply reliability	X	By knowing the conveyance capacity of the system, the District can divert storm runoff into the canals when there is space available, which will retail runoff for percolation into the groundwater.	24,893 AF/Y of additional recharge of storm water through the YCFC&WCD's canal system.
Water Supply – Conjunctive use			
Flood Management – Decreased flood risk by reducing runoff rate and/or volume	X	By knowing the conveyance capacity of the system, the District can divert storm runoff into the canals when there is space available.	Reduce flooding due to Cache Creek by diverting up to 150 cfs of storm water runoff diverted from Cache Creek to YCFC&WCD canals.
Environmental – Environmental and habitat protection and improvement			
Environmental – Increased urban green space			
Community – Employment opportunities provided			
Community – Public education			

SECONDARY BENEFIT(S)

	x	Brief Explanation of Benefit	Quantification (e.g. acre---feet of water supplied, acres of habitat restored)
Water Quality – Nonpoint source pollutant control			
Water Quality – Reestablished natural water drainage and treatment			
Water Supply – Water conservation			
Flood Management – Reduced sanitary sewer overflows			
Environmental – Reduced energy use, greenhouse gas emissions, or provides			
Environmental – Reestablishment of the natural hydrograph			
Environmental – Water temperature improvements			
Community – Community involvement			
Community – Enhance and/or create recreational and public use areas			

Project Information Form

The Westside Region is accepting suggestions for projects for inclusion in the Westside Integrated Regional Water Management (IRWM) Plan. Projects submitted for consideration should contribute to the attainment of the IRWM Plan Goals and Objectives. To have your project considered for inclusion, please complete this project information form in its entirety and submit the completed form to info@westsideirwm.com .

Please provide information in the tables below:

I. Project Proponent Information

Lead Agency/ Organization	Yolo County Flood Control and Water Conservation District
Name of Primary Contact	Kristin Sicke
Mailing Address	34274 State Highway 16
E---mail	ksicke@ycfcwcd.org
Phone (###)###---####	(530)662-0265
Other Cooperating Agencies/Organizations	
Is your agency committed to the project through completion? If not, please explain	Yes

II. General Project Information

Project Title	Forbes Ranch Regulating Pond
Project Description (Briefly describe the project, in 300 words or less,)	Develop and construct a 200 acre-feet regulating pond to reduce drainage and flood waters through the town of Madison and District canal system. Divert stormwater flows to the pond through the existing conveyance. The regulating pond would provide storm water retention during the winter and would allow for groundwater recharge in the spring and summer when capacity and water is available. The regulating pond would provide water quality benefits by allowing the sediments in the runoff to settle and lessening the transfer of pollutants and chemicals downstream. The surrounding area would have native vegetation that would promote benefits for wildlife habitat, and the property would allow for groups to visit and learn about the multi-functional project. Similar to the District's Chapman Reservoir, we would install automated gates and monitoring devices at the regulating pond that would be connected to the District's SCADA system for real-time management.

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Project Location:	Forbes Ranch
Latitude:	38.663167
Longitude:	-122.022694
Can you provide a map of the project location including boundaries upon request?	☒ Yes ☐ N/A ☐ No
Project Location Description:	At the District's Forbes Ranch -- APN 050-010-024
County:	Yolo
City/Community:	Southwest of Madison
Watershed:	Lower Cache Creek Watershed
Groundwater Basin:	Yolo Subbasin
Planning Area:	509. Central Basin West
Additional Comments:	
Project Status (Check only one)	☒ Conceptual ☒ Planning ☐ CEQA/NEPA ☐ Permitting ☐ Design ☐ Construction/Implementation ☐ Study/Other ☐ Maintenance/Monitoring
Earliest expected start date (mm/dd/yr)	01/01/2019

III. Plan Goals/Objectives Addressed

For each of the goals/objectives addressed by the project, provide a one to two sentence description of how the project contributes to attaining the objective. Information related to the proposed goals and objectives can be found at www.westsideirw.com/irwmplan . If the project does not address any of the draft IRWM plan objectives, provide a one to two sentence description of how the project relates to a challenge or opportunity of the region.

Goal(s) that the Project will contribute to:	Plan Goals 2 (improve education & awareness), 3 (improve collective understanding of watershed characteristics & functions), 4 (improve the form & function of degraded channels), 7 (preserve, improve & manage water quality), 9 (protect & enhance habitat & biological diversity of native species), 10 (provide reliable water supplies), 11 (reduce the risks of disruptive natural disturbances), 12 (support improved regional water management), 13 (support sustainable economic activities)
Objective(s) that the Project will help accomplish:	Education and Awareness Objective 2; Risk Management Focus Objective 14 and 15; Understand Watershed Function Focus Objective 17 and 18; Water Supply Focus Objective 24

Explanation of Project linkage to goals and objectives	The multi-beneficial regulating pond would assist in capturing part of the peak flows within the canal system during storm water events and would reduce flooding to Madison and downstream Winters Canal. The pond allows for groundwater recharge in the spring and summer months to increase water supplies within the County.
How will the project be measured to ensure the goals and objectives are being fulfilled?	The District will connect the automation and monitoring at the regulating pond to the existing SCADA system to ensure real-time management, and to keep track of retained flows and losses to groundwater. The District will keep a list of tours given throughout the year to track educational outreach and will coordinate with Madison to determine the extent of reduced flooding.

IV. Resource Management Strategies

For each resource management strategy employed by the project, provide a one to two sentence description in the table below of how the project incorporates the strategy. A description of the Resource Management Strategies can be found in Volume 2 of the 2009 California Water Plan here: http://www.waterplan.water.ca.gov/cwpu2009/index.cfm

Reduce Water Demand	
Agricultural Water Use Efficiency	
Urban Water Use Efficiency	
Improve Operational Efficiency and Transfers	
Conveyance --- Delta	
Conveyance --- Regional / local	Provides greater flexibility to ensure consistent regional conveyance of stormwater flows, irrigation deliveries, and groundwater recharge.
System Reoperation	Provides greater flexibility to ensure consistent regional conveyance of stormwater flows, irrigation deliveries, and groundwater recharge.
Water Transfers	
Increase Water Supply	
Conjunctive Management & Groundwater	Recharging groundwater by retaining water and allowing to percolate.
Desalination	
Precipitation Enhancement	
Recycled Municipal Water	

Surface Storage ------ CALFED	
Surface Storage ------ Regional / Local	Increase local surface storage available.

Improve Water Quality	
Drinking Water Treatment and Distribution	
Groundwater and Aquifer Remediation	
Matching Water Quality to Use	
Pollution Prevention	Reduces pollutants and contaminants in delayed retention period.
Salt and Salinity Management	
Urban Runoff Management	Reduces extraneous runoff to town of Madison and downstream Winters canal system.
Practice Resources Stewardship	
Agricultural Lands Stewardship	
Economic Incentives (Loans, Grants, and Water Pricing)	
Ecosystem Restoration	
Forest Management	
Land Use Planning and Management	
Recharge Areas Protection	
Water---dependent Recreation	
Watershed Management	
Improve Flood Management	
Flood Risk Management	Reduces downstream flooding to Winters Canal and flooding to town of Madison.downstream flooding to Winters Ca

V. Project Impacts and Benefits

Please select all the project benefit categories that apply and provide a brief explanation. If the project benefits do not fit any of the listed categories, please explain in the box below. Suggested benefit descriptions are included in the Project Information Form instructions sheet.

Benefit Categories:		**Brief Explanation of Selected Benefits**	**Quantification (e.g. acre---feet of water supplied, acres of habitat restored)**
Increase Water Supply	☐	Groundwater recharge from stormwater & irrigation-season retention	Depends on the water year

Improve Water Quality		Settling of pathogens, nutrients, and metals during delayed retention period.	
Groundwater Improvements		Increased groundwater supply from stormwater & irrigation-season retention	Depends on the water year
Water Conservation and Reuse	✔		Capture of stormwater for groundwater recharge & irrigation reuse
Watershed Rehabilitation	✔	Improved channel erosion Winters Canal upstream and downstream of pond	Reduction in flows conveyed downstream of pond will improve channel erosion -- not sure how to quantify the benefit. Also improved upstream because less "bottlenecks"
Habitat Improvements		Increased native vegetation & provide habitat improvements	
Flood Management		Reduced peak discharge from storm events to town of Madison and downstream Winters Canal	(Need to work with SEI) Peak flow estimated at x cfs; potential to capture 100 cfs during a 24-hour storm

Other Benefits:

Please provide a summary of the expected project benefits and impacts in the table below.

a. Describe any expected impacts of the project	

b. If applicable, describe benefits or impacts of the project with respect to Native American Tribal Community considerations.	The District will consult with the Yocha Dehe Wintun Nation to determine the coordination necessary during construction of the regulating pond.
c. If applicable, describe benefits or impacts of the project with respect to Disadvantaged Communities*.	The regulating pond would reduce part of the peak flows through Madison and downstream Winters Canal.
d. If applicable, describe benefits or impacts of the project with respect to Environmental Justice ** considerations.	N/A
e. If applicable, describe how the project assists the region in adapting to effects of climate change.	With increased intensity, duration, and frequency of storm events the project will assist the area in capturing additional flow to reduce flooding impacts to Madison and downstream Winters Canal, and to recharge the groundwater and increase groundwater supply.
f. If applicable, describe the generation or reduction of greenhouse gas emissions associated with the project.	N/A

*A Disadvantaged Community is defined as a community with an annual median household (MHI) income that is less than 80 percent of the Statewide annual MHI. A map identifying DACs in the Westside Region is available at www.westsideirwm.com.

** Environmental Justice is 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.

VI. Statewide Program Preferences and Priorities

Please select the Program Preferences and Statewide Priorities that apply to the proposed project (choose all that apply).

Program Preferences

☑ Include regional projects or programs (CWC §10544)

☑ Effectively integrate water management programs and projects within a hydrologic region identified in the California Water Plan; the Regional Water Quality Control Board (RWQCB) region or subdivision; or other region or sub---region specifically identified by DWR

- [x] Effectively resolve significant water---related conflicts within or between regions Contribute to
- [ ] attainment of one or more of the objectives of the CALFED Bay---Delta Program
- [x] Address critical water supply or water quality needs of disadvantaged communities within the region
- [x] Effectively integrate water management with land use planning
- [x] For eligible SWFM funding, projects which: a) are not receiving State funding for flood control or flood prevention projects pursuant to PRC §5096.824 or §75034 or b) provide multiple benefits, including, but not limited to, water quality improvements, ecosystem benefits, reduction of instream erosion and sedimentation, and groundwater recharge.

Statewide Priorities

Drought Preparedness

- [x] romote water conservation, conjunctive use, reuse and recycling
- [ ] mprove landscape and agricultural irrigation efficiencies Achieve long
- [ ] erm reduction of water use Efficient
- [x] roundwater basin management
- [ ] ystem interties

Use and Reuse Water More Efficiently

- [ ] ncrease urban and agricultural water use efficiency measures such as conservation and recycling
- [x] apture, store, treat, and use urban stormwater runoff (such as percolation to usable aquifers, underground storage beneath parks, small surface basins, domestic stormwater capture systems, or the creation of catch basins or sumps downhill of development
- [ ] ncorporate and implement low impact development (LID) design features, techniques, and practices to reduce or eliminate stormwater runoff

Climate Change Response Actions

- [x] daptation to Climate Change: Advance and expand conjunctive management of multiple water supply sources
- [ ] daptation to Climate Change: Use and reuse water more efficiently
- [ ] daptation to Climate Change: Water management system modifications that address anticipated climate
  - [ ] daptation to Climate Change: Establish migration corridors, re---establish river--- floodplain hydrologic continuity, re---introduce anadromous fish populations to upper watersheds, enhance and protect upper watershed forests and meadow systems
- [ ] eduction of Greenhouse Gas (GHG) Emissions: Reduce energy consumption of water systems and uses
- [ ] eduction of Greenhouse Gas (GHG) Emissions: Use cleaner energy sources to move and treat water

- [ ] educe Energy Consumption: Water use efficiency Reduce
- [ ] nergy Consumption: Water recycling
- [ ] educe Energy Consumption: Water system energy efficiency

Expand Environmental Stewardship

- [ ] xpand Environmental Stewardship to protect and enhance the environment by improving watershed, floodplain, and instream functions and to sustain water and flood management ecosystems.

Practice Integrated Flood Management

- [ ] Better emergency preparedness and response
- [x] Improved flood protection
- [x] More sustainable flood and water management systems
- [ ] Enhanced floodplain ecosystems
- [ ] LID techniques that store and infiltrate runoff while protecting groundwater

Protect Surface Water and Groundwater Quality

- [x] Protecting and restoring surface water and groundwater quality to safeguard public and environmental health and secure water supplies for beneficial uses
- [ ] Salt/nutrient management planning as a components of an IRWM Plan

Improve Tribal Water and Natural Resources

- [ ] Improve Tribal Water and Natural Resources and include the development of Tribal consultation, collaboration, and access to funding for water programs.

Ensure Equitable Distribution of Benefits

- [ ] Increase the participation of small and disadvantaged communities in the IRWM process.
- [x] Develop multi---benefit projects with consideration of affected disadvantaged communities and vulnerable populations.
- [ ] Contain projects that address safe drinking water and wastewater treatment needs of DACs.
- [ ] Address critical water supply or water quality needs of California Native American Tribes within the region.

VII. Project Cost and Financing

Please provide any estimates of project cost, sources of funding, and operation and maintenance costs as well as the source of the project cost in the table below.

a. Project Costs	

1. Capital (2014 Dollars)	$700,000	
2. Annual Operations and Maintenance (O&M)	$50,000	
b. List secured source(s) of funding	**Source(s)**	**Amount**
c. List proposed source(s) of funding and certainty of the sources.	District water users	
d. For capital projects, explain how operation and maintenance costs will be financed.	District water users	
e. Basis for project cost	Estimate	
f. Can a detailed cost estimate be provided upon request?	☑ Yes ☐ No	

VIII. Project Status and Schedule

Please provide a status of the project, level of completion as well as a description of the activities planned for each project stage.

Project Stage	Description of Activities in Each Project Stage	Planned/Actual Start Date	Planned/Actual Completion Date
a. Conceptual			
b. Planning		January 2018	
c. Environmental Documentation (CEQA/NEPA)		July 2018	
d. Permitting		July 2018	
e. Tribal Consultation		January 2018	
f. Design		April 2018	June 2018
g. Construction/Implementation		October 2018	

IX. Project Technical Feasibility

Please provide any related documents (date, title, author, and page numbers) that describe and confirm the technical feasibility of the project.

a. List water planning documents that specifically identify this project.	
b. List the adopted planning documents the proposed project is consistent with (e.g. General Plans, UWMPs, GWMPs, Water Master Plans, Habitat Conservation Plans, etc.)	
c. List technical reports and studies supporting the feasibility of this project.	
d. If you are an Urban Water Supplier:	
1. Have you completed an Urban Water Management Plan and submitted to DWR?	☐ Yes ☐ No ☑ N/A
2. Are you in compliance with AB1420?	☐ Yes ☐ No ✔ N/A
3. Do you comply with the water meter requirements (CWC §525)	☐ Yes ☐ No ☑ N/A
4. If the answer to any of the questions above is "no", do you intend to comply prior to receiving Project funding	☐ Yes ☐ No ☑ N/A
e. If you are an Agricultural Water Supplier:	
1. Have you completed and submitted an AWMP (due 12/31/12)?	✔ Yes ☐ No ☐ N/A
2. If not, will you complete and submit an AWMP prior to receiving project funding?	☐ Yes ☐ No ☐ N/A
f. If the project is related to groundwater:	
1. Has a GWMP been completed and submitted for the subject basin?	☑ Yes ☐ No ☐ N/A
2. If not will a GWMP be completed within 1 year of the grant submittal date?	☐ Yes ☐ No ☐ N/A

Project Information Form

SWRP Projects Addendum

The Yolo WRA is accepting suggestions for projects for inclusion in the Yolo Storm Water Resource Plan (SWRP). Projects submitted for consideration should contribute to the attainment of the IRWM Plan and SWRP Objectives. To have your project considered for inclusion, please complete this project information form in its entirety and submit the completed form by **July 28, 2017** to **Kristin Sicke (ksicke@ycfcwcd.org)**.

Please provide information below:

I. Has this project been submitted to the Westside IRWMP previously?

○ Yes Please provide the Project Name as submitted on the Westside Sac IRWMP Project Information Form:

Forbes Ranch Regulating Pond

◉ No If you answered no, the Westside Sac IRWMP Project Information Form must be completed and submitted with this form. The form can be downloaded at: http://www.westsideirwm.com/Westside%20IRWMP%20Web%20Page/documents/Projects/Project%20Update%20Form-09-01-14.pdf

If you answered yes to the above question, please provide any additional project description/details not provided in the original Westside IRWMP Project Form related to storm water:

II. Land Availability

a. Is the project located on lands with Public ownership?	☑ Yes	☐ No	☐ N/A
b. Have easements and/or all required land use agreements been obtained or are pending?	☑ Yes	☐ No	☐ N/A

c. Describe how this project will result in immediate or downstream storm water benefit to Yolo County:

Construction of a 200 acre-feet regulating pond to function as a stormwater retention pond and groundwater recharge pond. The pond will reduce drainage and flood waters from the hills, and provide an immediate downstream storm water benefit to the town of Madison and downstream Winters Canal.

III. SWRP Objectives – In addition to IRWMP Objectives

Please mark (x) the SWRP Objectives that apply to the proposed project (choose all that apply).

☐ Convert paved and/or impervious areas and increase tree canopy and vegetation, reducing urban heat island effects.

☑ Optimize the rural storm water conveyance system to drain and retain storm water flows as necessary. Provide proper rural drainage and keep conveyance systems clear of debris to minimize county road flooding during storm events.

☑ Enable proper rural retention and modify rural landscape to maximize groundwater recharge of excess storm water.

IV. SWRP Guideline Benefit Categories

Please mark (x) all the project benefit categories that apply and provide a brief explanation. Suggested benefit descriptions are included in the SWRP Guidelines Tables 3 and 4.

MAIN BENEFIT(S)

	x	**Brief Explanation of Benefit**	**Quantification (e.g. acre---feet of water supplied, acres of habitat restored)**
Water Quality – Increased filtration and/or treatment of runoff	X	Settling of pathogens, nutrients, and metals during delayed retention period.	
Water Supply – Water supply reliability	X	Groundwater recharge from stormwater & irrigation-season retention	
Water Supply – Conjunctive use	X	Groundwater recharge from stormwater & irrigation-season retention	
Flood Management – Decreased flood risk by reducing runoff rate and/or volume	X	Reduced flood risk by reducing runoff volume to Madison and downstream Winters Canal	
Environmental – Environmental and habitat protection and improvement	X	Increased native vegetation & provide habitat improvements	
Environmental – Increased urban green space			
Community – Employment opportunities provided			
Community – Public education	X	Ideally this would be a place for people to come learn about integrated water management in Yolo County -- stormwater, groundwater recharge, and environmental habitat/benefits	

SECONDARY BENEFIT(S)

	x	Brief Explanation of Benefit	Quantification (e.g. acre---feet of water supplied, acres of habitat restored)
Water Quality – Nonpoint source pollutant control			
Water Quality – Reestablished natural water drainage and treatment	X	Slowing of flows will result in reestablished natural water drainage and settling of solids in a regulating/ retention pond	
Water Supply – Water conservation			
Flood Management – Reduced sanitary sewer overflows			
Environmental – Reduced energy use, greenhouse gas emissions, or provides			
Environmental – Reestablishment of the natural hydrograph			
Environmental – Water temperature improvements			
Community – Community involvement			
Community – Enhance and/or create recreational and public use areas			

Project Information Form

The Westside Region is accepting suggestions for projects for inclusion in the Westside Integrated Regional Water Management (IRWM) Plan. Projects submitted for consideration should contribute to the attainment of the IRWM Plan Goals and Objectives. To have your project considered for inclusion, please complete this project information form in its entirety and submit the completed form to info@westsideirwm.com .

Please provide information in the tables below:

I. Project Proponent Information

Lead Agency/ Organization	Yolo County
Name of Primary Contact	Panos Kokkas
Mailing Address	292 West Beamer Street Woodland, CA 95695
E---mail	Panos.Kokkas@yolocounty.org
Phone (###)###---####	(530) 666-8857
Other Cooperating Agencies/Organizations	Knights Landing CSD
Is your agency committed to the project through completion? If not, please explain	Yes, pending funding availability

II. General Project Information

Project Title	Knights Landing Storm Drain Project
Project Description (Briefly describe the project, in 300 words or less,)	Design and construct a new storm drain or culvert in the vicinity of 4th and Railroad streets in the community of Knights Landing. KL has historically experience standing water (localized flooding) in the northern portions of town that can be as deep as 2 feet in wet years. The new storm drainage would convey storm water to the County's existing drainage system on the east side of Railroad Street. Design and construction are proposed to be completed by Public Works.

Project Location:	Knights Landing
Latitude:	38.799775
Longitude:	-121.717874
Can you provide a map of the project location including boundaries upon request?	☒ Yes ☐ N/A ☐ No
Project Location Description:	vicinity of 4th and Railroad streets in the community of Knights Landing
County:	Yolo
City/Community:	Knights Landing
Watershed:	Lower Sacramento
Groundwater Basin:	Yolo
Planning Area:	Valley Floor
Additional Comments:	
Project Status (Check only one)	☐ Conceptual ☐ Planning ☐ CEQA/NEPA ☐ Permitting ☒ Design ☒ Construction/Implementation ☐ Study/Other ☐ Maintenance/Monitoring
Earliest expected start date (mm/dd/yr)	2018

III. Plan Goals/Objectives Addressed

For each of the goals/objectives addressed by the project, provide a one to two sentence description of how the project contributes to attaining the objective. Information related to the proposed goals and objectives can be found at www.westsideirw.com/irwmplan . If the project does not address any of the draft IRWM plan objectives, provide a one to two sentence description of how the project relates to a challenge or opportunity of the region.

Goal(s) that the Project will contribute to:	5; 7; 11; 12
Objective(s) that the Project will help accomplish:	14; 19; 20; 22

Explanation of Project linkage to goals and objectives	Knights Landing is considered a Disadvantaged Community and Economically Disadvantaged Area. This project would meet Goal 5 by improving public-health and flood protection. Water captured by the drainage facility will be treated prior to discharge to preserve the downstream water quality.
How will the project be measured to ensure the goals and objectives are being fulfilled?	flood reduction and volume/flow captured

IV. Resource Management Strategies

For each resource management strategy employed by the project, provide a one to two sentence description in the table below of how the project incorporates the strategy. A description of the Resource Management Strategies can be found in Volume 2 of the 2009 California Water Plan here: http://www.waterplan.water.ca.gov/cwpu2009/index.cfm

Reduce Water Demand	
Agricultural Water Use Efficiency	
Urban Water Use Efficiency	
Improve Operational Efficiency and Transfers	
Conveyance --- Delta	
Conveyance --- Regional / local	
System Reoperation	
Water Transfers	
Increase Water Supply	
Conjunctive Management & Groundwater	
Desalination	
Precipitation Enhancement	
Recycled Municipal Water	
Surface Storage ------ CALFED	
Surface Storage ------ Regional / Local	

Improve Water Quality	
Drinking Water Treatment and Distribution	
Groundwater and Aquifer Remediation	
Matching Water Quality to Use	
Pollution Prevention	
Salt and Salinity Management	
Urban Runoff Management	The storm drains will divert the waters downstream to either Ridge Cut Slough or the Sacramento River
Practice Resources Stewardship	
Agricultural Lands Stewardship	
Economic Incentives (Loans, Grants, and Water Pricing)	
Ecosystem Restoration	
Forest Management	
Land Use Planning and Management	
Recharge Areas Protection	
Water---dependent Recreation	
Watershed Management	
Improve Flood Management	
Flood Risk Management	The storm drains will divert the waters downstream to either Ridge Cut Slough or the Sacramento River

V. Project Impacts and Benefits

Please select all the project benefit categories that apply and provide a brief explanation. If the project benefits do not fit any of the listed categories, please explain in the box below. Suggested benefit descriptions are included in the Project Information Form instructions sheet.

Benefit Categories:		Brief Explanation of Selected Benefits	Quantification (e.g. acre---feet of water supplied, acres of habitat restored)
Increase Water Supply			
Improve Water Quality		Water captured by the drainage facility will be treated prior to discharge.	acre-feet of water captured/conveyed
Groundwater Improvements	☐		
Water Conservation and Reuse			

Watershed Rehabilitation	☐		
Habitat Improvements			
Flood Management		Water captured by the drainage facility will be treated prior to discharge.	acre-feet of water captured/conveyed

Other Benefits:

Please provide a summary of the expected project benefits and impacts in the table below.

a. Describe any expected impacts of the project	Minor noise/traffic impacts during construction
b. If applicable, describe benefits or impacts of the project with respect to Native American Tribal Community considerations.	
c. If applicable, describe benefits or impacts of the project with respect to Disadvantaged Communities*.	According to the DWR DAC Mapping Tool, Knights Landing is a Disadvantaged Community. This project would entirely benefit Knights Landing.
d. If applicable, describe benefits or impacts of the project with respect to Environmental Justice ** considerations.	According to the DWR DAC Mapping Tool, Knights Landing is a Disadvantaged Community. This project would entirely benefit Knights Landing.

e. If applicable, describe how the project assists the region in adapting to effects of climate change.	As storm events grow more frequent and more intense due to climate change, the storm drainage facilities will help the Town of Knights Landing convey these flows downstream back into the Sacramento River System.
f. If applicable, describe the generation or reduction of greenhouse gas emissions associated with the project.	NA

*A Disadvantaged Community is defined as a community with an annual median household (MHI) income that is less than 80 percent of the Statewide annual MHI. A map identifying DACs in the Westside Region is available at www.westsideirwm.com.

** Environmental Justice is 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.

VI. Statewide Program Preferences and Priorities

Please select the Program Preferences and Statewide Priorities that apply to the proposed project (choose all that apply).

Program Preferences

- ☐ Include regional projects or programs (CWC §10544)
- ☐ Effectively integrate water management programs and projects within a hydrologic region identified in the California Water Plan; the Regional Water Quality Control Board (RWQCB) region or subdivision; or other region or sub---region specifically identified by DWR
- ☐ Effectively resolve significant water---related conflicts within or between regions
- ☐ Contribute to attainment of one or more of the objectives of the CALFED Bay---Delta Program
- ☑ Address critical water supply or water quality needs of disadvantaged communities within the region
- ☐ Effectively integrate water management with land use planning
- ☐ For eligible SWFM funding, projects which: a) are not receiving State funding for flood control or flood prevention projects pursuant to PRC §5096.824 or §75034 or b) provide multiple benefits, including, but not limited to, water quality improvements, ecosystem benefits, reduction of instream erosion and sedimentation, and groundwater recharge.

Statewide Priorities

Drought Preparedness

- ☐ Promote water conservation, conjunctive use, reuse and recycling
- ☐ Improve landscape and agricultural irrigation efficiencies Achieve
- ☐ long term reduction of water use
- ☐ Efficient groundwater basin management
- ☐ System interties

Use and Reuse Water More Efficiently

- ☐ Increase urban and agricultural water use efficiency measures such as conservation and recycling
- ☐ Capture, store, treat, and use urban stormwater runoff (such as percolation to usable aquifers, underground storage beneath parks, small surface basins, domestic stormwater capture systems, or the creation of catch basins or sumps downhill of development
- ☐ Incorporate and implement low impact development (LID) design features, techniques, and practices to reduce or eliminate stormwater runoff

Climate Change Response Actions

- ☐ Adaptation to Climate Change: Advance and expand conjunctive management of multiple water supply sources
- ☐ Adaptation to Climate Change: Use and reuse water more efficiently
- ☐ Adaptation to Climate Change: Water management system modifications that address anticipated climate
  - ☐ Adaptation to Climate Change: Establish migration corridors, re---establish river---floodplain hydrologic continuity, re---introduce anadromous fish populations to upper watersheds, enhance and protect upper watershed forests and meadow systems
- ☐ Reduction of Greenhouse Gas (GHG) Emissions: Reduce energy consumption of water systems and uses
- ☐ Reduction of Greenhouse Gas (GHG) Emissions: Use cleaner energy sources to move and treat water
- ☐ Reduce Energy Consumption: Water use efficiency
- ☐ Reduce Energy Consumption: Water recycling
- ☐ Reduce Energy Consumption: Water system energy efficiency

Expand Environmental Stewardship

- ☐ Expand Environmental Stewardship to protect and enhance the environment by improving watershed, floodplain, and instream functions and to sustain water and flood management

ecosystems.

Practice Integrated Flood Management

- ☐ Better emergency preparedness and response
- ☑ Improved flood protection
- ☑ More sustainable flood and water management systems
- ☐ Enhanced floodplain ecosystems
- ☐ LID techniques that store and infiltrate runoff while protecting groundwater

Protect Surface Water and Groundwater Quality

- ☐ Protecting and restoring surface water and groundwater quality to safeguard public and environmental health and secure water supplies for beneficial uses
- ☐ Salt/nutrient management planning as a components of an IRWM Plan

Improve Tribal Water and Natural Resources

- ☐ Improve Tribal Water and Natural Resources and include the development of Tribal consultation, collaboration, and access to funding for water programs.

Ensure Equitable Distribution of Benefits

- ☑ Increase the participation of small and disadvantaged communities in the IRWM process.
- ☐ Develop multi---benefit projects with consideration of affected disadvantaged communities and vulnerable populations.
- ☐ Contain projects that address safe drinking water and wastewater treatment needs of DACs.
- ☐ Address critical water supply or water quality needs of California Native American Tribes within the region.

VII. Project Cost and Financing

Please provide any estimates of project cost, sources of funding, and operation and maintenance costs as well as the source of the project cost in the table below.

a. Project Costs		
1. Capital (2014 Dollars)	$100,000	
2. Annual Operations and Maintenance (O&M)		
b. List secured source(s) of funding	**Source(s)**	**Amount**

c. List proposed source(s) of funding and certainty of the sources.	State Grants	
d. For capital projects, explain how operation and maintenance costs will be financed.	County Funds	
e. Basis for project cost		
f. Can a detailed cost estimate be provided upon request?	☐ Yes ☑ No	

VIII. Project Status and Schedule

Please provide a status of the project, level of completion as well as a description of the activities planned for each project stage.

Project Stage	Description of Activities in Each Project Stage	Planned/Actual Start Date	Planned/Actual Completion Date
a. Conceptual			
b. Planning			
c. Environmental Documentation (CEQA/NEPA)			
d. Permitting			
e. Tribal Consultation			
f. Design	Design storm drains	2018	
g. Construction/Implementation	Construct storm drains		

IX. Project Technical Feasibility

Please provide any related documents (date, title, author, and page numbers) that describe and confirm the technical feasibility of the project.

a. List water planning documents that specifically identify this project.	
b. List the adopted planning documents the proposed project is consistent with (e.g. General Plans, UWMPs, GWMPs, Water Master Plans, Habitat Conservation Plans, etc.)	Yolo County Improvement Standards Section 9 - Storm Drainage, Yolo County Depth of Flooding Map for Knights Landing for 100 year flood events, Guidance for Yolo County Drainage Study Reports
c. List technical reports and studies supporting the feasibility of this project.	Yolo County LIDAR data
d. If you are an Urban Water Supplier:	
1. Have you completed an Urban Water Management Plan and submitted to DWR?	☐ Yes ☐ No ☑ N/A
2. Are you in compliance with AB1420?	☐ Yes ☐ No ☑ N/A
3. Do you comply with the water meter requirements (CWC §525)	☐ Yes ☐ No ☑ N/A
4. If the answer to any of the questions above is "no", do you intend to comply prior to receiving Project funding	☐ Yes ☐ No ☑ N/A
e. If you are an Agricultural Water Supplier:	
1. Have you completed and submitted an AWMP (due 12/31/12)?	☐ Yes ☐ No ☑ N/A
2. If not, will you complete and submit an AWMP prior to receiving project funding?	☐ Yes ☐ No ☑ N/A
f. If the project is related to groundwater:	
1. Has a GWMP been completed and submitted for the subject basin?	☐ Yes ☐ No ☑ N/A
2. If not will a GWMP be completed within 1 year of the grant submittal date?	☐ Yes ☐ No ☑ N/A

Project Information Form

SWRP Projects Addendum

The Yolo WRA is accepting suggestions for projects for inclusion in the Yolo Storm Water Resource Plan (SWRP). Projects submitted for consideration should contribute to the attainment of the IRWM Plan and SWRP Objectives. To have your project considered for inclusion, please complete this project information form in its entirety and submit the completed form by **July 28, 2017** to **Kristin Sicke (ksicke@ycfcwcd.org)**.

Please provide information below:

I. Has this project been submitted to the Westside IRWMP previously?

○ Yes Please provide the Project Name as submitted on the Westside Sac IRWMP Project Information Form:

◉ No If you answered no, the Westside Sac IRWMP Project Information Form must be completed and submitted with this form. The form can be downloaded at: http://www.westsideirwm.com/Westside%20IRWMP%20Web%20Page/documents/Projects/Project%20Update%20Form-09-01-14.pdf

If you answered yes to the above question, please provide any additional project description/details not provided in the original Westside IRWMP Project Form related to storm water:

II. Land Availability

a. Is the project located on lands with Public ownership?	☑ Yes	☐ No	☐ N/A
b. Have easements and/or all required land use agreements been obtained or are pending?	☐ Yes	☐ No	☑ N/A

c. Describe how this project will result in immediate or downstream storm water benefit to Yolo County:

The storm drains will convey runoff that causes localized flooding within Knights Landing downstream to Ridge Cut slough or the Sacramento River.

III. SWRP Objectives – In addition to IRWMP Objectives

Please mark (x) the SWRP Objectives that apply to the proposed project (choose all that apply).

☐ Convert paved and/or impervious areas and increase tree canopy and vegetation, reducing urban heat island effects.

☑ Optimize the rural storm water conveyance system to drain and retain storm water flows as necessary. Provide proper rural drainage and keep conveyance systems clear of debris to minimize county road flooding during storm events.

☐ Enable proper rural retention and modify rural landscape to maximize groundwater recharge of excess storm water.

IV. SWRP Guideline Benefit Categories

Please mark (x) all the project benefit categories that apply and provide a brief explanation. Suggested benefit descriptions are included in the SWRP Guidelines Tables 3 and 4.

MAIN BENEFIT(S)

	x	**Brief Explanation of Benefit**	**Quantification (e.g. acre---feet of water supplied, acres of habitat restored)**
Water Quality – Increased filtration and/or treatment of runoff	X	Yolo County Standards state that detention facilities should minimize impacts of stormwater runoff on water quality by incorporating BMPs	The drainage facilities would be sized to convey xx cfs per event. On average, the drainage facility could capture xx AFY.
Water Supply – Water supply reliability			
Water Supply – Conjunctive use			
Flood Management – Decreased flood risk by reducing runoff rate and/or volume	X	Underground drainage facilities will convey the water that would normally pool and flood the town of Knights Landing to Ridge Cut Slough or the Sacramento River	The drainage facilities would be sized to convey xx cfs per event. On average, the drainage facility could capture xx AFY.
Environmental – Environmental and habitat protection and improvement			
Environmental – Increased urban green space			
Community – Employment opportunities provided			
Community – Public education			

SECONDARY BENEFIT(S)

	x	Brief Explanation of Benefit	Quantification (e.g. acre---feet of water supplied, acres of habitat restored)
Water Quality – Nonpoint source pollutant control	X	Yolo County Standards state that detention facilities should minimize impacts of stormwater runoff on water quality by incorporating BMPs	The drainage facilities would be sized to convey xx cfs per event. On average, the drainage facility could capture xx AFY.
Water Quality – Reestablished natural water drainage and treatment			
Water Supply – Water conservation			
Flood Management – Reduced sanitary sewer overflows	X	The town of Knights Landing is on sanitary sewers and flooding puts the town at risk of overflows.	The drainage facilities would be sized to convey xx cfs per event away from the sanitary sewers.
Environmental – Reduced energy use, greenhouse gas emissions, or provides			
Environmental – Reestablishment of the natural hydrograph			
Environmental – Water temperature improvements			
Community – Community involvement			
Community – Enhance and/or create recreational and public use areas			

Project Information Form

The Westside Region is accepting suggestions for projects for inclusion in the Westside Integrated Regional Water Management (IRWM) Plan. Projects submitted for consideration should contribute to the attainment of the IRWM Plan Goals and Objectives. To have your project considered for inclusion, please complete this project information form in its entirety and submit the completed form to info@westsideirwm.com .

Please provide information in the tables below:

I. Project Proponent Information

Lead Agency/ Organization	Yolo County/
Name of Primary Contact	Panos Kokkas
Mailing Address	292 West Beamer Street Woodland, CA 95695
E---mail	Panos.Kokkas@yolocounty.org
Phone (###)###---####	(530) 666-8857
Other Cooperating Agencies/Organizations	Knights Landing CSD
Is your agency committed to the project through completion? If not, please explain	Yes, pending funding availability

II. General Project Information

Project Title	Knights Landing Underground Drainage Study
Project Description (Briefly describe the project, in 300 words or less,)	This project would model new underground drainage facilities for the entire Town of Knights Landing to determine location(s) for outfall to the Sacramento River or Ridge Cut Slough. Preliminarily it is estimated that the underground drainage facilities would be sized for 30-50 cfs of storm flows and the system outfall would need to be sized accordingly to prevent backup of the system. Outfall locations would also need to be evaluated to determine if the downstream capacity would be sufficient to convey this additional flow during storm events. LID strategies will be used to ensure discharge water quality does not impact the Sacramento River or Ridge Cut Slough water quality.

Project Location:	Knights Landing, Ridge Cut Slough, Sacramento River
Latitude:	38.802006
Longitude:	-121.718051
Can you provide a map of the project location including boundaries upon request?	X Yes N/A No
Project Location Description:	Entire town of Knights Landing. Locations on Ridge Cut Slough/Sacramento River TBD
County:	Yolo
City/Community:	Knights Landing
Watershed:	Lower Sacramento
Groundwater Basin:	Yolo
Planning Area:	Valley Floor
Additional Comments:	
Project Status (Check only one)	Conceptual Planning CEQA/NEPA Permitting Design Construction/Implementation x Study/Other Maintenance/Monitoring
Earliest expected start date (mm/dd/yr)	2018

III. Plan Goals/Objectives Addressed

For each of the goals/objectives addressed by the project, provide a one to two sentence description of how the project contributes to attaining the objective. Information related to the proposed goals and objectives can be found at www.westsideirw.com/irwmplan. If the project does not address any of the draft IRWM plan objectives, provide a one to two sentence description of how the project relates to a challenge or opportunity of the region.

Goal(s) that the Project will contribute to:	5. Improve water-related public health across the Region and emphasize improvements for populations most in need. 7. Preserve, improve, and manage water quality to meet designated beneficial uses for all water bodies within the Region. 11. Reduce the risks of disruptive natural and human-caused disturbances affecting the region's water resources, including flooding, fire, and significant institutional interruptions that reduce resources management services. 12. Support improved regional water management through governance throughout the Region that uses science and

	collaboration to make fair and equitable decisions and investments.
Objective(s) that the Project will help accomplish:	14. Provide adequate flood protection for all urban and rural areas within the region by December 31, 2050. 19. Address pollutant sources to meet runoff standards and total maximum daily load (TMDL) targets. 22. Meet all drinking water and wastewater discharge standards

Explanation of Project linkage to goals and objectives	This project will achieve the above goals and objectives by modeling potential conveyance locations to move or detain flood flows from the Town of Knights Landing to the Sacramento River or Ridge Cut Slough. Water captured by the drainage facility will be treated prior to discharge to the Sacramento River or Ridge Cut Slough.
How will the project be measured to ensure the goals and objectives are being fulfilled?	The model used will be able to report on the expected flow and volume of water removed from Knights Landing during unit storm events.

IV. Resource Management Strategies

For each resource management strategy employed by the project, provide a one to two sentence description in the table below of how the project incorporates the strategy. A description of the Resource Management Strategies can be found in Volume 2 of the 2009 California Water Plan here: http://www.waterplan.water.ca.gov/cwpu2009/index.cfm

Reduce Water Demand	
Agricultural Water Use Efficiency	
Urban Water Use Efficiency	
Improve Operational Efficiency and Transfers	
Conveyance --- Delta	
Conveyance --- Regional / local	The study will model optimal locations for the drainage system outfall to the Sacramento River or Ridge Cut Slough.
System Reoperation	
Water Transfers	

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Increase Water Supply	
Conjunctive Management & Groundwater	
Desalination	
Precipitation Enhancement	
Recycled Municipal Water	
Surface Storage ----- CALFED	
Surface Storage ----- Regional / Local	

Improve Water Quality	
Drinking Water Treatment and Distribution	
Groundwater and Aquifer Remediation	
Matching Water Quality to Use	
Pollution Prevention	
Salt and Salinity Management	
Urban Runoff Management	This project would support the installation of underground drainage facilities for the town of Knights Landing.
Practice Resources Stewardship	
Agricultural Lands Stewardship	
Economic Incentives (Loans, Grants, and Water Pricing)	
Ecosystem Restoration	
Forest Management	
Land Use Planning and Management	
Recharge Areas Protection	
Water---dependent Recreation	
Watershed Management	
Improve Flood Management	
Flood Risk Management	This study would model flooding in Knights Landing, as well as drainage conveyance and potential outfall locations in the Sacramento River or Ridge Cut Slough.

V. Project Impacts and Benefits

Please select all the project benefit categories that apply and provide a brief explanation. If the project benefits do not fit any of the listed categories, please explain in the box below. Suggested benefit descriptions are included in the Project Information Form instructions sheet.

Benefit Categories:	☐	**Brief Explanation of Selected Benefits**	**Quantification (e.g. acre---feet of water supplied, acres of habitat restored)**
Increase Water Supply			

Improve Water Quality		Water captured by the drainage facility will be treated prior to discharge.	Acre-feet of water captured/conveyed
Groundwater Improvements			
Water Conservation and Reuse			

Watershed Rehabilitation			
Habitat Improvements			
Flood Management		This study would support the design of underground drainage facilities for the Town of Knights Landing.	acre-feet of water captured/conveyed

Other Benefits:

Please provide a summary of the expected project benefits and impacts in the table below.

a. Describe any expected impacts of the project	This project is a study; no impacts anticipated.
b. If applicable, describe benefits or impacts of the project with respect to Native American Tribal Community considerations.	NA

c. If applicable, describe benefits or impacts of the project with respect to Disadvantaged Communities*.	According to the DWR DAC Mapping Tool, Knights Landing is a Disadvantaged Community. This project is a study; no impacts anticipated.
d. If applicable, describe benefits or impacts of the project with respect to Environmental Justice ** considerations.	NA
e. If applicable, describe how the project assists the region in adapting to effects of climate change.	As storm events grow more frequent and more intense due to climate change, the storm drainage facilities will help the Town of Knights Landing convey these flows downstream back into the Sacramento River System.
f. If applicable, describe the generation or reduction of greenhouse gas emissions associated with the project.	NA

*A Disadvantaged Community is defined as a community with an annual median household (MHI) income that is less than 80 percent of the Statewide annual MHI. A map identifying DACs in the Westside Region is available at www.westsideirwm.com.

** Environmental Justice is 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.

VI. Statewide Program Preferences and Priorities

Please select the Program Preferences and Statewide Priorities that apply to the proposed project (choose all that apply).

Program Preferences

☐ Include regional projects or programs (CWC §10544)

☐ Effectively integrate water management programs and projects within a hydrologic region identified in the California Water Plan; the Regional Water Quality Control Board (RWQCB) region or subdivision; or other region or sub---region specifically identified by DWR

☐ Effectively resolve significant water---related conflicts within or between regions Contribute to

☐ attainment of one or more of the objectives of the CALFED Bay---Delta Program

☐ Address critical water supply or water quality needs of disadvantaged communities within the region

- [ ] Effectively integrate water management with land use planning
- [ ] For eligible SWFM funding, projects which: a) are not receiving State funding for flood control or flood prevention projects pursuant to PRC §5096.824 or §75034 or b) provide multiple benefits, including, but not limited to, water quality improvements, ecosystem benefits, reduction of instream erosion and sedimentation, and groundwater recharge.

Statewide Priorities

Drought Preparedness

- [ ] Promote water conservation, conjunctive use, reuse and recycling
- [ ] Improve landscape and agricultural irrigation efficiencies Achieve long
- [ ] term reduction of water use Efficient
- [ ] groundwater basin management
- [ ] System interties

Use and Reuse Water More Efficiently

- [ ] Increase urban and agricultural water use efficiency measures such as conservation and recycling
- [ ] Capture, store, treat, and use urban stormwater runoff (such as percolation to usable aquifers, underground storage beneath parks, small surface basins, domestic stormwater capture systems, or the creation of catch basins or sumps downhill of development
- [x] Incorporate and implement low impact development (LID) design features, techniques, and practices to reduce or eliminate stormwater runoff

Climate Change Response Actions

- [ ] Adaptation to Climate Change: Advance and expand conjunctive management of multiple water supply sources
- [ ] Adaptation to Climate Change: Use and reuse water more efficiently
- [ ] Adaptation to Climate Change: Water management system modifications that address anticipated climate
  - [x] Adaptation to Climate Change: Establish migration corridors, re---establish river--- floodplain hydrologic continuity, re---introduce anadromous fish populations to upper watersheds, enhance and protect upper watershed forests and meadow systems
- [ ] Reduction of Greenhouse Gas (GHG) Emissions: Reduce energy consumption of water systems and uses
- [ ] Reduction of Greenhouse Gas (GHG) Emissions: Use cleaner energy sources to move and treat water
- [ ] Reduce Energy Consumption: Water use efficiency Reduce
- [ ] Energy Consumption: Water recycling
- [ ] Reduce Energy Consumption: Water system energy efficiency

Expand Environmental Stewardship

☐ Expand Environmental Stewardship to protect and enhance the environment by improving watershed, floodplain, and instream functions and to sustain water and flood management ecosystems.

Practice Integrated Flood Management

☐ Better emergency preparedness and response
☐ Improved flood protection
☑ More sustainable flood and water management systems
☐ Enhanced floodplain ecosystems
☑ LID techniques that store and infiltrate runoff while protecting groundwater

Protect Surface Water and Groundwater Quality

☐ Protecting and restoring surface water and groundwater quality to safeguard public and environmental health and secure water supplies for beneficial uses
☐ Salt/nutrient management planning as a components of an IRWM Plan

Improve Tribal Water and Natural Resources

☐ Improve Tribal Water and Natural Resources and include the development of Tribal consultation, collaboration, and access to funding for water programs.

Ensure Equitable Distribution of Benefits

☑ Increase the participation of small and disadvantaged communities in the IRWM process.
☐ Develop multi---benefit projects with consideration of affected disadvantaged communities and vulnerable populations.
☐ Contain projects that address safe drinking water and wastewater treatment needs of DACs.
☐ Address critical water supply or water quality needs of California Native American Tribes within the region.

VII. Project Cost and Financing

Please provide any estimates of project cost, sources of funding, and operation and maintenance costs as well as the source of the project cost in the table below.

a. Project Costs		
1. Capital (2014 Dollars)	$100,000	
2. Annual Operations and Maintenance (O&M)	NA	
b. List secured source(s) of funding	**Source(s)**	**Amount**

c. List proposed source(s) of funding and certainty of the sources.	State Grants	
d. For capital projects, explain how operation and maintenance costs will be financed.	NA	
e. Basis for project cost	Engineer's Estimate	
f. Can a detailed cost estimate be provided upon request?	☐ Yes ☑ No	

VIII. Project Status and Schedule

Please provide a status of the project, level of completion as well as a description of the activities planned for each project stage.

Project Stage	Description of Activities in Each Project Stage	Planned/Actual Start Date	Planned/Actual Completion Date
a. Conceptual	Modeling underground drainage facilities, Sacramento River, and Ridge Cut Slough	2018	
b. Planning			
c. Environmental Documentation (CEQA/NEPA)			
d. Permitting			
e. Tribal Consultation			
f. Design			
g. Construction/Implementation			

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IX. Project Technical Feasibility

Please provide any related documents (date, title, author, and page numbers) that describe and confirm the technical feasibility of the project.

a. List water planning documents that specifically identify this project.	
b. List the adopted planning documents the proposed project is consistent with (e.g. General Plans, UWMPs, GWMPs, Water Master Plans, Habitat Conservation Plans, etc.)	Yolo County Improvement Standards Section 9 - Storm Drainage, Yolo County Depth of Flooding Map for Knights Landing for 100 year flood events, Guidance for Yolo County Drainage Study Reports
c. List technical reports and studies supporting the feasibility of this project.	Yolo County LIDAR data
d. If you are an Urban Water Supplier:	
1. Have you completed an Urban Water Management Plan and submitted to DWR?	☐ Yes ☐ No ☑ N/A
2. Are you in compliance with AB1420?	Yes No ✔ N/A
3. Do you comply with the water meter requirements (CWC §525)	☐ Yes ☐ No ✔ N/A
4. If the answer to any of the questions above is "no", do you intend to comply prior to receiving Project funding	Yes No ✔ N/A
e. If you are an Agricultural Water Supplier:	
1. Have you completed and submitted an AWMP (due 12/31/12)?	☐ Yes ☐ No ☑ N/A
2. If not, will you complete and submit an AWMP prior to receiving project funding?	Yes No ✔ N/A
f. If the project is related to groundwater:	
1. Has a GWMP been completed and submitted for the subject basin?	☐ Yes ☐ No ☑ N/A
2. If not will a GWMP be completed within 1 year of the grant submittal date?	Yes No ✔ N/A

Project Information Form

SWRP Projects Addendum

The Yolo WRA is accepting suggestions for projects for inclusion in the Yolo Storm Water Resource Plan (SWRP). Projects submitted for consideration should contribute to the attainment of the IRWM Plan and SWRP Objectives. To have your project considered for inclusion, please complete this project information form in its entirety and submit the completed form by **July 28, 2017** to **Kristin Sicke (ksicke@ycfcwcd.org)**.

Please provide information below:

I. Has this project been submitted to the Westside IRWMP previously?

○ Yes — Please provide the Project Name as submitted on the Westside Sac IRWMP Project Information Form:

◉ No — If you answered no, the Westside Sac IRWMP Project Information Form must be completed and submitted with this form. The form can be downloaded at: http://www.westsideirwm.com/Westside%20IRWMP%20Web%20Page/documents/Projects/Project%20Update%20Form-09-01-14.pdf

If you answered yes to the above question, please provide any additional project description/details not provided in the original Westside IRWMP Project Form related to storm water:

II. Land Availability

a. Is the project located on lands with Public ownership? ☐ Yes ☐ No ☑ N/A

b. Have easements and/or all required land use agreements been obtained or are pending? ☐ Yes ☐ No ☑ N/A

c. Describe how this project will result in immediate or downstream storm water benefit to Yolo County:

This project would study outfall locations for drainage from the Town of Knights Landing.

III. SWRP Objectives – In addition to IRWMP Objectives

Please mark (x) the SWRP Objectives that apply to the proposed project (choose all that apply).

☐ Convert paved and/or impervious areas and increase tree canopy and vegetation, reducing urban heat island effects.

☑ Optimize the rural storm water conveyance system to drain and retain storm water flows as necessary. Provide proper rural drainage and keep conveyance systems clear of debris to minimize county road flooding during storm events.

☐ Enable proper rural retention and modify rural landscape to maximize groundwater recharge of excess storm water.

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Integrated Regional Water Management Plan

IV. SWRP Guideline Benefit Categories

Please mark (x) all the project benefit categories that apply and provide a brief explanation. Suggested benefit descriptions are included in the SWRP Guidelines Tables 3 and 4.

MAIN BENEFIT(S)

	x	Brief Explanation of Benefit	Quantification (e.g. acre---feet of water supplied, acres of habitat restored)
Water Quality – Increased filtration and/or treatment of runoff	X	Yolo County Standards state that detention facilities should minimize impacts of stormwater runoff on water quality by incorporating BMPs	The drainage facilities would be sized to convey 30-50 cfs per event. For a 2-year event, the drainage facility could capture as much as 29 AF.
Water Supply – Water supply reliability			
Water Supply – Conjunctive use			
Flood Management – Decreased flood risk by reducing runoff rate and/or volume	X	Underground drainage facilities will convey the water that would normally pool and flood the town of Knights Landing to the Sacramento River or Ridge Cut Slough.	The drainage facilities would be sized to convey 30-50 cfs per event. For a 2-year event, the drainage facility could capture as much as 29 AF.
Environmental – Environmental and habitat protection and improvement			
Environmental – Increased urban green space			
Community – Employment opportunities provided			
Community – Public education			

SECONDARY BENEFIT(S)

	x	Brief Explanation of Benefit	Quantification (e.g. acre---feet of water supplied, acres of habitat restored)
Water Quality – Nonpoint source pollutant control	X	Yolo County Standards state that detention facilities should minimize impacts of stormwater runoff on water quality by incorporating BMPs	The drainage facilities would be sized to convey 30-50 cfs per event. For a 2-year event, the drainage facility could capture as much as 29 AF.
Water Quality – Reestablished natural water drainage and treatment			
Water Supply – Water conservation			
Flood Management – Reduced sanitary sewer overflows	X	The town of Knights Landing is on sanitary sewers and flooding puts the town at risk of overflows.	The drainage facilities would be sized to convey 30-50 cfs per event away from the sanitary sewers.
Environmental – Reduced energy use, greenhouse gas emissions, or provides			
Environmental – Reestablishment of the natural hydrograph			
Environmental – Water temperature improvements			
Community – Community involvement			
Community – Enhance and/or create recreational and public use areas			

Project Information Form

The Westside Region is accepting suggestions for projects for inclusion in the Westside Integrated Regional Water Management (IRWM) Plan. Projects submitted for consideration should contribute to the attainment of the IRWM Plan Goals and Objectives. To have your project considered for inclusion, please complete this project information form in its entirety and submit the completed form to info@westsideirwm.com .

Please provide information in the tables below:

I. Project Proponent Information

Lead Agency/ Organization	Yolo County FCWCD with Madison CSD
Name of Primary Contact	Kristin Sicke with Leo Resland
Mailing Address	34274 CA-16, Woodland, CA 95695
E---mail	ksicke@ycfcwcd.org
Phone (###)###---####	(530) 662-0265 ext. 112
Other Cooperating Agencies/Organizations	Potential partners include Yolo County
Is your agency committed to the project through completion? If not, please explain	Yes, pending funding availability

II. General Project Information

Project Title	Madison Drainage Study
Project Description (Briefly describe the project, in 300 words or less,)	This project would model new underground drainage facilities for the entire Town of Madison to determine location(s) for outfall (possibly Cache Creek, the South Fork Willow Slough or Cottonwood Slough). Preliminarily it is estimated that the underground drainage facilities would be sized for xx cfs of storm flows and the system outfall would need to be sized accordingly to prevent backup of the system. Outfall locations would also need to be evaluated to determine if the downstream capacity would be sufficient to convey this additional flow during storm events. LID strategies will be used to ensure discharge water quality does not negatively impact downstream water quality.

Project Location:	The Town of Madison
Latitude:	38.68
Longitude:	-121.97
Can you provide a map of the project location including boundaries upon request?	☒ Yes ☐ N/A ☐ No
Project Location Description:	Entire town of Madison. Locations on South Fork Willow Slough/Cottonwood Slough/Cache Creek TBD
County:	Yolo
City/Community:	Unincorporated Yolo County
Watershed:	S. Fork Willow and Cottonwood Sloughs
Groundwater Basin:	Yolo Subbasin
Planning Area:	Valley Floor Area
Additional Comments:	
Project Status (Check only one)	☐ Conceptual ☐ Planning ☐ CEQA/NEPA ☐ Permitting ☐ Design ☐ Construction/Implementation ☒ Study/Other ☐ Maintenance/Monitoring
Earliest expected start date (mm/dd/yr)	2018

III. Plan Goals/Objectives Addressed

For each of the goals/objectives addressed by the project, provide a one to two sentence description of how the project contributes to attaining the objective. Information related to the proposed goals and objectives can be found at www.westsideirw.com/irwmplan . If the project does not address any of the draft IRWM plan objectives, provide a one to two sentence description of how the project relates to a challenge or opportunity of the region.

Goal(s) that the Project will contribute to:	5. Improve water-related public health across the Region and emphasize improvements for populations most in need. 7. Preserve, improve, and manage water quality to meet designated beneficial uses for all water bodies within the Region. 11. Reduce the risks of disruptive natural and human-caused disturbances affecting the region's water resources, including flooding, fire, and significant institutional interruptions that reduce resources management services. 12. Support improved regional water management through governance throughout the Region that uses science and collaboration to make fair and equitable decisions and investments.

Objective(s) that the Project will help accomplish:	14. Provide adequate flood protection for all urban and rural areas within the region by December 31, 2050. 19. Address pollutant sources to meet runoff standards and total maximum daily load (TMDL) targets. 22. Meet all drinking water and wastewater discharge standards

Explanation of Project linkage to goals and objectives	This project will achieve the above goals and objectives by modeling potential conveyance locations to move or detain flood flows from the Town of Madison. Water captured by the drainage facility will be treated prior to discharging.
How will the project be measured to ensure the goals and objectives are being fulfilled?	Diversions to canals and/or detention basins will be metered; depths of sediment at check dams can be measured.

IV. Resource Management Strategies

For each resource management strategy employed by the project, provide a one to two sentence description in the table below of how the project incorporates the strategy. A description of the Resource Management Strategies can be found in Volume 2 of the 2009 California Water Plan here: http://www.waterplan.water.ca.gov/cwpu2009/index.cfm

Reduce Water Demand	
Agricultural Water Use Efficiency	
Urban Water Use Efficiency	
Improve Operational Efficiency and Transfers	
Conveyance --- Delta	
Conveyance --- Regional / local	The study will model optimal locations for the drainage system outfall
System Reoperation	
Water Transfers	
Increase Water Supply	
Conjunctive Management & Groundwater	
Desalination	

Precipitation Enhancement	
Recycled Municipal Water	
Surface Storage ----- CALFED	
Surface Storage ----- Regional / Local	

Improve Water Quality	
Drinking Water Treatment and Distribution	
Groundwater and Aquifer Remediation	
Matching Water Quality to Use	
Pollution Prevention	
Salt and Salinity Management	
Urban Runoff Management	This project would support the installation of underground drainage facilities for the town of Madison.
Practice Resources Stewardship	
Agricultural Lands Stewardship	
Economic Incentives (Loans, Grants, and Water Pricing)	
Ecosystem Restoration	
Forest Management	
Land Use Planning and Management	
Recharge Areas Protection	
Water---dependent Recreation	
Watershed Management	
Improve Flood Management	
Flood Risk Management	This study would model flooding in Madison, as well as drainage conveyance and potential outfall locations

V. Project Impacts and Benefits

Please select all the project benefit categories that apply and provide a brief explanation. If the project benefits do not fit any of the listed categories, please explain in the box below. Suggested benefit descriptions are included in the Project Information Form instructions sheet.

Benefit Categories:		Brief Explanation of Selected Benefits	Quantification (e.g. acre---feet of water supplied, acres of habitat restored)
Increase Water Supply			
Improve Water Quality	☐	Water captured by the drainage facility will be treated prior to discharge.	Acre-feet of water captured/conveyed and treated. The drainage facilities would be

			sized to convey xx cfs per event. For a 2-year event, the drainage facility could capture as much as xx AF.
Groundwater Improvements			
Water Conservation and Reuse			
Watershed Rehabilitation	☐		
Habitat Improvements			
Flood Management		This study would support the design of underground drainage facilities for the Town of Madison.	The drainage facilities would be sized to convey xx cfs per event. On average the system will capture approximately xx afy.

Other Benefits:

Please provide a summary of the expected project benefits and impacts in the table below.

a. Describe any expected impacts of the project	This project is a study; no impacts anticipated.
b. If applicable, describe benefits or impacts of the project with respect to Native American Tribal Community considerations.	NA

c. If applicable, describe benefits or impacts of the project with respect to Disadvantaged Communities*.	According to the DWR DAC Mapping Tool, Madison is a Disadvantaged Community. This project is a study; no impacts anticipated.
d. If applicable, describe benefits or impacts of the project with respect to Environmental Justice ** considerations.	NA

e. If applicable, describe how the project assists the region in adapting to effects of climate change.	As storm events grow more frequent and more intense due to climate change, the storm drainage facilities will help the Town of Madison convey these flows downstream back into the Sacramento River System.
f. If applicable, describe the generation or reduction of greenhouse gas emissions associated with the project.	NA

*A Disadvantaged Community is defined as a community with an annual median household (MHI) income that is less than 80 percent of the Statewide annual MHI. A map identifying DACs in the Westside Region is available at www.westsideirwm.com.

** Environmental Justice is 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.

VI. Statewide Program Preferences and Priorities

Please select the Program Preferences and Statewide Priorities that apply to the proposed project (choose all that apply).

Program Preferences

- ☐ Include regional projects or programs (CWC §10544)
- ☐ Effectively integrate water management programs and projects within a hydrologic region identified in the California Water Plan; the Regional Water Quality Control Board (RWQCB) region or subdivision; or other region or sub---region specifically identified by DWR
- ☐ Effectively resolve significant water---related conflicts within or between regions Contribute to
- ☐ attainment of one or more of the objectives of the CALFED Bay---Delta Program
- ☐ Address critical water supply or water quality needs of disadvantaged communities within the region

- [ ] Effectively integrate water management with land use planning
- [ ] For eligible SWFM funding, projects which: a) are not receiving State funding for flood control or flood prevention projects pursuant to PRC §5096.824 or §75034 or b) provide multiple benefits, including, but not limited to, water quality improvements, ecosystem benefits, reduction of instream erosion and sedimentation, and groundwater recharge.

Statewide Priorities

Drought Preparedness

- [ ] Promote water conservation, conjunctive use, reuse and recycling
- [ ] Improve landscape and agricultural irrigation efficiencies Achieve long
- [ ] term reduction of water use Efficient
- [ ] groundwater basin management
- [ ] System interties

Use and Reuse Water More Efficiently

- [ ] Increase urban and agricultural water use efficiency measures such as conservation and recycling
- [ ] Capture, store, treat, and use urban stormwater runoff (such as percolation to usable aquifers, underground storage beneath parks, small surface basins, domestic stormwater capture systems, or the creation of catch basins or sumps downhill of development
- [x] Incorporate and implement low impact development (LID) design features, techniques, and practices to reduce or eliminate stormwater runoff

Climate Change Response Actions

- [ ] Adaptation to Climate Change: Advance and expand conjunctive management of multiple water supply sources
- [ ] Adaptation to Climate Change: Use and reuse water more efficiently
- [ ] Adaptation to Climate Change: Water management system modifications that address anticipated climate
  - [x] Adaptation to Climate Change: Establish migration corridors, re---establish river--- floodplain hydrologic continuity, re---introduce anadromous fish populations to upper watersheds, enhance and protect upper watershed forests and meadow systems
- [ ] Reduction of Greenhouse Gas (GHG) Emissions: Reduce energy consumption of water systems and uses
- [ ] Reduction of Greenhouse Gas (GHG) Emissions: Use cleaner energy sources to move and treat water
- [ ] Reduce Energy Consumption: Water use efficiency Reduce
- [ ] Energy Consumption: Water recycling
- [ ] Reduce Energy Consumption: Water system energy efficiency

Expand Environmental Stewardship

- [x] Expand Environmental Stewardship to protect and enhance the environment by improving watershed, floodplain, and instream functions and to sustain water and flood management ecosystems.

Practice Integrated Flood Management

- [ ] Better emergency preparedness and response
- [ ] Improved flood protection
- [x] More sustainable flood and water management systems
- [ ] Enhanced floodplain ecosystems
- [x] LID techniques that store and infiltrate runoff while protecting groundwater

Protect Surface Water and Groundwater Quality

- [ ] Protecting and restoring surface water and groundwater quality to safeguard public and environmental health and secure water supplies for beneficial uses
- [ ] Salt/nutrient management planning as a components of an IRWM Plan

Improve Tribal Water and Natural Resources

- [ ] Improve Tribal Water and Natural Resources and include the development of Tribal consultation, collaboration, and access to funding for water programs.

Ensure Equitable Distribution of Benefits

- [x] Increase the participation of small and disadvantaged communities in the IRWM process.
- [ ] Develop multi---benefit projects with consideration of affected disadvantaged communities and vulnerable populations.
- [ ] Contain projects that address safe drinking water and wastewater treatment needs of DACs.
- [ ] Address critical water supply or water quality needs of California Native American Tribes within the region.

VII. Project Cost and Financing

Please provide any estimates of project cost, sources of funding, and operation and maintenance costs as well as the source of the project cost in the table below.

a. Project Costs		
1. Capital (2014 Dollars)	$100,000	
2. Annual Operations and Maintenance (O&M)	NA	
b. List secured source(s) of funding	**Source(s)**	**Amount**

c. List proposed source(s) of funding and certainty of the sources.	State Grants	
d. For capital projects, explain how operation and maintenance costs will be financed.	NA	
e. Basis for project cost	Engineer's Estimate	
f. Can a detailed cost estimate be provided upon request?	☐ Yes ☑ No	

VIII. Project Status and Schedule

Please provide a status of the project, level of completion as well as a description of the activities planned for each project stage.

Project Stage	Description of Activities in Each Project Stage	Planned/Actual Start Date	Planned/Actual Completion Date
a. Conceptual	Modeling underground drainage facilities, Cache Creek, South Fork Willow Slough, and Cottonwood Slough	late 2018	
b. Planning			
c. Environmental Documentation (CEQA/NEPA)			
d. Permitting			
e. Tribal Consultation			
f. Design			
g. Construction/Implementation			

IX. Project Technical Feasibility

Please provide any related documents (date, title, author, and page numbers) that describe and confirm the technical feasibility of the project.

a. List water planning documents that specifically identify this project.			
b. List the adopted planning documents the proposed project is consistent with (e.g. General Plans, UWMPs, GWMPs, Water Master Plans, Habitat Conservation Plans, etc.)	Yolo County Improvement Standards Section 9 - Storm Drainage, Guidance for Yolo County Drainage Study Reports		
c. List technical reports and studies supporting the feasibility of this project.	Yolo County LIDAR data; 1999 Madison Flood Study 2000 Yolo County: Evaluation of Flood Control Alternatives in Yolo County 2012 Flood Insurance Study and FIRM maps 1996 Willow slough Watershed Plan; 2012 Flood Insurance Study and FIRM maps Yolo Co staff reports: http://yoloagenda.yolocounty.org:8085/agenda_publish.cfm?id=&mt=ALL&get_month=5&get_year=2011&dsp=agm&seq=28&rev=0&ag=4&ln=1903&nseq=50&nrev=0&pseq=&prev=# http://yoloagenda.yolocounty.org:8085/print_ag_memo.cfm?seq=4350&rev_num=0&mode=External&reloaded=true&id		
d. If you are an Urban Water Supplier:			
1. Have you completed an Urban Water Management Plan and submitted to DWR?	Yes	No	✔ N/A
2. Are you in compliance with AB1420?	Yes	No	✔ N/A
3. Do you comply with the water meter requirements (CWC §525)	Yes	No	✔ N/A
4. If the answer to any of the questions above is "no", do you intend to comply prior to receiving Project funding	Yes	No	✔ N/A

e. If you are an Agricultural Water Supplier:	
1. Have you completed and submitted an AWMP (due 12/31/12)?	Yes No ✔ N/A
2. If not, will you complete and submit an AWMP prior to receiving project funding?	Yes No ✔ N/A
f. If the project is related to groundwater:	
1. Has a GWMP been completed and submitted for the subject basin?	Yes No ✔ N/A
2. If not will a GWMP be completed within 1 year of the grant submittal date?	Yes No ✔ N/A

Project Information Form

SWRP Projects Addendum

The Yolo WRA is accepting suggestions for projects for inclusion in the Yolo Storm Water Resource Plan (SWRP). Projects submitted for consideration should contribute to the attainment of the IRWM Plan and SWRP Objectives. To have your project considered for inclusion, please complete this project information form in its entirety and submit the completed form by **July 28, 2017** to **Kristin Sicke (ksicke@ycfcwcd.org)**.

Please provide information below:

I. Has this project been submitted to the Westside IRWMP previously?

○ Yes Please provide the Project Name as submitted on the Westside Sac IRWMP Project Information Form:

◉ No If you answered no, the Westside Sac IRWMP Project Information Form must be completed and submitted with this form. The form can be downloaded at: http://www.westsideirwm.com/Westside%20IRWMP%20Web%20Page/documents/Projects/Project%20Update%20Form-09-01-14.pdf

If you answered yes to the above question, please provide any additional project description/details not provided in the original Westside IRWMP Project Form related to storm water:

II. Land Availability

a. Is the project located on lands with Public ownership?	☐ Yes	☐ No	☑ N/A
b. Have easements and/or all required land use agreements been obtained or are pending?	☐ Yes	☐ No	☑ N/A

c. Describe how this project will result in immediate or downstream storm water benefit to Yolo County:

This project would study outfall locations for drainage from the Town of Madison.

III. SWRP Objectives – In addition to IRWMP Objectives

Please mark (x) the SWRP Objectives that apply to the proposed project (choose all that apply).

☐ Convert paved and/or impervious areas and increase tree canopy and vegetation, reducing urban heat island effects.

☑ Optimize the rural storm water conveyance system to drain and retain storm water flows as necessary. Provide proper rural drainage and keep conveyance systems clear of debris to minimize county road flooding during storm events.

☐ Enable proper rural retention and modify rural landscape to maximize groundwater recharge of excess storm water.

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IV. SWRP Guideline Benefit Categories

Please mark (x) all the project benefit categories that apply and provide a brief explanation. Suggested benefit descriptions are included in the SWRP Guidelines Tables 3 and 4.

MAIN BENEFIT(S)

	x	Brief Explanation of Benefit	Quantification (e.g. acre---feet of water supplied, acres of habitat restored)
Water Quality – Increased filtration and/or treatment of runoff	X	Yolo County Standards state that detention facilities should minimize impacts of stormwater runoff on water quality by incorporating BMPs	The drainage facilities would be sized to convey xx cfs per event. On average, the drainage facility could capture xx AFY.
Water Supply – Water supply reliability			
Water Supply – Conjunctive use			
Flood Management – Decreased flood risk by reducing runoff rate and/or volume	X	Underground drainage facilities will convey the water that would normally pool and flood the town of Madison to Cache Creek, South Creek Willow Slough,or Cottonwood Slough.	The drainage facilities would be sized to convey xx cfs per event. On average, the drainage facility could capture xx AFY.
Environmental – Environmental and habitat protection and improvement			
Environmental – Increased urban green space			
Community – Employment opportunities provided			
Community – Public education			

SECONDARY BENEFIT(S)

	x	Brief Explanation of Benefit	Quantification (e.g. acre---feet of water supplied, acres of habitat restored)
Water Quality – Nonpoint source pollutant control	X	Yolo County Standards state that detention facilities should minimize impacts of stormwater runoff on water quality by incorporating BMPs	The drainage facilities would be sized to convey xx cfs per event. On average, the drainage facility could capture xx AFY.
Water Quality – Reestablished natural water drainage and treatment			
Water Supply – Water conservation			
Flood Management – Reduced sanitary sewer overflows	X	The town of Madison is on sanitary sewers and flooding puts the town at risk of overflows.	The drainage facilities would be sized to convey xx cfs per event away from the sanitary sewers.
Environmental – Reduced energy use, greenhouse gas emissions, or provides			
Environmental – Reestablishment of the natural hydrograph			
Environmental – Water temperature improvements			
Community – Community involvement			
Community – Enhance and/or create recreational and public use areas			

Project Information Form

The Westside Region is accepting suggestions for projects for inclusion in the Westside Integrated Regional Water Management (IRWM) Plan. Projects submitted for consideration should contribute to the attainment of the IRWM Plan Goals and Objectives. To have your project considered for inclusion, please complete this project information form in its entirety and submit the completed form to info@westsideirwm.com by 1 August, 2012.

Please provide information in the tables below:

I. Project Proponent Information

Lead Agency/ Organization	Yolo County Flood Control and Water Conservation District
Name of Primary Contact	Tim O'Halloran
Mailing Address	34274 State Highway 16, Woodland, CA 95695
E-mail	tohalloran@ycfcwcd.org
Phone (###)###-####	(530) 662-0265
Other Cooperating Agencies/Organizations	
Is your agency committed to the project through completion? If not, please explain	Yes

II. General Project Information

Project Title	Moore Siphon Reliability/Restoration Project
Project Description (Briefly describe the project, in 300 words or less,)	The Moore Siphon conveys irrigation water from the north side of Cache Creek (Alder Canal) to the south side (Moore Canal). Through the Moore Siphon, YCFCWCD delivers water to approximately 15,000 acres of cropland (12% of its irrigation service area). This water also makes a significant recharge contribution to the City of Woodland's groundwater supply. Due to the age and exposure of the 72" corrugated metal pipe, as well as Cache Creek erosion issues at both ends of the siphon, the siphon well either need to be replaced or rehabilitated in the near future.

Project Location:	YCFCWCD Service Area
Latitude:	38'41'13" North
Longitude:	121'54'12" West
Can you provide a map of the project location including boundaries upon request?	☑ Yes ☐ N/A ☐ No
Project Location Description:	
County:	Yolo
City/Community:	
Watershed:	Lower Cache Creek
Groundwater Basin:	Yolo Subbasin 5-21.67
Planning Area:	
Additional Comments:	
Project Status (Check only one)	☐ Conceptual ☐ Planning ☐ CEQA/NEPA ☐ Permitting ☑ Design ☐ Construction/Implementation ☐ Study/Other ☐ Maintenance/Monitoring
Earliest expected start date (mm/dd/yr)	11/01/13

III. Plan Goals/Objectives Addressed

For each of the goals/objectives addressed by the project, provide a one to two sentence description of how the project contributes to attaining the objective. Information related to the proposed goals and objectives can be found in Meeting #6 Handout 4 a/b at www.westsideirwm.com/meetings . If the project does not address any of the draft IRWM plan objectives, provide a one to two sentence description of how the project relates to a challenge or opportunity of the region.

Goal(s) that the Project will contribute to:	6. Preserve, improve, and manage water quality to meet designated beneficial uses for water bodies within the region. 7. Promote reasonable use of water and watershed resources. 9. Provide reliable water supplies of suitable quality for multiple beneficial uses (e.g., urban, agriculture, environmental, and recreation) within the region. 10. Reduce the risks of disruptive natural and human-caused disturbances affecting the region's water resources including flooding, fire and significant institutional interruptions that reduce resources management services. 12. Support sustainable economic activities within the region.
Objective(s) that the Project will help accomplish:	7. Sustain and modernize existing water supply, water quality, and flood management infrastructure throughout the planning period. 23. Improve water supply reliability to agricultural water users within the region.

Explanation of Project linkage to goals and objectives	Directly addresses Goals 6,7,9,10,12, and objectives 7 and 23 which focus on infrastructure and water supply.
How will the project be measured to ensure the goals and objectives are being fulfilled?	A final engineering project report will be completed as part of the project.

IV. Resource Management Strategies

For each resource management strategy employed by the project, provide a one to two sentence description in the table below of how the project incorporates the strategy. A description of the Resource Management Strategies can be found in Volume 2 of the 2009 California Water Plan here: http://www.waterplan.water.ca.gov/cwpu2009/index.cfm

Reduce Water Demand	
Agricultural Water Use Efficiency	Project will stop unintended losses.
Urban Water Use Efficiency	
Improve Operational Efficiency and Transfers	
Conveyance - Delta	
Conveyance - Regional / local	Protects and enhances existing infrastructure and economy.
System Reoperation	
Water Transfers	
Increase Water Supply	
Conjunctive Management & Groundwater	
Desalination	
Precipitation Enhancement	
Recycled Municipal Water	
Surface Storage -- CALFED	
Surface Storage -- Regional / Local	

Improve Water Quality	
Drinking Water Treatment and Distribution	
Groundwater and Aquifer Remediation	
Matching Water Quality to Use	
Pollution Prevention	
Salt and Salinity Management	
Urban Runoff Management	
Practice Resources Stewardship	
Agricultural Lands Stewardship	
Economic Incentives (Loans, Grants, and Water Pricing)	
Ecosystem Restoration	
Forest Management	
Land Use Planning and Management	
Recharge Areas Protection	
Water-dependent Recreation	
Watershed Management	
Improve Flood Management	
Flood Risk Management	

V. Project Impacts and Benefits

Please select all the project benefit categories that apply and provide a brief explanation. If the project benefits do not fit any of the listed categories, please explain in the box below. Suggested benefit descriptions are included in the Project Information Form instructions sheet.

Benefit Categories:		**Brief Explanation of Selected Benefits**	**Quantification (e.g. acre-feet of water supplied, acres of habitat restored)**
Increase Water Supply	✔	Rehabilitating the Moore Siphon will prevent current leakage.	Approximately 1,000 acre feet annually (under normal conditions.)
Improve Water Quality			
Groundwater Improvements			
Water Conservation and Reuse	✔	Similar to increasing water supply, rehabilitating the Moore Siphon will conserve leakage water.	Approximately 1,000 acre feet annually.

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Watershed Rehabilitation			
Habitat Improvements			
Flood Management			

Other Benefits:

Provides infrastructure reliability and security to 12% of the District's irrigation service area.

Please provide a summary of the expected project benefits and impacts in the table below.

a. Describe any expected impacts of the project	Short-term, localized streambed disturbance during construction.
b. If applicable, describe benefits or impacts of the project with respect to Native American Tribal Community considerations.	The Yocha Dehe Wintun Nation is a District customer and partner and as such will participate in the same benefits as the rest of the District's water customers.
c. If applicable, describe benefits or impacts of the project with respect to Disadvantaged Communities*.	
d. If applicable, describe benefits or impacts of the project with respect to Environmental Justice ** considerations.	

e. If applicable, describe how the project assists the region in adapting to effects of climate change.	
f. If applicable, describe the generation or reduction of greenhouse gas emissions associated with the project.	

*A Disadvantaged Community is defined as a community with an annual median household (MHI) income that is less than 80 percent of the Statewide annual MHI. A map identifying DACs in the Westside Region is available at www.westsideirwm.com.

** Environmental Justice is 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.

VI. Statewide Program Preferences and Priorities

Please select the Program Preferences and Statewide Priorities that apply to the proposed project (choose all that apply).

Program Preferences

- ☐ Include regional projects or programs (CWC §10544)
- ☐ Effectively integrate water management programs and projects within a hydrologic region identified in the California Water Plan; the Regional Water Quality Control Board (RWQCB) region or subdivision; or other region or sub-region specifically identified by DWR
- ☐ Effectively resolve significant water-related conflicts within or between regions
- ☒ Contribute to attainment of one or more of the objectives of the CALFED Bay-Delta Program
- ☐ Address critical water supply or water quality needs of disadvantaged communities within the region
- ☐ Effectively integrate water management with land use planning
- ☐ For eligible SWFM funding, projects which: a) are not receiving State funding for flood control or flood prevention projects pursuant to PRC §5096.824 or §75034 or b) provide multiple benefits, including, but not limited to, water quality improvements, ecosystem benefits, reduction of instream erosion and sedimentation, and groundwater recharge.

Statewide Priorities

Drought Preparedness

- [x] Promote water conservation, conjunctive use, reuse and recycling
- [x] Improve landscape and agricultural irrigation efficiencies Achieve
- [ ] long term reduction of water use
- [ ] Efficient groundwater basin management
- [ ] System interties

Use and Reuse Water More Efficiently

- [ ] Increase urban and agricultural water use efficiency measures such as conservation and recycling
- [ ] Capture, store, treat, and use urban stormwater runoff (such as percolation to usable aquifers, underground storage beneath parks, small surface basins, domestic stormwater capture systems, or the creation of catch basins or sumps downhill of development
- [ ] Incorporate and implement low impact development (LID) design features, techniques, and practices to reduce or eliminate stormwater runoff

Climate Change Response Actions

- [ ] Adaptation to Climate Change: Advance and expand conjunctive management of multiple water supply sources
- [ ] Adaptation to Climate Change: Use and reuse water more efficiently
- [ ] Adaptation to Climate Change: Water management system modifications that address anticipated climate
  - [ ] Adaptation to Climate Change: Establish migration corridors, re-establish river-floodplain hydrologic continuity, re-introduce anadromous fish populations to upper watersheds, enhance and protect upper watershed forests and meadow systems
- [ ] Reduction of Greenhouse Gas (GHG) Emissions: Reduce energy consumption of water systems and uses
- [ ] Reduction of Greenhouse Gas (GHG) Emissions: Use cleaner energy sources to move and treat water
- [ ] Reduce Energy Consumption: Water use efficiency
- [ ] Reduce Energy Consumption: Water recycling
- [ ] Reduce Energy Consumption: Water system energy efficiency

Expand Environmental Stewardship

- [x] Expand Environmental Stewardship to protect and enhance the environment by improving watershed, floodplain, and instream functions and to sustain water and flood management

ecosystems.

Practice Integrated Flood Management

- ☐ Better emergency preparedness and response
- ☐ Improved flood protection
- ☐ More sustainable flood and water management systems
- ☐ Enhanced floodplain ecosystems
- ☐ LID techniques that store and infiltrate runoff while protecting groundwater

Protect Surface Water and Groundwater Quality

- ☒ Protecting and restoring surface water and groundwater quality to safeguard public and environmental health and secure water supplies for beneficial uses
- ☐ Salt/nutrient management planning as a components of an IRWM Plan

Improve Tribal Water and Natural Resources

- ☐ Improve Tribal Water and Natural Resources and include the development of Tribal consultation, collaboration, and access to funding for water programs.

Ensure Equitable Distribution of Benefits

- ☐ Increase the participation of small and disadvantaged communities in the IRWM process.
- ☐ Develop multi-benefit projects with consideration of affected disadvantaged communities and vulnerable populations.
- ☐ Contain projects that address safe drinking water and wastewater treatment needs of DACs.
- ☐ Address critical water supply or water quality needs of California Native American Tribes within the region.

VII. Project Cost and Financing

Please provide any estimates of project cost, sources of funding, and operation and maintenance costs as well as the source of the project cost in the table below.

a. Project Costs		
1. Capital (2012 Dollars)	$ 1,000,000.00	
2. Annual Operations and Maintenance (O&M)	$ 20,000	
b. List secured source(s) of funding	**Source(s)**	**Amount**
	District Annual Budget	

c. List proposed source(s) of funding and certainty of the sources.	Prop 84 funding	
d. For capital projects, explain how operation and maintenance costs will be financed.	Depreciation costs will be accounted for in District's annual budget.	
e. Basis for project cost	Preliminary engineer's estimate.	
f. Can a detailed cost estimate be provided upon request?	☑ Yes ☐ No	

VIII. Project Status and Schedule

Please provide a status of the project, level of completion as well as a description of the activities planned for each project stage.

Project Stage	Description of Activities in Each Project Stage	Planned/Actual Start Date	Planned/Actual Completion Date
a. Conceptual	District and consultant review.	01/2011	12/2011
b. Planning	Engineering planning and preliminary design.	03/2012	06/2013
c. Environmental Documentation (CEQA/NEPA)	To be completed as required.	01/2013	12/2013
d. Permitting	To be completed as required.	01/2014	10/2014
e. Tribal Consultation	Tribal consultation and meetings are done on an ongoing basis.	03/2012	10/2013
f. Design	BY qualified engineering consultants.	06/2013	12/2013
g. Construction/Implementation	By competitive bid with qualified contractors.	10/2014	11/2014

WESTSIDE SAC IRWM
Integrated Regional Water Management Plan

IX. Project Technical Feasibility

Please provide any related documents (date, title, author, and page numbers) that describe and confirm the technical feasibility of the project.

a. List water planning documents that specifically identify this project.	YCFCWCD Water Management Plan, Water Resources Association of Yolo County IRWMP.
b. List the adopted planning documents the proposed project is consistent with (e.g. General Plans, UWMPs, GWMPs, Water Master Plans, Habitat Conservation Plans, etc.)	County of Yolo General Plan.
c. List technical reports and studies supporting the feasibility of this project.	
d. If you are an Urban Water Supplier:	
1. Have you completed an Urban Water Management Plan and submitted to DWR?	Yes ☐ No ☑ N/A
2. Are you in compliance with AB1420?	Yes ☐ No ☑ N/A
3. Do you comply with the water meter requirements (CWC §525)	Yes ☐ No ☑ N/A
4. If the answer to any of the questions above is "no", do you intend to comply prior to receiving Project funding	Yes ☐ No ☑ N/A
e. If you are an Agricultural Water Supplier:	
1. Have you completed and submitted an AWMP (due 12/31/12)?	Yes ✔ No N/A
2. If not, will you complete and submit an AWMP prior to receiving project funding?	✔ Yes ☐ No ☐ N/A
f. If the project is related to groundwater:	
1. Has a GWMP been completed and submitted for the subject basin?	Yes ☐ No ☑ N/A
2. If not will a GWMP be completed within 1 year of the grant submittal date?	Yes ☐ No ☑ N/A

Project Information Form

SWRP Projects Addendum

The Yolo WRA is accepting suggestions for projects for inclusion in the Yolo Storm Water Resource Plan (SWRP). Projects submitted for consideration should contribute to the attainment of the IRWM Plan and SWRP Objectives. To have your project considered for inclusion, please complete this project information form in its entirety and submit the completed form by **July 28, 2017** to **Kristin Sicke (ksicke@ycfcwcd.org)**.

Please provide information below:

I. Has this project been submitted to the Westside IRWMP previously?

(●) Yes Please provide the Project Name as submitted on the Westside Sac IRWMP Project Information Form:

Moore Siphon

( ) No If you answered no, the Westside Sac IRWMP Project Information Form must be completed and submitted with this form. The form can be downloaded at: http://www.westsideirwm.com/Westside%20IRWMP%20Web%20Page/documents/Projects/Project%20Update%20Form-09-01-14.pdf

If you answered yes to the above question, please provide any additional project description/details not provided in the original Westside IRWMP Project Form related to storm water:

66" corrugated metal pipe; expected start date 04/01/18; costs expected to be closer to $1.25M

II. Land Availability

a. Is the project located on lands with Public ownership?	☑ Yes	☐ No	☐ N/A
b. Have easements and/or all required land use agreements been obtained or are pending?	☑ Yes	☐ No	☐ N/A

c. Describe how this project will result in immediate or downstream storm water benefit to Yolo County:

Improves the stormwater distribution system to properly convey storm flows downstream. Reduces the risks of disruptive natural disturbances including flooding.

III. SWRP Objectives – In addition to IRWMP Objectives

Please mark (x) the SWRP Objectives that apply to the proposed project (choose all that apply).

☐ Convert paved and/or impervious areas and increase tree canopy and vegetation, reducing urban heat island effects.

☑ Optimize the rural storm water conveyance system to drain and retain storm water flows as necessary. Provide proper rural drainage and keep conveyance systems clear of debris to minimize county road flooding during storm events.

☐ Enable proper rural retention and modify rural landscape to maximize groundwater recharge of excess storm water.

IV. SWRP Guideline Benefit Categories

Please mark (x) all the project benefit categories that apply and provide a brief explanation. Suggested benefit descriptions are included in the SWRP Guidelines Tables 3 and 4.

MAIN BENEFIT(S)

	x	Brief Explanation of Benefit	Quantification (e.g. acre---feet of water supplied, acres of habitat restored)
Water Quality – Increased filtration and/or treatment of runoff			
Water Supply – Water supply reliability	X	Allows for irrigation season flows to continue to 12% of District's agricultural users.	15,000 acres of cropland stays in production 200 AF/day of water supply for agriculture May-October (36 TAF/y)
Water Supply – Conjunctive use	X	Allows farmers to use surface water in lieu of relying on groundwater	200 AF/day of water supply for agriculture May-October (36 TAF/y)
Flood Management – Decreased flood risk by reducing runoff rate and/or volume	X	Reduces runoff rate to upstream and downstream surrounding properties by properly conveying flows and reducing leaking	
Environmental – Environmental and habitat protection and improvement			
Environmental – Increased urban green space			
Community – Employment opportunities provided			
Community – Public education			

SECONDARY BENEFIT(S)

	x	Brief Explanation of Benefit	Quantification (e.g. acre---feet of water supplied, acres of habitat restored)
Water Quality – Nonpoint source pollutant control			
Water Quality – Reestablished natural water drainage and treatment			
Water Supply – Water conservation	X	Rehabilitating the Moore Siphon will prevent current leakage.	Approximately 1 TAF/y
Flood Management – Reduced sanitary sewer overflows			
Environmental – Reduced energy use, greenhouse gas emissions, or provides			
Environmental – Reestablishment of the natural hydrograph			
Environmental – Water temperature improvements			
Community – Community involvement			
Community – Enhance and/or create recreational and public use areas			

Project Information Form

SWRP Projects Addendum

The Yolo WRA is accepting suggestions for projects for inclusion in the Yolo Storm Water Resource Plan (SWRP). Projects submitted for consideration should contribute to the attainment of the IRWM Plan and SWRP Objectives. To have your project considered for inclusion, please complete this project information form in its entirety and submit the completed form by **July 28, 2017** to **Kristin Sicke (ksicke@ycfcwcd.org)**.

Please provide information below:

I. Has this project been submitted to the Westside IRWMP previously?

(●) Yes — Please provide the Project Name as submitted on the Westside Sac IRWMP Project Information Form:

North Regional Pond and Pump Station

( ) No — If you answered no, the Westside Sac IRWMP Project Information Form must be completed and submitted with this form. The form can be downloaded at: http://www.westsideirwm.com/Westside%20IRWMP%20Web%20Page/documents/Projects/Project%20Update%20Form-09-01-14.pdf

If you answered yes to the above question, please provide any additional project description/details not provided in the original Westside IRWMP Project Form related to storm water:

II. Land Availability

a. Is the project located on lands with Public ownership? ☑ Yes ☐ No ☐ N/A

b. Have easements and/or all required land use agreements been obtained or are pending? ☐ Yes ☐ No ☐ N/A

c. Describe how this project will result in immediate or downstream storm water benefit to Yolo County:

Mitigates flooding to the east of the City during a 100 year storm and stormwater is treated by the pond prior to discharge to the City's stormwater outfall

III. SWRP Objectives – In addition to IRWMP Objectives

Please mark (x) the SWRP Objectives that apply to the proposed project (choose all that apply).

☐ Convert paved and/or impervious areas and increase tree canopy and vegetation, reducing urban heat island effects.

☑ Optimize the rural storm water conveyance system to drain and retain storm water flows as necessary. Provide proper rural drainage and keep conveyance systems clear of debris to minimize county road flooding during storm events.

☐ Enable proper rural retention and modify rural landscape to maximize groundwater recharge of excess storm water.

IV. SWRP Guideline Benefit Categories

Please mark (x) all the project benefit categories that apply and provide a brief explanation. Suggested benefit descriptions are included in the SWRP Guidelines Tables 3 and 4.

MAIN BENEFIT(S)

	x	**Brief Explanation of Benefit**	**Quantification (e.g. acre---feet of water supplied, acres of habitat restored)**
Water Quality – Increased filtration and/or treatment of runoff	x	treatment of the stormwater prior to discharge to the City's outfall channel	up to 120 cfs
Water Supply – Water supply reliability	x	possible transmission of stored water from NR pond to adjacent farmland	reliably 500-ac ft of water during non-rainy season.
Water Supply – Conjunctive use			
Flood Management – Decreased flood risk by reducing runoff rate and/or volume	x		
Environmental – Environmental and habitat protection and improvement	x		
Environmental – Increased urban green space	x	75 acre pond vs 75 acre barren land	
Community – Employment opportunities provided			
Community – Public education			

SECONDARY BENEFIT(S)

	x	Brief Explanation of Benefit	Quantification (e.g. acre---feet of water supplied, acres of habitat restored)
Water Quality – Nonpoint source pollutant control	x	treating stormwater before discharge to the City's outfall channel	
Water Quality – Reestablished natural water drainage and treatment			
Water Supply – Water conservation			
Flood Management – Reduced sanitary sewer overflows			
Environmental – Reduced energy use, greenhouse gas emissions, or provides			
Environmental – Reestablishment of the natural hydrograph			
Environmental – Water temperature improvements			
Community – Community involvement			
Community – Enhance and/or create recreational and public use areas	x	additional birding habitat	

Project Information Form

The Westside Region is accepting suggestions for projects for inclusion in the Westside Integrated Regional Water Management (IRWM) Plan. Projects submitted for consideration should contribute to the attainment of the IRWM Plan Goals and Objectives. To have your project considered for inclusion, please complete this project information form in its entirety and submit the completed form to info@westsideirwm.com .

Please provide information in the tables below:

I. Project Proponent Information

Lead Agency/ Organization	City of Woodland
Name of Primary Contact	Chris Fong, Senior Associate Civil Engineer
Mailing Address	300 First Street, Woodland, CA 95695
E---mail	Chris.Fong@cityofwoodland.org
Phone (###)###---####	(530)661-5972
Other Cooperating Agencies/Organizations	
Is your agency committed to the project through completion? If not, please explain	Yes

II. General Project Information

Project Title	North Regional Pond and Pump Station
Project Description (Briefly describe the project, in 300 words or less,)	The project involves the design and construction of an approximate 75 acre sedimentation pond and a pump station able to eventually accomodate a 120-cfs design flow. Project re-purposes an existing City evaporation pond that is no longer in use for any purpose. Currently the pond only receives nearby runoff. This project will add the NR Pond hydraulically into the City's storm drainage network and include: * Low flow training wall and inlet pipes from the Gibson Channel to the NR Pond * High flow weir from South Canal to the NR Pond * Outlet pipes from NR Pond to the South Canal * Pump station at the downstream terminus of the South Canal * Force main and outfall from the pump station to the outfall channel

Project Location:	Just West of Co. Rd. 103 between Co. Rd. 24 and Co. Rd. 22
Latitude:	38.6689 (DD - decimal degrees)
Longitude:	-121.7112 (DD - decimal degrees)
Can you provide a map of the project location including boundaries upon request?	Yes N/A No
Project Location Description:	Just West of Co. Rd. 103 between Co. Rd. 24 and Co. Rd. 22
County:	Yolo
City/Community:	Woodland
Watershed:	
Groundwater Basin:	
Planning Area:	
Additional Comments:	
Project Status (Check only one)	Conceptual Planning CEQA/NEPA Permitting x Design Construction/Implementation Study/Other Maintenance/Monitoring
Earliest expected start date (mm/dd/yr)	5/1/2018 to begin construction

III. Plan Goals/Objectives Addressed

For each of the goals/objectives addressed by the project, provide a one to two sentence description of how the project contributes to attaining the objective. Information related to the proposed goals and objectives can be found at www.westsideirw.com/irwmplan . If the project does not address any of the draft IRWM plan objectives, provide a one to two sentence description of how the project relates to a challenge or opportunity of the region.

Goal(s) that the Project will contribute to:	6. Preserve/enhance water related recreational activity - there are numerous existing ponds in the general vicinity that attract birds and local Auburn Society promotes the area for bird watching activities. 7. Preserve, improve, and manage water quailty - NR Pond will treat / settle solids in the stormwater runoff prior to discharge to the City's outfall channel that makes it Tule Canal and eventually the Sacramento River. 10. Reliable Water Supplies for Multi-benefit uses - stored storm water used for (a) recreational habitat for water fowl; (b) agricultural water for adjacent farmland; (c) groundwater recharge.

	11. Reduce risk - NR Pond and pump station will assist the City with localized flooding issues.
Objective(s) that the Project will help accomplish:	10. Infrastructure focus - creation of stormwater asset for City to control stormwater flows 13. Recreation focus - additional birding habitat 14/15. Risk management focus - provide flood protection and reduce erosion downstream 19. Water quality focus - treat stormwater in NR pond prior to discharge 24. Supply ag water during non-rainy season to adjacent farmland.

Explanation of Project linkage to goals and objectives	Project linkage of goals and objectives indicated in the Westside Sacramento IRWM plan, June 2014
How will the project be measured to ensure the goals and objectives are being fulfilled?	Measured by: * Number of birds utilizing the NR Pond. * Water quality of the water flow going out of the NR Pond. * Control of storm flows exiting to the City's outfall channel * * Volume of water transferred for ag purposes.

IV. Resource Management Strategies

For each resource management strategy employed by the project, provide a one to two sentence description in the table below of how the project incorporates the strategy. A description of the Resource Management Strategies can be found in Volume 2 of the 2009 California Water Plan here: http://www.waterplan.water.ca.gov/cwpu2009/index.cfm

Reduce Water Demand	
Agricultural Water Use Efficiency	
Urban Water Use Efficiency	
Improve Operational Efficiency and Transfers	
Conveyance --- Delta	
Conveyance --- Regional / local	Better control of stormwater flowing out of the City
System Reoperation	
Water Transfers	
Increase Water Supply	
Conjunctive Management & Groundwater	
Desalination	
Precipitation Enhancement	
Recycled Municipal Water	
Surface Storage ------ CALFED	

Surface Storage ----- Regional / Local	local storage of stormwater flow and groundwater intrusion

Improve Water Quality	
Drinking Water Treatment and Distribution	
Groundwater and Aquifer Remediation	
Matching Water Quality to Use	
Pollution Prevention	
Salt and Salinity Management	
Urban Runoff Management	control runoff of storm flows out of the City
Practice Resources Stewardship	
Agricultural Lands Stewardship	
Economic Incentives (Loans, Grants, and Water Pricing)	
Ecosystem Restoration	
Forest Management	
Land Use Planning and Management	
Recharge Areas Protection	
Water---dependent Recreation	birding habitat
Watershed Management	
Improve Flood Management	
Flood Risk Management	ability to pump stormwater flows to the City's outfall channel rather than flooding land to the east of the City.

V. Project Impacts and Benefits

Please select all the project benefit categories that apply and provide a brief explanation. If the project benefits do not fit any of the listed categories, please explain in the box below. Suggested benefit descriptions are included in the Project Information Form instructions sheet.

Benefit Categories:		**Brief Explanation of Selected Benefits**	**Quantification (e.g. acre---feet of water supplied, acres of habitat restored)**
Increase Water Supply		interest from adjacent farmers for water stored in NR pond during non-rainy season.	500 ac-ft should reliably be available each year.
Improve Water Quality	☐	NR pond serves as sedimentation pond to settle solids	
Groundwater Improvements			

Water Conservation and Reuse			

Watershed Rehabilitation	☐		
Habitat Improvements		Additonal birding habitat provided by NR Pond	~75 acres of additional ponds
Flood Management		NR Pond and Pump Station designed to accomodate up to 120 cfs of flow and prevent flood impacts to the east of the City.	

Other Benefits:

non-point source pollution control; increase urban greenspace; reduced energy use, GHG emission, or provides a carbon sink.

Please provide a summary of the expected project benefits and impacts in the table below.

a. Describe any expected impacts of the project	potential environmental impacts during construction.
b. If applicable, describe benefits or impacts of the project with respect to Native American Tribal Community considerations.	N/A
c. If applicable, describe benefits or impacts of the project with respect to Disadvantaged Communities*.	Some DC areas are located in the City's drainage area draining to the NR Pond.

d. If applicable, describe benefits or impacts of the project with respect to Environmental Justice ** considerations.	N/A

e. If applicable, describe how the project assists the region in adapting to effects of climate change.	additional greenspace
f. If applicable, describe the generation or reduction of greenhouse gas emissions associated with the project.	Usage of NR pond site as a storm water feature rather than anther type of development reduces additional generation of greenhouse gases.

*A Disadvantaged Community is defined as a community with an annual median household (MHI) income that is less than 80 percent of the Statewide annual MHI. A map identifying DACs in the Westside Region is available at www.westsideirwm.com.

** Environmental Justice is 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.

VI. Statewide Program Preferences and Priorities

Please select the Program Preferences and Statewide Priorities that apply to the proposed project (choose all that apply).

Program Preferences

- ☐ Include regional projects or programs (CWC §10544)
- ☐ Effectively integrate water management programs and projects within a hydrologic region identified in the California Water Plan; the Regional Water Quality Control Board (RWQCB) region or subdivision; or other region or sub---region specifically identified by DWR
- ☐ Effectively resolve significant water---related conflicts within or between regions
- ☐ Contribute to attainment of one or more of the objectives of the CALFED Bay---Delta Program
- ☐ Address critical water supply or water quality needs of disadvantaged communities within the region
- ☑ Effectively integrate water management with land use planning
- ☑ For eligible SWFM funding, projects which: a) are not receiving State funding for flood control or flood prevention projects pursuant to PRC §5096.824 or §75034 or b) provide multiple benefits, including, but not limited to, water quality improvements, ecosystem benefits, reduction of instream erosion and sedimentation, and groundwater recharge.

WESTSIDE SAC IRWM

Integrated Regional Water Management Plan

Statewide Priorities

Drought Preparedness

- [x] Promote water conservation, conjunctive use, reuse and recycling
- [x] Improve landscape and agricultural irrigation efficiencies Achieve
- [ ] long term reduction of water use
- [x] Efficient groundwater basin management
- [ ] System interties

Use and Reuse Water More Efficiently

- [x] Increase urban and agricultural water use efficiency measures such as conservation and recycling
- [x] Capture, store, treat, and use urban stormwater runoff (such as percolation to usable aquifers, underground storage beneath parks, small surface basins, domestic stormwater capture systems, or the creation of catch basins or sumps downhill of development
- [x] Incorporate and implement low impact development (LID) design features, techniques, and practices to reduce or eliminate stormwater runoff

Climate Change Response Actions

- [ ] Adaptation to Climate Change: Advance and expand conjunctive management of multiple water supply sources
- [ ] Adaptation to Climate Change: Use and reuse water more efficiently
- [ ] Adaptation to Climate Change: Water management system modifications that address anticipated climate
  - [ ] Adaptation to Climate Change: Establish migration corridors, re---establish river---floodplain hydrologic continuity, re---introduce anadromous fish populations to upper watersheds, enhance and protect upper watershed forests and meadow systems
- [ ] Reduction of Greenhouse Gas (GHG) Emissions: Reduce energy consumption of water systems and uses
- [ ] Reduction of Greenhouse Gas (GHG) Emissions: Use cleaner energy sources to move and treat water
- [ ] Reduce Energy Consumption: Water use efficiency
- [ ] Reduce Energy Consumption: Water recycling
- [ ] Reduce Energy Consumption: Water system energy efficiency

Expand Environmental Stewardship

- [x] Expand Environmental Stewardship to protect and enhance the environment by improving watershed, floodplain, and instream functions and to sustain water and flood management

ecosystems.

Practice Integrated Flood Management

- [x] Better emergency preparedness and response
- [x] Improved flood protection
- [ ] More sustainable flood and water management systems
- [ ] Enhanced floodplain ecosystems
- [x] LID techniques that store and infiltrate runoff while protecting groundwater

Protect Surface Water and Groundwater Quality

- [ ] Protecting and restoring surface water and groundwater quality to safeguard public and environmental health and secure water supplies for beneficial uses
- [ ] Salt/nutrient management planning as a components of an IRWM Plan

Improve Tribal Water and Natural Resources

- [ ] Improve Tribal Water and Natural Resources and include the development of Tribal consultation, collaboration, and access to funding for water programs.

Ensure Equitable Distribution of Benefits

- [ ] Increase the participation of small and disadvantaged communities in the IRWM process.
- [ ] Develop multi---benefit projects with consideration of affected disadvantaged communities and vulnerable populations.
- [ ] Contain projects that address safe drinking water and wastewater treatment needs of DACs.
- [ ] Address critical water supply or water quality needs of California Native American Tribes within the region.

VII. Project Cost and Financing

Please provide any estimates of project cost, sources of funding, and operation and maintenance costs as well as the source of the project cost in the table below.

a. Project Costs		
1. Capital (2014 Dollars)	$8,000,000	
2. Annual Operations and Maintenance (O&M)	$100,000 (rough guess for maintenance of pond and cost to run/maintain the pumps)	
b. List secured source(s) of funding	**Source(s)**	**Amount**
	Development (SLIF funding)	100% of construction from SLIF

		development fees and 100% of O&M from SL L&L district

c. List proposed source(s) of funding and certainty of the sources.		
d. For capital projects, explain how operation and maintenance costs will be financed.	Construction is all development funded. O&M is paid out of a Landscape/Lighting District fund	
e. Basis for project cost	Engineer's Estimate of Probable Cost	
f. Can a detailed cost estimate be provided upon request?	☑ Yes ☐ No	

VIII. Project Status and Schedule

Please provide a status of the project, level of completion as well as a description of the activities planned for each project stage.

Project Stage	Description of Activities in Each Project Stage	Planned/Actual Start Date	Planned/Actual Completion Date
a. Conceptual	Spring Lake Infrastructure Master Plan	2002	2015
b. Planning	Update of the City's South Urban Growth Area Stormwater Master Plan	Spring 2015	Spring 2017
c. Environmental Documentation (CEQA/NEPA)	ongoing through subcontractor to West Yost	Spring 2017	Spring 2018
d. Permitting	ongoing through contract with West Yost	Fall 2017	Spring 2018
e. Tribal Consultation	N/A		
f. Design	Contract with West Yost	Spring 2017	Spring 2018
g. Construction/Implementation	Bid as public project	Spring 2018	Fall 2019

IX. **Project Technical Feasibility**

Please provide any related documents (date, title, author, and page numbers) that describe and confirm the technical feasibility of the project.

a. List water planning documents that specifically identify this project.	City of Woodland Update to Storm Drainage Facilities Master Plan South Urban Growth Area by Wood Rogers, February 2017
b. List the adopted planning documents the proposed project is consistent with (e.g. General Plans, UWMPs, GWMPs, Water Master Plans, Habitat Conservation Plans, etc.)	Spring Lake Specific Plan
c. List technical reports and studies supporting the feasibility of this project.	
d. If you are an Urban Water Supplier:	
1. Have you completed an Urban Water Management Plan and submitted to DWR?	✔ Yes ☐ No ☐ N/A
2. Are you in compliance with AB1420?	✔ Yes ☐ No N/A
3. Do you comply with the water meter requirements (CWC §525)	✔ Yes ☐ No ☐ N/A
4. If the answer to any of the questions above is "no", do you intend to comply prior to receiving Project funding	☐ Yes ☐ No ✔ N/A
e. If you are an Agricultural Water Supplier:	
1. Have you completed and submitted an AWMP (due 12/31/12)?	Yes No ✔ N/A
2. If not, will you complete and submit an AWMP prior to receiving project funding?	Yes No ✔ N/A
f. If the project is related to groundwater:	
1. Has a GWMP been completed and submitted for the subject basin?	✔ Yes ☐ No ☐ N/A
2. If not will a GWMP be completed within 1 year of the grant submittal date?	Yes No ✔ N/A

WESTSIDE SAC IRWM
Integrated Regional Water Management Plan

Project Information Form

SWRP Projects Addendum

The Yolo WRA is accepting suggestions for projects for inclusion in the Yolo Storm Water Resource Plan (SWRP). Projects submitted for consideration should contribute to the attainment of the IRWM Plan and SWRP Objectives. To have your project considered for inclusion, please complete this project information form in its entirety and submit the completed form by **July 28, 2017** to **Kristin Sicke (ksicke@ycfcwcd.org)**.

Please provide information below:

I. Has this project been submitted to the Westside IRWMP previously?

○ Yes Please provide the Project Name as submitted on the Westside Sac IRWMP Project Information Form:

◉ No If you answered no, the Westside Sac IRWMP Project Information Form must be completed and submitted with this form. The form can be downloaded at: http://www.westsideirwm.com/Westside%20IRWMP%20Web%20Page/documents/Projects/Project%20Update%20Form-09-01-14.pdf

If you answered yes to the above question, please provide any additional project description/details not provided in the original Westside IRWMP Project Form related to storm water:

II. Land Availability

a. Is the project located on lands with Public ownership?	☑ Yes	☐ No	☐ N/A
b. Have easements and/or all required land use agreements been obtained or are pending?	☐ Yes	☑ No	☐ N/A

c. Describe how this project will result in immediate or downstream storm water benefit to Yolo County:

Currently, the elevation of Highway 16 is such that it serves as a conveyance system for stormwater, causing flooding to Highway 16 which results in flooding to the town of Madison and reduced access to tribal lands. At high flows, where Highway 16 intersects the canal system, stormwater over tops the canal and travels along Highway 16 and into the town of Madison. If Highway 16 was raised by 2-4 feet as planned by Caltrans in 2010-2011, it would channel stormwater north around the town of Madison and back into the canals downstream of Madison. Raising Highway 16 would not only mitigate flood risks to the town of Madison, but also along Highway 16. This project also could coordinate with the Madison Canals project.

III. SWRP Objectives – In addition to IRWMP Objectives

Please mark (x) the SWRP Objectives that apply to the proposed project (choose all that apply).

☐ Convert paved and/or impervious areas and increase tree canopy and vegetation, reducing urban heat island effects.

☑ Optimize the rural storm water conveyance system to drain and retain storm water flows as necessary. Provide proper rural drainage and keep conveyance systems clear of debris to minimize county road flooding during storm events.

☐ Enable proper rural retention and modify rural landscape to maximize groundwater recharge of excess storm water.

IV. SWRP Guideline Benefit Categories

Please mark (x) all the project benefit categories that apply and provide a brief explanation. Suggested benefit descriptions are included in the SWRP Guidelines Tables 3 and 4.

MAIN BENEFIT(S)

	x	Brief Explanation of Benefit	Quantification (e.g. acre---feet of water supplied, acres of habitat restored)
Water Quality – Increased filtration and/or treatment of runoff			
Water Supply – Water supply reliability	x	Detention basins planned could function as groundwater recharge	AF water captured/infiltrated in detention basin
Water Supply – Conjunctive use	x	Maximizes benefit of surface water for groundwater recharge	AF water captured/infiltrated in detention basin
Flood Management – Decreased flood risk by reducing runoff rate and/or volume	x	Detention basins reduce runoff rate to Town of Madison	AF water captured in detention basin
Environmental – Environmental and habitat protection and improvement			
Environmental – Increased urban green space			
Community – Employment opportunities provided			
Community – Public education			

SECONDARY BENEFIT(S)

	x	Brief Explanation of Benefit	Quantification (e.g. acre---feet of water supplied, acres of habitat restored)
Water Quality – Nonpoint source pollutant control			
Water Quality – Reestablished natural water drainage and treatment			
Water Supply – Water conservation	X	Redirecting stormwater back into the canals will increase groundwater recharge, which can be used for agricultural purposes during the dry season. This will conserve treated raw water which can be used for drinking.	CFS in canals
Flood Management – Reduced sanitary sewer overflows			
Environmental – Reduced energy use, greenhouse gas emissions, or provides	x	Higher groundwater levels from recharge can reduce energy for pumping	
Environmental – Reestablishment of the natural hydrograph			
Environmental – Water temperature improvements			
Community – Community involvement			
Community – Enhance and/or create recreational and public use areas	X	Improve in-stream flow by redirecting stormwater around the town of Madison and back into the canals.	Model based on previous closures of Hwy 16 due to flooding

Project Information Form

The Westside Region is accepting suggestions for projects for inclusion in the Westside Integrated Regional Water Management (IRWM) Plan. Projects submitted for consideration should contribute to the attainment of the IRWM Plan Goals and Objectives. To have your project considered for inclusion, please complete this project information form in its entirety and submit the completed form to info@westsideirwm.com .

Please provide information in the tables below:

I. Project Proponent Information

Lead Agency/ Organization	Yolo County
Name of Primary Contact	Kristin Sicke/Elise Sabatini
Mailing Address	34274 CA-16, Woodland, CA 95695
E---mail	ksicke@ycfcwcd.org
Phone (###)###---####	(530) 662-0265 ext. 112
Other Cooperating Agencies/Organizations	Project lead is Caltrans, other partners include Madison CSD, Yocha Dehe Wintun Nation and Yolo County Farm Bureau;
Is your agency committed to the project through completion? If not, please explain	Pending confirmation of Caltrans funding availability

II. General Project Information

Project Title	Raise Highway 16 Out of Flood plain
Project Description (Briefly describe the project, in 300 words or less,)	This project was initially proposed by Caltrans as flooding of Highway 16 is a chronic problem. The project was not constructed because of concerns of some farmers about grades at farm road crossings. Raising Highway 16 creates a barrier that could be used to store storm water north of the highway in detention basins/recharge ponds. Increasing the capacity of Willow Slough south of Highway 16 west of Madison is needed so that flows can be conveyed to the detention basins. Willow Slough is the source of the majority of flooding in Madison. Cottonwood Slough contributes to occasional flooding (last time was 1996) in Madison. This project could be coordinated with the Madison Canals project as other upstream diversions could benefit this project and/or the planned detention basins could be coordinated.

Project Location:	Highway 16 between Esparto and Madison, potential to Highway 505 and east
Latitude:	
Longitude:	
Can you provide a map of the project location including boundaries upon request?	■ Yes ☐ N/A ☐ No
Project Location Description:	Highway 16 Corridor
County:	Yolo County
City/Community:	Unincorporated Yolo County
Watershed:	S. Fork Willow and Cottonwood Sloughs
Groundwater Basin:	Yolo Subbasin
Planning Area:	Valley Floor Area
Additional Comments:	
Project Status (Check only one)	■ Conceptual ■ Planning ■ CEQA/NEPA ☐ Permitting ☐ Design ☐ Construction/Implementation ■ Study/Other ☐ Maintenance/Monitoring
Earliest expected start date (mm/dd/yr)	Pending Caltrans confirmation

III. Plan Goals/Objectives Addressed

For each of the goals/objectives addressed by the project, provide a one to two sentence description of how the project contributes to attaining the objective. Information related to the proposed goals and objectives can be found at www.westsideirw.com/irwmplan . If the project does not address any of the draft IRWM plan objectives, provide a one to two sentence description of how the project relates to a challenge or opportunity of the region.

Goal(s) that the Project will contribute to:	8. Promote reasonable use of water and watershed resources, 10. Provide reliable water supplies, 11. Reduce the risks of ...flooding; 12. Support improved regional water management through governance throughout the Region, 13. Support sustainable economic activities consistent with local and state government planning efforts within the Region
Objective(s) that the Project will help accomplish:	14. Provide adequate flood protection; GW recharge elements will: 23. Provide 100% reliability of M&I water supplies, 24. Provide Ag water supplies

Explanation of Project linkage to goals and objectives	Elevating Highway 16 out of the flood plain will allow passage during flood events that will reduce disruption to local businesses including Yocha Dehe Wintun Cache Creek Casino; Detention basins that could also function as GW recharge basins could enhance GW recharge.
How will the project be measured to ensure the goals and objectives are being fulfilled?	Number of flood events that close Highway 16 will be monitored; GW recharge can be measured with water level measurements in detention basins.

IV. Resource Management Strategies

For each resource management strategy employed by the project, provide a one to two sentence description in the table below of how the project incorporates the strategy. A description of the Resource Management Strategies can be found in Volume 2 of the 2009 California Water Plan here: http://www.waterplan.water.ca.gov/cwpu2009/index.cfm

Reduce Water Demand	
Agricultural Water Use Efficiency	
Urban Water Use Efficiency	
Improve Operational Efficiency and Transfers	
Conveyance --- Delta	
Conveyance --- Regional / local	
System Reoperation	
Water Transfers	
Increase Water Supply	
Conjunctive Management & Groundwater	GW recharge via detention basins
Desalination	
Precipitation Enhancement	
Recycled Municipal Water	
Surface Storage ------ CALFED	
Surface Storage ------ Regional / Local	Detention/recharge basins can provide local storage.

Improve Water Quality	
Drinking Water Treatment and Distribution	
Groundwater and Aquifer Remediation	
Matching Water Quality to Use	
Pollution Prevention	
Salt and Salinity Management	
Urban Runoff Management	
Practice Resources Stewardship	
Agricultural Lands Stewardship	
Economic Incentives (Loans, Grants, and Water Pricing)	
Ecosystem Restoration	
Forest Management	
Land Use Planning and Management	
Recharge Areas Protection	
Water---dependent Recreation	
Watershed Management	
Improve Flood Management	
Flood Risk Management	Elevating roadway eliminates flood risk

V. Project Impacts and Benefits

Please select all the project benefit categories that apply and provide a brief explanation. If the project benefits do not fit any of the listed categories, please explain in the box below. Suggested benefit descriptions are included in the Project Information Form instructions sheet.

Benefit Categories:		**Brief Explanation of Selected Benefits**	**Quantification (e.g. acre---feet of water supplied, acres of habitat restored)**
Increase Water Supply		Detention/recharge basins can provide GW recharge	quantities of water recharged
Improve Water Quality			
Groundwater Improvements		GW recharge should result in water level increases	Quantities of water recharged OR Measurement of GW levels around detention/recharge basins
Water Conservation and Reuse	☐		

Watershed Rehabilitation	☐		
Habitat Improvements			
Flood Management		Elevating roadway reduces flood risk	Monitoring flood events that close roadway

Other Benefits:

Economic benefits of allowing roadway to remain open to residents and businesses. Increases in GW levels will reduce energy for pumping. Additional benefits may accrue if coordinated with Madison Canals project.

Please provide a summary of the expected project benefits and impacts in the table below.

a. Describe any expected impacts of the project	Potential construction impacts may occur
b. If applicable, describe benefits or impacts of the project with respect to Native American Tribal Community considerations.	Reduced closure of Highway 16, benefits Yoche Dehe Wintun tribe businesses
c. If applicable, describe benefits or impacts of the project with respect to Disadvantaged Communities*.	Project will benefit Madison (DAC) by diverting flood flows away and improving groundwater supply through recharge from detention basins.
d. If applicable, describe benefits or impacts of the project with respect to Environmental Justice ** considerations.	Improving flood conditions in Madison, a DAC, will address Environmental justice considerations.

e. If applicable, describe how the project assists the region in adapting to effects of climate change.	Flood frequency and depth may increase with the effects of climate change and an elevated roadway will reduce impact to local residents and businesses as a means of adapting to climate change
f. If applicable, describe the generation or reduction of greenhouse gas emissions associated with the project.	Increased GW levels from GW recharge will reduce energy for pumping GW and therefore reduce GHG emissions.

*A Disadvantaged Community is defined as a community with an annual median household (MHI) income that is less than 80 percent of the Statewide annual MHI. A map identifying DACs in the Westside Region is available at www.westsideirwm.com.

** Environmental Justice is 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.

VI. Statewide Program Preferences and Priorities

Please select the Program Preferences and Statewide Priorities that apply to the proposed project (choose all that apply).

Program Preferences

- ☐ Include regional projects or programs (CWC §10544)
- ☑ Effectively integrate water management programs and projects within a hydrologic region identified in the California Water Plan; the Regional Water Quality Control Board (RWQCB) region or subdivision; or other region or sub---region specifically identified by DWR
- ☑ Effectively resolve significant water---related conflicts within or between regions
- ☐ Contribute to attainment of one or more of the objectives of the CALFED Bay---Delta Program
- ☑ Address critical water supply or water quality needs of disadvantaged communities within the region
- ☐ Effectively integrate water management with land use planning
- ☐ For eligible SWFM funding, projects which: a) are not receiving State funding for flood control or flood prevention projects pursuant to PRC §5096.824 or §75034 or b) provide multiple benefits, including, but not limited to, water quality improvements, ecosystem benefits, reduction of instream erosion and sedimentation, and groundwater recharge.

Statewide Priorities

Drought Preparedness

- [ ] Promote water conservation, conjunctive use, reuse and recycling
- [ ] Improve landscape and agricultural irrigation efficiencies Achieve
- [ ] long term reduction of water use
- [x] Efficient groundwater basin management
- [ ] System interties

Use and Reuse Water More Efficiently

- [ ] Increase urban and agricultural water use efficiency measures such as conservation and recycling
- [x] Capture, store, treat, and use urban stormwater runoff (such as percolation to usable aquifers, underground storage beneath parks, small surface basins, domestic stormwater capture systems, or the creation of catch basins or sumps downhill of development
- [ ] Incorporate and implement low impact development (LID) design features, techniques, and practices to reduce or eliminate stormwater runoff

Climate Change Response Actions

- [x] Adaptation to Climate Change: Advance and expand conjunctive management of multiple water supply sources
- [ ] Adaptation to Climate Change: Use and reuse water more efficiently
- [x] Adaptation to Climate Change: Water management system modifications that address anticipated climate
  - [ ] Adaptation to Climate Change: Establish migration corridors, re---establish river---floodplain hydrologic continuity, re---introduce anadromous fish populations to upper watersheds, enhance and protect upper watershed forests and meadow systems
- [x] Reduction of Greenhouse Gas (GHG) Emissions: Reduce energy consumption of water systems and uses
- [ ] Reduction of Greenhouse Gas (GHG) Emissions: Use cleaner energy sources to move and treat water
- [ ] Reduce Energy Consumption: Water use efficiency
- [ ] Reduce Energy Consumption: Water recycling
- [x] Reduce Energy Consumption: Water system energy efficiency

Expand Environmental Stewardship

- [ ] Expand Environmental Stewardship to protect and enhance the environment by improving watershed, floodplain, and instream functions and to sustain water and flood management

ecosystems.

Practice Integrated Flood Management

- [x] Better emergency preparedness and response
- [x] Improved flood protection
- [x] More sustainable flood and water management systems
- [ ] Enhanced floodplain ecosystems
- [ ] LID techniques that store and infiltrate runoff while protecting groundwater

Protect Surface Water and Groundwater Quality

- [ ] Protecting and restoring surface water and groundwater quality to safeguard public and environmental health and secure water supplies for beneficial uses
- [ ] Salt/nutrient management planning as a components of an IRWM Plan

Improve Tribal Water and Natural Resources

- [x] Improve Tribal Water and Natural Resources and include the development of Tribal consultation, collaboration, and access to funding for water programs.

Ensure Equitable Distribution of Benefits

- [ ] Increase the participation of small and disadvantaged communities in the IRWM process.
- [x] Develop multi---benefit projects with consideration of affected disadvantaged communities and vulnerable populations.
- [x] Contain projects that address safe drinking water and wastewater treatment needs of DACs.
- [x] Address critical water supply or water quality needs of California Native American Tribes within the region.

VII. Project Cost and Financing

Please provide any estimates of project cost, sources of funding, and operation and maintenance costs as well as the source of the project cost in the table below.

a. Project Costs		
1. Capital (2014 Dollars)	To be determined	
2. Annual Operations and Maintenance (O&M)	will potentially include detention basin maintenance	
b. List secured source(s) of funding	**Source(s)**	**Amount**
	County (3 funds)	$1.2m

c. List proposed source(s) of funding and certainty of the sources.	State Grants	
d. For capital projects, explain how operation and maintenance costs will be financed.		
e. Basis for project cost		
f. Can a detailed cost estimate be provided upon request?	☐ Yes ☑ No	

VIII. Project Status and Schedule

Please provide a status of the project, level of completion as well as a description of the activities planned for each project stage.

Project Stage	Description of Activities in Each Project Stage	Planned/Actual Start Date	Planned/Actual Completion Date
a. Conceptual	Caltrans info		
b. Planning	Caltrans info		
c. Environmental Documentation (CEQA/NEPA)	Caltrans prepared draft EIR as of 2011		
d. Permitting			
e. Tribal Consultation			
f. Design			
g. Construction/Implementation			

IX. Project Technical Feasibility

Please provide any related documents (date, title, author, and page numbers) that describe and confirm the technical feasibility of the project.

a. List water planning documents that specifically identify this project.	2011 (est) Caltrans EIR
b. List the adopted planning documents the proposed	

project is consistent with (e.g. General Plans, UWMPs, GWMPs, Water Master Plans, Habitat Conservation Plans, etc.)	
c. List technical reports and studies supporting the feasibility of this project.	2012 Flood Insurance Study and FIRM maps Yolo Co staff reports: http://yoloagenda.yolocounty.org:8085/agenda_publish.cfm?id=&mt=ALL&get_month=5&get_year=2011&dsp=agm&seq=28&rev=0&ag=4&ln=1903&nseq=50&nrev=0&pseq=&prev=# http://yoloagenda.yolocounty.org:8085/print_ag_memo.cfm?seq=4350&rev_num=0&mode=External&reloaded=true&id
d. If you are an Urban Water Supplier:	
1. Have you completed an Urban Water Management Plan and submitted to DWR?	Yes No ✔ N/A
2. Are you in compliance with AB1420?	Yes No ✔ N/A
3. Do you comply with the water meter requirements (CWC §525)	Yes No ✔ N/A
4. If the answer to any of the questions above is "no", do you intend to comply prior to receiving Project funding	Yes No ✔ N/A
e. If you are an Agricultural Water Supplier:	
1. Have you completed and submitted an AWMP (due 12/31/12)?	✔ Yes No N/A
2. If not, will you complete and submit an AWMP prior to receiving project funding?	Yes No ✔ N/A
f. If the project is related to groundwater:	
1. Has a GWMP been completed and submitted for the subject basin?	✔ Yes No N/A
2. If not will a GWMP be completed within 1 year of the grant submittal date?	Yes No ✔ N/A

Project Information Form

The Westside Region is accepting suggestions for projects for inclusion in the Westside Integrated Regional Water Management (IRWM) Plan. Projects submitted for consideration should contribute to the attainment of the IRWM Plan Goals and Objectives. To have your project considered for inclusion, please complete this project information form in its entirety and submit the completed form to info@westsideirwm.com .

Please provide information in the tables below:

I. Project Proponent Information

Lead Agency/ Organization	City of Davis
Name of Primary Contact	Rhys Rowland
Mailing Address	1717 Fifth Street Davis, CA 95616
E---mail	rrowland@cityofdavis.org
Phone (###)###---####	(530)757-5638
Other Cooperating Agencies/Organizations	None
Is your agency committed to the project through completion? If not, please explain	Not as of yet. The City is searching for sources of funding to determine feasibility and then implementation based upon assurance of an obtainable and economical goal.

II. General Project Information

Project Title	Retention Pond Feasibility Study
Project Description (Briefly describe the project, in 300 words or less,)	Looking to study feasibility for design enhancements for the seven separate storm drain retention ponds to improve evoptranspiration and water quality in the City's discharge. This feasibility study would provide specific ways to improve the design of the existing facilities to improve water quality for the discharges that occur from each facility. The facilities are located Citywide, but all of the ponds are located north of I 80 in the northern two thirds of the City. The study may yield that only one pond is worthy of modification. In particular, the City would like to study the Core Area Pond in central Davis as it believed to be the pond that receives the most pollutants from its drainage shed. A map can be provided to aid in located each of these ponds. If project is developed an educational component can be added.

Project Location:	
Latitude:	38.55
Longitude:	121.73
Can you provide a map of the project location including boundaries upon request?	☒ Yes ☐ N/A ☐ No
Project Location Description:	Citywide, but primarily in the northern majority of the City.
County:	Yolo
City/Community:	Davis
Watershed:	Covell Drain
Groundwater Basin:	Yolo Subbasin
Planning Area:	Yolo County
Additional Comments:	None
Project Status (Check only one)	☐ Conceptual ☐ Planning ☐ CEQA/NEPA ☐ Permitting ☐ Design ☐ Construction/Implementation ☒ Study/Other ☐ Maintenance/Monitoring
Earliest expected start date (mm/dd/yr)	Fall/Winter 2016.

III. Plan Goals/Objectives Addressed

For each of the goals/objectives addressed by the project, provide a one to two sentence description of how the project contributes to attaining the objective. Information related to the proposed goals and objectives can be found at www.westsideirw.com/irwmplan . If the project does not address any of the draft IRWM plan objectives, provide a one to two sentence description of how the project relates to a challenge or opportunity of the region.

Goal(s) that the Project will contribute to:	Goals include #7, 9 and 11.
Objective(s) that the Project will help accomplish:	Objectives include #6, 14, 17, and 19.

Explanation of Project linkage to goals and objectives	Feasibility will provide determination if the existing facilities can be improved in both design and management. If the project is developed, enhanced water quality for the existing drainage from the ponds will follow. It is not certain that enhanced infiltration will result. The project will enhance quality of habitat and aesthetic value of each facility and aid in downstream flood management. Any improvement of water quality to receiving water facilitates meeting the requirements of the City's Permit. Goals 7, 9, and 11. Objectives 6, 14, 17 and 19.
How will the project be measured to ensure the goals and objectives are being fulfilled?	Visual monitoring of the discharge from the channels during storm events already occurs. Visual monitoring triggers whether or not sampling is necessary in accordance with the Permit. Ultimately a combination of both recording visual monitoring and sampling would be how the project would be measured if developed.

IV. Resource Management Strategies

For each resource management strategy employed by the project, provide a one to two sentence description in the table below of how the project incorporates the strategy. A description of the Resource Management Strategies can be found in Volume 2 of the 2009 California Water Plan here: http://www.waterplan.water.ca.gov/cwpu2009/index.cfm

Reduce Water Demand	
Agricultural Water Use Efficiency	N/A
Urban Water Use Efficiency	May help with aquifer recharge. Impact otherwise unknown and likely small.
Improve Operational Efficiency and Transfers	
Conveyance --- Delta	Negligible impact.
Conveyance --- Regional / local	Some minor local impact as some additional water may be infiltrated or evapotranspirated.
System Reoperation	N/A
Water Transfers	N/A
Increase Water Supply	
Conjunctive Management & Groundwater	Unknown
Desalination	N/A
Precipitation Enhancement	N/A
Recycled Municipal Water	N/A
Surface Storage ------ CALFED	N/A
Surface Storage ------ Regional / Local	N/A

Improve Water Quality	
Drinking Water Treatment and Distribution	N/A
Groundwater and Aquifer Remediation	Unknown
Matching Water Quality to Use	Improved water quality for the urban uses that drain into these facilities.
Pollution Prevention	Some improvement of receiving water quality by capturing pollutants.
Salt and Salinity Management	N/A
Urban Runoff Management	Some improvement of urban runoff quality and reduced quantity due to improved evoptranspiration.
Practice Resources Stewardship	
Agricultural Lands Stewardship	N/A
Economic Incentives (Loans, Grants, and Water Pricing)	N/A
Ecosystem Restoration	Some local and downstream enhancement for habitat quality.
Forest Management	N/A
Land Use Planning and Management	N/A
Recharge Areas Protection	N/A
Water---dependent Recreation	Will aid in improving water quality for downstream beneficial uses such as recreation.
Watershed Management	Will aid in improving overall water quality, habitat enhancement and reduced runoff if developed within the watershed.
Improve Flood Management	
Flood Risk Management	Minor reduction in flood risk due to increased evapotranspiration.

V. Project Impacts and Benefits

Please select all the project benefit categories that apply and provide a brief explanation. If the project benefits do not fit any of the listed categories, please explain in the box below. Suggested benefit descriptions are included in the Project Information Form instructions sheet.

Benefit Categories:	☐	**Brief Explanation of Selected Benefits**	**Quantification (e.g. acre---feet of water supplied, acres of habitat restored)**

Increase Water Supply		May have some benefit to underground aquifer recharge if developed.	Unknown
Improve Water Quality		Minor to significant dependent upon the facility.	Unknown amount
Groundwater Improvements		Unknown	Unknown
Water Conservation and Reuse		N/A	N/A
Watershed Rehabilitation		Some impact to watershed rehabilitation by improved water quality within the watershed.	Unknown amount.
Habitat Improvements		Improves habitat both locally and downstream by improving water quality and enhanced native vegetation.	Unknown amount.
Flood Management		Minor impact in creating additional opportunity for stormwater runoff to evoptranspirate.	Unknown amount.

Other Benefits:

Likely to improve aesthetic quality of the project area.

Please provide a summary of the expected project benefits and impacts in the table below.

a. Describe any expected impacts of the project	During development if it were to occur in the second phase, some local impacts related to construction noise, wildlife disturbance and potential to contribute pollutants from the ponds to receiving.
b. If applicable, describe benefits or impacts of the project with respect to Native American Tribal Community considerations.	Some benefit to Plains and Bay Miwok tribal communities that live in the Sacramento River and Bay Delta Region downstream of the project site.
c. If applicable, describe benefits or impacts of the project with respect to Disadvantaged Communities*.	None known.
d. If applicable, describe benefits or impacts of the project with respect to Environmental Justice ** considerations.	None known.
e. If applicable, describe how the project assists the region in adapting to effects of climate change.	None known.
f. If applicable, describe the generation or reduction of greenhouse gas emissions associated with the project.	None known.

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*A Disadvantaged Community is defined as a community with an annual median household (MHI) income that is less than 80 percent of the Statewide annual MHI. A map identifying DACs in the Westside Region is available at www.westsideirwm.com.

** Environmental Justice is 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.

VI. Statewide Program Preferences and Priorities

Please select the Program Preferences and Statewide Priorities that apply to the proposed project (choose all that apply).

Program Preferences

- [ ] Include regional projects or programs (CWC §10544)
- [ ] Effectively integrate water management programs and projects within a hydrologic region identified in the California Water Plan; the Regional Water Quality Control Board (RWQCB) region or subdivision; or other region or sub---region specifically identified by DWR
- [ ] Effectively resolve significant water---related conflicts within or between regions
- [x] Contribute to attainment of one or more of the objectives of the CALFED Bay---Delta Program
- [ ] Address critical water supply or water quality needs of disadvantaged communities within the region
- [ ] Effectively integrate water management with land use planning
- [ ] For eligible SWFM funding, projects which: a) are not receiving State funding for flood control or flood prevention projects pursuant to PRC §5096.824 or §75034 or b) provide multiple benefits, including, but not limited to, water quality improvements, ecosystem benefits, reduction of instream erosion and sedimentation, and groundwater recharge.

Statewide Priorities

Drought Preparedness

- ☐ Promote water conservation, conjunctive use, reuse and recycling
- ☐ Improve landscape and agricultural irrigation efficiencies Achieve
- ☐ long term reduction of water use
- ☐ Efficient groundwater basin management
- ☐ System interties

Use and Reuse Water More Efficiently

- ☐ Increase urban and agricultural water use efficiency measures such as conservation and recycling
- ☑ Capture, store, treat, and use urban stormwater runoff (such as percolation to usable aquifers, underground storage beneath parks, small surface basins, domestic stormwater capture systems, or the creation of catch basins or sumps downhill of development
- ☑ Incorporate and implement low impact development (LID) design features, techniques, and practices to reduce or eliminate stormwater runoff

Climate Change Response Actions

- ☐ Adaptation to Climate Change: Advance and expand conjunctive management of multiple water supply sources
- ☐ Adaptation to Climate Change: Use and reuse water more efficiently
- ☐ Adaptation to Climate Change: Water management system modifications that address anticipated climate
    - ☐ Adaptation to Climate Change: Establish migration corridors, re---establish river---floodplain hydrologic continuity, re---introduce anadromous fish populations to upper watersheds, enhance and protect upper watershed forests and meadow systems
- ☐ Reduction of Greenhouse Gas (GHG) Emissions: Reduce energy consumption of water systems and uses
- ☐ Reduction of Greenhouse Gas (GHG) Emissions: Use cleaner energy sources to move and treat water
- ☐ Reduce Energy Consumption: Water use efficiency
- ☐ Reduce Energy Consumption: Water recycling
- ☐ Reduce Energy Consumption: Water system energy efficiency

Expand Environmental Stewardship

- ☑ Expand Environmental Stewardship to protect and enhance the environment by improving watershed, floodplain, and instream functions and to sustain water and flood management

ecosystems.

Practice Integrated Flood Management

- [ ] Better emergency preparedness and response
- [ ] Improved flood protection
- [x] More sustainable flood and water management systems
- [x] Enhanced floodplain ecosystems
- [x] LID techniques that store and infiltrate runoff while protecting groundwater

Protect Surface Water and Groundwater Quality

- [x] Protecting and restoring surface water and groundwater quality to safeguard public and environmental health and secure water supplies for beneficial uses
- [ ] Salt/nutrient management planning as a components of an IRWM Plan

Improve Tribal Water and Natural Resources

- [ ] Improve Tribal Water and Natural Resources and include the development of Tribal consultation, collaboration, and access to funding for water programs.

Ensure Equitable Distribution of Benefits

- [ ] Increase the participation of small and disadvantaged communities in the IRWM process.
- [ ] Develop multi---benefit projects with consideration of affected disadvantaged communities and vulnerable populations.
- [ ] Contain projects that address safe drinking water and wastewater treatment needs of DACs.
- [ ] Address critical water supply or water quality needs of California Native American Tribes within the region.

VII. Project Cost and Financing

Please provide any estimates of project cost, sources of funding, and operation and maintenance costs as well as the source of the project cost in the table below.

a. Project Costs		
1. Capital (2014 Dollars)	100,000 for feasibility study	
2. Annual Operations and Maintenance (O&M)	None anticipated, but if project is developed, then O & M costs would be determined in the study.	
b. List secured source(s) of funding	**Source(s)**	**Amount**
	None.	

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c. List proposed source(s) of funding and certainty of the sources.	City Enterprise funds are likely source. Uncertain if funding would be allocated at this time.	Required matching amount would be provided.
d. For capital projects, explain how operation and maintenance costs will be financed.	The sites and facilities are already maintained. Additional costs for O & M are anticipated to be small if development occurs.	
e. Basis for project cost	Estimates based upon prior experience.	
f. Can a detailed cost estimate be provided upon request?	☐ Yes ☑ No	

VIII. Project Status and Schedule

Please provide a status of the project, level of completion as well as a description of the activities planned for each project stage.

Project Stage	Description of Activities in Each Project Stage	Planned/Actual Start Date	Planned/Actual Completion Date
a. Conceptual	Design, Planning	Winter 2017	Spring 2017
b. Planning	Funding being sought	Spring 2017	Winter 2018
c. Environmental Documentation (CEQA/NEPA)	Likely to be Cat Ex.	Winter 2018	Spring 2018
d. Permitting	Follows Planning.	Winter 2018	Spring 2018
e. Tribal Consultation	N/A	N/A	N/A
f. Design	Follows study.	Winter 2017	Spring 2017
g. Construction/Implementation	Follows permitting.	Spring 2018	Fall 2018

IX. Project Technical Feasibility

Please provide any related documents (date, title, author, and page numbers) that describe and confirm the technical feasibility of the project.

a. List water planning documents that specifically identify this project.	None
b. List the adopted planning documents the proposed project is consistent with (e.g. General Plans, UWMPs, GWMPs, Water Master Plans, Habitat Conservation Plans, etc.)	None
c. List technical reports and studies supporting the feasibility of this project.	None
d. If you are an Urban Water Supplier:	
1. Have you completed an Urban Water Management Plan and submitted to DWR?	☑ Yes ☐ No ☐ N/A
2. Are you in compliance with AB1420?	☐ Yes ☐ No ✔ N/A
3. Do you comply with the water meter requirements (CWC §525)	☑ Yes ☐ No ☐ N/A
4. If the answer to any of the questions above is "no", do you intend to comply prior to receiving Project funding	☐ Yes ☐ No ☑ N/A
e. If you are an Agricultural Water Supplier:	
1. Have you completed and submitted an AWMP (due 12/31/12)?	Yes ☐ No ☑ N/A
2. If not, will you complete and submit an AWMP prior to receiving project funding?	☐ Yes ☐ No ☑ N/A
f. If the project is related to groundwater:	
1. Has a GWMP been completed and submitted for the subject basin?	☐ Yes ☑ No ☐ N/A
2. If not will a GWMP be completed within 1 year of the grant submittal date?	☐ Yes ☑ No ☐ N/A

WESTSIDE SAC IRWM
Integrated Regional Water Management Plan

Project Information Form

SWRP Projects Addendum

The Yolo WRA is accepting suggestions for projects for inclusion in the Yolo Storm Water Resource Plan (SWRP). Projects submitted for consideration should contribute to the attainment of the IRWM Plan and SWRP Objectives. To have your project considered for inclusion, please complete this project information form in its entirety and submit the completed form by **July 28, 2017** to **Kristin Sicke (ksicke@ycfcwcd.org)**.

Please provide information below:

I. Has this project been submitted to the Westside IRWMP previously?

(●) Yes Please provide the Project Name as submitted on the Westside Sac IRWMP Project Information Form:

Retention Pond Feasibility Study

( ) No If you answered no, the Westside Sac IRWMP Project Information Form must be completed and submitted with this form. The form can be downloaded at: http://www.westsideirwm.com/Westside%20IRWMP%20Web%20Page/documents/Projects/Project%20Update%20Form-09-01-14.pdf

If you answered yes to the above question, please provide any additional project description/details not provided in the original Westside IRWMP Project Form related to storm water:

Feasibility study to assess City stormwater detention ponds and opportunities for enhancement for water quality purposes. The ponds hold stormwater runoff from the city and eventually release the stormwater to receiving waters outside of the City. This study would evaluate the feasibility of enhancing all six of the City's existing ponds for stormwater quality purposes through improved infiltration, transpiration and evaporation through retention.

II. Land Availability

a. Is the project located on lands with Public ownership? ☑ Yes ☐ No ☐ N/A

b. Have easements and/or all required land use agreements been obtained or are pending? ☐ Yes ☐ No ☑ N/A

c. Describe how this project will result in immediate or downstream storm water benefit to Yolo County:

If the project is developed, enhanced water quality for the existing drainage from the ponds will follow. The project will enhance quality of habitat and aesthetic value of each facility and aid in downstream flood management and increased water quality. Any improvement of water quality to receiving water facilitates will meet the requirements of the City's Permit.

III. SWRP Objectives – In addition to IRWMP Objectives

Please mark (x) the SWRP Objectives that apply to the proposed project (choose all that apply).

☐ Convert paved and/or impervious areas and increase tree canopy and vegetation, reducing urban heat island effects.

☐ Optimize the rural storm water conveyance system to drain and retain storm water flows as necessary. Provide proper rural drainage and keep conveyance systems clear of debris to minimize county road flooding during storm events.

☐ Enable proper rural retention and modify rural landscape to maximize groundwater recharge of excess storm water.

IV. SWRP Guideline Benefit Categories

Please mark (x) all the project benefit categories that apply and provide a brief explanation. Suggested benefit descriptions are included in the SWRP Guidelines Tables 3 and 4.

MAIN BENEFIT(S)

	x	Brief Explanation of Benefit	Quantification (e.g. acre---feet of water supplied, acres of habitat restored)
Water Quality – Increased filtration and/or treatment of runoff	X	The primary purpose of the ponds is stormwater treatment and flood risk management. Any enhancements to the ponds would increase infiltration and allow for enhanced treatment of runoff.	Feasibility study to determine options and quantification measures.
Water Supply – Water supply reliability			
Water Supply – Conjunctive use			
Flood Management – Decreased flood risk by reducing runoff rate and/or volume	X	The ponds would be enhanced to increase stormwater infiltration and reduce runoff rate.	Feasibility study to determine options and quantification measures.
Environmental – Environmental and habitat protection and improvement			
Environmental – Increased urban green space			
Community – Employment opportunities provided			
Community – Public education			

SECONDARY BENEFIT(S)

	x	Brief Explanation of Benefit	Quantification (e.g. acre---feet of water supplied, acres of habitat restored)
Water Quality – Nonpoint source pollutant control	X	Water from non-point sources is a component of water that flows into the detention ponds. Enhancing the ponds could aid in nonpoint source pollutant control.	Feasibility study to determine options and quantification measures.
Water Quality – Reestablished natural water drainage and treatment	X	Enhancing the ponds and potential reconfiguration could reestablish more natural water drainage and treatment.	Feasibility study to determine options and quantification measures.
Water Supply – Water conservation			
Flood Management – Reduced sanitary sewer overflows			
Environmental – Reduced energy use, greenhouse gas emissions, or provides			
Environmental – Reestablishment of the natural hydrograph			
Environmental – Water temperature improvements			
Community – Community involvement			
Community – Enhance and/or create recreational and public use areas			

Project Information Form

The Westside Region is accepting suggestions for projects for inclusion in the Westside Integrated Regional Water Management (IRWM) Plan. Projects submitted for consideration should contribute to the attainment of the IRWM Plan Goals and Objectives. To have your project considered for inclusion, please complete this project information form in its entirety and submit the completed form to info@westsideirwm.com .

Please provide information in the tables below:

I. Project Proponent Information

Lead Agency/ Organization	City of Davis
Name of Primary Contact	Martin Jones
Mailing Address	1818 Fifth Street Davis, CA 95616
E---mail	mjones@cityofdavis.org
Phone (###)###---####	(530)757-5656
Other Cooperating Agencies/Organizations	None
Is your agency committed to the project through completion? If not, please explain	Not as of yet. The City is searching for sources of funding.

II. General Project Information

Project Title	Russel Boulevard Demonstration LID Project
Project Description (Briefly describe the project, in 300 words or less,)	The project is to be located in front of City Hall (already proposed and working its way through the City's Parks and Community Services Department) along Russell Boulevard. Russel Boulevard is one of the City's prominent east-west arterials. The project is to create a vegetated swale to treat stromwater runoff on the north side of the roadway. The surface area it will treat is 8,000 square feet. It is proposed to treat drainage prior to discharge to the City's stormdrain system consistent with the standards of Section E.12 of the State's Small MS4 Phase II General Permit (Permit). A map can be provided to aid in the location of this project.

WESTSIDE SAC IRWM
Integrated Regional Water Management Plan

Project Location:	
Latitude:	38.55
Longitude:	121.75
Can you provide a map of the project location including boundaries upon request?	X Yes N/A No
Project Location Description:	
County:	Yolo
City/Community:	Davis
Watershed:	Covell Drain
Groundwater Basin:	Yolo Subbasin
Planning Area:	Yolo County
Additional Comments:	None
Project Status (Check only one)	X Conceptual x Planning CEQA/NEPA x Permitting x Design Construction/Implementation Study/Other Maintenance/Monitoring
Earliest expected start date (mm/dd/yr)	Spring 2017

III. Plan Goals/Objectives Addressed

For each of the goals/objectives addressed by the project, provide a one to two sentence description of how the project contributes to attaining the objective. Information related to the proposed goals and objectives can be found at www.westsideirw.com/irwmplan . If the project does not address any of the draft IRWM plan objectives, provide a one to two sentence description of how the project relates to a challenge or opportunity of the region.

Goal(s) that the Project will contribute to:	Goals include #2, 7, 9 and 11.
Objective(s) that the Project will help accomplish:	Objectives include #6, 14, 17, and 19.

Explanation of Project linkage to goals and objectives	By installing the project, the City will provide enhanced water quality for existing drainage within the area of the project. Some impervious surfacing will be converted to pervious surfacing, slowing drainage over this surfacing. This will increase overall evapotranspiration and ground water recharge over what currently occurs. However the quantity of water evapotranspirated is currently unknown. Given the project location and visibility, increased public awareness of pollution prevention will be achieved. Goals include #2, 7, 9 and 11. Objectives include #6, 14, 17, and 19.
How will the project be measured to ensure the goals and objectives are being fulfilled?	Visual monitoring of the discharge from the swale during storm events would be the . Visual monitoring triggers whether or not sampling is necessary in accordance with the Permit. Ultimately a combination of both recording visual monitoring and sampling would be how the project would be measured if developed.

IV. Resource Management Strategies

For each resource management strategy employed by the project, provide a one to two sentence description in the table below of how the project incorporates the strategy. A description of the Resource Management Strategies can be found in Volume 2 of the 2009 California Water Plan here: http://www.waterplan.water.ca.gov/cwpu2009/index.cfm

Reduce Water Demand	
Agricultural Water Use Efficiency	N/A
Urban Water Use Efficiency	May help with aquifer recharge. Impact otherwise unknown and likely small.
Improve Operational Efficiency and Transfers	
Conveyance --- Delta	Negligible impact.
Conveyance --- Regional / local	Some minor local impact as some additional water may be infiltrated or evapotranspirated.
System Reoperation	N/A
Water Transfers	N/A
Increase Water Supply	
Conjunctive Management & Groundwater	Some unknown but minor amount of ground water recharge.
Desalination	N/A
Precipitation Enhancement	N/A
Recycled Municipal Water	N/A

Surface Storage ------ CALFED	N/A
Surface Storage ------ Regional / Local	N/A

Improve Water Quality	
Drinking Water Treatment and Distribution	N/A
Groundwater and Aquifer Remediation	Unknown but like insignificant.
Matching Water Quality to Use	Improved water quality for the uses that drain into this facility.
Pollution Prevention	Some improvement of receiving water quality by filtering pollutants.
Salt and Salinity Management	N/A
Urban Runoff Management	Some improvement of urban runoff quality and reduced quantity due to improved evoptranspiration.
Practice Resources Stewardship	
Agricultural Lands Stewardship	N/A
Economic Incentives (Loans, Grants, and Water Pricing)	N/A
Ecosystem Restoration	Some minor improvement for downstream enhancement for habitat quality due to improved water quality.
Forest Management	N/A
Land Use Planning and Management	N/A
Recharge Areas Protection	N/A
Water---dependent Recreation	Will aid in improving water quality for downstream beneficial uses such as recreation.
Watershed Management	Will aid in improving overall water quality, habitat enhancement and reduced runoff if developed within the watershed.
Improve Flood Management	
Flood Risk Management	Minor reduction in flood risk.

V. Project Impacts and Benefits

Please select all the project benefit categories that apply and provide a brief explanation. If the project benefits do not fit any of the listed categories, please explain in the box below. Suggested benefit descriptions are included in the Project Information Form instructions sheet.

Benefit Categories:	☐	**Brief Explanation of Selected Benefits**	**Quantification (e.g. acre---feet of water supplied, acres of habitat restored)**
Increase Water Supply		May have some benefit to underground aquifer recharge if	Unknown

		developed.	
Improve Water Quality		Minor to significant for the specific discharge to this DI.	Unknown amount
Groundwater Improvements		Unknown	Unknown
Water Conservation and Reuse		N/A	N/A
Watershed Rehabilitation		Some impact to watershed rehabilitation by improved water quality within the watershed.	Unknown amount.
Habitat Improvements		Improves habitat both locally and downstream by improving water quality.	Unknown amount.
Flood Management		Minor impact in creating additional opportunity for stormwater runoff to evoptranspirate.	Unknown amount.

Other Benefits:

Likely to improve aesthetic quality of the project area. Education to the public on pollution prevention and stormwater runoff awareness. Provides a model on how roadside LID looks and function providing greater public support for future roadside LID CIP projects.

Please provide a summary of the expected project benefits and impacts in the table below.

a. Describe any expected impacts of the project	During construction some local impacts related to construction noise and potential to contribute pollutants from the site to the SW system.
b. If applicable, describe benefits or impacts of the project with respect to Native American Tribal Community considerations.	Some benefit to Plains and Bay Miwok tribal communities that live in the Sacramento River and Bay Delta Region downstream of the project site.

c. If applicable, describe benefits or impacts of the project with respect to Disadvantaged Communities*.	None known.
d. If applicable, describe benefits or impacts of the project with respect to Environmental Justice ** considerations.	None known.

e. If applicable, describe how the project assists the region in adapting to effects of climate change.	None known.
f. If applicable, describe the generation or reduction of greenhouse gas emissions associated with the project.	None known.

*A Disadvantaged Community is defined as a community with an annual median household (MHI) income that is less than 80 percent of the Statewide annual MHI. A map identifying DACs in the Westside Region is available at www.westsideirwm.com.

** Environmental Justice is 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.

VI. Statewide Program Preferences and Priorities

Please select the Program Preferences and Statewide Priorities that apply to the proposed project (choose all that apply).

Program Preferences

- ☐ Include regional projects or programs (CWC §10544)
- ☐ Effectively integrate water management programs and projects within a hydrologic region identified in the California Water Plan; the Regional Water Quality Control Board (RWQCB) region or subdivision; or other region or sub---region specifically identified by DWR
- ☐ Effectively resolve significant water---related conflicts within or between regions Contribute to
- ☑ attainment of one or more of the objectives of the CALFED Bay---Delta Program
- ☐ Address critical water supply or water quality needs of disadvantaged communities within the region

- [ ] Effectively integrate water management with land use planning
- [ ] For eligible SWFM funding, projects which: a) are not receiving State funding for flood control or flood prevention projects pursuant to PRC §5096.824 or §75034 or b) provide multiple benefits, including, but not limited to, water quality improvements, ecosystem benefits, reduction of instream erosion and sedimentation, and groundwater recharge.

Statewide Priorities

Drought Preparedness

- [ ] Promote water conservation, conjunctive use, reuse and recycling
- [ ] Improve landscape and agricultural irrigation efficiencies Achieve long
- [ ] term reduction of water use Efficient
- [x] groundwater basin management
- [ ] System interties

Use and Reuse Water More Efficiently

- [ ] Increase urban and agricultural water use efficiency measures such as conservation and recycling
- [ ] Capture, store, treat, and use urban stormwater runoff (such as percolation to usable aquifers, underground storage beneath parks, small surface basins, domestic stormwater capture systems, or the creation of catch basins or sumps downhill of development
- [x] Incorporate and implement low impact development (LID) design features, techniques, and practices to reduce or eliminate stormwater runoff

Climate Change Response Actions

- [ ] Adaptation to Climate Change: Advance and expand conjunctive management of multiple water supply sources
- [ ] Adaptation to Climate Change: Use and reuse water more efficiently
- [ ] Adaptation to Climate Change: Water management system modifications that address anticipated climate
  - [ ] Adaptation to Climate Change: Establish migration corridors, re---establish river--- floodplain hydrologic continuity, re---introduce anadromous fish populations to upper watersheds, enhance and protect upper watershed forests and meadow systems
- [ ] Reduction of Greenhouse Gas (GHG) Emissions: Reduce energy consumption of water systems and uses
- [ ] Reduction of Greenhouse Gas (GHG) Emissions: Use cleaner energy sources to move and treat water
- [ ] Reduce Energy Consumption: Water use efficiency Reduce
- [ ] Energy Consumption: Water recycling
- [ ] Reduce Energy Consumption: Water system energy efficiency

Expand Environmental Stewardship

☑ Expand Environmental Stewardship to protect and enhance the environment by improving watershed, floodplain, and instream functions and to sustain water and flood management ecosystems.

Practice Integrated Flood Management

☐ Better emergency preparedness and response

☐ Improved flood protection

☑ More sustainable flood and water management systems

☑ Enhanced floodplain ecosystems

☑ LID techniques that store and infiltrate runoff while protecting groundwater

Protect Surface Water and Groundwater Quality

☑ Protecting and restoring surface water and groundwater quality to safeguard public and environmental health and secure water supplies for beneficial uses

☐ Salt/nutrient management planning as a components of an IRWM Plan

Improve Tribal Water and Natural Resources

☐ Improve Tribal Water and Natural Resources and include the development of Tribal consultation, collaboration, and access to funding for water programs.

Ensure Equitable Distribution of Benefits

☐ Increase the participation of small and disadvantaged communities in the IRWM process.

☐ Develop multi---benefit projects with consideration of affected disadvantaged communities and vulnerable populations.

☐ Contain projects that address safe drinking water and wastewater treatment needs of DACs.

☐ Address critical water supply or water quality needs of California Native American Tribes within the region.

VII. Project Cost and Financing

Please provide any estimates of project cost, sources of funding, and operation and maintenance costs as well as the source of the project cost in the table below.

a. Project Costs		
1. Capital (2014 Dollars)	42,763 for construction	
2. Annual Operations and Maintenance (O&M)	Unknown, but considered minor. Annual mowing of grasses in swale.	
	Source(s)	**Amount**
b. List secured source(s) of funding	None.	

c. **List proposed source(s) of funding and certainty of the sources.**	Some combination of General and Enterprise funds are likely sources.	Required matching amount would be provided.
d. **For capital projects, explain how operation and maintenance costs will be financed.**	The sites and facilities are already maintained. Additional costs for O & M are anticipated to be small if development occurs.	
e. **Basis for project cost**	Project Landscape Architect estimate.	
f. **Can a detailed cost estimate be provided upon request?**	✔ **Yes** ☐ **No**	

VIII. Project Status and Schedule

Please provide a status of the project, level of completion as well as a description of the activities planned for each project stage.

Project Stage	**Description of Activities in Each Project Stage**	**Planned/Actual Start Date**	**Planned/Actual Completion Date**
a. **Conceptual**	Design completed		Completed
b. **Planning**	Funding being sought	Spring 2016	Fall 2016
c. **Environmental Documentation (CEQA/NEPA)**	Likely to be Cat Ex.	Winter 2017	Spring 2017
d. **Permitting**	Follows Planning.	Winter 2017	Spring 2017
e. **Tribal Consultation**	N/A	N/A	N/A
f. **Design**	Follows study.	Fall 2016	Winter 2017
g. **Construction/Implementation**	Follows permitting.	Spring 2017	Fall 2017

IX. Project Technical Feasibility

Please provide any related documents (date, title, author, and page numbers) that describe and confirm the technical feasibility of the project.

a. List water planning documents that specifically identify this project.	None
b. List the adopted planning documents the proposed project is consistent with (e.g. General Plans, UWMPs, GWMPs, Water Master Plans, Habitat Conservation Plans, etc.)	None
c. List technical reports and studies supporting the feasibility of this project.	None
d. If you are an Urban Water Supplier:	
1. Have you completed an Urban Water Management Plan and submitted to DWR?	☑ Yes ☐ No ☐ N/A
2. Are you in compliance with AB1420?	☐ Yes ☐ No ✔ N/A
3. Do you comply with the water meter requirements (CWC §525)	☑ Yes ☐ No ☐ N/A
4. If the answer to any of the questions above is "no", do you intend to comply prior to receiving Project funding	☐ Yes ☐ No ☑ N/A
e. If you are an Agricultural Water Supplier:	
1. Have you completed and submitted an AWMP (due 12/31/12)?	☐ Yes ☐ No ☑ N/A
2. If not, will you complete and submit an AWMP prior to receiving project funding?	☐ Yes ☐ No ☑ N/A
f. If the project is related to groundwater:	
1. Has a GWMP been completed and submitted for the subject basin?	☐ Yes ☑ No ☐ N/A
2. If not will a GWMP be completed within 1 year of the grant submittal date?	☐ Yes ☑ No ☐ N/A

WESTSIDE
SAC IRWM
Integrated Regional Water Management Plan

Project Information Form

SWRP Projects Addendum

The Yolo WRA is accepting suggestions for projects for inclusion in the Yolo Storm Water Resource Plan (SWRP). Projects submitted for consideration should contribute to the attainment of the IRWM Plan and SWRP Objectives. To have your project considered for inclusion, please complete this project information form in its entirety and submit the completed form by **July 28, 2017** to **Kristin Sicke (ksicke@ycfcwcd.org)**.

Please provide information below:

I. Has this project been submitted to the Westside IRWMP previously?

(●) Yes — Please provide the Project Name as submitted on the Westside Sac IRWMP Project Information Form:

Russell Boulevard Demonstration LID Project

( ) No — If you answered no, the Westside Sac IRWMP Project Information Form must be completed and submitted with this form. The form can be downloaded at: http://www.westsideirwm.com/Westside%20IRWMP%20Web%20Page/documents/Projects/Project%20Update%20Form-09-01-14.pdf

If you answered yes to the above question, please provide any additional project description/details not provided in the original Westside IRWMP Project Form related to storm water:

Install a public demonstration site for stormwater quality improvements at City Hall. This project incorporates numerous sustainable, low impact development (LID) improvements intended to improve urban watershed processes and provide multiple watershed benefits. The benefits at the project site include capturing and treating stormwater runoff, improving groundwater recharge, increasing drought tolerant landscaping with native and drought tolerant species, increasing water conservation, creating inviting community gathering spaces and utilizing the project as a demonstration site to promote LID projects for new and existing land uses throughout the City. The project includes pervious paving, stormwater planters, rain gardens and bioswales. The area is intended to serve as an outdoor classroom for UC Davis, the Davis Joint Unified School District and the community at large. Have consulted with Yocha Dehe Wintun Nation. The timing of the project has shifted from the IRWM project form. The construction for the project is planned to begin Spring 2018. The project is consistent with the City's Urban Water Management Plan, Integrated Water Resources Study, General Plan, Stormwater Plan and Climate Action Plan.

II. Land Availability

	Yes	No	N/A
a. Is the project located on lands with Public ownership?	☑	☐	☐
b. Have easements and/or all required land use agreements been obtained or are pending?	☐	☐	☑

c. Describe how this project will result in immediate or downstream storm water benefit to Yolo County:

This project would capture and treat stormwater runoff improving downstream water quality. Reduced pollutant load to receiving waters via increased infiltration, transpiration and evaporation.

III. SWRP Objectives – In addition to IRWMP Objectives

Please mark (x) the SWRP Objectives that apply to the proposed project (choose all that apply).

- [x] Convert paved and/or impervious areas and increase tree canopy and vegetation, reducing urban heat island effects.
- [ ] Optimize the rural storm water conveyance system to drain and retain storm water flows as necessary. Provide proper rural drainage and keep conveyance systems clear of debris to minimize county road flooding during storm events.
- [ ] Enable proper rural retention and modify rural landscape to maximize groundwater recharge of excess storm water.

IV. SWRP Guideline Benefit Categories

Please mark (x) all the project benefit categories that apply and provide a brief explanation. Suggested benefit descriptions are included in the SWRP Guidelines Tables 3 and 4.

MAIN BENEFIT(S)

	x	Brief Explanation of Benefit	Quantification (e.g. acre---feet of water supplied, acres of habitat restored)
Water Quality – Increased filtration and/or treatment of runoff	X	By installing the project, the City will provide enhanced water quality for existing drainage within the area of the project. Some impervious surfacing will be converted to pervious surfacing, slowing drainage over this surfacing.	The project site is 34,370 square feet resulting in increased infiltration of 2080 cubic feet.
Water Supply – Water supply reliability			
Water Supply – Conjunctive use			
Flood Management – Decreased flood risk by reducing runoff rate and/or volume	X	Reduced risk of localized flooding near the downtown core.	The project site is 34,370 square feet resulting in reduced runoff of 2080 cubic feet.
Environmental – Environmental and habitat protection and improvement	X	Increased habitat for beneficial insects and urban wildlife.	The project site will increase habitat by 6225 square feet. 7 trees will be added to the site.
Environmental – Increased urban green space	X	Increased green space by removing impervious paving.	Increased urban green space of 2575 square feet.
Community – Employment opportunities provided	X	Volunteer opportunities to use and maintain the project site.	Estimated minimum of 500 to 1,000 volunteer hours per year.
Community – Public education	X	The project will serve as a demonstration site for the community. The area is intended to serve as an outdoor classroom for UC Davis, the Davis Joint Unified School District and the community at large. Community volunteers will assist with maintaining the project site.	Potential to reach thousands of people per year who visit City Hall, attend community events or the use the outdoor classroom.

SECONDARY BENEFIT(S)

	x	Brief Explanation of Benefit	Quantification (e.g. acre---feet of water supplied, acres of habitat restored)
Water Quality – Nonpoint source pollutant control			
Water Quality – Reestablished natural water drainage and treatment	X	Reestablished natural water drainage through bioswales, permeable pavement and redirecting runoff into rain gardens.	The project site is 34,370 square feet resulting in reduced runoff of 2080 cubic feet.
Water Supply – Water conservation	X	Conversion to water-wise plants and a reduction in water needed for nearby landscaping.	Drought tolerant plantings of 11,130 square feet (1/4 acre) with the goal of a 20% reduction in overall water use for the site as compared to historic usage. Water use reduction when turf is converted to low water landscaping for 1/4 acre is estimated to be 300,000 gallons per year (based on estimates from greenbelt conversions).
Flood Management – Reduced sanitary sewer overflows			
Environmental – Reduced energy use, greenhouse gas emissions, or provides			
Environmental – Reestablishment of the natural hydrograph			
Environmental – Water temperature improvements			
Community – Community involvement	X	7 partnerships with community groups for this project have been identified including the Yolo County Master Gardeners, Sierra Club, UC Davis Arboretum, Yolo Resource Conservation District, California Conservation Corp and others. The area is intended to serve as an outdoor classroom for UC Davis, the Davis Joint Unified School District and the community at large.	Estimated minimum of 500 to 1,000 volunteer hours per year.
Community – Enhance and/or create recreational and public use areas	X	Increased natural habitat in the downtown core that is available to the community which will include an outdoor classroom, public art, seating area, walking tour of stormwater and water conservation demonstration areas.	Increased public use area of 34,370 square feet (project site).

Project Information Form

The Westside Region is accepting suggestions for projects for inclusion in the Westside Integrated Regional Water Management (IRWM) Plan. Projects submitted for consideration should contribute to the attainment of the IRWM Plan Goals and Objectives. To have your project considered for inclusion, please complete this project information form in its entirety and submit the completed form to info@westsideirwm.com .

Please provide information in the tables below:

I. Project Proponent Information

Lead Agency/ Organization	City of Davis
Name of Primary Contact	Rhys Rowland
Mailing Address	1717 Fifth Street Davis, CA 95616
E---mail	rrowland@cityofdavis.org
Phone (###)###---####	(530)757-5638
Other Cooperating Agencies/Organizations	None
Is your agency committed to the project through completion? If not, please explain	The City is committed to looking at the feasibility of stormwater measures city-wide which could include opportunities to convert rocky swales to bioswales.

II. General Project Information

Project Title	Site Survey for Converting Rocky Swales to Bioswales
Project Description (Briefly describe the project, in 300 words or less,)	In public greenbelts and parks, convert existing rocky drainage swales into bioswales to provide environmental benefits. Convert drainage in areas that currently use rocky swales, such as in Mace Ranch Park and the housing development behind Montgomery Elementary in South Davis, to bioswales. Converting the existing rocky swales to vegetative bioswales will encourage microhabitats, beneficial insects, infiltration, transpiration, and evaporation to better showcase stormwater retention techniques. Other possible sites include Evergreen Pond and North Star Park.

Project Location:	
Latitude:	38.55
Longitude:	121.75
Can you provide a map of the project location including boundaries upon request?	☒ Yes ☐ N/A ☐ No
Project Location Description:	Various locations throughout the City.
County:	Yolo
City/Community:	Davis
Watershed:	Covell Drain
Groundwater Basin:	Yolo Subbasin
Planning Area:	Yolo County
Additional Comments:	None
Project Status (Check only one)	☐ Conceptual ☐ Planning ☐ CEQA/NEPA ☐ Permitting ☐ Design ☐ Construction/Implementation ☒ Study/Other ☐ Maintenance/Monitoring
Earliest expected start date (mm/dd/yr)	Spring 2019

III. Plan Goals/Objectives Addressed

For each of the goals/objectives addressed by the project, provide a one to two sentence description of how the project contributes to attaining the objective. Information related to the proposed goals and objectives can be found at www.westsideirw.com/irwmplan . If the project does not address any of the draft IRWM plan objectives, provide a one to two sentence description of how the project relates to a challenge or opportunity of the region.

Goal(s) that the Project will contribute to:	Goals include #2, 7, 9 and 11.
Objective(s) that the Project will help accomplish:	Objectives include #2,14, 17, and 19.

Explanation of Project linkage to goals and objectives	By installing the project, the City will provide enhanced water quality for existing drainage within the area of the project. Some impervious surfacing will be converted to pervious surfacing, slowing drainage over this surfacing. This will increase overall evapotranspiration and ground water recharge over what currently occurs. Conversion to bioswales will encourage microhabitats.
How will the project be measured to ensure the goals and objectives are being fulfilled?	Visual monitoring of the discharge from the sites during rain events. Visual monitoring triggers whether or not sampling is necessary in accordance with the Permit. Ultimately a combination of both recording visual monitoring and sampling would be how the project would be measured if developed.

IV. Resource Management Strategies

For each resource management strategy employed by the project, provide a one to two sentence description in the table below of how the project incorporates the strategy. A description of the Resource Management Strategies can be found in Volume 2 of the 2009 California Water Plan here: http://www.waterplan.water.ca.gov/cwpu2009/index.cfm

Reduce Water Demand	
Agricultural Water Use Efficiency	N/A
Urban Water Use Efficiency	May help with aquifer recharge. Impact otherwise unknown and likely small.
Improve Operational Efficiency and Transfers	
Conveyance --- Delta	Negligible impact.
Conveyance --- Regional / local	Some minor local impact as some additional water may be infiltrated or evapotranspirated.
System Reoperation	N/A
Water Transfers	N/A
Increase Water Supply	
Conjunctive Management & Groundwater	Some unknown but minor amount of ground water recharge.
Desalination	N/A
Precipitation Enhancement	N/A
Recycled Municipal Water	N/A
Surface Storage ------ CALFED	N/A

Surface Storage ---- Regional / Local	N/A

Improve Water Quality	
Drinking Water Treatment and Distribution	N/A
Groundwater and Aquifer Remediation	Unknown but likely insignificant.
Matching Water Quality to Use	Improved water quality for the uses that drain into this facility.
Pollution Prevention	Some improvement of receiving water quality by filtering pollutants.
Salt and Salinity Management	N/A
Urban Runoff Management	Some improvement of urban runoff quality and reduced quantity due to improved evoptranspiration.
Practice Resources Stewardship	
Agricultural Lands Stewardship	N/A
Economic Incentives (Loans, Grants, and Water Pricing)	N/A
Ecosystem Restoration	Some minor improvement for downstream enhancement for habitat quality due to improved water quality.
Forest Management	N/A
Land Use Planning and Management	N/A
Recharge Areas Protection	N/A
Water---dependent Recreation	Will aid in improving water quality for downstream beneficial uses such as recreation.
Watershed Management	Will aid in improving overall water quality, habitat enhancement and reduced runoff if developed within the watershed.
Improve Flood Management	
Flood Risk Management	Minor reduction in flood risk.

V. Project Impacts and Benefits

Please select all the project benefit categories that apply and provide a brief explanation. If the project benefits do not fit any of the listed categories, please explain in the box below. Suggested benefit descriptions are included in the Project Information Form instructions sheet.

Benefit Categories:	☐	**Brief Explanation of Selected Benefits**	**Quantification (e.g. acre---feet of water supplied, acres of habitat restored)**
Increase Water Supply		May have some benefit to underground aquifer recharge if developed.	Unknown

Improve Water Quality		Dependent upon sites identified the survey.	Unknown amount
Groundwater Improvements		Unknown	Unknown
Water Conservation and Reuse		N/A	N/A
Watershed Rehabilitation		Some impact to watershed rehabilitation by improved water quality within the watershed.	Unknown amount.
Habitat Improvements		Improves habitat both locally and downstream by improving water quality.	Unknown amount.
Flood Management		Minor impact in creating additional opportunity for stormwater runoff to evoptranspirate.	Unknown amount.

Other Benefits:

Likely to improve aesthetic quality of the project area. Education to the public on pollution prevention and stormwater runoff awareness. Encourage microhabitats and beneficial insects.

Please provide a summary of the expected project benefits and impacts in the table below.

a. Describe any expected impacts of the project	During construction some local impacts related to construction noise and potential to contribute pollutants from the site to the SW system.
b. If applicable, describe benefits or impacts of the project with respect to Native American Tribal Community considerations.	Some benefit to Plains and Bay Miwok tribal communities that live in the Sacramento River and Bay Delta Region downstream of the project site.
c. If applicable, describe	None known.

benefits or impacts of the project with respect to Disadvantaged Communities*.	
d. If applicable, describe benefits or impacts of the project with respect to Environmental Justice ** considerations.	None known.

e. If applicable, describe how the project assists the region in adapting to effects of climate change.	None known.
f. If applicable, describe the generation or reduction of greenhouse gas emissions associated with the project.	None known.

*A Disadvantaged Community is defined as a community with an annual median household (MHI) income that is less than 80 percent of the Statewide annual MHI. A map identifying DACs in the Westside Region is available at www.westsideirwm.com.

** Environmental Justice is 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.

VI. Statewide Program Preferences and Priorities

Please select the Program Preferences and Statewide Priorities that apply to the proposed project (choose all that apply).

Program Preferences

- ☐ Include regional projects or programs (CWC §10544)
- ☐ Effectively integrate water management programs and projects within a hydrologic region identified in the California Water Plan; the Regional Water Quality Control Board (RWQCB) region or subdivision; or other region or sub---region specifically identified by DWR
- ☐ Effectively resolve significant water---related conflicts within or between regions Contribute to
- ☑ attainment of one or more of the objectives of the CALFED Bay---Delta Program
- ☐ Address critical water supply or water quality needs of disadvantaged communities within the region
- ☑ Effectively integrate water management with land use planning

- [x] For eligible SWFM funding, projects which: a) are not receiving State funding for flood control or flood prevention projects pursuant to PRC §5096.824 or §75034 or b) provide multiple benefits, including, but not limited to, water quality improvements, ecosystem benefits, reduction of instream erosion and sedimentation, and groundwater recharge.

Statewide Priorities

Drought Preparedness

- [ ] Promote water conservation, conjunctive use, reuse and recycling
- [ ] Improve landscape and agricultural irrigation efficiencies Achieve long
- [ ] term reduction of water use Efficient
- [x] groundwater basin management
- [ ] System interties

Use and Reuse Water More Efficiently

- [x] Increase urban and agricultural water use efficiency measures such as conservation and recycling
- [x] Capture, store, treat, and use urban stormwater runoff (such as percolation to usable aquifers, underground storage beneath parks, small surface basins, domestic stormwater capture systems, or the creation of catch basins or sumps downhill of development
- [x] Incorporate and implement low impact development (LID) design features, techniques, and practices to reduce or eliminate stormwater runoff

Climate Change Response Actions

- [ ] Adaptation to Climate Change: Advance and expand conjunctive management of multiple water supply sources
- [ ] Adaptation to Climate Change: Use and reuse water more efficiently
- [ ] Adaptation to Climate Change: Water management system modifications that address anticipated climate
  - [ ] Adaptation to Climate Change: Establish migration corridors, re---establish river--- floodplain hydrologic continuity, re---introduce anadromous fish populations to upper watersheds, enhance and protect upper watershed forests and meadow systems
- [ ] Reduction of Greenhouse Gas (GHG) Emissions: Reduce energy consumption of water systems and uses
- [ ] Reduction of Greenhouse Gas (GHG) Emissions: Use cleaner energy sources to move and treat water
- [ ] Reduce Energy Consumption: Water use efficiency Reduce
- [ ] Energy Consumption: Water recycling
- [ ] Reduce Energy Consumption: Water system energy efficiency

Expand Environmental Stewardship

- [x] Expand Environmental Stewardship to protect and enhance the environment by improving

watershed, floodplain, and instream functions and to sustain water and flood management ecosystems.

Practice Integrated Flood Management

- [ ] Better emergency preparedness and response
- [x] Improved flood protection
- [x] More sustainable flood and water management systems
- [x] Enhanced floodplain ecosystems
- [x] LID techniques that store and infiltrate runoff while protecting groundwater

Protect Surface Water and Groundwater Quality

- [x] Protecting and restoring surface water and groundwater quality to safeguard public and environmental health and secure water supplies for beneficial uses
- [ ] Salt/nutrient management planning as a components of an IRWM Plan

Improve Tribal Water and Natural Resources

- [ ] Improve Tribal Water and Natural Resources and include the development of Tribal consultation, collaboration, and access to funding for water programs.

Ensure Equitable Distribution of Benefits

- [ ] Increase the participation of small and disadvantaged communities in the IRWM process.
- [ ] Develop multi---benefit projects with consideration of affected disadvantaged communities and vulnerable populations.
- [ ] Contain projects that address safe drinking water and wastewater treatment needs of DACs.
- [ ] Address critical water supply or water quality needs of California Native American Tribes within the region.

VII. Project Cost and Financing

Please provide any estimates of project cost, sources of funding, and operation and maintenance costs as well as the source of the project cost in the table below.

a. Project Costs		
1. Capital (2014 Dollars)	Estimate of $40,000 for site survey and initial project design	
2. Annual Operations and Maintenance (O&M)	Unknown, but unlikley to be a significant increase in current costs.	
	Source(s)	**Amount**
b. List secured source(s) of funding	None.	

c. List proposed source(s) of funding and certainty of the sources.	Some combination of General and Enterprise funds are likely sources.	Required matching amount would be provided.
d. For capital projects, explain how operation and maintenance costs will be financed.	The sites and facilities are already maintained. Additional costs for O & M are anticipated to be small if development occurs.	
e. Basis for project cost	Similar site surveys	
f. Can a detailed cost estimate be provided upon request?	✔ Yes ☐ No	

VIII. Project Status and Schedule

Please provide a status of the project, level of completion as well as a description of the activities planned for each project stage.

Project Stage	Description of Activities in Each Project Stage	Planned/Actual Start Date	Planned/Actual Completion Date
a. Conceptual	Site survey would be the initial step and projects would be developed from the results of the survey.	Spring 2018	Spring 2019
b. Planning			
c. Environmental Documentation (CEQA/NEPA)			
d. Permitting			
e. Tribal Consultation			
f. Design			
g. Construction/Implementation			

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IX. Project Technical Feasibility

Please provide any related documents (date, title, author, and page numbers) that describe and confirm the technical feasibility of the project.

a. List water planning documents that specifically identify this project.	None
b. List the adopted planning documents the proposed project is consistent with (e.g. General Plans, UWMPs, GWMPs, Water Master Plans, Habitat Conservation Plans, etc.)	UWMP, Stormwater Plan
c. List technical reports and studies supporting the feasibility of this project.	None
d. If you are an Urban Water Supplier:	
1. Have you completed an Urban Water Management Plan and submitted to DWR?	☑ Yes ☐ No ☐ N/A
2. Are you in compliance with AB1420?	☐ Yes ☐ No ✔ N/A
3. Do you comply with the water meter requirements (CWC §525)	☑ Yes ☐ No ☐ N/A
4. If the answer to any of the questions above is "no", do you intend to comply prior to receiving Project funding	☐ Yes ☐ No ☑ N/A
e. If you are an Agricultural Water Supplier:	
1. Have you completed and submitted an AWMP (due 12/31/12)?	Yes ☐ No ☑ N/A
2. If not, will you complete and submit an AWMP prior to receiving project funding?	☐ Yes ☐ No ☑ N/A
f. If the project is related to groundwater:	
1. Has a GWMP been completed and submitted for the subject basin?	☐ Yes ☐ No ☑ N/A
2. If not will a GWMP be completed within 1 year of the grant submittal date?	☐ Yes ☐ No ☑ N/A

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Project Information Form

SWRP Projects Addendum

The Yolo WRA is accepting suggestions for projects for inclusion in the Yolo Storm Water Resource Plan (SWRP). Projects submitted for consideration should contribute to the attainment of the IRWM Plan and SWRP Objectives. To have your project considered for inclusion, please complete this project information form in its entirety and submit the completed form by **July 28, 2017** to **Kristin Sicke (ksicke@ycfcwcd.org)**.

Please provide information below:

I. Has this project been submitted to the Westside IRWMP previously?

( ) Yes Please provide the Project Name as submitted on the Westside Sac IRWMP Project Information Form:

(•) No If you answered no, the Westside Sac IRWMP Project Information Form must be completed and submitted with this form. The form can be downloaded at: http://www.westsideirwm.com/Westside%20IRWMP%20Web%20Page/documents/Projects/Project%20Update%20Form-09-01-14.pdf

If you answered yes to the above question, please provide any additional project description/details not provided in the original Westside IRWMP Project Form related to storm water:

II. Land Availability

a. Is the project located on lands with Public ownership?	☑ Yes	☐ No	☐ N/A
b. Have easements and/or all required land use agreements been obtained or are pending?	☐ Yes	☐ No	☑ N/A

c. Describe how this project will result in immediate or downstream storm water benefit to Yolo County:

The project would allow for greater infiltration of stormwater in greenbelts and parks reducing stormwater run-off to downstream sources. Reduced pollutant load to receiving waters via increased infiltration, transpiration and evaporation.

III. SWRP Objectives – In addition to IRWMP Objectives

Please mark (x) the SWRP Objectives that apply to the proposed project (choose all that apply).

☐ Convert paved and/or impervious areas and increase tree canopy and vegetation, reducing urban heat island effects.

☐ Optimize the rural storm water conveyance system to drain and retain storm water flows as necessary. Provide proper rural drainage and keep conveyance systems clear of debris to minimize county road flooding during storm events.

☐ Enable proper rural retention and modify rural landscape to maximize groundwater recharge of excess storm water.

IV. SWRP Guideline Benefit Categories

Please mark (x) all the project benefit categories that apply and provide a brief explanation. Suggested benefit descriptions are included in the SWRP Guidelines Tables 3 and 4.

MAIN BENEFIT(S)

	x	Brief Explanation of Benefit	Quantification (e.g. acre---feet of water supplied, acres of habitat restored)
Water Quality – Increased filtration and/or treatment of runoff	X	By installing the project, the City will provide enhanced water quality for existing drainage within the area of the project.	Feasibility study to determine options and quantification measures.
Water Supply – Water supply reliability			
Water Supply – Conjunctive use			
Flood Management – Decreased flood risk by reducing runoff rate and/or volume	X	Reduced risk of localized flooding near bike paths in greenbelts.	Feasibility study to determine options and quantification measures.
Environmental – Environmental and habitat protection and improvement	X	Potential for increasing microhabitats for beneficial insects and urban wildlife.	Feasibility study to determine options and quantification measures.
Environmental – Increased urban green space			
Community – Employment opportunities provided			
Community – Public education	X	Likely to improve aesthetic quality of the project area. Education to the public on pollution prevention and stormwater runoff awareness.	Feasibility study to determine options and quantification measures.

SECONDARY BENEFIT(S)

	x	Brief Explanation of Benefit	Quantification (e.g. acre---feet of water supplied, acres of habitat restored)
Water Quality – Nonpoint source pollutant control			
Water Quality – Reestablished natural water drainage and treatment			
Water Supply – Water conservation	X	Potential reduction in water needed for nearby landscaping.	Feasibility study to determine options and quantification measures.
Flood Management – Reduced sanitary sewer overflows			
Environmental – Reduced energy use, greenhouse gas emissions, or provides			
Environmental – Reestablishment of the natural hydrograph			
Environmental – Water temperature improvements			
Community – Community involvement			
Community – Enhance and/or create recreational and public use areas			

Project Information Form

The Westside Region is accepting suggestions for projects for inclusion in the Westside Integrated Regional Water Management (IRWM) Plan. Projects submitted for consideration should contribute to the attainment of the IRWM Plan Goals and Objectives. To have your project considered for inclusion, please complete this project information form in its entirety and submit the completed form to info@westsideirwm.com .

Please provide information in the tables below:

I. Project Proponent Information

Lead Agency/ Organization	City of Davis
Name of Primary Contact	Brian Mickelson
Mailing Address	1717 Fifth Street Davis, CA 95616
E---mail	bmickelson@cityofdavis.org
Phone (###)###---####	(530)757-5883
Other Cooperating Agencies/Organizations	None
Is your agency committed to the project through completion? If not, please explain	The City is committed to looking at the feasibility of stormwater measures city-wide which could include opportunities to convert hardscape to pervious pavement.

II. General Project Information

Project Title	Site Survey for Hardscape Conversion to Pervious Pavement
Project Description (Briefly describe the project, in 300 words or less,)	Survey public parking lots that currently have impervious surfacing to assess the practicality of converting these locations to pervious pavement when they are in need of resurfacing, maintenance or redesign. Portions of the pathways near the sites could potentially highlight permeable pavers in addition to the parking lots. Projects could be planned with improvements to incorporate bioswales, low water use plants, and other low-impact design measures into any landscape changes at the site. The projects would include signage on stormwater techniques implemented and information about water quality.

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Project Location:	
Latitude:	38.55
Longitude:	121.75
Can you provide a map of the project location including boundaries upon request?	☒ Yes ☐ N/A ☐ No
Project Location Description:	Various locations throughout the City.
County:	Yolo
City/Community:	Davis
Watershed:	Covell Drain
Groundwater Basin:	Yolo Subbasin
Planning Area:	Yolo County
Additional Comments:	None
Project Status (Check only one)	☐ Conceptual ☐ Planning ☐ CEQA/NEPA ☐ Permitting ☐ Design ☐ Construction/Implementation ☒ Study/Other ☐ Maintenance/Monitoring
Earliest expected start date (mm/dd/yr)	Spring 2019

III. Plan Goals/Objectives Addressed

For each of the goals/objectives addressed by the project, provide a one to two sentence description of how the project contributes to attaining the objective. Information related to the proposed goals and objectives can be found at www.westsideirw.com/irwmplan . If the project does not address any of the draft IRWM plan objectives, provide a one to two sentence description of how the project relates to a challenge or opportunity of the region.

Goal(s) that the Project will contribute to:	Goals include #2, 7, 9 and 11.
Objective(s) that the Project will help accomplish:	Objectives include #2,14, 17, and 19.

Explanation of Project linkage to goals and objectives	By installing the project, the City will provide enhanced water quality for existing drainage within the area of the project. Some impervious surfacing will be converted to pervious surfacing, slowing drainage over this surfacing. This will increase overall evapotranspiration and ground water recharge over what currently occurs.
How will the project be measured to ensure the goals and objectives are being fulfilled?	Visual monitoring of the discharge from the sites during rain events. Visual monitoring triggers whether or not sampling is necessary in accordance with the Permit. Ultimately a combination of both recording visual monitoring and sampling would be how the project would be measured if developed.

IV. Resource Management Strategies

For each resource management strategy employed by the project, provide a one to two sentence description in the table below of how the project incorporates the strategy. A description of the Resource Management Strategies can be found in Volume 2 of the 2009 California Water Plan here: http://www.waterplan.water.ca.gov/cwpu2009/index.cfm

Reduce Water Demand	
Agricultural Water Use Efficiency	N/A
Urban Water Use Efficiency	May help with aquifer recharge. Impact otherwise unknown and likely small.
Improve Operational Efficiency and Transfers	
Conveyance --- Delta	Negligible impact.
Conveyance --- Regional / local	Some minor local impact as some additional water may be infiltrated or evapotranspirated.
System Reoperation	N/A
Water Transfers	N/A
Increase Water Supply	
Conjunctive Management & Groundwater	Some unknown but minor amount of ground water recharge.
Desalination	N/A
Precipitation Enhancement	N/A
Recycled Municipal Water	N/A
Surface Storage ------ CALFED	N/A

Surface Storage ----- Regional / Local	N/A

Improve Water Quality	
Drinking Water Treatment and Distribution	N/A
Groundwater and Aquifer Remediation	Unknown but likely insignificant.
Matching Water Quality to Use	Improved water quality for the uses that drain into this facility.
Pollution Prevention	Some improvement of receiving water quality by filtering pollutants.
Salt and Salinity Management	N/A
Urban Runoff Management	Some improvement of urban runoff quality and reduced quantity due to improved evoptranspiration.
Practice Resources Stewardship	
Agricultural Lands Stewardship	N/A
Economic Incentives (Loans, Grants, and Water Pricing)	N/A
Ecosystem Restoration	Some minor improvement for downstream enhancement for habitat quality due to improved water quality.
Forest Management	N/A
Land Use Planning and Management	N/A
Recharge Areas Protection	N/A
Water---dependent Recreation	Will aid in improving water quality for downstream beneficial uses such as recreation.
Watershed Management	Will aid in improving overall water quality, habitat enhancement and reduced runoff if developed within the watershed.
Improve Flood Management	
Flood Risk Management	Minor reduction in flood risk.

V. Project Impacts and Benefits

Please select all the project benefit categories that apply and provide a brief explanation. If the project benefits do not fit any of the listed categories, please explain in the box below. Suggested benefit descriptions are included in the Project Information Form instructions sheet.

Benefit Categories:	☐	Brief Explanation of Selected Benefits	Quantification (e.g. acre---feet of water supplied, acres of habitat restored)
Increase Water Supply		May have some benefit to underground aquifer recharge if developed.	Unknown

Improve Water Quality		Dependent upon sites identified the survey.	Unknown amount
Groundwater Improvements		Unknown	Unknown
Water Conservation and Reuse		N/A	N/A

Watershed Rehabilitation		Some impact to watershed rehabilitation by improved water quality within the watershed.	Unknown amount.
Habitat Improvements		Improves habitat both locally and downstream by improving water quality.	Unknown amount.
Flood Management		Minor impact in creating additional opportunity for stormwater runoff to evoptranspirate.	Unknown amount.

Other Benefits:

Likely to improve aesthetic quality of the project area. Education to the public on pollution prevention and stormwater runoff awareness. Provides a model for LID and the use of pervious surfaces.

Please provide a summary of the expected project benefits and impacts in the table below.

a. Describe any expected impacts of the project	During construction some local impacts related to construction noise and potential to contribute pollutants from the site to the SW system.
b. If applicable, describe benefits or impacts of the project with respect to Native American Tribal Community considerations.	Some benefit to Plains and Bay Miwok tribal communities that live in the Sacramento River and Bay Delta Region downstream of the project site.
c. If applicable, describe	None known.

benefits or impacts of the project with respect to Disadvantaged Communities*.	
d. If applicable, describe benefits or impacts of the project with respect to Environmental Justice ** considerations.	None known.

e. If applicable, describe how the project assists the region in adapting to effects of climate change.	None known.
f. If applicable, describe the generation or reduction of greenhouse gas emissions associated with the project.	None known.

*A Disadvantaged Community is defined as a community with an annual median household (MHI) income that is less than 80 percent of the Statewide annual MHI. A map identifying DACs in the Westside Region is available at www.westsideirwm.com.

** Environmental Justice is 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.

VI. Statewide Program Preferences and Priorities

Please select the Program Preferences and Statewide Priorities that apply to the proposed project (choose all that apply).

Program Preferences

- ☐ Include regional projects or programs (CWC §10544)
- ☐ Effectively integrate water management programs and projects within a hydrologic region identified in the California Water Plan; the Regional Water Quality Control Board (RWQCB) region or subdivision; or other region or sub---region specifically identified by DWR
- ☐ Effectively resolve significant water---related conflicts within or between regions Contribute to
- ☑ attainment of one or more of the objectives of the CALFED Bay---Delta Program
- ☐ Address critical water supply or water quality needs of disadvantaged communities within the region
- ☑ Effectively integrate water management with land use planning

- [x] For eligible SWFM funding, projects which: a) are not receiving State funding for flood control or flood prevention projects pursuant to PRC §5096.824 or §75034 or b) provide multiple benefits, including, but not limited to, water quality improvements, ecosystem benefits, reduction of instream erosion and sedimentation, and groundwater recharge.

Statewide Priorities

Drought Preparedness

- [ ] Promote water conservation, conjunctive use, reuse and recycling
- [ ] Improve landscape and agricultural irrigation efficiencies Achieve long
- [ ] term reduction of water use Efficient
- [x] groundwater basin management
- [ ] System interties

Use and Reuse Water More Efficiently

- [x] Increase urban and agricultural water use efficiency measures such as conservation and recycling
- [x] Capture, store, treat, and use urban stormwater runoff (such as percolation to usable aquifers, underground storage beneath parks, small surface basins, domestic stormwater capture systems, or the creation of catch basins or sumps downhill of development
- [x] Incorporate and implement low impact development (LID) design features, techniques, and practices to reduce or eliminate stormwater runoff

Climate Change Response Actions

- [ ] Adaptation to Climate Change: Advance and expand conjunctive management of multiple water supply sources
- [ ] Adaptation to Climate Change: Use and reuse water more efficiently
- [ ] Adaptation to Climate Change: Water management system modifications that address anticipated climate
  - [ ] Adaptation to Climate Change: Establish migration corridors, re---establish river--- floodplain hydrologic continuity, re---introduce anadromous fish populations to upper watersheds, enhance and protect upper watershed forests and meadow systems
- [ ] Reduction of Greenhouse Gas (GHG) Emissions: Reduce energy consumption of water systems and uses
- [ ] Reduction of Greenhouse Gas (GHG) Emissions: Use cleaner energy sources to move and treat water
- [ ] Reduce Energy Consumption: Water use efficiency Reduce
- [ ] Energy Consumption: Water recycling
- [ ] Reduce Energy Consumption: Water system energy efficiency

Expand Environmental Stewardship

- [x] Expand Environmental Stewardship to protect and enhance the environment by improving

watershed, floodplain, and instream functions and to sustain water and flood management ecosystems.

Practice Integrated Flood Management

- ☐ Better emergency preparedness and response
- ☑ Improved flood protection
- ☑ More sustainable flood and water management systems
- ☑ Enhanced floodplain ecosystems
- ☑ LID techniques that store and infiltrate runoff while protecting groundwater

Protect Surface Water and Groundwater Quality

- ☑ Protecting and restoring surface water and groundwater quality to safeguard public and environmental health and secure water supplies for beneficial uses
- ☐ Salt/nutrient management planning as a components of an IRWM Plan

Improve Tribal Water and Natural Resources

- ☐ Improve Tribal Water and Natural Resources and include the development of Tribal consultation, collaboration, and access to funding for water programs.

Ensure Equitable Distribution of Benefits

- ☐ Increase the participation of small and disadvantaged communities in the IRWM process.
- ☐ Develop multi---benefit projects with consideration of affected disadvantaged communities and vulnerable populations.
- ☐ Contain projects that address safe drinking water and wastewater treatment needs of DACs.
- ☐ Address critical water supply or water quality needs of California Native American Tribes within the region.

VII. Project Cost and Financing

Please provide any estimates of project cost, sources of funding, and operation and maintenance costs as well as the source of the project cost in the table below.

a. Project Costs		
1. Capital (2014 Dollars)	Estimate of $40,000 for site survey and initial project design	
2. Annual Operations and Maintenance (O&M)	Unknown, but unlikley to be a significant increase in current costs.	
	Source(s)	**Amount**
b. List secured source(s) of funding	None.	

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c. List proposed source(s) of funding and certainty of the sources.	Some combination of General and Enterprise funds are likely sources.	Required matching amount would be provided.
d. For capital projects, explain how operation and maintenance costs will be financed.	The sites and facilities are already maintained. Additional costs for O & M are anticipated to be small if development occurs.	
e. Basis for project cost	Similar site surveys	
f. Can a detailed cost estimate be provided upon request?	✔ **Yes** ☐ **No**	

VIII. Project Status and Schedule

Please provide a status of the project, level of completion as well as a description of the activities planned for each project stage.

Project Stage	Description of Activities in Each Project Stage	Planned/Actual Start Date	Planned/Actual Completion Date
a. Conceptual	Site survey would be	Spring 2018	Spring 2019
b. Planning			
c. Environmental Documentation (CEQA/NEPA)			
d. Permitting			
e. Tribal Consultation			
f. Design			
g. Construction/Implementation			

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IX. Project Technical Feasibility

Please provide any related documents (date, title, author, and page numbers) that describe and confirm the technical feasibility of the project.

a. List water planning documents that specifically identify this project.	None
b. List the adopted planning documents the proposed project is consistent with (e.g. General Plans, UWMPs, GWMPs, Water Master Plans, Habitat Conservation Plans, etc.)	UWMP, Stormwater Plan
c. List technical reports and studies supporting the feasibility of this project.	None
d. If you are an Urban Water Supplier:	
1. Have you completed an Urban Water Management Plan and submitted to DWR?	☑ Yes ☐ No ☐ N/A
2. Are you in compliance with AB1420?	☐ Yes ☐ No ✔ N/A
3. Do you comply with the water meter requirements (CWC §525)	☑ Yes ☐ No ☐ N/A
4. If the answer to any of the questions above is "no", do you intend to comply prior to receiving Project funding	☐ Yes ☐ No ☑ N/A
e. If you are an Agricultural Water Supplier:	
1. Have you completed and submitted an AWMP (due 12/31/12)?	Yes ☐ No ☑ N/A
2. If not, will you complete and submit an AWMP prior to receiving project funding?	☐ Yes ☐ No ☑ N/A
f. If the project is related to groundwater:	
1. Has a GWMP been completed and submitted for the subject basin?	☐ Yes ☐ No ☑ N/A
2. If not will a GWMP be completed within 1 year of the grant submittal date?	☐ Yes ☐ No ☑ N/A

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Project Information Form

SWRP Projects Addendum

The Yolo WRA is accepting suggestions for projects for inclusion in the Yolo Storm Water Resource Plan (SWRP). Projects submitted for consideration should contribute to the attainment of the IRWM Plan and SWRP Objectives. To have your project considered for inclusion, please complete this project information form in its entirety and submit the completed form by **July 28, 2017** to **Kristin Sicke (ksicke@ycfcwcd.org)**.

Please provide information below:

I. Has this project been submitted to the Westside IRWMP previously?

○ Yes Please provide the Project Name as submitted on the Westside Sac IRWMP Project Information Form:

◉ No If you answered no, the Westside Sac IRWMP Project Information Form must be completed and submitted with this form. The form can be downloaded at: http://www.westsideirwm.com/Westside%20IRWMP%20Web%20Page/documents/Projects/Project%20Update%20Form-09-01-14.pdf

If you answered yes to the above question, please provide any additional project description/details not provided in the original Westside IRWMP Project Form related to storm water:

II. Land Availability

a. Is the project located on lands with Public ownership? ☑ Yes ☐ No ☐ N/A

b. Have easements and/or all required land use agreements been obtained or are pending? ☐ Yes ☐ No ☑ N/A

c. Describe how this project will result in immediate or downstream storm water benefit to Yolo County:

By installing the project, the City will provide enhanced water quality for existing drainage within the area of the project. Some impervious surfacing will be converted to pervious surfacing, slowing drainage over this surfacing. This will increase overall evapotranspiration and ground water recharge over what currently occurs.

III. SWRP Objectives – In addition to IRWMP Objectives

Please mark (x) the SWRP Objectives that apply to the proposed project (choose all that apply).

☑ Convert paved and/or impervious areas and increase tree canopy and vegetation, reducing urban heat island effects.

☐ Optimize the rural storm water conveyance system to drain and retain storm water flows as necessary. Provide proper rural drainage and keep conveyance systems clear of debris to minimize county road flooding during storm events.

☐ Enable proper rural retention and modify rural landscape to maximize groundwater recharge of excess storm water.

IV. SWRP Guideline Benefit Categories

Please mark (x) all the project benefit categories that apply and provide a brief explanation. Suggested benefit descriptions are included in the SWRP Guidelines Tables 3 and 4.

MAIN BENEFIT(S)

	x	**Brief Explanation of Benefit**	**Quantification (e.g. acre---feet of water supplied, acres of habitat restored)**
Water Quality – Increased filtration and/or treatment of runoff	X	By installing the project, the City will provide enhanced water quality for existing drainage within the area of the project. Some impervious surfacing will be converted to pervious surfacing, slowing drainage over this surfacing. This will increase overall evapotranspiration and ground water recharge over what currently occurs.	Feasibility study to determine options and quantification measures.
Water Supply – Water supply reliability			
Water Supply – Conjunctive use			
Flood Management – Decreased flood risk by reducing runoff rate and/or volume	X	Reduced risk of localized flooding when flows are infiltrated using pervious pavement.	Feasibility study to determine options and quantification measures.
Environmental – Environmental and habitat protection and improvement	X	Potential for increased habitat by incorporating LID principles into nearby landscape design.	Feasibility study to determine options and quantification measures.
Environmental – Increased urban green space			
Community – Employment opportunities provided			
Community – Public education	X	Likely to improve aesthetic quality of the project area. Education to the public on pollution prevention and stormwater runoff awareness. Provides a model for LID and the use of pervious surfaces.	Feasibility study to determine options and quantification measures.

SECONDARY BENEFIT(S)

	x	Brief Explanation of Benefit	Quantification (e.g. acre---feet of water supplied, acres of habitat restored)
Water Quality – Nonpoint source pollutant control			
Water Quality – Reestablished natural water drainage and treatment			
Water Supply – Water conservation			
Flood Management – Reduced sanitary sewer overflows			
Environmental – Reduced energy use, greenhouse gas emissions, or provides			
Environmental – Reestablishment of the natural hydrograph	X	The sites would allow water to naturally infiltrate into the ground by using pervious pavement.	Feasibility study to determine options and quantification measures.
Environmental – Water temperature improvements			
Community – Community involvement			
Community – Enhance and/or create recreational and public use areas			

Project Information Form

The Westside Region is accepting suggestions for projects for inclusion in the Westside Integrated Regional Water Management (IRWM) Plan. Projects submitted for consideration should contribute to the attainment of the IRWM Plan Goals and Objectives. To have your project considered for inclusion, please complete this project information form in its entirety and submit the completed form to info@westsideirwm.com .

Please provide information in the tables below:

I. Project Proponent Information

Lead Agency/ Organization	Solano County Water Agency
Name of Primary Contact	Rich Marovich
Mailing Address	810 Vaca Valley Parkway, Suite 203, Vacaville, CA 95688
E---mail	rmarovich@scwa2.com
Phone (###)###---####	(530) 902-1794
Other Cooperating Agencies/Organizations	Putah Creek Trout; Putah Creek Council
Is your agency committed to the project through completion? If not, please explain	Yes

II. General Project Information

Project Title	Thompson Canyon Stormwater Management
Project Description (Briefly describe the project, in 300 words or less,)	Thompson Canyon is the first tributary from the north to Lower Putah Creek downstream of Monticello Dam. It was the main source of sediment loading into Lower Putah Creek in the highest storm runoff event in the history of the Solano Project (1983). Even in average rainfall years, sediment from Thompson Canyon has buried the best trout spawning site in the Interdam Reach. The lower mile of the canyon has a legacy dirt road that contributed to catastrophic hillslope failure. The road has thirty stream crossings without properly sized culverts or rock fords and is not properly outsloped for drainage. This project would repair the stream crossings, properly outslope the road and apply gravel surface. It would also install rock vanes for grade control in the channel.

Project Location:	Thompson Canyon from the mouth of the creek to one mile upstream.
Latitude:	38.519793°
Longitude:	-122.099305°
Can you provide a map of the project location including boundaries upon request?	X Yes N/A No
Project Location Description:	First tributary from the north to Lower Putah Creek downstream of Monticello Dam
County:	Yolo
City/Community:	Winters
Watershed:	Lower Putah Creek
Groundwater Basin:	Solano Sub-Basin
Planning Area:	Lower Putah Creek Watershed Management Action Plan
Additional Comments:	
Project Status (Check only one)	Conceptual Planning CEQA/NEPA Permitting Design x Construction/Implementation Study/Other Maintenance/Monitoring
Earliest expected start date (mm/dd/yr)	07/01/18

III. Plan Goals/Objectives Addressed

For each of the goals/objectives addressed by the project, provide a one to two sentence description of how the project contributes to attaining the objective. Information related to the proposed goals and objectives can be found at www.westsideirw.com/irwmplan . If the project does not address any of the draft IRWM plan objectives, provide a one to two sentence description of how the project relates to a challenge or opportunity of the region.

Goal(s) that the Project will contribute to:	Ensure high quality surface water; Enhance, improve, and maintain aquatic and riparian ecosystems; Provide superior water-related recreational opportunities (fishing)
Objective(s) that the Project will help accomplish:	Enhance the aquatic and riparian environment

Explanation of Project linkage to goals and objectives	By reducing sediment loading from Thompson Canyon, we will protect the best trout spawning habitat, increase trout populations and improving recreational fishing. We will also reduce the siltation of Lake Solano which has lost half of its original volume. It will protect the ecosystem of the seven mile Interdam Reach and reduce threat of inundating the power plant at Monticello Dam.
How will the project be measured to ensure the goals and objectives are being fulfilled?	Reduction of sediment loading at the mouth of Thompson Canyon will be measured by creating a transect with monuments to measure and record channel cross sections and by visual inspection of spawning beds.

IV. Resource Management Strategies

For each resource management strategy employed by the project, provide a one to two sentence description in the table below of how the project incorporates the strategy. A description of the Resource Management Strategies can be found in Volume 2 of the 2009 California Water Plan here: http://www.waterplan.water.ca.gov/cwpu2009/index.cfm

Reduce Water Demand	
Agricultural Water Use Efficiency	
Urban Water Use Efficiency	
Improve Operational Efficiency and Transfers	
Conveyance --- Delta	
Conveyance --- Regional / local	
System Reoperation	
Water Transfers	
Increase Water Supply	
Conjunctive Management & Groundwater	
Desalination	
Precipitation Enhancement	
Recycled Municipal Water	
Surface Storage ------ CALFED	
Surface Storage ------ Regional / Local	

Improve Water Quality	
Drinking Water Treatment and Distribution	
Groundwater and Aquifer Remediation	
Matching Water Quality to Use	
Pollution Prevention	
Salt and Salinity Management	
Urban Runoff Management	
Practice Resources Stewardship	
Agricultural Lands Stewardship	
Economic Incentives (Loans, Grants, and Water Pricing)	
Ecosystem Restoration	Restore ecosystem services (trout fishing)
Forest Management	
Land Use Planning and Management	
Recharge Areas Protection	
Water---dependent Recreation	
Watershed Management	protect benthic habitat from siltation
Improve Flood Management	
Flood Risk Management	

V. Project Impacts and Benefits

Please select all the project benefit categories that apply and provide a brief explanation. If the project benefits do not fit any of the listed categories, please explain in the box below. Suggested benefit descriptions are included in the Project Information Form instructions sheet.

Benefit Categories:		**Brief Explanation of Selected Benefits**	**Quantification (e.g. acre---feet of water supplied, acres of habitat restored)**
Increase Water Supply			
Improve Water Quality		Reduced sediment loading	one mile of channel enhanced
Groundwater Improvements			
Water Conservation and Reuse	☐		

Watershed Rehabilitation	☐	systemic benefit from reduced sediment loading	bathymetry surveys of Lake Solano
Habitat Improvements		Improved spawning habitat	Square feet of trout spawning habitat protected
Flood Management			

Other Benefits:

The Interdam Reach was recently designated by DFW as a Wild Trout Stream. Trout are no longer stocked and naturally spawned fish are gradually recovering but populations are limited by spawning habitat, the best of which is at the mouth of Thompson Canyon. Over 100,000 visitors use the five fishing accesses annually for catch and release of trophy fish. With enhanced spawning fishing restrictions could be relaxed to allow a sustainable level of take.

Please provide a summary of the expected project benefits and impacts in the table below.

a. Describe any expected impacts of the project	temporary closure of legacy road for improvements
b. If applicable, describe benefits or impacts of the project with respect to Native American Tribal Community considerations.	no direct benefits or impacts
c. If applicable, describe benefits or impacts of the project with respect to Disadvantaged Communities*.	possible benefit to disadvantaged communities who depend on fishing to feed their families.
d. If applicable, describe benefits or impacts of the project with respect to Environmental Justice ** considerations.	not applicable

e. If applicable, describe how the project assists the region in adapting to effects of climate change.	Resilience to the increased frequency and intensity of high rainfall events; protection of essential fish habitat
f. If applicable, describe the generation or reduction of greenhouse gas emissions associated with the project.	Some improvement in carbon sequestration through incorporation of organic material in infiltration strips and better growth of native vegetation from enhanced groundwater supplies in the vicinity of the dry creek bed in the summer months.

*A Disadvantaged Community is defined as a community with an annual median household (MHI) income that is less than 80 percent of the Statewide annual MHI. A map identifying DACs in the Westside Region is available at www.westsideirwm.com.

** Environmental Justice is 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.

VI. Statewide Program Preferences and Priorities

Please select the Program Preferences and Statewide Priorities that apply to the proposed project (choose all that apply).

Program Preferences

- ☐ Include regional projects or programs (CWC §10544)
- ☐ Effectively integrate water management programs and projects within a hydrologic region identified in the California Water Plan; the Regional Water Quality Control Board (RWQCB) region or subdivision; or other region or sub---region specifically identified by DWR
- ☐ Effectively resolve significant water---related conflicts within or between regions
- ☑ Contribute to attainment of one or more of the objectives of the CALFED Bay---Delta Program
- ☐ Address critical water supply or water quality needs of disadvantaged communities within the region
- ☐ Effectively integrate water management with land use planning
- ☑ For eligible SWFM funding, projects which: a) are not receiving State funding for flood control or flood prevention projects pursuant to PRC §5096.824 or §75034 or b) provide multiple benefits, including, but not limited to, water quality improvements, ecosystem benefits, reduction of instream erosion and sedimentation, and groundwater recharge.

Statewide Priorities

Drought Preparedness

- [ ] Promote water conservation, conjunctive use, reuse and recycling
- [ ] Improve landscape and agricultural irrigation efficiencies Achieve
- [ ] long term reduction of water use
- [ ] Efficient groundwater basin management
- [ ] System interties

Use and Reuse Water More Efficiently

- [ ] Increase urban and agricultural water use efficiency measures such as conservation and recycling
- [ ] Capture, store, treat, and use urban stormwater runoff (such as percolation to usable aquifers, underground storage beneath parks, small surface basins, domestic stormwater capture systems, or the creation of catch basins or sumps downhill of development
- [ ] Incorporate and implement low impact development (LID) design features, techniques, and practices to reduce or eliminate stormwater runoff

Climate Change Response Actions

- [ ] Adaptation to Climate Change: Advance and expand conjunctive management of multiple water supply sources
- [ ] Adaptation to Climate Change: Use and reuse water more efficiently
- [x] Adaptation to Climate Change: Water management system modifications that address anticipated climate
  - [x] Adaptation to Climate Change: Establish migration corridors, re---establish river---floodplain hydrologic continuity, re---introduce anadromous fish populations to upper watersheds, enhance and protect upper watershed forests and meadow systems
- [ ] Reduction of Greenhouse Gas (GHG) Emissions: Reduce energy consumption of water systems and uses
- [ ] Reduction of Greenhouse Gas (GHG) Emissions: Use cleaner energy sources to move and treat water
- [ ] Reduce Energy Consumption: Water use efficiency
- [ ] Reduce Energy Consumption: Water recycling
- [ ] Reduce Energy Consumption: Water system energy efficiency

Expand Environmental Stewardship

- [x] Expand Environmental Stewardship to protect and enhance the environment by improving watershed, floodplain, and instream functions and to sustain water and flood management

ecosystems.

Practice Integrated Flood Management

- ☑ Better emergency preparedness and response
- ☐ Improved flood protection
- ☑ More sustainable flood and water management systems
- ☐ Enhanced floodplain ecosystems
- ☐ LID techniques that store and infiltrate runoff while protecting groundwater

Protect Surface Water and Groundwater Quality

- ☑ Protecting and restoring surface water and groundwater quality to safeguard public and environmental health and secure water supplies for beneficial uses
- ☐ Salt/nutrient management planning as a components of an IRWM Plan

Improve Tribal Water and Natural Resources

- ☐ Improve Tribal Water and Natural Resources and include the development of Tribal consultation, collaboration, and access to funding for water programs.

Ensure Equitable Distribution of Benefits

- ☐ Increase the participation of small and disadvantaged communities in the IRWM process.
- ☑ Develop multi---benefit projects with consideration of affected disadvantaged communities and vulnerable populations.
- ☐ Contain projects that address safe drinking water and wastewater treatment needs of DACs.
- ☐ Address critical water supply or water quality needs of California Native American Tribes within the region.

VII. Project Cost and Financing

Please provide any estimates of project cost, sources of funding, and operation and maintenance costs as well as the source of the project cost in the table below.

a. Project Costs		
1. Capital (2014 Dollars)	$500,000	
2. Annual Operations and Maintenance (O&M)	$10,000	
b. List secured source(s) of funding	**Source(s)**	**Amount**
	Thompson Canyon	$10,000 annually

c. List proposed source(s) of funding and certainty of the sources.		
d. For capital projects, explain how operation and maintenance costs will be financed.		
e. Basis for project cost	Road Engineer Survey	
f. Can a detailed cost estimate be provided upon request?	✔ Yes ☐ No	

VIII. Project Status and Schedule

Please provide a status of the project, level of completion as well as a description of the activities planned for each project stage.

Project Stage	Description of Activities in Each Project Stage	Planned/Actual Start Date	Planned/Actual Completion Date
a. Conceptual		2009	2009
b. Planning		2009	2009
c. Environmental Documentation (CEQA/NEPA)		2018	2018
d. Permitting		2018	2018
e. Tribal Consultation		2018	2018
f. Design		2018	2018
g. Construction/Implementation		2019	2019

IX. Project Technical Feasibility

Please provide any related documents (date, title, author, and page numbers) that describe and confirm the technical feasibility of the project.

a. List water planning documents that specifically identify this project.	
b. List the adopted planning documents the proposed project is consistent with (e.g. General Plans, UWMPs, GWMPs, Water Master Plans, Habitat Conservation Plans, etc.)	Lower Putah Creek Watershed Management Action Plan
c. List technical reports and studies supporting the feasibility of this project.	
d. If you are an Urban Water Supplier:	
1. Have you completed an Urban Water Management Plan and submitted to DWR?	☑ Yes ☐ No ☐ N/A
2. Are you in compliance with AB1420?	☑ Yes ☐ No N/A
3. Do you comply with the water meter requirements (CWC §525)	☐ Yes ☐ No ☑ N/A
4. If the answer to any of the questions above is "no", do you intend to comply prior to receiving Project funding	☐ Yes ☐ No ☑ N/A
e. If you are an Agricultural Water Supplier:	
1. Have you completed and submitted an AWMP (due 12/31/12)?	Yes No ☑ N/A
2. If not, will you complete and submit an AWMP prior to receiving project funding?	☐ Yes ☐ No ☑ N/A
f. If the project is related to groundwater:	
1. Has a GWMP been completed and submitted for the subject basin?	☐ Yes ☐ No ☑ N/A
2. If not will a GWMP be completed within 1 year of the grant submittal date?	☐ Yes ☐ No ☑ N/A

Project Information Form

SWRP Projects Addendum

The Yolo WRA is accepting suggestions for projects for inclusion in the Yolo Storm Water Resource Plan (SWRP). Projects submitted for consideration should contribute to the attainment of the IRWM Plan and SWRP Objectives. To have your project considered for inclusion, please complete this project information form in its entirety and submit the completed form by **July 28, 2017** to **Kristin Sicke (ksicke@ycfcwcd.org)**.

Please provide information below:

I. Has this project been submitted to the Westside IRWMP previously?

(●) Yes — Please provide the Project Name as submitted on the Westside Sac IRWMP Project Information Form:

Thompson Canyon Stormwater Management

( ) No — If you answered no, the Westside Sac IRWMP Project Information Form must be completed and submitted with this form. The form can be downloaded at: http://www.westsideirwm.com/Westside%20IRWMP%20Web%20Page/documents/Projects/Project%20Update%20Form-09-01-14.pdf

If you answered yes to the above question, please provide any additional project description/details not provided in the original Westside IRWMP Project Form related to storm water:

II. Land Availability

a. Is the project located on lands with Public ownership? ☐ Yes ☑ No ☐ N/A

b. Have easements and/or all required land use agreements been obtained or are pending? ☑ Yes ☐ No ☐ N/A

c. Describe how this project will result in immediate or downstream storm water benefit to Yolo County:

Reducing sediment loading from Thompson Canyon into Putah Creek will immediately benefit prime trout spawning habitat at the mouth of the tributary. This has been a priority of the nonprofit Putah Creek Trout since their inception.

III. SWRP Objectives – In addition to IRWMP Objectives

Please mark (x) the SWRP Objectives that apply to the proposed project (choose all that apply).

☐ Convert paved and/or impervious areas and increase tree canopy and vegetation, reducing urban heat island effects.

☐ Optimize the rural storm water conveyance system to drain and retain storm water flows as necessary. Provide proper rural drainage and keep conveyance systems clear of debris to minimize county road flooding during storm events.

☐ Enable proper rural retention and modify rural landscape to maximize groundwater recharge of excess storm water.

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Integrated Regional Water Management Plan

IV. SWRP Guideline Benefit Categories

Please mark (x) all the project benefit categories that apply and provide a brief explanation. Suggested benefit descriptions are included in the SWRP Guidelines Tables 3 and 4.

MAIN BENEFIT(S)

	x	Brief Explanation of Benefit	Quantification (e.g. acre---feet of water supplied, acres of habitat restored)
Water Quality – Increased filtration and/or treatment of runoff	x	eliminate sediment loading at the source	1 river mile of restored creek channel and access road
Water Supply – Water supply reliability		In 2006 and 2008 peak sediment loading interrupted continuous processing of drinking water from the Solano Project	Lack of interruption of drinking water processing
Water Supply – Conjunctive use			
Flood Management – Decreased flood risk by reducing runoff rate and/or volume			
Environmental – Environmental and habitat protection and improvement	x	Protection of trout spawning habitat	Increased fish populations measured by average time to catch a fish
Environmental – Increased urban green space			
Community – Employment opportunities provided			
Community – Public education			

SECONDARY BENEFIT(S)

	x	Brief Explanation of Benefit	Quantification (e.g. acre---feet of water supplied, acres of habitat restored)
Water Quality – Nonpoint source pollutant control	x	reduced sediment loading	lower turbidity readings in the Interdam reach
Water Quality – Reestablished natural water drainage and treatment	x	infiltration strips capture more surface water and reduce runoff	infiltration rate
Water Supply – Water conservation	x	capture water for native plants through enhanced infiltration	10,000 square feet of native vegetation established
Flood Management – Reduced sanitary sewer overflows			
Environmental – Reduced energy use, greenhouse gas emissions, or provides			
Environmental – Reestablishment of the natural hydrograph			
Environmental – Water temperature improvements			
Community – Community involvement			
Community – Enhance and/or create recreational and public use areas	x	Enhance fishing at 5 Putah Creek fishing accesses visited by 100,000 people per year	reduced time to catch a fish

Project Information Form

The Westside Region is accepting suggestions for projects for inclusion in the Westside Integrated Regional Water Management (IRWM) Plan. Projects submitted for consideration should contribute to the attainment of the IRWM Plan Goals and Objectives. To have your project considered for inclusion, please complete this project information form in its entirety and submit the completed form to info@westsideirwm.com .

Please provide information in the tables below:

I. Project Proponent Information

Lead Agency/ Organization	Yolo County FCWCD with Madison CSD
Name of Primary Contact	Kristin Sicke with Leo Resland
Mailing Address	34274 CA-16, Woodland, CA 95695
E---mail	ksicke@ycfcwcd.org
Phone (###)###---####	(530) 662-0265 ext. 112
Other Cooperating Agencies/Organizations	Potential partners include Yolo County
Is your agency committed to the project through completion? If not, please explain	Yes, pending funding availability

II. General Project Information

Project Title	Upstream Flow Management to Prevent Madison Flooding and to Facilitate GW Recharge
Project Description (Briefly describe the project, in 300 words or less,)	The District proposes to manage high flows from Lamb Valley, Cottonwood and S. Fork Willow Sloughs using the existing canal system as well as other means such as upstream check dams. During storm events Willow Slough floods the Town of Madison. The Canal system can be used to convey water away from the Town of Madison and reduce flood levels while also managing peak flows through use of check dams, particularly in Lamb Valley Slough. Flow and water level monitoring could serve several purposes. GW recharge can be accomplished through canal bottoms and potential recharge/detention basins. P. 29 and 30 of the 2012 FIS describe some of the upstream channel capacity limitations and a review of FIRM maps shows several points of intersection between the sloughs and canals to be explored. This project can be coordinated with Raising Highway 16 project.

Project Location:	Lamb Valley Slough, S. Fork Willow Slough and Cottonwood Sloughs in Yolo County
Latitude:	
Longitude:	
Can you provide a map of the project location including boundaries upon request?	☒ Yes ☐ N/A ☐ No
Project Location Description:	Various locations in Lamb Valley, S. Fork Willow and Cottonwood Sloughs
County:	Yolo County
City/Community:	Unincorporated Yolo County
Watershed:	S. Fork Willow and Cottonwood Sloughs
Groundwater Basin:	Yolo Subbasin
Planning Area:	Valley Floor Area
Additional Comments:	
Project Status (Check only one)	☒ Conceptual ☐ Planning ☐ CEQA/NEPA ☐ Permitting ☐ Design ☐ Construction/Implementation ☒ Study/Other ☐ Maintenance/Monitoring
Earliest expected start date (mm/dd/yr)	2020

III. Plan Goals/Objectives Addressed

For each of the goals/objectives addressed by the project, provide a one to two sentence description of how the project contributes to attaining the objective. Information related to the proposed goals and objectives can be found at www.westsideirw.com/irwmplan . If the project does not address any of the draft IRWM plan objectives, provide a one to two sentence description of how the project relates to a challenge or opportunity of the region.

Goal(s) that the Project will contribute to:	3. Improve understanding of watershed; 8. Promote reasonable use of water and watershed resources. 10. Provide reliable water supplies; 11. Reduce the risks of ...flooding;
Objective(s) that the Project will help accomplish:	14. Provide adequate flood protection; 15. Manage watershed activities to reduce large erosion events; 18. Maintain and enhance watershed monitoring, 23. Provide 100% reliability of M&I water supplies; 24. Provide ag water supplies

Explanation of Project linkage to goals and objectives	Diverting from sloughs to canals can reduce downstream flooding and provide opportunities for GW recharge in canals and detention basins. Upstream check dams will provide opportunities to capture sediment and reduce erosion, reduce peak flows and flooding, and capture and recharge small storms.
How will the project be measured to ensure the goals and objectives are being fulfilled?	Diversions to canals and/or detention basins will be metered; depths of sediment at check dams can be measured.

IV. Resource Management Strategies

For each resource management strategy employed by the project, provide a one to two sentence description in the table below of how the project incorporates the strategy. A description of the Resource Management Strategies can be found in Volume 2 of the 2009 California Water Plan here: http://www.waterplan.water.ca.gov/cwpu2009/index.cfm

Reduce Water Demand	
Agricultural Water Use Efficiency	
Urban Water Use Efficiency	
Improve Operational Efficiency and Transfers	
Conveyance --- Delta	
Conveyance --- Regional / local	Metering of flows and Reduce sediment in canals
System Reoperation	Reoperates slough/canal system
Water Transfers	
Increase Water Supply	
Conjunctive Management & Groundwater	Diversions enhance GW recharge for improved conjunctive management.
Desalination	
Precipitation Enhancement	
Recycled Municipal Water	
Surface Storage ------ CALFED	
Surface Storage ------ Regional / Local	Detention basins create local surface

	storage

Improve Water Quality	
Drinking Water Treatment and Distribution	
Groundwater and Aquifer Remediation	
Matching Water Quality to Use	
Pollution Prevention	
Salt and Salinity Management	
Urban Runoff Management	
Practice Resources Stewardship	
Agricultural Lands Stewardship	
Economic Incentives (Loans, Grants, and Water Pricing)	
Ecosystem Restoration	
Forest Management	
Land Use Planning and Management	
Recharge Areas Protection	
Water---dependent Recreation	
Watershed Management	Check dams and diversions optimize water management
Improve Flood Management	
Flood Risk Management	Diversions, and to lesser degree, check dams, reduce flood risk.

V. Project Impacts and Benefits

Please select all the project benefit categories that apply and provide a brief explanation. If the project benefits do not fit any of the listed categories, please explain in the box below. Suggested benefit descriptions are included in the Project Information Form instructions sheet.

Benefit Categories:		**Brief Explanation of Selected Benefits**	**Quantification (e.g. acre---feet of water supplied, acres of habitat restored)**
Increase Water Supply		Diversions to recharge improve groundwater supply	To be determined in future phase
Improve Water Quality		Check dams capture sediment	To be determined in future phase
Groundwater Improvements	☐	Recharge improves groundwater supply	To be determined in future phase (potential WEAP model analysis)
Water Conservation and Reuse			

Watershed Rehabilitation	☐		
Habitat Improvements			
Flood Management		Diversions may reduce flood risk	To be determined through updated flood modeling

Other Benefits:

Please provide a summary of the expected project benefits and impacts in the table below.

a. Describe any expected impacts of the project	Potential construction impacts may occur
b. If applicable, describe benefits or impacts of the project with respect to Native American Tribal Community considerations.	If flood reductions result in fewer impacts to Highway 16, then Yoche Dehe Wintun tribe may benefit by protecting access to tribal property
c. If applicable, describe benefits or impacts of the project with respect to Disadvantaged Communities*.	Madison and some areas in the project area are DAC, therefore reduced flooding would benefit these areas
d. If applicable, describe benefits or impacts of the project with respect to Environmental Justice ** considerations.	Improving flood conditions in the DAC located in the project area will address Environmental justice considerations.

e. If applicable, describe how the project assists the region in adapting to effects of climate change.	Recharging groundwater with surface water and providing means of reducing flood peaks will assist in adapting to the climate change effects of reduced water supply and increased flooding
f. If applicable, describe the generation or reduction of greenhouse gas emissions associated with the project.	Groundwater recharge may result in higher groundwater levels which will require less pumping energy and therefore reduce GHG emissions for groundwater pumping.

*A Disadvantaged Community is defined as a community with an annual median household (MHI) income that is less than 80 percent of the Statewide annual MHI. A map identifying DACs in the Westside Region is available at www.westsideirwm.com.

** Environmental Justice is 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.

VI. Statewide Program Preferences and Priorities

Please select the Program Preferences and Statewide Priorities that apply to the proposed project (choose all that apply).

Program Preferences

- ☐ Include regional projects or programs (CWC §10544)
- ☑ Effectively integrate water management programs and projects within a hydrologic region identified in the California Water Plan; the Regional Water Quality Control Board (RWQCB) region or subdivision; or other region or sub---region specifically identified by DWR
- ☑ Effectively resolve significant water---related conflicts within or between regions
- ☐ Contribute to attainment of one or more of the objectives of the CALFED Bay---Delta Program
- ☑ Address critical water supply or water quality needs of disadvantaged communities within the region
- ☐ Effectively integrate water management with land use planning
- ☑ For eligible SWFM funding, projects which: a) are not receiving State funding for flood control or flood prevention projects pursuant to PRC §5096.824 or §75034 or b) provide multiple benefits, including, but not limited to, water quality improvements, ecosystem benefits, reduction of instream erosion and sedimentation, and groundwater recharge.

Statewide Priorities

Drought Preparedness

- ☐ Promote water conservation, conjunctive use, reuse and recycling
- ☐ Improve landscape and agricultural irrigation efficiencies Achieve
- ☐ long term reduction of water use
- ☑ Efficient groundwater basin management
- ☐ System interties

Use and Reuse Water More Efficiently

- ☐ Increase urban and agricultural water use efficiency measures such as conservation and recycling
- ☑ Capture, store, treat, and use urban stormwater runoff (such as percolation to usable aquifers, underground storage beneath parks, small surface basins, domestic stormwater capture systems, or the creation of catch basins or sumps downhill of development
- ☐ Incorporate and implement low impact development (LID) design features, techniques, and practices to reduce or eliminate stormwater runoff

Climate Change Response Actions

- ☑ Adaptation to Climate Change: Advance and expand conjunctive management of multiple water supply sources
- ☐ Adaptation to Climate Change: Use and reuse water more efficiently
- ☑ Adaptation to Climate Change: Water management system modifications that address anticipated climate
  - ☐ Adaptation to Climate Change: Establish migration corridors, re---establish river---floodplain hydrologic continuity, re---introduce anadromous fish populations to upper watersheds, enhance and protect upper watershed forests and meadow systems
- ☑ Reduction of Greenhouse Gas (GHG) Emissions: Reduce energy consumption of water systems and uses
- ☐ Reduction of Greenhouse Gas (GHG) Emissions: Use cleaner energy sources to move and treat water
- ☐ Reduce Energy Consumption: Water use efficiency
- ☐ Reduce Energy Consumption: Water recycling
- ☐ Reduce Energy Consumption: Water system energy efficiency

Expand Environmental Stewardship

- ☑ Expand Environmental Stewardship to protect and enhance the environment by improving watershed, floodplain, and instream functions and to sustain water and flood management

ecosystems.

Practice Integrated Flood Management

- [ ] Better emergency preparedness and response
- [x] Improved flood protection
- [x] More sustainable flood and water management systems
- [ ] Enhanced floodplain ecosystems
- [ ] LID techniques that store and infiltrate runoff while protecting groundwater

Protect Surface Water and Groundwater Quality

- [ ] Protecting and restoring surface water and groundwater quality to safeguard public and environmental health and secure water supplies for beneficial uses
- [ ] Salt/nutrient management planning as a components of an IRWM Plan

Improve Tribal Water and Natural Resources

- [x] Improve Tribal Water and Natural Resources and include the development of Tribal consultation, collaboration, and access to funding for water programs.

Ensure Equitable Distribution of Benefits

- [x] Increase the participation of small and disadvantaged communities in the IRWM process.
- [x] Develop multi---benefit projects with consideration of affected disadvantaged communities and vulnerable populations.
- [ ] Contain projects that address safe drinking water and wastewater treatment needs of DACs.
- [ ] Address critical water supply or water quality needs of California Native American Tribes within the region.

VII. Project Cost and Financing

Please provide any estimates of project cost, sources of funding, and operation and maintenance costs as well as the source of the project cost in the table below.

a. Project Costs		
1. Capital (2014 Dollars)	To be determined	
2. Annual Operations and Maintenance (O&M)	will potentially include sediment removal from check dams	
	Source(s)	**Amount**
b. List secured source(s) of funding		

c. List proposed source(s) of funding and certainty of the sources.	State Grants	
d. For capital projects, explain how operation and maintenance costs will be financed.	To be determined	
e. Basis for project cost		
f. Can a detailed cost estimate be provided upon request?	☐ Yes ☑ No	

VIII. Project Status and Schedule

Please provide a status of the project, level of completion as well as a description of the activities planned for each project stage.

Project Stage	Description of Activities in Each Project Stage	Planned/Actual Start Date	Planned/Actual Completion Date
a. Conceptual	Identify locations for gravity diversions from sloughs to canals and potential detention locations; evaluate flood and groundwater benefits	late 2017	
b. Planning			
c. Environmental Documentation (CEQA/NEPA)			
d. Permitting			
e. Tribal Consultation			
f. Design			
g. Construction/Implementation			

IX. Project Technical Feasibility

Please provide any related documents (date, title, author, and page numbers) that describe and confirm the technical feasibility of the project.

a. List water planning documents that specifically identify this project.	
b. List the adopted planning documents the proposed project is consistent with (e.g. General Plans, UWMPs, GWMPs, Water Master Plans, Habitat Conservation Plans, etc.)	2006 Groundwater Management Plan (YCFCWCD), Agricultural Water Management Plan 2015 (YCFCWCD)
c. List technical reports and studies supporting the feasibility of this project.	1999 Madison Flood Study 2000 Yolo County: Evaluation of Flood Control Alternatives in Yolo County 2012 Flood Insurance Study and FIRM maps 1996 Willow slough Watershed Plan, 2012 Enhanced Canal Recharge Feasibility Report (YCFCWCD)
d. If you are an Urban Water Supplier:	
1. Have you completed an Urban Water Management Plan and submitted to DWR?	Yes No ✔ N/A
2. Are you in compliance with AB1420?	Yes No ✔ N/A
3. Do you comply with the water meter requirements (CWC §525)	☐ Yes No ✔ N/A
4. If the answer to any of the questions above is "no", do you intend to comply prior to receiving Project funding	Yes No ✔ N/A
e. If you are an Agricultural Water Supplier:	
1. Have you completed and submitted an AWMP (due 12/31/12)?	✔ Yes ☐ No ☐ N/A
2. If not, will you complete and submit an AWMP prior to receiving project funding?	☐ Yes ☐ No ☐ ✔ N/A
f. If the project is related to groundwater:	
1. Has a GWMP been completed and submitted for the subject basin?	✔ Yes ☐ No N/A
2. If not will a GWMP be completed within 1 year of the grant submittal date?	Yes No ✔ N/A

Project Information Form

SWRP Projects Addendum

The Yolo WRA is accepting suggestions for projects for inclusion in the Yolo Storm Water Resource Plan (SWRP). Projects submitted for consideration should contribute to the attainment of the IRWM Plan and SWRP Objectives. To have your project considered for inclusion, please complete this project information form in its entirety and submit the completed form by **July 28, 2017** to **Kristin Sicke (ksicke@ycfcwcd.org)**.

Please provide information below:

I. Has this project been submitted to the Westside IRWMP previously?

○ Yes Please provide the Project Name as submitted on the Westside Sac IRWMP Project Information Form:

◉ No If you answered no, the Westside Sac IRWMP Project Information Form must be completed and submitted with this form. The form can be downloaded at: http://www.westsideirwm.com/Westside%20IRWMP%20Web%20Page/documents/Projects/Project%20Update%20Form-09-01-14.pdf

If you answered yes to the above question, please provide any additional project description/details not provided in the original Westside IRWMP Project Form related to storm water:

Flow and water level monitoring stations on Lamb Valley slough, S. Fork Willow Slough and Cottonwood Slough would be helpful for flood warning and estimation of quantities available for diversion. This project can be coordinated with project to raise Highway 16.

II. Land Availability

a. Is the project located on lands with Public ownership?	☐ Yes	☑ No	☐ N/A
b. Have easements and/or all required land use agreements been obtained or are pending?	☐ Yes	☑ No	☐ N/A

c. Describe how this project will result in immediate or downstream storm water benefit to Yolo County:

The District proposes to manage high flows from Lamb Valley and S. Fork Willow Sloughs using the YCFC&WCD's existing canal system as well as other means such as check dams. During storm events Willow Slough floods the Town of Madison. The Canal system can be used to convey water away from the Town of Madison and reduce flood levels while also managing peak flows through use of check dams particularly in Lamb Valley Slough upstream of the confluence with S. Fork Willow Slough. P. 29 and 30 of the 2012 FIS describe some of the upstream channel capacity limitations. Some public lands may be used but land ownership will have to be confirmed during project development.

III. SWRP Objectives – In addition to IRWMP Objectives

Please mark (x) the SWRP Objectives that apply to the proposed project (choose all that apply).

☐ Convert paved and/or impervious areas and increase tree canopy and vegetation, reducing urban heat island effects.

☑ Optimize the rural storm water conveyance system to drain and retain storm water flows as necessary. Provide proper rural drainage and keep conveyance systems clear of debris to minimize county road flooding during storm events.

☑ Enable proper rural retention and modify rural landscape to maximize groundwater recharge of excess storm water.

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Integrated Regional Water Management Plan

IV. SWRP Guideline Benefit Categories

Please mark (x) all the project benefit categories that apply and provide a brief explanation. Suggested benefit descriptions are included in the SWRP Guidelines Tables 3 and 4.

MAIN BENEFIT(S)

	x	**Brief Explanation of Benefit**	**Quantification (e.g. acre---feet of water supplied, acres of habitat restored)**
Water Quality – Increased filtration and/or treatment of runoff	X	Check dams could capture sediments	Measurement of sediment depth over time
Water Supply – Water supply reliability			
Water Supply – Conjunctive use	x	Canals provide recharge to the aquifer	Diversions to be metered
Flood Management – Decreased flood risk by reducing runoff rate and/or volume	x	The project will reduce the volume of water flooding the Town of Madison	Estimates based on diversions and modeling can be made
Environmental – Environmental and habitat protection and improvement			
Environmental – Increased urban green space			
Community – Employment opportunities provided			
Community – Public education			

SECONDARY BENEFIT(S)

	x	Brief Explanation of Benefit	Quantification (e.g. acre---feet of water supplied, acres of habitat restored)
Water Quality – Nonpoint source pollutant control			
Water Quality – Reestablished natural water drainage and treatment			
Water Supply – Water conservation			
Flood Management – Reduced sanitary sewer overflows			
Environmental – Reduced energy use, greenhouse gas emissions, or provides	X	Potential increases to GW levels may reduce pumping	
Environmental – Reestablishment of the natural hydrograph			
Environmental – Water temperature improvements			
Community – Community involvement			
Community – Enhance and/or create recreational and public use areas	x	Diversion of flood flows may help prevent Highway 16 from flooding and protect access to Yoche Dehe Wintun tribal lands	Estimates based on diversions and modeling can be made

Project Information Form

The Westside Region is accepting suggestions for projects for inclusion in the Westside Integrated Regional Water Management (IRWM) Plan. Projects submitted for consideration should contribute to the attainment of the IRWM Plan Goals and Objectives. To have your project considered for inclusion, please complete this project information form in its entirety and submit the completed form to info@westsideirwm.com .

Please provide information in the tables below:

I. Project Proponent Information

Lead Agency/ Organization	Yolo County Flood Control and Water Conservation District
Name of Primary Contact	Kristin Sicke
Mailing Address	34274 State Highway 16
E---mail	ksicke@ycfcwcd.org
Phone (###)###---####	(530)662-0265
Other Cooperating Agencies/Organizations	Yolo Subbasin Groundwater Agency
Is your agency committed to the project through completion? If not, please explain	Yes

II. General Project Information

Project Title	West Adams Canal Renovation and China Slough Rehabilitation Project
Project Description (Briefly describe the project, in 300 words or less,)	Enlargement and improvement of the Yolo County Flood Control & Water Conservation District's (District) West Adams, East Adams, and Acacia Canal system, and rehabilitation and improvement of China Slough (a natural storm drainage channel). The District's canal system would need to be modernized to allow for a "demand" system and to ensure no spills. China Slough would need to be cleaned, an operating road constructed, and installation of about eight check structures. Improvements to the canals and slough would be implemented to convey 10,000 acre-feet of surface water per year through China Slough to farmers in the Yolo-Zamora region (~4,200 acres).

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Project Location:	North end of District's Canal System and China Slough
Latitude:	38.721935
Longitude:	-121.872545
Can you provide a map of the project location including boundaries upon request?	☒ Yes ☐ N/A ☐ No
Project Location Description:	West and East Adams, and Acacia Canals; and China Slough
County:	Yolo
City/Community:	Yolo-Zamora
Watershed:	Cache Creek
Groundwater Basin:	Yolo Subbasin
Planning Area:	506. Colusa Basin and 509. Central Basin West
Additional Comments:	
Project Status (Check only one)	☒ Conceptual ☒ Planning ☐ CEQA/NEPA ☐ Permitting ☐ Design ☐ Construction/Implementation ☐ Study/Other ☐ Maintenance/Monitoring
Earliest expected start date (mm/dd/yr)	01/01/2020

III. Plan Goals/Objectives Addressed

For each of the goals/objectives addressed by the project, provide a one to two sentence description of how the project contributes to attaining the objective. Information related to the proposed goals and objectives can be found at www.westsideirw.com/irwmplan . If the project does not address any of the draft IRWM plan objectives, provide a one to two sentence description of how the project relates to a challenge or opportunity of the region.

Goal(s) that the Project will contribute to:	Plan 3 (improve collective understanding of watershed characteristics & functions), 9 (protect & enhance habitat & biological diversity of native species), 10 (provide reliable water supplies), 11 (reduce the risks of disruptive natural disturbances), 12 (support improved regional water management), 13 (support sustainable economic activities)
Objective(s) that the Project will help accomplish:	Risk Management Focus Objective 14 and 15; Understand Watershed Function Focus Objective 17 and 18; Water Supply Focus Objective 24

Explanation of Project linkage to goals and objectives	Conveying surface water to Yolo-Zamora would protect the groundwater within the Yolo Subbasin and would slow subsidence within the area. The project provides opportunity for irrigation and environmental flows to be conveyed through the channels, and to provide increased storm water conveyance capacity for minimizing flooding within the Yolo-Zamora area.
How will the project be measured to ensure the goals and objectives are being fulfilled?	The Water Resources Information Database will be used to monitor groundwater levels and ensure they are not continuing a downward trend. Subsidence surveys will be conducted every other year (provided funding is available) The District will connect the automation and monitoring at through China slough to the existing SCADA system to ensure real-time management, and to keep track of flow attenuation.

IV. Resource Management Strategies

For each resource management strategy employed by the project, provide a one to two sentence description in the table below of how the project incorporates the strategy. A description of the Resource Management Strategies can be found in Volume 2 of the 2009 California Water Plan here: http://www.waterplan.water.ca.gov/cwpu2009/index.cfm

Reduce Water Demand	
Agricultural Water Use Efficiency	Reduces demand on groundwater supplies b by providing surface water supplies.
Urban Water Use Efficiency	
Improve Operational Efficiency and Transfers	
Conveyance --- Delta	
Conveyance --- Regional / local	Provides greater flexibility to ensure o consistent regional conveyance.
System Reoperation	Provides greater flexibility for irrigation season operations.
Water Transfers	
Increase Water Supply	
Conjunctive Management & Groundwater	Recharging groundwater by expanding unlined canal system length .
Desalination	

Improve Water Quality	
Drinking Water Treatment and Distribution	
Groundwater and Aquifer Remediation	
Matching Water Quality to Use	
Pollution Prevention	Settling of pathogens, nutrients, and metals during delayed retention period.
Salt and Salinity Management	
Urban Runoff Management	Expands natural channels for increased runoff capacity and conveyance.
Practice Resources Stewardship	
Agricultural Lands Stewardship	
Economic Incentives (Loans, Grants, and Water Pricing)	
Ecosystem Restoration	
Forest Management	
Land Use Planning and Management	
Recharge Areas Protection	
Water---dependent Recreation	
Watershed Management	Expand the surface water conveyance potential within the watershed.
Improve Flood Management	
Flood Risk Management	Reducing flooding by enhancing the natural conveyance channels to allow greater storm water capture and attenuation.

V. Project Impacts and Benefits

Please select all the project benefit categories that apply and provide a brief explanation. If the project benefits do not fit any of the listed categories, please explain in the box below. Suggested benefit descriptions are included in the Project Information Form instructions sheet.

Benefit Categories:		**Brief Explanation of Selected Benefits**	**Quantification (e.g. acre---feet of water supplied, acres of habitat restored)**
Increase Water Supply		Increase available surface water to the Yolo-Zamora area	10,000 acre-feet to Yolo Zamora irrigators (all currently groundwater users)
Improve Water Quality	☐		

Groundwater Improvements		Increased groundwater supply from storm water & irrigation-season retention	
Water Conservation and Reuse			

Watershed Rehabilitation	✔	Increased storm water conveyance in China Slough	
Habitat Improvements			
Flood Management		Reduced peak discharge from storm events to region	Need to study peak storm flows in this region

Other Benefits:

Please provide a summary of the expected project benefits and impacts in the table below.

a. Describe any expected impacts of the project	
b. If applicable, describe benefits or impacts of the project with respect to Native American Tribal Community considerations.	The District and YSGA will consult with the Yocha Dehe Wintun Nation to determine the coordination necessary during selection of the project site and construction of the retention pond.
c. If applicable, describe benefits or impacts of the project with respect to Disadvantaged Communities*.	N/A

d. If applicable, describe benefits or impacts of the project with respect to Environmental Justice ** considerations.	N/A

e. If applicable, describe how the project assists the region in adapting to effects of climate change.	With increased intensity, duration, and frequency of storm events the project will assist the area in capturing additional flow to reduce flooding impacts and to recharge the groundwater and increase groundwater supply within the region.
f. If applicable, describe the generation or reduction of greenhouse gas emissions associated with the project.	N/A

*A Disadvantaged Community is defined as a community with an annual median household (MHI) income that is less than 80 percent of the Statewide annual MHI. A map identifying DACs in the Westside Region is available at www.westsideirwm.com.

** Environmental Justice is 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.

VI. Statewide Program Preferences and Priorities

Please select the Program Preferences and Statewide Priorities that apply to the proposed project (choose all that apply).

Program Preferences

- [x] Include regional projects or programs (CWC §10544)
- [x] Effectively integrate water management programs and projects within a hydrologic region identified in the California Water Plan; the Regional Water Quality Control Board (RWQCB) region or subdivision; or other region or sub---region specifically identified by DWR
- [x] Effectively resolve significant water---related conflicts within or between regions
- [ ] Contribute to attainment of one or more of the objectives of the CALFED Bay---Delta Program
- [ ] Address critical water supply or water quality needs of disadvantaged communities within the region
- [x] Effectively integrate water management with land use planning
- [x] For eligible SWFM funding, projects which: a) are not receiving State funding for flood control or flood prevention projects pursuant to PRC §5096.824 or §75034 or b) provide multiple benefits, including, but not limited to, water quality improvements, ecosystem

benefits, reduction of instream erosion and sedimentation, and groundwater recharge.

Statewide Priorities

Drought Preparedness

- [x] Promote water conservation, conjunctive use, reuse and recycling
- [ ] Improve landscape and agricultural irrigation efficiencies Achieve
- [ ] long term reduction of water use
- [x] Efficient groundwater basin management
- [x] System interties

Use and Reuse Water More Efficiently

- [ ] Increase urban and agricultural water use efficiency measures such as conservation and recycling
- [x] Capture, store, treat, and use urban stormwater runoff (such as percolation to usable aquifers, underground storage beneath parks, small surface basins, domestic stormwater capture systems, or the creation of catch basins or sumps downhill of development
- [ ] Incorporate and implement low impact development (LID) design features, techniques, and practices to reduce or eliminate stormwater runoff

Climate Change Response Actions

- [x] Adaptation to Climate Change: Advance and expand conjunctive management of multiple water supply sources
- [ ] Adaptation to Climate Change: Use and reuse water more efficiently
- [ ] Adaptation to Climate Change: Water management system modifications that address anticipated climate
  - [ ] Adaptation to Climate Change: Establish migration corridors, re---establish river---floodplain hydrologic continuity, re---introduce anadromous fish populations to upper watersheds, enhance and protect upper watershed forests and meadow systems
- [ ] Reduction of Greenhouse Gas (GHG) Emissions: Reduce energy consumption of water systems and uses
- [ ] Reduction of Greenhouse Gas (GHG) Emissions: Use cleaner energy sources to move and treat water
- [ ] Reduce Energy Consumption: Water use efficiency
- [ ] Reduce Energy Consumption: Water recycling
- [ ] Reduce Energy Consumption: Water system energy efficiency

Expand Environmental Stewardship

- [ ] Expand Environmental Stewardship to protect and enhance the environment by improving watershed, floodplain, and instream functions and to sustain water and flood management

ecosystems.

Practice Integrated Flood Management

- [ ] Better emergency preparedness and response
- [x] Improved flood protection
- [x] More sustainable flood and water management systems
- [ ] Enhanced floodplain ecosystems
- [ ] LID techniques that store and infiltrate runoff while protecting groundwater

Protect Surface Water and Groundwater Quality

- [x] Protecting and restoring surface water and groundwater quality to safeguard public and environmental health and secure water supplies for beneficial uses
- [ ] Salt/nutrient management planning as a components of an IRWM Plan

Improve Tribal Water and Natural Resources

- [ ] Improve Tribal Water and Natural Resources and include the development of Tribal consultation, collaboration, and access to funding for water programs.

Ensure Equitable Distribution of Benefits

- [ ] Increase the participation of small and disadvantaged communities in the IRWM process.
- [ ] Develop multi---benefit projects with consideration of affected disadvantaged communities and vulnerable populations.
- [ ] Contain projects that address safe drinking water and wastewater treatment needs of DACs.
- [ ] Address critical water supply or water quality needs of California Native American Tribes within the region.

VII. Project Cost and Financing

Please provide any estimates of project cost, sources of funding, and operation and maintenance costs as well as the source of the project cost in the table below.

a. Project Costs	2003$ ($11,792,850); 2017$ (15,671,929)	
1. Capital (2014 Dollars)	2017$ (15,671,929)	
2. Annual Operations and Maintenance (O&M)		
b. List secured source(s) of funding	**Source(s)**	**Amount**

c. List proposed source(s) of funding and certainty of the sources.		
d. For capital projects, explain how operation and maintenance costs will be financed.	Will be financed by the beneficiaries under an annexation process with YCFC&WCD	
e. Basis for project cost	YCFC&WCD/YZWD Conjunctive Water Use Feasibility Study (2003)	
f. Can a detailed cost estimate be provided upon request?	☑ Yes ☐ No	

VIII. Project Status and Schedule

Please provide a status of the project, level of completion as well as a description of the activities planned for each project stage.

Project Stage	Description of Activities in Each Project Stage	Planned/Actual Start Date	Planned/Actual Completion Date
a. Conceptual		July 2018	December 2018
b. Planning		January 2019	February 2019
c. Environmental Documentation (CEQA/NEPA)		April 2019	December 2019
d. Permitting		April 2019	December
e. Tribal Consultation		January 2019	on going
f. Design		February 2019	May 2019
g. Construction/Implementation		January 2020	January 2021

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IX. Project Technical Feasibility

Please provide any related documents (date, title, author, and page numbers) that describe and confirm the technical feasibility of the project.

a. List water planning documents that specifically identify this project.	YCFCWCD/YZWD Conjunctive Water Use Feasibility Study
b. List the adopted planning documents the proposed project is consistent with (e.g. General Plans, UWMPs, GWMPs, Water Master Plans, Habitat Conservation Plans, etc.)	
c. List technical reports and studies supporting the feasibility of this project.	YCFCWCD/YZWD Conjunctive Water Use Feasibility Study
d. If you are an Urban Water Supplier:	
1. Have you completed an Urban Water Management Plan and submitted to DWR?	Yes No ✔ N/A
2. Are you in compliance with AB1420?	Yes No ✔ N/A
3. Do you comply with the water meter requirements (CWC §525)	☐ Yes No ✔ N/A
4. If the answer to any of the questions above is "no", do you intend to comply prior to receiving Project funding	Yes No ✔ N/A
e. If you are an Agricultural Water Supplier:	
1. Have you completed and submitted an AWMP (due 12/31/12)?	✔ Yes ☐ No ☐ N/A
2. If not, will you complete and submit an AWMP prior to receiving project funding?	Yes No N/A
f. If the project is related to groundwater:	
1. Has a GWMP been completed and submitted for the subject basin?	✔ Yes No N/A
2. If not will a GWMP be completed within 1 year of the grant submittal date?	☐ Yes ☐ No ☐ N/A

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Project Information Form

SWRP Projects Addendum

The Yolo WRA is accepting suggestions for projects for inclusion in the Yolo Storm Water Resource Plan (SWRP). Projects submitted for consideration should contribute to the attainment of the IRWM Plan and SWRP Objectives. To have your project considered for inclusion, please complete this project information form in its entirety and submit the completed form by **July 28, 2017** to **Kristin Sicke (ksicke@ycfcwcd.org)**.

Please provide information below:

I. Has this project been submitted to the Westside IRWMP previously?

○ Yes Please provide the Project Name as submitted on the Westside Sac IRWMP Project Information Form:

West Adams Canal Renovation and China Slough Rehabilitation Project

◉ No If you answered no, the Westside Sac IRWMP Project Information Form must be completed and submitted with this form. The form can be downloaded at: http://www.westsideirwm.com/Westside%20IRWMP%20Web%20Page/documents/Projects/Project%20Update%20Form-09-01-14.pdf

If you answered yes to the above question, please provide any additional project description/details not provided in the original Westside IRWMP Project Form related to storm water:

II. Land Availability

a. Is the project located on lands with Public ownership? ☐ Yes ☑ No ☐ N/A

b. Have easements and/or all required land use agreements been obtained or are pending? ☐ Yes ☑ No ☐ N/A

c. Describe how this project will result in immediate or downstream storm water benefit to Yolo County:

Provides increased stormwater conveyance capacity for minimizing flooding within the Yolo-Zamora area by improving drainage canals and China Slough (natural drainage).

III. SWRP Objectives – In addition to IRWMP Objectives

Please mark (x) the SWRP Objectives that apply to the proposed project (choose all that apply).

☐ Convert paved and/or impervious areas and increase tree canopy and vegetation, reducing urban heat island effects.

☑ Optimize the rural storm water conveyance system to drain and retain storm water flows as necessary. Provide proper rural drainage and keep conveyance systems clear of debris to minimize county road flooding during storm events.

☑ Enable proper rural retention and modify rural landscape to maximize groundwater recharge of excess storm water.

IV. SWRP Guideline Benefit Categories

Please mark (x) all the project benefit categories that apply and provide a brief explanation. Suggested benefit descriptions are included in the SWRP Guidelines Tables 3 and 4.

MAIN BENEFIT(S)

	x	Brief Explanation of Benefit	Quantification (e.g. acre---feet of water supplied, acres of habitat restored)
Water Quality – Increased filtration and/or treatment of runoff			
Water Supply – Water supply reliability	X	Increases water supply availability and reliability to Yolo-Zamora area; and reduces dependence on groundwater	10,000 acre-feet
Water Supply – Conjunctive use	X	Preserves groundwater supplies by providing available surface water supplies	10,000 acre-feet increased surface water; 10,000 AF decreased groundwater use
Flood Management – Decreased flood risk by reducing runoff rate and/or volume	X	Reduced peak discharge from storm events to region	Need to study peak storm flows in this region
Environmental – Environmental and habitat protection and improvement			
Environmental – Increased urban green space			
Community – Employment opportunities provided			
Community – Public education			

SECONDARY BENEFIT(S)

	x	Brief Explanation of Benefit	Quantification (e.g. acre---feet of water supplied, acres of habitat restored)
Water Quality – Nonpoint source pollutant control			
Water Quality – Reestablished natural water drainage and treatment			
Water Supply – Water conservation			
Flood Management – Reduced sanitary sewer overflows			
Environmental – Reduced energy use, greenhouse gas emissions, or provides	X	Reduced groundwater pumping, increasing groundwater levels -- reduces GHG	
Environmental – Reestablishment of the natural hydrograph			
Environmental – Water temperature improvements			
Community – Community involvement			
Community – Enhance and/or create recreational and public use areas			

Project Information Form

The Westside Region is accepting suggestions for projects for inclusion in the Westside Integrated Regional Water Management (IRWM) Plan. Projects submitted for consideration should contribute to the attainment of the IRWM Plan Goals and Objectives. To have your project considered for inclusion, please complete this project information form in its entirety and submit the completed form to info@westsideirwm.com .

Please provide information in the tables below:

I. Project Proponent Information

Lead Agency/ Organization	City of Davis
Name of Primary Contact	John McNerney
Mailing Address	1717 Fifth Street Davis, CA 95616
E---mail	jmcnerney@cityofdavis.org
Phone (###)###---####	(530)757-5680
Other Cooperating Agencies/Organizations	None
Is your agency committed to the project through completion? If not, please explain	Not as of yet. The City is searching for sources of funding to determine feasibility and then implementation based upon assurance of an obtainable and economical goal.

II. General Project Information

Project Title	West Area Pond Redesign
Project Description (Briefly describe the project, in 300 words or less,)	Redesign the West Area Pond (detention basin) to utilize agricultural summer flows to enhance aquatic wildlife habitat and improve water quality. This proposal involves redirecting existing agricultural runoff through the Stonegate drainage pond and pumping it into the West Area Pond. This would enhance aquatic habitat while improving any water discharges through retention, enhancing opportunities for infiltration, transpiration and evaporation.

Project Location:	
Latitude:	38.55
Longitude:	121.73
Can you provide a map of the project location including boundaries upon request?	☒ Yes ☐ N/A ☐ No
Project Location Description:	Citywide, but primarily in the northern majority of the City.
County:	Yolo
City/Community:	Davis
Watershed:	Covell Drain
Groundwater Basin:	Yolo Subbasin
Planning Area:	Yolo County
Additional Comments:	None
Project Status (Check only one)	☐ Conceptual ☐ Planning ☐ CEQA/NEPA ☐ Permitting ☐ Design ☐ Construction/Implementation ☒ Study/Other ☐ Maintenance/Monitoring
Earliest expected start date (mm/dd/yr)	Fall/Winter 2018

III. Plan Goals/Objectives Addressed

For each of the goals/objectives addressed by the project, provide a one to two sentence description of how the project contributes to attaining the objective. Information related to the proposed goals and objectives can be found at www.westsideirw.com/irwmplan . If the project does not address any of the draft IRWM plan objectives, provide a one to two sentence description of how the project relates to a challenge or opportunity of the region.

Goal(s) that the Project will contribute to:	Goals include #7, 9 and 11.
Objective(s) that the Project will help accomplish:	Objectives include #3, 6, 14, 17, and 19.

Explanation of Project linkage to goals and objectives	A feasibility study will provide determination if the existing agricultural runoff through Stonegate could be used to enhance aquatic habitat and improve stormwater quality for west area pond. The project will enhance quality of habitat and aesthetic value of each facility and aid in downstream flood management. Any improvement of water quality to receiving water facilitates meeting the requirements of the City's Permit. Goals 7, 9, and 11. Objectives 6, 14, 17 and 19. This project will also be considered for recycled water as an option for summer flows in the drainage channel.
How will the project be measured to ensure the goals and objectives are being fulfilled?	Visual monitoring of the discharge from the channels during storm events already occurs. Visual monitoring triggers whether or not sampling is necessary in accordance with the Permit. Ultimately a combination of both recording visual monitoring and sampling would be how the project would be measured if developed.

IV. Resource Management Strategies

For each resource management strategy employed by the project, provide a one to two sentence description in the table below of how the project incorporates the strategy. A description of the Resource Management Strategies can be found in Volume 2 of the 2009 California Water Plan here: http://www.waterplan.water.ca.gov/cwpu2009/index.cfm

Reduce Water Demand	
Agricultural Water Use Efficiency	N/A
Urban Water Use Efficiency	May help with aquifer recharge. Impact otherwise unknown and likely small.
Improve Operational Efficiency and Transfers	
Conveyance --- Delta	Negligible impact.
Conveyance --- Regional / local	Some minor local impact as some additional water may be infiltrated or evapotranspirated.
System Reoperation	N/A
Water Transfers	N/A
Increase Water Supply	
Conjunctive Management & Groundwater	Unknown
Desalination	N/A
Precipitation Enhancement	N/A
Recycled Municipal Water	N/A
Surface Storage ------ CALFED	N/A

Surface Storage ----- Regional / Local	N/A

Improve Water Quality	
Drinking Water Treatment and Distribution	N/A
Groundwater and Aquifer Remediation	Unknown
Matching Water Quality to Use	Improved water quality for the urban uses that drain into these facilities.
Pollution Prevention	Some improvement of receiving water quality by capturing pollutants.
Salt and Salinity Management	N/A
Urban Runoff Management	Some improvement of urban runoff quality and reduced quantity due to improved evoptranspiration.
Practice Resources Stewardship	
Agricultural Lands Stewardship	N/A
Economic Incentives (Loans, Grants, and Water Pricing)	N/A
Ecosystem Restoration	Some local and downstream enhancement for habitat quality.
Forest Management	N/A
Land Use Planning and Management	N/A
Recharge Areas Protection	N/A
Water---dependent Recreation	Will aid in improving water quality for downstream beneficial uses such as recreation.
Watershed Management	Will aid in improving overall water quality, habitat enhancement and reduced runoff if developed within the watershed.
Improve Flood Management	
Flood Risk Management	Minor reduction in flood risk due to increased evapotranspiration.

V. Project Impacts and Benefits

Please select all the project benefit categories that apply and provide a brief explanation. If the project benefits do not fit any of the listed categories, please explain in the box below. Suggested benefit descriptions are included in the Project Information Form instructions sheet.

Benefit Categories:	☐	**Brief Explanation of Selected Benefits**	**Quantification (e.g. acre---feet of water supplied, acres of habitat restored)**
Increase Water Supply		May have some benefit to underground aquifer recharge if developed.	Unknown

Improve Water Quality		Improve quality by retaining the water on-site to allow for infiltration, transpiration and evaporation.	Unknown amount
Groundwater Improvements		Unknown	Unknown
Water Conservation and Reuse	✔	Potential reduction in potable water usage if potable water was needed to supplement flows not provided through agricultural run-off or recycled water.	N/A

Watershed Rehabilitation	✔	Some impact to watershed rehabilitation by improved water quality within the watershed.	Unknown amount.
Habitat Improvements		Improves habitat both locally and downstream by improving water quality and enhanced native vegetation.	Unknown amount.
Flood Management		Minor impact in creating additional opportunity for stormwater runoff to evoptranspirate.	Unknown amount.

Other Benefits:

Likely to improve aesthetic quality of the project area.

Please provide a summary of the expected project benefits and impacts in the table below.

a. Describe any expected impacts of the project	No expected impacts from the feasibility study.

b. **If applicable, describe benefits or impacts of the project with respect to Native American Tribal Community considerations.**	Some benefit to Plains and Bay Miwok tribal communities that live in the Sacramento River and Bay Delta Region downstream of the project site.
c. **If applicable, describe benefits or impacts of the project with respect to Disadvantaged Communities*.**	None known.
d. **If applicable, describe benefits or impacts of the project with respect to Environmental Justice ** considerations.**	None known.

e. **If applicable, describe how the project assists the region in adapting to effects of climate change.**	None known.
f. **If applicable, describe the generation or reduction of greenhouse gas emissions associated with the project.**	None known.

*A Disadvantaged Community is defined as a community with an annual median household (MHI) income that is less than 80 percent of the Statewide annual MHI. A map identifying DACs in the Westside Region is available at www.westsideirwm.com.

** Environmental Justice is 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.

VI. Statewide Program Preferences and Priorities

Please select the Program Preferences and Statewide Priorities that apply to the proposed project (choose all that apply).

Program Preferences

☐ Include regional projects or programs (CWC §10544)

☐ Effectively integrate water management programs and projects within a hydrologic region identified in the California Water Plan; the Regional Water Quality Control Board (RWQCB) region or subdivision; or other region or sub---region specifically identified by DWR

- [ ] Effectively resolve significant water---related conflicts within or between regions Contribute
- [x] to attainment of one or more of the objectives of the CALFED Bay---Delta Program
- [ ] Address critical water supply or water quality needs of disadvantaged communities within the region
- [ ] Effectively integrate water management with land use planning
- [x] For eligible SWFM funding, projects which: a) are not receiving State funding for flood control or flood prevention projects pursuant to PRC §5096.824 or §75034 or b) provide multiple benefits, including, but not limited to, water quality improvements, ecosystem benefits, reduction of instream erosion and sedimentation, and groundwater recharge.

Statewide Priorities

Drought Preparedness

- [x] Promote water conservation, conjunctive use, reuse and recycling
- [x] Improve landscape and agricultural irrigation efficiencies Achieve
- [ ] long term reduction of water use Efficient
- [ ] groundwater basin management
- [ ] System interties

Use and Reuse Water More Efficiently

- [ ] Increase urban and agricultural water use efficiency measures such as conservation and recycling
- [x] Capture, store, treat, and use urban stormwater runoff (such as percolation to usable aquifers, underground storage beneath parks, small surface basins, domestic stormwater capture systems, or the creation of catch basins or sumps downhill of development
- [x] Incorporate and implement low impact development (LID) design features, techniques, and practices to reduce or eliminate stormwater runoff

Climate Change Response Actions

- [ ] Adaptation to Climate Change: Advance and expand conjunctive management of multiple water supply sources
- [ ] Adaptation to Climate Change: Use and reuse water more efficiently
- [ ] Adaptation to Climate Change: Water management system modifications that address anticipated climate
  - [ ] Adaptation to Climate Change: Establish migration corridors, re---establish river--- floodplain hydrologic continuity, re---introduce anadromous fish populations to upper watersheds, enhance and protect upper watershed forests and meadow systems
- [ ] Reduction of Greenhouse Gas (GHG) Emissions: Reduce energy consumption of water systems and uses
- [ ] Reduction of Greenhouse Gas (GHG) Emissions: Use cleaner energy sources to move and treat

water

- ☐ Reduce Energy Consumption: Water use efficiency Reduce
- ☐ Energy Consumption: Water recycling
- ☐ Reduce Energy Consumption: Water system energy efficiency

Expand Environmental Stewardship

- ☑ Expand Environmental Stewardship to protect and enhance the environment by improving watershed, floodplain, and instream functions and to sustain water and flood management ecosystems.

Practice Integrated Flood Management

- ☐ Better emergency preparedness and response
- ☐ Improved flood protection
- ☑ More sustainable flood and water management systems
- ☑ Enhanced floodplain ecosystems
- ☑ LID techniques that store and infiltrate runoff while protecting groundwater

Protect Surface Water and Groundwater Quality

- ☑ Protecting and restoring surface water and groundwater quality to safeguard public and environmental health and secure water supplies for beneficial uses
- ☐ Salt/nutrient management planning as a components of an IRWM Plan

Improve Tribal Water and Natural Resources

- ☐ Improve Tribal Water and Natural Resources and include the development of Tribal consultation, collaboration, and access to funding for water programs.

Ensure Equitable Distribution of Benefits

- ☐ Increase the participation of small and disadvantaged communities in the IRWM process.
- ☐ Develop multi---benefit projects with consideration of affected disadvantaged communities and vulnerable populations.
- ☐ Contain projects that address safe drinking water and wastewater treatment needs of DACs.
- ☐ Address critical water supply or water quality needs of California Native American Tribes within the region.

VII. Project Cost and Financing

Please provide any estimates of project cost, sources of funding, and operation and maintenance costs as well as the source of the project cost in the table below.

a. **Project Costs**	
1. **Capital (2014 Dollars)**	100,000 for feasibility study
2. **Annual Operations and Maintenance (O&M)**	None anticipated, but if project is developed, then O & M costs would be determined in the study.

	Source(s)	**Amount**
b. **List secured source(s) of funding**	None.	

c. **List proposed source(s) of funding and certainty of the sources.**	City Enterprise funds are likely source. Uncertain if funding would be allocated at this time.	Required matching amount would be
d. **For capital projects, explain how operation and maintenance costs will be financed.**	The sites and facilities are already maintained. Additional costs for O & M are anticipated to be small if development occurs.	
e. **Basis for project cost**	Estimates based upon prior experience.	
f. **Can a detailed cost estimate be provided upon request?**	☑ Yes ☐ No	

VIII. Project Status and Schedule

Please provide a status of the project, level of completion as well as a description of the activities planned for each project stage.

Project Stage	**Description of Activities in Each Project Stage**	**Planned/Actual Start Date**	**Planned/Actual Completion Date**
a. **Conceptual**	Feasibility Study	Winter 2018	Summer 2019
b. **Planning**			
c. **Environmental Documentation (CEQA/NEPA)**			
d. **Permitting**			

e. Tribal Consultation			
f. Design			
g. Construction/Implementation			

IX. Project Technical Feasibility

Please provide any related documents (date, title, author, and page numbers) that describe and confirm the technical feasibility of the project.

a. List water planning documents that specifically identify this project.	None
b. List the adopted planning documents the proposed project is consistent with (e.g. General Plans, UWMPs, GWMPs, Water Master Plans, Habitat Conservation Plans, etc.)	None ☐ ☐ ☐
c. List technical reports and studies supporting the feasibility of this project.	None ☐ ☐
d. If you are an Urban Water Supplier:	
1. Have you completed an Urban Water Management Plan and submitted to DWR?	✔ Yes ☐ No ☐ N/A
2. Are you in compliance with AB1420?	☐ Yes ☐ No ✔ N/A
3. Do you comply with the water meter requirements (CWC §525)	✔ Yes No N/A
4. If the answer to any of the questions above is "no", do you intend to comply prior to receiving Project funding	Yes No ✔ N/A ☐ ☐ ☐
e. If you are an Agricultural Water Supplier:	
1. Have you completed and submitted an AWMP (due 12/31/12)?	Yes No ✔ N/A ☐ ☐ ☐
2. If not, will you complete and submit an AWMP prior to receiving project funding?	Yes No ✔ N/A ☐ ☐ ☐
f. If the project is related to groundwater:	

1. Has a GWMP been completed and submitted for the subject basin?	Yes No ✔ N/A
2. If not will a GWMP be completed within 1 year of the grant submittal date?	Yes No ✔ N/A

Integrated Regional Water Management Plan

Project Information Form

SWRP Projects Addendum

The Yolo WRA is accepting suggestions for projects for inclusion in the Yolo Storm Water Resource Plan (SWRP). Projects submitted for consideration should contribute to the attainment of the IRWM Plan and SWRP Objectives. To have your project considered for inclusion, please complete this project information form in its entirety and submit the completed form by **July 28, 2017** to **Kristin Sicke (ksicke@ycfcwcd.org)**.

Please provide information below:

I. Has this project been submitted to the Westside IRWMP previously?

○ Yes Please provide the Project Name as submitted on the Westside Sac IRWMP Project Information Form:

● No If you answered no, the Westside Sac IRWMP Project Information Form must be completed and submitted with this form. The form can be downloaded at: http://www.westsideirwm.com/Westside%20IRWMP%20Web%20Page/documents/Projects/Project%20Update%20Form-09-01-14.pdf

If you answered yes to the above question, please provide any additional project description/details not provided in the original Westside IRWMP Project Form related to storm water:

II. Land Availability

a. Is the project located on lands with Public ownership?	☑ Yes	☐ No	☐ N/A
b. Have easements and/or all required land use agreements been obtained or are pending?	☐ Yes	☐ No	☑ N/A

c. Describe how this project will result in immediate or downstream storm water benefit to Yolo County:

This project would redirect agricultural flows to enhance aquatic wildlife habitat and improve water quality downstream by allowing for increased retention and infiltration times.

III. SWRP Objectives – In addition to IRWMP Objectives

Please mark (x) the SWRP Objectives that apply to the proposed project (choose all that apply).

☐ Convert paved and/or impervious areas and increase tree canopy and vegetation, reducing urban heat island effects.

☑ Optimize the rural storm water conveyance system to drain and retain storm water flows as necessary. Provide proper rural drainage and keep conveyance systems clear of debris to minimize county road flooding during storm events.

☑ Enable proper rural retention and modify rural landscape to maximize groundwater recharge of excess storm water.

IV. SWRP Guideline Benefit Categories

Please mark (x) all the project benefit categories that apply and provide a brief explanation. Suggested benefit descriptions are included in the SWRP Guidelines Tables 3 and 4.

MAIN BENEFIT(S)

	x	Brief Explanation of Benefit	Quantification (e.g. acre---feet of water supplied, acres of habitat restored)
Water Quality – Increased filtration and/or treatment of runoff	X	Improve water quality by allowing for longer retention and infiltration times.	Feasibility study to determine options and quantification measures.
Water Supply – Water supply reliability	X	Increased reliability of water supply to the West Area Pond (detention basin) to provide flows for aquatic wildlife habitat.	Feasibility study to determine options and quantification measures.
Water Supply – Conjunctive use			
Flood Management – Decreased flood risk by reducing runoff rate and/or volume	X	Reduced risk of localized flooding if the flows can be directed to the West Area Pond.	Feasibility study to determine options and quantification measures.
Environmental – Environmental and habitat protection and improvement	X	Improve aquatic wildlife habitat.	Feasibility study to determine options and quantification measures.
Environmental – Increased urban green space			
Community – Employment opportunities provided			
Community – Public education			

SECONDARY BENEFIT(S)

	x	Brief Explanation of Benefit	Quantification (e.g. acre---feet of water supplied, acres of habitat restored)
Water Quality – Nonpoint source pollutant control	X	Potential to decrease nonpoint source pollutants from nearby rural areas from entering downstream water bodies.	Feasibility study to determine options and quantification measures.
Water Quality – Reestablished natural water drainage and treatment			
Water Supply – Water conservation			
Flood Management – Reduced sanitary sewer overflows			
Environmental – Reduced energy use, greenhouse gas emissions, or provides			
Environmental – Reestablishment of the natural hydrograph			
Environmental – Water temperature improvements			
Community – Community involvement			
Community – Enhance and/or create recreational and public use areas			

WESTSIDE SAC IRWM
Integrated Regional Water Management Plan

Project Information Form

The Westside Region is accepting suggestions for projects for inclusion in the Westside Integrated Regional Water Management (IRWM) Plan. Projects submitted for consideration should contribute to the attainment of the IRWM Plan Goals and Objectives. To have your project considered for inclusion, please complete this project information form in its entirety and submit the completed form to info@westsideirwm.com .

Please provide information in the tables below:

I. Project Proponent Information

Lead Agency/ Organization	Solano County Water Agency
Name of Primary Contact	Rich Marovich
Mailing Address	810 Vaca Valley Parkway, Suite 203 Vacaville, California 95688
E-mail	rmarovich@scwa2.com
Phone (###)###-####	(530) 902-1794
Other Cooperating Agencies/Organizations	City of Winters, Putah Creek Council
Is your agency committed to the project through completion? If not, please explain	Yes

II. General Project Information

Project Title	Winters Bioswales Project and Habitat Enhancement
Project Description (Briefly describe the project, in 300 words or less,)	Stormwater from the town of Winters drains residential areas, business districts, and undeveloped lands into a culvert system that delivers contaminated runoff to Putah Creek and one of its major tributaries, Dry Creek. Eighteen discharge points exist, eight of which are connected directly to Putah Creek, the remaining to Dry Creek. Three main culvert delivery sites occur within the Winters Putah Creek Nature Park (WPCNP), draining approximately 200 acres of impervious lands. The stormwater network drains streets, parking lots, businesses and suburban lots, over-irrigated landscapes and disturbed lands, carrying sediment, petroleum products, fertilizers, pesticides, and bacteria into Putah Creek. We have assembled numerous stakeholders to begin addressing this water quality issue and are developing seasonal wetland (bioswale)

	water treatment projects within the WPCNP that will improve water quality, enhance floodplain function, restore wildlife habitat, and provide educational opportunities for the Winters community. By redirecting this stormwater runoff onto newly constructed floodplains of Putah Creek, water quality contaminants can be decreased through the breakdown action of sunlight, soil, plant roots and microorganisms. Moreover, the redirected water can assist in rehydrating portions of the floodplain during periods of drought and enhance riparian plant growth for the benefit of corridor wildlife. Each culvert outlet, along with the receiving floodplain landscape requires novel designs to redirect, capture, and infiltrate stormwater, all involving site-specific earthworks, specialized soil treatments, appropriate vegetation, monitoring, and post-installation management. We are conducting feasibility analyses and developing designs for the three major culvert networks within the park. We anticipate moving forward with implementation of our first site in Summer, 2018. Along with stormwater treatment and creekside improvements, we intend to develop a community outreach component that will educate people on “Upper Watershed” creek care within the suburban areas that comprise the stormwater drainage networks.
Project Location:	Three main Outflows within Putah Creek Nature Park
Latitude:	38°31'18.24"N
Longitude:	121°57'54.14"W
Can you provide a map of the project location including boundaries upon request?	X Yes N/A No
Project Location Description:	The three project sites are located within Winters Putah Creek Park in the City of Winters.
County:	Yolo
City/Community:	Winters
Watershed:	Putah Creek
Groundwater Basin:	Yolo Subbasin
Planning Area:	Central Basin West
Additional Comments:	
Project Status (Check only one)	Conceptual Planning CEQA/NEPA Permitting Design x Construction/Implementation Study/Other Maintenance/Monitoring
Earliest expected start date (mm/dd/yr)	October 31, 2018

III. Plan Goals/Objectives Addressed

For each of the goals/objectives addressed by the project, provide a one to two sentence description of how the project contributes to attaining the objective. Information related to the proposed goals and objectives can be found in Meeting #6 Handout 4 a/b at www.westsideirwm.com/meetings . If the project does not address any of the draft IRWM plan objectives, provide a one to two sentence description of how the project relates to a challenge or opportunity of the region.

Goal(s) that the Project will contribute to:	Creation and restoration of wetlands, maximizes water quality and supply to restored riparian communities.
Objective(s) that the Project will help accomplish:	Restore native vegetation/form/function along riparian/aquatic corridors, Provide educational information to encourage stewardship by public, and Provide and promote use of educational curricula for K-12 students
Explanation of Project linkage to goals and objectives	The bioswales project takes previously untreated storm runoff and puts it in wetlands designed to remove pollutants. The water then be distributed to floodplains adjacent to Putah Creek where the water will be utilized by plantings along the creek, thus enhancing habitat along the creek. There is an additional educational component of the project that educate both K-12 and others about the importance of keeping pollutants out of storm drains and how bioswales function.
How will the project be measured to ensure the goals and objectives are being fulfilled?	The project includes rigorous soil testing for moisture content, sediment load, and plant community performance.

IV. Resource Management Strategies

For each resource management strategy employed by the project, provide a one to two sentence description in the table below of how the project incorporates the strategy. A description of the

Resource Management Strategies can be found in Volume 2 of the 2009 California Water Plan here: http://www.waterplan.water.ca.gov/cwpu2009/index.cfm

Reduce Water Demand	
Agricultural Water Use Efficiency	
Urban Water Use Efficiency	Urban water will be used to benefit native vegetation .
Improve Operational Efficiency and Transfers	
Conveyance - Delta	
Conveyance - Regional / local	
System Reoperation	
Water Transfers	
Increase Water Supply	
Conjunctive Management & Groundwater	
Desalination	
Precipitation Enhancement	
Recycled Municipal Water	
Surface Storage -- CALFED	
Surface Storage -- Regional / Local	
Improve Water Quality	
Drinking Water Treatment and Distribution	
Groundwater and Aquifer Remediation	
Matching Water Quality to Use	
Pollution Prevention	Pollutants will be removed from water before they enter Putah Creek/
Salt and Salinity Management	
Urban Runoff Management	
Practice Resources Stewardship	
Agricultural Lands Stewardship	
Economic Incentives (Loans, Grants, and Water Pricing)	
Ecosystem Restoration	Water quality will be improved and habitat will be restored.
Forest Management	
Land Use Planning and Management	
Recharge Areas Protection	
Water-dependent Recreation	
Watershed Management	
Improve Flood Management	
Flood Risk Management	

V. Project Impacts and Benefits

Please select all the project benefit categories that apply and provide a brief explanation. If the project benefits do not fit any of the listed categories, please explain in the box below. Suggested benefit descriptions are included in the Project Information Form instructions sheet.

Benefit Categories:		Brief Explanation of Selected Benefits	Quantification (e.g. acre-feet of water supplied, acres of habitat restored)
Increase Water Supply	☐	Water supply will be increased by re-routing water that presently goes directly into Putah Creek.	Treat soil substrates within the reconstructed flood plain so that they have 1) adequate infiltration to capture rainwater and 2) adequate retention to support plant growth. Infiltration will be measured by infiltrometer prior to flooding to assure soil function and by flow difference after flooding. Moisture retention will be measured by soil moisture release curve and logging soil moisture probes.
Improve Water Quality	☐	The project has been designed to Remove pollutants from urban runoff.	Sediment have been chosen as a marker for other potential pollutants. Sediments will be measured at culverts and compared to water samples in the bioswales.
Groundwater Improvements	☐		
Water Conservation and Reuse	☐		
Watershed Rehabilitation	☐		

Habitat Improvements	☐	**1) Develop site-specific planting designs for seasonal wetland (bio-swale) locations to optimize stormwater treatment and floodplain function, restore native plants and wildlife habitat, and promote public interest in the project areas** ☐ Select from 40 candidate herbaceous perennial and woody species to create *Desired Vegetation Assemblages* for individual sites (all species derived from the Putah Creek watershed) ☐ Delineate planting zones based on soil and hydrologic conditions and stormwater treatment guidelines and put into GIS ☐ Create wildlife habitat guilds to promote pollinators, butterflies, and riparian birds ☐ Increase uncommon plants that have lost ground (due over 75 years of anthropogenic disturbance along the Putah Creek corridor) ☐ Incorporate plants with ethnobotanical significance for tribal people and local Latino population	5 acres of habitat will be established and a monitoring plan has been developed to ensure that plantings are thriving.
Flood Management	☐		

Other Benefits:

Provide stewardship opportunities, develop interpretive materials for "Creek Care", create "upper watershed" demonstration sites, Promote stewardship opportunities for Putah Creek Council Stewardship Team members and Solano County Water Agency interns ☐ Create signage and narrative that describes integration of storm water treatment with floodplain enhancement, native plant restoration, and wildlife habitat improvement ☐ Help develop educational program for improved "upper watershed" land care within suburban landscape (e.g., rainwater rerouting from hardscapes into permeable zones, emphasis of climate appropriate, habitat enhancing and water conserving landscaping, revegetation of

disturbed lands, and chemical use reduction ☐ Conduct organizational meetings and varied outreach activities to stakeholders **Cooperators and Stakeholders** ☐ California Department of Fish and Wildlife ☐ California Department of Forestry and Fire Protection ☐ City of Winters ☐ Natural Resources Conservation Service ☐ Putah Creek Council and Stewardship Team ☐ Putah Creek landowners ☐ Putah Creek Science Review Committee members ☐ Solano County Water Agency ☐ Winters Putah Creek Nature Park Committee

Please provide a summary of the expected project benefits and impacts in the table below.

a. Describe any expected impacts of the project	
b. If applicable, describe benefits or impacts of the project with respect to Native American Tribal Community considerations.	
c. If applicable, describe benefits or impacts of the project with respect to Disadvantaged Communities*.	
d. If applicable, describe benefits or impacts of the project with respect to Environmental Justice ** considerations.	
e. If applicable, describe how the project assists the region in adapting to effects of climate change.	

f. If applicable, describe the generation or reduction of greenhouse gas emissions associated with the project.	

*A Disadvantaged Community is defined as a community with an annual median household (MHI) income that is less than 80 percent of the Statewide annual MHI. A map identifying DACs in the Westside Region is available at www.westsideirwm.com.

** Environmental Justice is 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.

VI. Statewide Program Preferences and Priorities

Please select the Program Preferences and Statewide Priorities that apply to the proposed project (choose all that apply).

Program Preferences

☒ Include regional projects or programs (CWC §10544)

☐ Effectively integrate water management programs and projects within a hydrologic region identified in the California Water Plan; the Regional Water Quality Control Board (RWQCB) region or subdivision; or other region or sub-region specifically identified by DWR

☐ Effectively resolve significant water-related conflicts within or between regions

☐ Contribute to attainment of one or more of the objectives of the CALFED Bay-Delta Program

☐ Address critical water supply or water quality needs of disadvantaged communities within the region

☐ Effectively integrate water management with land use planning

☒ For eligible SWFM funding, projects which: a) are not receiving State funding for flood control or flood prevention projects pursuant to PRC §5096.824 or §75034 or b) provide multiple benefits, including, but not limited to, water quality improvements, ecosystem benefits, reduction of instream erosion and sedimentation, and groundwater recharge.

Statewide Priorities

Drought Preparedness

☐ Promote water conservation, conjunctive use, reuse and recycling

☐ Improve landscape and agricultural irrigation efficiencies

☐ Achieve long term reduction of water use

☐ Efficient groundwater basin management

☐ System interties

Use and Reuse Water More Efficiently

- [ ] Increase urban and agricultural water use efficiency measures such as conservation and recycling
- [ ] Capture, store, treat, and use urban stormwater runoff (such as percolation to usable aquifers, underground storage beneath parks, small surface basins, domestic stormwater capture systems, or the creation of catch basins or sumps downhill of development
- [ ] Incorporate and implement low impact development (LID) design features, techniques, and practices to reduce or eliminate stormwater runoff

Climate Change Response Actions

- [ ] Adaptation to Climate Change: Advance and expand conjunctive management of multiple water supply sources
- [ ] Adaptation to Climate Change: Use and reuse water more efficiently
- [ ] Adaptation to Climate Change: Water management system modifications that address anticipated climate
  - [ ] Adaptation to Climate Change: Establish migration corridors, re-establish river-floodplain hydrologic continuity, re-introduce anadromous fish populations to upper watersheds, enhance and protect upper watershed forests and meadow systems
- [ ] Reduction of Greenhouse Gas (GHG) Emissions: Reduce energy consumption of water systems and uses
- [ ] Reduction of Greenhouse Gas (GHG) Emissions: Use cleaner energy sources to move and treat water
- [ ] Reduce Energy Consumption: Water use efficiency
- [ ] Reduce Energy Consumption: Water recycling
- [ ] Reduce Energy Consumption: Water system energy efficiency

Expand Environmental Stewardship

- [x] Expand Environmental Stewardship to protect and enhance the environment by improving watershed, floodplain, and instream functions and to sustain water and flood management ecosystems.

Practice Integrated Flood Management

- [ ] Better emergency preparedness and response
- [ ] Improved flood protection
- [ ] More sustainable flood and water management systems
- [ ] Enhanced floodplain ecosystems
- [ ] LID techniques that store and infiltrate runoff while protecting groundwater

Protect Surface Water and Groundwater Quality

- ☐ Protecting and restoring surface water and groundwater quality to safeguard public and environmental health and secure water supplies for beneficial uses
- ☐ Salt/nutrient management planning as a components of an IRWM Plan

Improve Tribal Water and Natural Resources

- ☐ Improve Tribal Water and Natural Resources and include the development of Tribal consultation, collaboration, and access to funding for water programs.

Ensure Equitable Distribution of Benefits

- ☐ Increase the participation of small and disadvantaged communities in the IRWM process.
- ☐ Develop multi-benefit projects with consideration of affected disadvantaged communities and vulnerable populations.
- ☐ Contain projects that address safe drinking water and wastewater treatment needs of DACs.
- ☐ Address critical water supply or water quality needs of California Native American Tribes within the region.

VII. Project Cost and Financing

Please provide any estimates of project cost, sources of funding, and operation and maintenance costs as well as the source of the project cost in the table below.

a. Project Costs		
1. Capital (2012 Dollars)	195,328.00	
2. Annual Operations and Maintenance (O&M)	5,000	
b. List secured source(s) of funding	**Source(s)**	**Amount**
	Solano County Water	80,000.00
c. List proposed source(s) of funding and certainty of the sources.	Solano County Water Agency has proposed a cash	
d. For capital projects, explain how operation and maintenance costs will be financed.	Project will be maintained as part of the ongoing maintenance of the Winters Putah Creek Park restoration projects.	
e. Basis for project cost		
f. Can a detailed cost estimate be provided upon request?	**X yes**	

VIII. Project Status and Schedule

Please provide a status of the project, level of completion as well as a description of the activities planned for each project stage.

Project Stage	Description of Activities in Each Project Stage	Planned/Actual Start Date	Planned/Actual Completion Date
a. **Conceptual**	This has been completed. The team has had several site visits NRCS staff engineers have assisted with design.		7/15/2017
b. **Planning**	This is well along a plant species list has been developed. More flow data will be collected this year.	Ongoing	7/15/2018
c. **Environmental Documentation (CEQA/NEPA)**	This project is covered by existing CEQA documents		
d. **Permitting**	This project is covered by existing permits		
e. **Tribal Consultation**	This project will not require tribal consultation- This has been		

	completed.		
f. Design	Project design will be completed when flow data from 2017-2018 season is collected and soils data is analyzed.	6/1/2018	2/30/2018
g. Construction/Implementation	Construction will be Completed after nesting birds are done	9/31/2018	10/15/2018

IX. Project Technical Feasibility

Please provide any related documents (date, title, author, and page numbers) that describe and confirm the technical feasibility of the project.

a. List water planning documents that specifically identify this project.	
b. List the adopted planning documents the proposed project is consistent with (e.g. General Plans, UWMPs, GWMPs, Water Master Plans, Habitat Conservation Plans, etc.)	
c. List technical reports and studies supporting the feasibility of this project.	Bioswales are increasingly popular- following are two links to a NRCS document and a Soil Science Society of America document. https://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs144p2_029251.pdf https://www.soils.org/discover-soils/soils-in-the-city/green-infrastructure/important-terms/rain-gardens-bioswales

d. If you are an Urban Water Supplier:	
1. Have you completed an Urban Water Management Plan and submitted to DWR?	☐ Yes ☐ No ☑ N/A
2. Are you in compliance with AB1420?	☐ Yes ☐ No ☑ N/A
3. Do you comply with the water meter requirements (CWC §525)	☑ Yes ☐ No ☐ N/A
4. If the answer to any of the questions above is "no", do you intend to comply prior to receiving Project funding	☐ Yes ☐ No ☑ N/A
e. If you are an Agricultural Water Supplier:	
1. Have you completed and submitted an AWMP (due 12/31/12)?	☐ Yes ☐ No ☑ N/A
2. If not, will you complete and submit an AWMP prior to receiving project funding?	☐ Yes ☐ No ☑ N/A
f. If the project is related to groundwater:	
1. Has a GWMP been completed and submitted for the subject basin?	☐ Yes ☐ No ☑ N/A
2. If not will a GWMP be completed within 1 year of the grant submittal date?	☐ Yes ☐ No ☑ N/A

Project Information Form

SWRP Projects Addendum

The Yolo WRA is accepting suggestions for projects for inclusion in the Yolo Storm Water Resource Plan (SWRP). Projects submitted for consideration should contribute to the attainment of the IRWM Plan and SWRP Objectives. To have your project considered for inclusion, please complete this project information form in its entirety and submit the completed form by **July 28, 2017** to **Kristin Sicke (ksicke@ycfcwcd.org)**.

Please provide information below:

I. Has this project been submitted to the Westside IRWMP previously?

(●) Yes — Please provide the Project Name as submitted on the Westside Sac IRWMP Project Information Form:

Winters Bioswales Project and Habitat Enhancement

( ) No — If you answered no, the Westside Sac IRWMP Project Information Form must be completed and submitted with this form. The form can be downloaded at: http://www.westsideirwm.com/Westside%20IRWMP%20Web%20Page/documents/Projects/Project%20Update%20Form-09-01-14.pdf

If you answered yes to the above question, please provide any additional project description/details not provided in the original Westside IRWMP Project Form related to storm water:

II. Land Availability

a. Is the project located on lands with Public ownership? ☑ Yes ☐ No ☐ N/A

b. Have easements and/or all required land use agreements been obtained or are pending? ☑ Yes ☐ No ☐ N/A

c. Describe how this project will result in immediate or downstream storm water benefit to Yolo County:

Stormwater from the town of Winters drains residential areas, business districts, and undeveloped lands into a culvert system that delivers contaminated runoff to Putah Creek and one of its major tributaries, Dry Creek. Eighteen discharge points exist, eight of which are connected directly to Putah Creek, the remaining to Dry Creek. Three main culvert delivery sites occur within the Winters Putah Creek Nature Park (WPCNP), draining approximately 200 acres of impervious lands. The stormwater network drains streets, parking lots, businesses and suburban lots, over-irrigated landscapes and disturbed lands, carrying sediment, petroleum products, fertilizers, pesticides, and bacteria into Putah Creek.

We have assembled numerous stakeholders to begin addressing this water quality issue and are developing seasonal wetland (bioswale) water treatment projects within the WPCNP that will improve water quality, enhance floodplain function, restore wildlife habitat, and provide educational opportunities for the Winters community.

By redirecting this stormwater runoff onto newly constructed floodplains of Putah Creek, water quality contaminants can be decreased through the breakdown action of sunlight, soil, plant roots and microorganisms. Moreover, the redirected water can assist in rehydrating portions of the floodplain during periods of drought and enhance riparian plant growth for the benefit of corridor wildlife. Each culvert outlet, along with the receiving floodplain landscape requires novel designs to redirect, capture, and infiltrate stormwater, all involving site-specific earthworks, specialized soil treatments, appropriate vegetation, monitoring, and post-installation management. We are conducting feasibility analyses and developing designs for the three major culvert networks within the park. We anticipate moving forward with implementation of our first site in Summer, 2018. Along with stormwater treatment and creekside improvements, we intend to develop a community outreach component that will educate people on "Upper Watershed" creek care within the suburban areas that comprise the stormwater drainage networks.

III. SWRP Objectives – In addition to IRWMP Objectives

Please mark (x) the SWRP Objectives that apply to the proposed project (choose all that apply).

- ☐ Convert paved and/or impervious areas and increase tree canopy and vegetation, reducing urban heat island effects.
- ☐ Optimize the rural storm water conveyance system to drain and retain storm water flows as necessary. Provide proper rural drainage and keep conveyance systems clear of debris to minimize county road flooding during storm events.
- ☑ Enable proper rural retention and modify rural landscape to maximize groundwater recharge of excess storm water.

WESTSIDE
SAC IRWM
Integrated Regional Water Management Plan

IV. SWRP Guideline Benefit Categories

Please mark (x) all the project benefit categories that apply and provide a brief explanation. Suggested benefit descriptions are included in the SWRP Guidelines Tables 3 and 4.

MAIN BENEFIT(S)

	x	**Brief Explanation of Benefit**	**Quantification (e.g. acre---feet of water**
Water Quality – Increased filtration and/or treatment of runoff	X	Constructing the bioswales the water that is presently entering the creek untreated will re-route it into treatment wetlands and then onto the flood plains associated with Putah Creek where it will provide much needed water to newly planted riparian habitat.	5 acres of habitat will be restored.
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 improvement	X	The culverts in Winters flow directly into Putah Creek with no treatment. This project will improve water quality and habitat improvement by removing sediments and other toxic materials from water before it enters the creek and will use the water to grow native species for habitat improvement adjacent to the creek.	5 acres will be restored.
Environmental – Increased urban green space			
Community – Employment opportunities provided			
Community – Public education	X	The grant includes a public education component and bioswale plantings will be performed by volunteers who will be educated about why they are important and how the function.	3 community tours and a 1 classroom component.

SECONDARY BENEFIT(S)

	x	Brief Explanation of Benefit	Quantification (e.g. acre---feet of water supplied, acres of
Water Quality – Nonpoint source pollutant control	X	Stormwater currently discharged via 3 City outlfows without any treatment will be treated through created bioswales	50% of all city stormwater will be filtered through these 3 bioswales and 5 acres of habitat will be restored
Water Quality – Reestablished natural water drainage and treatment	X	Bioswales will improve water quality through filtration	same as above
Water Supply – Water conservation			
Flood Management – Reduced sanitary sewer overflows			
Environmental – Reduced energy use, greenhouse gas emissions, or provides			
Environmental – Reestablishment of the natural hydrograph			
Environmental – Water temperature improvements	X	The bioswales will capture water that is now flowing directly into Putah Creek. This water will be re-routed to be used by trees that shade Putah Creek and lower water temperature in the creek.	5 acres of habitat will be restored.
Community – Community involvement			
Community – Enhance and/or create recreational and public use areas		The bioswales will be planted on Winters Putah Creek Park and will enhance the native vegetation planted at the park. Additionally, the bioswales will be planted with a range of native pollinator species that are quite attractive.	5 acres of habitat will be restored.

Project Information Form

The Westside Region is accepting suggestions for projects for inclusion in the Westside Integrated Regional Water Management (IRWM) Plan. Projects submitted for consideration should contribute to the attainment of the IRWM Plan Goals and Objectives. To have your project considered for inclusion, please complete this project information form in its entirety and submit the completed form to info@westsideirwm.com .

Please provide information in the tables below:

I. Project Proponent Information

Lead Agency/ Organization	Yolo County Flood Control and Water Conservation District
Name of Primary Contact	Kristin Sicke
Mailing Address	34274 State Highway 16
E---mail	ksicke@ycfcwcd.org
Phone (###)###---####	(530)662-0265
Other Cooperating Agencies/Organizations	City of Winters
Is your agency committed to the project through completion? If not, please explain	Yes

II. General Project Information

Project Title	Winters North Area Stormwater Pond
Project Description (Briefly describe the project, in 300 words or less,)	Develop and construct a 5,000 acre-feet stormwater retention pond in the north area of Winters to reduce drainage and flood waters from the Chickahominy Slough. The retention pond would also be used for groundwater recharge in times when the capacity and water was available. The retention pond would provide water quality benefits by allowing the sediments in the runoff to settle and lessening the transfer of pollutants and chemicals downstream. The surrounding area would have native vegetation that would promote benefits for wildlife habitat, and the property would allow for groups to visit and learn about the multi-beneficial, multi-agency partnership. Similar to the District's Chapman Reservoir, we would install automated gates and monitoring devices at the retention pond that would be connected to the District's SCADA system for real-time management.

Project Location:	Not decided yet, but likely in the vicinity of the lat/long below.
Latitude:	38.602726
Longitude:	-122.013814
Can you provide a map of the project location including boundaries upon request?	☒ Yes ☐ N/A ☐ No
Project Location Description:	Again, preliminary discussions have placed the project at the lat/long above, but we'd need to work with a landowner to obtain the proper easements and rights.
County:	Yolo
City/Community:	North of Winters (rural County area)
Watershed:	Chickahominy Slough (north of Putah Creek Watershed)
Groundwater Basin:	Yolo Subbasin
Planning Area:	509. Central Basin West
Additional Comments:	
Project Status (Check only one)	☒ Conceptual ☒ Planning ☐ CEQA/NEPA ☐ Permitting ☐ Design ☐ Construction/Implementation ☐ Study/Other ☐ Maintenance/Monitoring
Earliest expected start date (mm/dd/yr)	01/01/2019

III. Plan Goals/Objectives Addressed

For each of the goals/objectives addressed by the project, provide a one to two sentence description of how the project contributes to attaining the objective. Information related to the proposed goals and objectives can be found at www.westsideirw.com/irwmplan. If the project does not address any of the draft IRWM plan objectives, provide a one to two sentence description of how the project relates to a challenge or opportunity of the region.

Goal(s) that the Project will contribute to:	Plan Goals 2 (improve education & awareness), 3 (improve collective understanding of watershed characteristics & functions), 4 (improve the form & function of degraded channels), 7 (preserve, improve & manage water quality), 9 (protect & enhance habitat & biological diversity of native species), 10 (provide reliable water supplies), 11 (reduce the risks of disruptive natural disturbances), 12 (support improved regional water management), 13 (support sustainable economic activities)
Objective(s) that the Project will help accomplish:	Education and Awareness Objective 2; Risk Management Focus Objective 14 and 15; Understand Watershed Function Focus Objective 17 and 18; Water Supply Focus Objective 24

Explanation of Project linkage to goals and objectives	The stormwater retention pond would improve the form and function of degraded channels by capturing the peak
How will the project be measured to ensure the goals and objectives are being fulfilled?	The District will connect the automation and monitoring at the retention pond to the existing SCADA system to ensure real-time management, and to keep track of retained flows and losses to groundwater. The District will keep a list of tours given throughout the year to track educational outreach and will coordinate with Winters to determine the extent of reduced flooding.

IV. Resource Management Strategies

For each resource management strategy employed by the project, provide a one to two sentence description in the table below of how the project incorporates the strategy. A description of the Resource Management Strategies can be found in Volume 2 of the 2009 California Water Plan here: http://www.waterplan.water.ca.gov/cwpu2009/index.cfm

Reduce Water Demand	
Agricultural Water Use Efficiency	
Urban Water Use Efficiency	
Improve Operational Efficiency and Transfers	
Conveyance --- Delta	
Conveyance --- Regional / local	Provides greater flexibility to ensure consistent regional conveyance.
System Reoperation	Provides greater flexibility for irrigation season operations.
Water Transfers	
Increase Water Supply	
Conjunctive Management & Groundwater	Recharging groundwater by retaining water and allowing to percolate.
Desalination	
Precipitation Enhancement	
Recycled Municipal Water	
Surface Storage ------ CALFED	
Surface Storage ------ Regional / Local	

Improve Water Quality	
Drinking Water Treatment and Distribution	
Groundwater and Aquifer Remediation	
Matching Water Quality to Use	
Pollution Prevention	Reduces pollutants and contaminants in delayed retention period.
Salt and Salinity Management	
Urban Runoff Management	Reduces extraneous runoff to City of Winter via urban channels.
Practice Resources Stewardship	
Agricultural Lands Stewardship	
Economic Incentives (Loans, Grants, and Water Pricing)	
Ecosystem Restoration	
Forest Management	
Land Use Planning and Management	
Recharge Areas Protection	
Water---dependent Recreation	
Watershed Management	
Improve Flood Management	
Flood Risk Management	Reduces downstream flooding to north Winters.

V. Project Impacts and Benefits

Please select all the project benefit categories that apply and provide a brief explanation. If the project benefits do not fit any of the listed categories, please explain in the box below. Suggested benefit descriptions are included in the Project Information Form instructions sheet.

Benefit Categories:		**Brief Explanation of Selected Benefits**	**Quantification (e.g. acre---feet of water supplied, acres of habitat restored)**
Increase Water Supply		Groundwater recharge from stormwater & irrigation-season retention	Depends on the water year
Improve Water Quality		Settling of pathogens, nutrients, and metals during delayed retention period.	
Groundwater Improvements		Increased groundwater supply from stormwater & irrigation-season retention	Depends on the water year

Water Conservation and Reuse	✔		Capture of stormwater for groundwater recharge & irrigation reuse
Watershed Rehabilitation	✔	Improved channel erosion in Chick. Slough U/S & D/S of pond	Reduction in flows conveyed downstream of pond will improve channel erosion -- not sure how to quantify the benefit.
Habitat Improvements		Increased native vegetation & provide habitat improvements	
Flood Management		Reduced peak discharge from storm events to Winters	Peak flow estimated at 8,000 cfs; potential to capture 2,500 cfs during a 24-hour storm

Other Benefits:

Please provide a summary of the expected project benefits and impacts in the table below.

a. Describe any expected impacts of the project	
b. If applicable, describe benefits or impacts of the project with respect to Native American Tribal Community considerations.	The District and City of Winters will consult with the Yocha Dehe Wintun Nation to determine the coordination necessary during selection of the project site and construction of the retention pond.
c. If applicable, describe benefits or impacts of the project with respect to Disadvantaged Communities*.	The stormwater retention pond would reduced peak flows discharged through Chickahominy Slough, thereby reducing the discharge & flooding through Winters. Winters is considered an EDA

d. If applicable, describe benefits or impacts of the project with respect to Environmental Justice ** considerations.	N/A

e. If applicable, describe how the project assists the region in adapting to effects of climate change.	With increased intensity, duration, and frequency of storm events the project will assist the area in capturing additional flow to reduce flooding impacts to Winters, and to recharge the groundwater and increase groundwater supply.
f. If applicable, describe the generation or reduction of greenhouse gas emissions associated with the project.	N/A

*A Disadvantaged Community is defined as a community with an annual median household (MHI) income that is less than 80 percent of the Statewide annual MHI. A map identifying DACs in the Westside Region is available at www.westsideirwm.com.

** Environmental Justice is 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.

VI. Statewide Program Preferences and Priorities

Please select the Program Preferences and Statewide Priorities that apply to the proposed project (choose all that apply).

Program Preferences

- ☑ Include regional projects or programs (CWC §10544)
- ☑ Effectively integrate water management programs and projects within a hydrologic region identified in the California Water Plan; the Regional Water Quality Control Board (RWQCB) region or subdivision; or other region or sub---region specifically identified by DWR
- ☑ Effectively resolve significant water---related conflicts within or between regions
- ☐ Contribute to attainment of one or more of the objectives of the CALFED Bay---Delta Program
- ☑ Address critical water supply or water quality needs of disadvantaged communities within the region
- ☑ Effectively integrate water management with land use planning
- ☑ For eligible SWFM funding, projects which: a) are not receiving State funding for flood control or flood prevention projects pursuant to PRC §5096.824 or §75034 or b) provide multiple benefits, including, but not limited to, water quality improvements, ecosystem benefits, reduction of instream erosion and sedimentation, and groundwater recharge.

Statewide Priorities

Drought Preparedness

- [x] Promote water conservation, conjunctive use, reuse and recycling
- [ ] Improve landscape and agricultural irrigation efficiencies Achieve
- [ ] long term reduction of water use
- [x] Efficient groundwater basin management
- [ ] System interties

Use and Reuse Water More Efficiently

- [ ] Increase urban and agricultural water use efficiency measures such as conservation and recycling
- [x] Capture, store, treat, and use urban stormwater runoff (such as percolation to usable aquifers, underground storage beneath parks, small surface basins, domestic stormwater capture systems, or the creation of catch basins or sumps downhill of development
- [ ] Incorporate and implement low impact development (LID) design features, techniques, and practices to reduce or eliminate stormwater runoff

Climate Change Response Actions

- [x] Adaptation to Climate Change: Advance and expand conjunctive management of multiple water supply sources
- [ ] Adaptation to Climate Change: Use and reuse water more efficiently
- [ ] Adaptation to Climate Change: Water management system modifications that address anticipated climate
  - [ ] Adaptation to Climate Change: Establish migration corridors, re---establish river---floodplain hydrologic continuity, re---introduce anadromous fish populations to upper watersheds, enhance and protect upper watershed forests and meadow systems
- [ ] Reduction of Greenhouse Gas (GHG) Emissions: Reduce energy consumption of water systems and uses
- [ ] Reduction of Greenhouse Gas (GHG) Emissions: Use cleaner energy sources to move and treat water
- [ ] Reduce Energy Consumption: Water use efficiency
- [ ] Reduce Energy Consumption: Water recycling
- [ ] Reduce Energy Consumption: Water system energy efficiency

Expand Environmental Stewardship

- [ ] Expand Environmental Stewardship to protect and enhance the environment by improving watershed, floodplain, and instream functions and to sustain water and flood management

ecosystems.

Practice Integrated Flood Management

- ☐ Better emergency preparedness and response
- ☑ Improved flood protection
- ☑ More sustainable flood and water management systems
- ☐ Enhanced floodplain ecosystems
- ☐ LID techniques that store and infiltrate runoff while protecting groundwater

Protect Surface Water and Groundwater Quality

- ☑ Protecting and restoring surface water and groundwater quality to safeguard public and environmental health and secure water supplies for beneficial uses
- ☐ Salt/nutrient management planning as a components of an IRWM Plan

Improve Tribal Water and Natural Resources

- ☐ Improve Tribal Water and Natural Resources and include the development of Tribal consultation, collaboration, and access to funding for water programs.

Ensure Equitable Distribution of Benefits

- ☐ Increase the participation of small and disadvantaged communities in the IRWM process.
- ☑ Develop multi---benefit projects with consideration of affected disadvantaged communities and vulnerable populations.
- ☐ Contain projects that address safe drinking water and wastewater treatment needs of DACs.
- ☐ Address critical water supply or water quality needs of California Native American Tribes within the region.

VII. Project Cost and Financing

Please provide any estimates of project cost, sources of funding, and operation and maintenance costs as well as the source of the project cost in the table below.

a. Project Costs		
1. Capital (2014 Dollars)		
2. Annual Operations and Maintenance (O&M)		
b. List secured source(s) of funding	**Source(s)**	**Amount**

c. **List proposed source(s) of funding and certainty of the sources.**		
d. **For capital projects, explain how operation and maintenance costs will be financed.**		
e. **Basis for project cost**		
f. **Can a detailed cost estimate be provided upon request?**	☐ **Yes** ☐ **No**	

VIII. Project Status and Schedule

Please provide a status of the project, level of completion as well as a description of the activities planned for each project stage.

Project Stage	**Description of Activities in Each Project Stage**	**Planned/Actual Start Date**	**Planned/Actual Completion Date**
a. **Conceptual**			
b. **Planning**		January 2018	
c. **Environmental Documentation (CEQA/NEPA)**		July 2018	
d. **Permitting**		July 2018	
e. **Tribal Consultation**		January 2018	
f. **Design**		April 2018	June 2018
g. **Construction/Implementation**		October 2018	

IX. Project Technical Feasibility

Please provide any related documents (date, title, author, and page numbers) that describe and confirm the technical feasibility of the project.

a. List water planning documents that specifically identify this project.	
b. List the adopted planning documents the proposed project is consistent with (e.g. General Plans, UWMPs, GWMPs, Water Master Plans, Habitat Conservation Plans, etc.)	
c. List technical reports and studies supporting the feasibility of this project.	
d. If you are an Urban Water Supplier:	
1. Have you completed an Urban Water Management Plan and submitted to DWR?	Yes No ✔ N/A
2. Are you in compliance with AB1420?	Yes No ✔ N/A
3. Do you comply with the water meter requirements (CWC §525)	☐ Yes No ✔ N/A
4. If the answer to any of the questions above is "no", do you intend to comply prior to receiving Project funding	Yes No ✔ N/A
e. If you are an Agricultural Water Supplier:	
1. Have you completed and submitted an AWMP (due 12/31/12)?	✔ Yes ☐ No ☐ N/A
2. If not, will you complete and submit an AWMP prior to receiving project funding?	☐ Yes ☐ No ☐ N/A
f. If the project is related to groundwater:	
1. Has a GWMP been completed and submitted for the subject basin?	☑ Yes ☐ No ☐ N/A
2. If not will a GWMP be completed within 1 year of the grant submittal date?	☐ Yes ☐ No ☐ N/A

WESTSIDE SAC IRWM
Integrated Regional Water Management Plan

Project Information Form

SWRP Projects Addendum

The Yolo WRA is accepting suggestions for projects for inclusion in the Yolo Storm Water Resource Plan (SWRP). Projects submitted for consideration should contribute to the attainment of the IRWM Plan and SWRP Objectives. To have your project considered for inclusion, please complete this project information form in its entirety and submit the completed form by **July 28, 2017** to **Kristin Sicke (ksicke@ycfcwcd.org)**.

Please provide information below:

I. Has this project been submitted to the Westside IRWMP previously?

○ Yes Please provide the Project Name as submitted on the Westside Sac IRWMP Project Information Form:

◉ No If you answered no, the Westside Sac IRWMP Project Information Form must be completed and submitted with this form. The form can be downloaded at: http://www.westsideirwm.com/Westside%20IRWMP%20Web%20Page/documents/Projects/Project%20Update%20Form-09-01-14.pdf

If you answered yes to the above question, please provide any additional project description/details not provided in the original Westside IRWMP Project Form related to storm water:

II. Land Availability

a. Is the project located on lands with Public ownership? ☐ Yes ☑ No ☐ N/A

b. Have easements and/or all required land use agreements been obtained or are pending? ☐ Yes ☑ No ☐ N/A

c. Describe how this project will result in immediate or downstream storm water benefit to Yolo County:

Construction of a 5,000 acre-feet stormwater retention pond in the north area of Winters will reduce drainage and flood waters from the Chickahominy Slough, and provide an immediate downstream storm water benefit in north Winters.

III. SWRP Objectives – In addition to IRWMP Objectives

Please mark (x) the SWRP Objectives that apply to the proposed project (choose all that apply).

☐ Convert paved and/or impervious areas and increase tree canopy and vegetation, reducing urban heat island effects.

☐ Optimize the rural storm water conveyance system to drain and retain storm water flows as necessary. Provide proper rural drainage and keep conveyance systems clear of debris to minimize county road flooding during storm events.

☑ Enable proper rural retention and modify rural landscape to maximize groundwater recharge of excess storm water.

IV. SWRP Guideline Benefit Categories

Please mark (x) all the project benefit categories that apply and provide a brief explanation. Suggested benefit descriptions are included in the SWRP Guidelines Tables 3 and 4.

MAIN BENEFIT(S)

	x	**Brief Explanation of Benefit**	**Quantification (e.g. acre---feet of water supplied, acres of habitat restored)**
Water Quality – Increased filtration and/or treatment of runoff	X	Settling of pathogens, nutrients, and metals during delayed retention period.	
Water Supply – Water supply reliability	X	Groundwater recharge from stormwater & irrigation-season retention	
Water Supply – Conjunctive use	X	Groundwater recharge from stormwater & irrigation-season retention	
Flood Management – Decreased flood risk by reducing runoff rate and/or volume	X	Increased groundwater supply from stormwater & irrigation-season retention	
Environmental – Environmental and habitat protection and improvement		Increased native vegetation & provide habitat improvements	
Environmental – Increased urban green space			
Community – Employment opportunities provided			
Community – Public education	X	Ideally this would be a place for people to come learn about integrated water management in Yolo County -- stormwater, groundwater recharge, and environmental habitat/benefits	

SECONDARY BENEFIT(S)

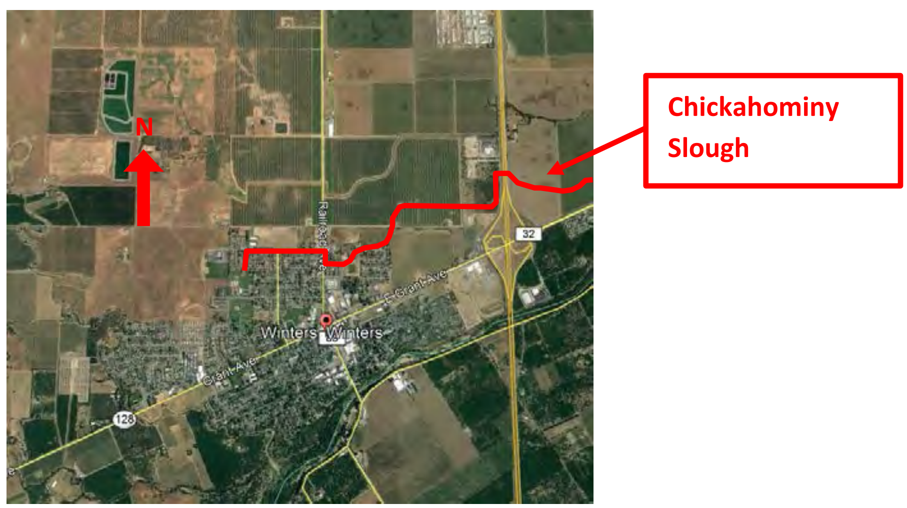
	x	Brief Explanation of Benefit	Quantification (e.g. acre---feet of water supplied, acres of habitat restored)
Water Quality – Nonpoint source pollutant control			
Water Quality – Reestablished natural water drainage and treatment	X	Slowing of flows will result in reestablished natural water drainage and settling of solids in a retention pond	
Water Supply – Water conservation			
Flood Management – Reduced sanitary sewer overflows			
Environmental – Reduced energy use, greenhouse gas emissions, or provides			
Environmental – Reestablishment of the natural hydrograph			
Environmental – Water temperature improvements			
Community – Community involvement			
Community – Enhance and/or create recreational and public use areas			

Yolo County Flood Control and Water Conservation District
Winters North Area Retention Pond
Quantitative Benefit Analysis
12/08/2017

This project would offer an opportunity to measure rainfall-runoff relationships and the effectiveness of this size of retention pond in attenuating flood peaks and retaining sediment. Automation and SCADA control would allow for real-time decision making in pond operation and would allow pond stage and outlet flows to be tracked and controlled during and following storm events. Additionally, given the right conditions and appropriate storage in the pond, groundwater percolation can be monitored and tracked to ensure groundwater recharge in the region. If successful, a similar pond could be constructed and installed to capture storm flows in the low-lying areas of Yolo County.

From Westside IRWMP and SWRP Project Forms:

- Capacity of North Winters Retention Pond: 5,000 ac-ft = 217,800,000 cu. ft.
- Peak flood flows = 8,000 cfs
- Capture flow = 2,500 cfs for 24-hour storm = 5,000 ac-ft



Assumptions:

- Retention Pond Depth[1] = 5 ft
    - Therefore, area of North Winters Retention Pond = 1,000 acres = 43,560,000 sq. ft.
    - Infiltration Rate[2]: 0.35 in/hr

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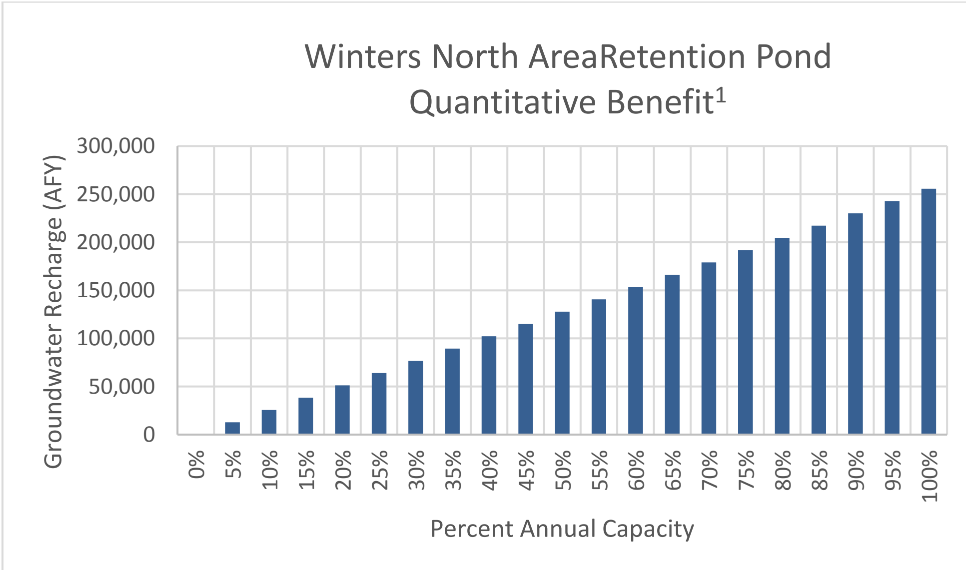
[1] City of Davis Manual of Stormwater Quality Control Standards for New Development and Redevelopment, 2008: (http://cityofdavis.org/home/showdocument?id=4477)
[2] Yolo County Integrated Regional Water Management Plan, Background Data and Information Appendix. May 2005. (http://www.yolowra.org/tech_data_appendix/Chapter%203%20-%20Soils.pdf)

Yolo County Flood Control and Water Conservation District
Winters North Area Retention Pond
Quantitative Benefit Analysis
12/08/2017



Quantitative Benefits:

- Ability to capture 2,500 cfs during a 24-hour storm = 5,000 ac-ft
- Groundwater Recharge (100 percent annual capacity) = 255,675 ac-ft/yr
- Groundwater Recharge (50 percent annual capacity) = 127,838 ac-ft/yr
- Acres of enhanced aquatic habitat = 1,000 ac

Acreages acquired from: Yolo County Flood Control and Water Conservation District

Project Information Form

The Westside Region is accepting suggestions for projects for inclusion in the Westside Integrated Regional Water Management (IRWM) Plan. Projects submitted for consideration should contribute to the attainment of the IRWM Plan Goals and Objectives. To have your project considered for inclusion, please complete this project information form in its entirety and submit the completed form to info@westsideirwm.com .

Please provide information in the tables below:

I. Project Proponent Information

Lead Agency/ Organization	Yolo County Flood Control and Water Conservation District
Name of Primary Contact	Kristin Sicke
Mailing Address	34274 State Highway 16
E---mail	ksicke@ycfcwcd.org
Phone (###)###---####	(530)662-0265
Other Cooperating Agencies/Organizations	Yolo County
Is your agency committed to the project through completion? If not, please explain	Yes

II. General Project Information

Project Title	Yolo County Drains and Sloughs -- Governance and Maintenance Study
Project Description (Briefly describe the project, in 300 words or less,)	Plan that will identify governing bodies and maintenance responsibilities involved in the County's drains, canals, and sloughs. The District and County will work together to develop a governance and maintenance study that will assist in providing effective rural storm water management responsibilities based on the defined governing bodies. Plan/investigation will initiate a legitimate storm water management program in Yolo County.

Project Location:	Yolo County
Latitude:	
Longitude:	
Can you provide a map of the project location including boundaries upon request?	☒ Yes ☐ N/A ☐ No
Project Location Description:	Plan for all of Yolo County
County:	Yolo
City/Community:	Yolo-Zamora
Watershed:	Cache Creek
Groundwater Basin:	Yolo Subbasin
Planning Area:	506. Colusa Basin and 509. Central Basin West
Additional Comments:	
Project Status (Check only one)	☒ Conceptual ☒ Planning ☐ CEQA/NEPA ☐ Permitting ☐ Design ☐ Construction/Implementation ☐ Study/Other ☐ Maintenance/Monitoring
Earliest expected start date (mm/dd/yr)	01/01/2020

III. Plan Goals/Objectives Addressed

For each of the goals/objectives addressed by the project, provide a one to two sentence description of how the project contributes to attaining the objective. Information related to the proposed goals and objectives can be found at www.westsideirw.com/irwmplan . If the project does not address any of the draft IRWM plan objectives, provide a one to two sentence description of how the project relates to a challenge or opportunity of the region.

Goal(s) that the Project will contribute to:	Plan Goal 2 (improve education and awareness throughout the region about water, watershed functions, and ecosystems), 3 (improve collective understanding of watershed characteristics & functions), 4 (improve the form and function of degraded natural channels) 9 (protect & enhance habitat & biological diversity of native species), 10 (provide reliable water supplies), 11 (reduce the risks of disruptive natural disturbances), 12 (support improved regional water management), 13 (support sustainable economic activities)
Objective(s) that the Project will help accomplish:	Infrastructure Focus Objective 10; Risk Management Focus Objective 14 and 15; Understand Watershed Function Focus Objective 17 and 18

Explanation of Project linkage to goals and objectives	Developing a Slough/Drain/Canal Responsibility and Maintenance Plan will initiate the process for developing a collective understanding of watershed characteristics. And will develop goals and objectives for improving the form and function of degraded natural channels to reduce the risk of flooding and reduce large erosion events. The Plan also have a component that will discuss asset management of the sloughs and drainage conveyance systems in the County. Improving slough function will result in better conjunctive management as storm flows will be conveyed better and can be retain to recharge the groundwater.
How will the project be measured to ensure the goals and objectives are being fulfilled?	The Goals and Objectives developed as part of the Plan will be compared to the Westside IRWM Plan Goals and Objectives, including the Yolo Storm Water Resources Plan Goals and Objectives. Ideally, in the future more monitoring stations would be deployed and connected to the Districts SCADA system to monitor and measure the storm water attenuation and slough function.

IV. Resource Management Strategies

For each resource management strategy employed by the project, provide a one to two sentence description in the table below of how the project incorporates the strategy. A description of the Resource Management Strategies can be found in Volume 2 of the 2009 California Water Plan here: http://www.waterplan.water.ca.gov/cwpu2009/index.cfm

Reduce Water Demand	
Agricultural Water Use Efficiency	Reduces demand on groundwater supplies by improving groundwater recharge potential.
Urban Water Use Efficiency	
Improve Operational Efficiency and Transfers	
Conveyance --- Delta	
Conveyance --- Regional / local	Ensures appropriate conveyance of storm water flows for improved attenuation and reduced flooding.
System Reoperation	
Water Transfers	
Increase Water Supply	

Conjunctive Management & Groundwater	Recharging groundwater by improving slough function to increase recharge surface area.
Desalination	
Precipitation Enhancement	
Recycled Municipal Water	
Surface Storage ------ CALFED	
Surface Storage ------ Regional / Local	

Improve Water Quality	
Drinking Water Treatment and Distribution	
Groundwater and Aquifer Remediation	
Matching Water Quality to Use	
Pollution Prevention	Settling of pathogens, nutrients, and metals during delayed retention period.
Salt and Salinity Management	
Urban Runoff Management	Expands natural channels for increased runoff capacity and conveyance.
Practice Resources Stewardship	
Agricultural Lands Stewardship	
Economic Incentives (Loans, Grants, and Water Pricing)	
Ecosystem Restoration	
Forest Management	
Land Use Planning and Management	
Recharge Areas Protection	
Water---dependent Recreation	
Watershed Management	Ensures appropriate conveyance of storm water flows for improved attenuation and reduced flooding.
Improve Flood Management	
Flood Risk Management	Reducing flooding by enhancing the natural conveyance channels to allow greater storm water capture and attenuation.

V. Project Impacts and Benefits

Please select all the project benefit categories that apply and provide a brief explanation. If the project benefits do not fit any of the listed categories, please explain in the box below. Suggested benefit descriptions are included in the Project Information Form instructions sheet.

Benefit Categories:		**Brief Explanation of Selected Benefits**	**Quantification (e.g. acre---feet of water supplied, acres of habitat restored)**
Increase Water Supply		Increases groundwater recharg	
Improve Water Quality			
Groundwater Improvements		Increased groundwater supply from storm water retention	
Water Conservation and Reuse			

Watershed Rehabilitation	✔	Increased storm water conveyance in sloughs	
Habitat Improvements			
Flood Management		Improve conveyance and capture of flood events	

Other Benefits:

Please provide a summary of the expected project benefits and impacts in the table below.

a. Describe any expected impacts of the project	
b. If applicable, describe benefits or impacts of the project with respect to Native American Tribal Community considerations.	The District and County will involve the Yocha Dehe Wintun Nation in the planning process.

c. **If applicable, describe benefits or impacts of the project with respect to Disadvantaged Communities*.**	May benefit town of Madison's storm water attentuation.
d. **If applicable, describe benefits or impacts of the project with respect to Environmental Justice ** considerations.**	N/A

e. **If applicable, describe how the project assists the region in adapting to effects of climate change.**	With increased intensity, duration, and frequency of storm events the project will assist the area in capturing additional flow to reduce flooding impacts and to recharge the groundwater and increase groundwater supply within the region.
f. **If applicable, describe the generation or reduction of greenhouse gas emissions associated with the project.**	N/A

*A Disadvantaged Community is defined as a community with an annual median household (MHI) income that is less than 80 percent of the Statewide annual MHI. A map identifying DACs in the Westside Region is available at www.westsideirwm.com.

** Environmental Justice is 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.

VI. Statewide Program Preferences and Priorities

Please select the Program Preferences and Statewide Priorities that apply to the proposed project (choose all that apply).

Program Preferences

- [x] Include regional projects or programs (CWC §10544)
- [x] Effectively integrate water management programs and projects within a hydrologic region identified in the California Water Plan; the Regional Water Quality Control Board (RWQCB) region or subdivision; or other region or sub---region specifically identified by DWR
- [x] Effectively resolve significant water---related conflicts within or between regions Contribute to
- [ ] attainment of one or more of the objectives of the CALFED Bay---Delta Program
- [ ] Address critical water supply or water quality needs of disadvantaged communities within the region

- [x] Effectively integrate water management with land use planning
- [x] For eligible SWFM funding, projects which: a) are not receiving State funding for flood control or flood prevention projects pursuant to PRC §5096.824 or §75034 or b) provide multiple benefits, including, but not limited to, water quality improvements, ecosystem benefits, reduction of instream erosion and sedimentation, and groundwater recharge.

Statewide Priorities

Drought Preparedness

- [x] Promote water conservation, conjunctive use, reuse and recycling
- [ ] Improve landscape and agricultural irrigation efficiencies Achieve long
- [ ] term reduction of water use Efficient
- [x] groundwater basin management
- [ ] System interties

Use and Reuse Water More Efficiently

- [ ] Increase urban and agricultural water use efficiency measures such as conservation and recycling
- [x] Capture, store, treat, and use urban stormwater runoff (such as percolation to usable aquifers, underground storage beneath parks, small surface basins, domestic stormwater capture systems, or the creation of catch basins or sumps downhill of development
- [ ] Incorporate and implement low impact development (LID) design features, techniques, and practices to reduce or eliminate stormwater runoff

Climate Change Response Actions

- [x] Adaptation to Climate Change: Advance and expand conjunctive management of multiple water supply sources
- [ ] Adaptation to Climate Change: Use and reuse water more efficiently
- [ ] Adaptation to Climate Change: Water management system modifications that address anticipated climate
  - [ ] Adaptation to Climate Change: Establish migration corridors, re---establish river--- floodplain hydrologic continuity, re---introduce anadromous fish populations to upper watersheds, enhance and protect upper watershed forests and meadow systems
- [ ] Reduction of Greenhouse Gas (GHG) Emissions: Reduce energy consumption of water systems and uses
- [ ] Reduction of Greenhouse Gas (GHG) Emissions: Use cleaner energy sources to move and treat water
- [ ] Reduce Energy Consumption: Water use efficiency Reduce
- [ ] Energy Consumption: Water recycling
- [ ] Reduce Energy Consumption: Water system energy efficiency

Expand Environmental Stewardship

- [ ] Expand Environmental Stewardship to protect and enhance the environment by improving watershed, floodplain, and instream functions and to sustain water and flood management ecosystems.

Practice Integrated Flood Management

- [ ] Better emergency preparedness and response
- [x] Improved flood protection
- [x] More sustainable flood and water management systems
- [ ] Enhanced floodplain ecosystems
- [ ] LID techniques that store and infiltrate runoff while protecting groundwater

Protect Surface Water and Groundwater Quality

- [x] Protecting and restoring surface water and groundwater quality to safeguard public and environmental health and secure water supplies for beneficial uses
- [ ] Salt/nutrient management planning as a components of an IRWM Plan

Improve Tribal Water and Natural Resources

- [ ] Improve Tribal Water and Natural Resources and include the development of Tribal consultation, collaboration, and access to funding for water programs.

Ensure Equitable Distribution of Benefits

- [ ] Increase the participation of small and disadvantaged communities in the IRWM process.
- [ ] Develop multi---benefit projects with consideration of affected disadvantaged communities and vulnerable populations.
- [ ] Contain projects that address safe drinking water and wastewater treatment needs of DACs.
- [ ] Address critical water supply or water quality needs of California Native American Tribes within the region.

VII. Project Cost and Financing

Please provide any estimates of project cost, sources of funding, and operation and maintenance costs as well as the source of the project cost in the table below.

a. Project Costs	$150,000	
1. Capital (2014 Dollars)		
2. Annual Operations and Maintenance (O&M)		
	Source(s)	**Amount**
b. List secured source(s) of funding		

c. List proposed source(s) of funding and certainty of the sources.		
d. For capital projects, explain how operation and maintenance costs will be financed.		
e. Basis for project cost		
f. Can a detailed cost estimate be provided upon request?	☐ Yes ☑ No	

VIII. **Project Status and Schedule**

Please provide a status of the project, level of completion as well as a description of the activities planned for each project stage.

Project Stage	Description of Activities in Each Project Stage	Planned/Actual Start Date	Planned/Actual Completion Date
a. Conceptual			
b. Planning		January 2019	December 2019
c. Environmental Documentation (CEQA/NEPA)			
d. Permitting			
e. Tribal Consultation			
f. Design			
g. Construction/Implementation			

WESTSIDE SAC IRWM
Integrated Regional Water Management Plan

IX. Project Technical Feasibility

Please provide any related documents (date, title, author, and page numbers) that describe and confirm the technical feasibility of the project.

a. List water planning documents that specifically identify this project.	
b. List the adopted planning documents the proposed project is consistent with (e.g. General Plans, UWMPs, GWMPs, Water Master Plans, Habitat Conservation Plans, etc.)	
c. List technical reports and studies supporting the feasibility of this project.	
d. If you are an Urban Water Supplier:	
1. Have you completed an Urban Water Management Plan and submitted to DWR?	☐ Yes ☐ No ☑ N/A
2. Are you in compliance with AB1420?	☐ Yes ☐ No ✔ N/A
3. Do you comply with the water meter requirements (CWC §525)	☐ Yes ☐ No ☑ N/A
4. If the answer to any of the questions above is "no", do you intend to comply prior to receiving Project funding	☐ Yes ☐ No ☑ N/A
e. If you are an Agricultural Water Supplier:	
1. Have you completed and submitted an AWMP (due 12/31/12)?	✔ Yes ☐ No ☐ N/A
2. If not, will you complete and submit an AWMP prior to receiving project funding?	☐ Yes ☐ No ☐ N/A
f. If the project is related to groundwater:	
1. Has a GWMP been completed and submitted for the subject basin?	☑ Yes ☐ No ☐ N/A
2. If not will a GWMP be completed within 1 year of the grant submittal date?	☐ Yes ☐ No ☐ N/A

Project Information Form

SWRP Projects Addendum

The Yolo WRA is accepting suggestions for projects for inclusion in the Yolo Storm Water Resource Plan (SWRP). Projects submitted for consideration should contribute to the attainment of the IRWM Plan and SWRP Objectives. To have your project considered for inclusion, please complete this project information form in its entirety and submit the completed form by **July 28, 2017** to **Kristin Sicke (ksicke@ycfcwcd.org)**.

Please provide information below:

I. Has this project been submitted to the Westside IRWMP previously?

○ Yes — Please provide the Project Name as submitted on the Westside Sac IRWMP Project Information Form:

Yolo County Drains and Sloughs -- Governance and Maintenance Study

◉ No — If you answered no, the Westside Sac IRWMP Project Information Form must be completed and submitted with this form. The form can be downloaded at: http://www.westsideirwm.com/Westside%20IRWMP%20Web%20Page/documents/Projects/Project%20Update%20Form-09-01-14.pdf

If you answered yes to the above question, please provide any additional project description/details not provided in the original Westside IRWMP Project Form related to storm water:

II. Land Availability

	Yes	No	N/A
a. Is the project located on lands with Public ownership?	☐	☐	☑
b. Have easements and/or all required land use agreements been obtained or are pending?	☐	☐	☑

c. Describe how this project will result in immediate or downstream storm water benefit to Yolo County:

Identifies responsible agencies and maintenance involved in sloughs and drains within Yolo County. Provides increased stormwater conveyance capacity for minimizing flooding within Yolo County by improving canals and natural drainage.

III. SWRP Objectives – In addition to IRWMP Objectives

Please mark (x) the SWRP Objectives that apply to the proposed project (choose all that apply).

- ☐ Convert paved and/or impervious areas and increase tree canopy and vegetation, reducing urban heat island effects.
- ☑ Optimize the rural storm water conveyance system to drain and retain storm water flows as necessary. Provide proper rural drainage and keep conveyance systems clear of debris to minimize county road flooding during storm events.
- ☐ Enable proper rural retention and modify rural landscape to maximize groundwater recharge of excess storm water.

IV. SWRP Guideline Benefit Categories

Please mark (x) all the project benefit categories that apply and provide a brief explanation. Suggested benefit descriptions are included in the SWRP Guidelines Tables 3 and 4.

MAIN BENEFIT(S)

	x	**Brief Explanation of Benefit**	**Quantification (e.g. acre---feet of water supplied, acres of habitat restored)**
Water Quality – Increased filtration and/or treatment of runoff			
Water Supply – Water supply reliability	X	Increases water supply availability and reliability by recharging groundwater	
Water Supply – Conjunctive use	X	Enhances groundwater supplies by increasing recharge surface area	
Flood Management – Decreased flood risk by reducing runoff rate and/or volume	X	Attenuate flows appropriately and reduce erosion from large storm events	
Environmental – Environmental and habitat protection and improvement			
Environmental – Increased urban green space			
Community – Employment opportunities provided			
Community – Public education			

SECONDARY BENEFIT(S)

	x	Brief Explanation of Benefit	Quantification (e.g. acre---feet of water supplied, acres of habitat restored)
Water Quality – Nonpoint source pollutant control			
Water Quality – Reestablished natural water drainage and treatment			
Water Supply – Water conservation			
Flood Management – Reduced sanitary sewer overflows			
Environmental – Reduced energy use, greenhouse gas emissions, or provides			
Environmental – Reestablishment of the natural hydrograph			
Environmental – Water temperature improvements			
Community – Community involvement			
Community – Enhance and/or create recreational and public use areas			

Project Information Form

The Westside Region is accepting suggestions for projects for inclusion in the Westside Integrated Regional Water Management (IRWM) Plan. Projects submitted for consideration should contribute to the attainment of the IRWM Plan Goals and Objectives. To have your project considered for inclusion, please complete this project information form in its entirety and submit the completed form to info@westsideirwm.com .

Please provide information in the tables below:

I. Project Proponent Information

Lead Agency/ Organization	Madison CSD
Name of Primary Contact	Leo Refsland
Mailing Address	P.O. Box 40
E---mail	leo@madisoncsd.org
Phone (###)###---####	(530)666-2888
Other Cooperating Agencies/Organizations	Yolo County FC&WCD and local landowners
Is your agency committed to the project through completion? If not, please explain	Yes, but it will also require landowner participation and follow-through.

II. General Project Information

Project Title	Madison Farmer Field Stormwater Capture and Groundwater Recharge
Project Description (Briefly describe the project, in 300 words or less,)	Modify farmer fields around Madison, specifically those next to Highway 16 and those that will capture upstream flows. The two options considered include 1) 1,200 acres of farmer field modification for rainfall capture (8"-berm) and 2) modification of a farmer field near Cache Creek (maybe half of APN 049-060-017) for rainfall and storm water runoff capture a 3-' high storm water detention basin. This project will require farmer participation and advanced planning for field modification, and will depend on the storm intensity. The first option will only capture rainfall and the second option will capture rainfall and allow runoff to be collected into the detention basin. The second option will require more modification to the property, additional infrastructure for channeling runoff into the basin, and a pump if the water needs to be drained from the basin.

Project Location:	Surrounding Madison CSD (See specific list in Project Location Description)
Latitude:	38.6801461
Longitude:	-121.9701168
Can you provide a map of the project location including boundaries upon request?	☒ Yes ☐ N/A ☐ No
Project Location Description:	The estimated parcel locations are based on SEI's SAGBI and crop analysis that will be confirmed with farmer participation. For the 8-inch berm rainfall capture the potential parcels are 049-100-010, -011, -012, -024, -025, -030, -031, -033; 049-110-010, -027; 050-020-001, -004. For the 3-foot storm water detention basin the potential location would be half of APN 049-060-017.
County:	Yolo
City/Community:	Madison (rural County area)
Watershed:	Willow Slough into Madison Drain
Groundwater Basin:	Yolo Subbasin
Planning Area:	509. Central Basin West
Additional Comments:	
Project Status (Check only one)	☒ Conceptual ☒ Planning ☐ CEQA/NEPA ☐ Permitting ☐ Design ☐ Construction/Implementation ☐ Study/Other ☐ Maintenance/Monitoring
Earliest expected start date (mm/dd/yr)	01/01/2020

III. Plan Goals/Objectives Addressed

For each of the goals/objectives addressed by the project, provide a one to two sentence description of how the project contributes to attaining the objective. Information related to the proposed goals and objectives can be found at www.westsideirw.com/irwmplan . If the project does not address any of the draft IRWM plan objectives, provide a one to two sentence description of how the project relates to a challenge or opportunity of the region.

Goal(s) that the Project will contribute to:	Plan Goals 2 (improve education & awareness), 3 (improve collective understanding of watershed characteristics & functions), 4 (improve the form & function of degraded channels), 7 (preserve, improve & manage water quality), 10 (provide reliable water supplies), 11 (reduce the risks of disruptive natural disturbances), 12 (support improved regional water management), 13 (support sustainable economic activities)
Objective(s) that the Project will help accomplish:	Education and Awareness Objective 2; Risk Management Focus Objective 14 and 15; Understand Watershed Function Focus Objective 17 and 18; Water Supply Focus Objective 24

Explanation of Project linkage to goals and objectives	The farmer fields will capture rainfall to reduce the runoff contributed to Highway 16 and nearby County roads thereby improving the form and function of degraded channels. The storm water detention pond would improve the form and function of degraded channels by capturing rainfall and runoff and reducing the peak flows during storms. Both projects will reduce flooding in and around Madison and will augment groundwater supplies.
How will the project be measured to ensure the goals and objectives are being fulfilled?	The YCFCWCD will coordinate with Madison CSD to determine the extent of reduced flooding. Historical knowledge and pictures will be used to determine the reduction of flooding, along with visual observation by landowners during storm events. Road water levels will be compared to previous storm events.

IV. Resource Management Strategies

For each resource management strategy employed by the project, provide a one to two sentence description in the table below of how the project incorporates the strategy. A description of the Resource Management Strategies can be found in Volume 2 of the 2009 California Water Plan here: http://www.waterplan.water.ca.gov/cwpu2009/index.cfm

Reduce Water Demand	
Agricultural Water Use Efficiency	
Urban Water Use Efficiency	
Improve Operational Efficiency and Transfers	
Conveyance --- Delta	
Conveyance --- Regional / local	
System Reoperation	
Water Transfers	
Increase Water Supply	
Conjunctive Management & Groundwater	Recharging groundwater by retaining water and allowing to a percolate.
Desalination	
Precipitation Enhancement	
Recycled Municipal Water	
Surface Storage ------ CALFED	

Improve Water Quality	
Drinking Water Treatment and Distribution	
Groundwater and Aquifer Remediation	
Matching Water Quality to Use	
Pollution Prevention	Reduces pollutants and contaminants in delayed retention period.
Salt and Salinity Management	
Urban Runoff Management	Reduces extraneous runoff to Madison.
Practice Resources Stewardship	
Agricultural Lands Stewardship	Improves watershed functions while continuing farming benefit.
Economic Incentives (Loans, Grants, and Water Pricing)	
Ecosystem Restoration	
Forest Management	
Land Use Planning and Management	
Recharge Areas Protection	
Water---dependent Recreation	
Watershed Management	Optimizes flow conveyance and capture.
Improve Flood Management	
Flood Risk Management	Reduces flooding to Madison.

V. Project Impacts and Benefits

Please select all the project benefit categories that apply and provide a brief explanation. If the project benefits do not fit any of the listed categories, please explain in the box below. Suggested benefit descriptions are included in the Project Information Form instructions sheet.

Benefit Categories:		**Brief Explanation of Selected Benefits**	**Quantification (e.g. acre---feet of water supplied, acres of habitat restored)**

☐

Increase Water Supply		Groundwater recharge from stormwater capture and retention.	Depends on the water year, but farmer field conversions to berms allows 300 AF per storm event. With 27"/hour infiltration rate, would need at least 30 hours between storm events to dry out fields. For detention basin, 1,100 AF per storm with at least 5.5 days in between storms.
Improve Water Quality		Settling of pathogens, nutrients, and metals during delayed	
Groundwater Improvements		Increased groundwater supply from stormwater & retention.	Depends on the water year, but 300 AF per storm event for berms and 1,100 AF per storm event for detention basin.
Water Conservation and Reuse	✔		Capture of stormwater for groundwater recharge

Watershed Rehabilitation	✔	Improved channel erosion in Madison Drain and roadside	Reduction in flows in ditches improves channel erosion -- not sure how to quantify the benefit.
Habitat Improvements			
Flood Management		Reduced peak discharge from storm events to Madison	Would benefit 10-year, 24-hour design storm event (5.65 in.) or event similar to January 2017 (1.72 in.)

Other Benefits:

Less flooding on County roads, improved traffic control and safety for locals.

Please provide a summary of the expected project benefits and impacts in the table below.

a. Describe any expected impacts of the project	
b. If applicable, describe benefits or impacts of the project with respect to Native American Tribal Community considerations.	N/A
c. If applicable, describe benefits or impacts of the project with respect to Disadvantaged Communities*.	The storm water capture and detention basin would reduce peak flows discharged through Madison Drain and roadside ditches thereby reducing the discharge & flooding through Madison. Parts of Madison are considered to be an SDAC

d. If applicable, describe benefits or impacts of the project with respect to Environmental Justice ** considerations.	N/A

e. If applicable, describe how the project assists the region in adapting to effects of climate change.	With increased intensity, duration, and frequency of storm events the project will assist the area in capturing additional flow to reduce flooding impacts to Madison, and to recharge the groundwater and increase groundwater supply.
f. If applicable, describe the generation or reduction of greenhouse gas emissions associated with the project.	N/A

*A Disadvantaged Community is defined as a community with an annual median household (MHI) income that is less than 80 percent of the Statewide annual MHI. A map identifying DACs in the Westside Region is available at www.westsideirwm.com.

** Environmental Justice is 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.

VI. Statewide Program Preferences and Priorities

Please select the Program Preferences and Statewide Priorities that apply to the proposed project (choose all that apply).

Program Preferences

- [x] Include regional projects or programs (CWC §10544)
- [x] Effectively integrate water management programs and projects within a hydrologic region identified in the California Water Plan; the Regional Water Quality Control Board (RWQCB) region or subdivision; or other region or sub---region specifically identified by DWR
- [x] Effectively resolve significant water---related conflicts within or between regions
- [ ] Contribute to attainment of one or more of the objectives of the CALFED Bay---Delta Program
- [x] Address critical water supply or water quality needs of disadvantaged communities within the region
- [x] Effectively integrate water management with land use planning
- [x] For eligible SWFM funding, projects which: a) are not receiving State funding for flood control or flood prevention projects pursuant to PRC §5096.824 or §75034 or b) provide multiple benefits, including, but not limited to, water quality improvements, ecosystem benefits, reduction of instream erosion and sedimentation, and groundwater recharge.

Statewide Priorities

Drought Preparedness

- [x] Promote water conservation, conjunctive use, reuse and recycling
- [ ] Improve landscape and agricultural irrigation efficiencies Achieve
- [ ] long term reduction of water use
- [x] Efficient groundwater basin management
- [ ] System interties

Use and Reuse Water More Efficiently

- [ ] Increase urban and agricultural water use efficiency measures such as conservation and recycling
- [x] Capture, store, treat, and use urban stormwater runoff (such as percolation to usable aquifers, underground storage beneath parks, small surface basins, domestic stormwater capture systems, or the creation of catch basins or sumps downhill of development
- [ ] Incorporate and implement low impact development (LID) design features, techniques, and practices to reduce or eliminate stormwater runoff

Climate Change Response Actions

- [x] Adaptation to Climate Change: Advance and expand conjunctive management of multiple water supply sources
- [ ] Adaptation to Climate Change: Use and reuse water more efficiently
- [ ] Adaptation to Climate Change: Water management system modifications that address anticipated climate
  - [ ] Adaptation to Climate Change: Establish migration corridors, re---establish river---floodplain hydrologic continuity, re---introduce anadromous fish populations to upper watersheds, enhance and protect upper watershed forests and meadow systems
- [ ] Reduction of Greenhouse Gas (GHG) Emissions: Reduce energy consumption of water systems and uses
- [ ] Reduction of Greenhouse Gas (GHG) Emissions: Use cleaner energy sources to move and treat water
- [ ] Reduce Energy Consumption: Water use efficiency
- [ ] Reduce Energy Consumption: Water recycling
- [ ] Reduce Energy Consumption: Water system energy efficiency

Expand Environmental Stewardship

- [ ] Expand Environmental Stewardship to protect and enhance the environment by improving watershed, floodplain, and instream functions and to sustain water and flood management

ecosystems.

Practice Integrated Flood Management

- [ ] Better emergency preparedness and response
- [x] Improved flood protection
- [x] More sustainable flood and water management systems
- [ ] Enhanced floodplain ecosystems
- [ ] LID techniques that store and infiltrate runoff while protecting groundwater

Protect Surface Water and Groundwater Quality

- [x] Protecting and restoring surface water and groundwater quality to safeguard public and environmental health and secure water supplies for beneficial uses
- [ ] Salt/nutrient management planning as a components of an IRWM Plan

Improve Tribal Water and Natural Resources

- [ ] Improve Tribal Water and Natural Resources and include the development of Tribal consultation, collaboration, and access to funding for water programs.

Ensure Equitable Distribution of Benefits

- [ ] Increase the participation of small and disadvantaged communities in the IRWM process.
- [x] Develop multi---benefit projects with consideration of affected disadvantaged communities and vulnerable populations.
- [ ] Contain projects that address safe drinking water and wastewater treatment needs of DACs.
- [ ] Address critical water supply or water quality needs of California Native American Tribes within the region.

VII. Project Cost and Financing

Please provide any estimates of project cost, sources of funding, and operation and maintenance costs as well as the source of the project cost in the table below.

a. Project Costs	$100,000 - $400,000	
1. Capital (2014 Dollars)		
2. Annual Operations and Maintenance (O&M)	$0	
b. List secured source(s) of funding	**Source(s)**	**Amount**

c. List proposed source(s) of funding and certainty of the sources.	Potentially YSGA could provide cost share or incentive groundwater credits to farmers.	
d. For capital projects, explain how operation and maintenance costs will be financed.	N/A	
e. Basis for project cost	$100,000 estimate is for the 8-inch berms: $5,000/farmer field (12 fields), plus Madison CSD/YCFCWCD staff time to initiate the program and execute it. $400,000 is the estimated cost of the detention basin for leasing and modifying the property, and Madison CSD/YCFCWCD staff time	
f. Can a detailed cost estimate be provided upon request?	✔ **Yes** ☐ **No**	

VIII. Project Status and Schedule

Please provide a status of the project, level of completion as well as a description of the activities planned for each project stage.

Project Stage	**Description of Activities in Each Project Stage**	**Planned/Actual Start Date**	**Planned/Actual Completion Date**
a. Conceptual	Talking with farmers about conversion of their fields	November	
b. Planning	about conversion of Notice of Intent from farmers for developing a proposal to the State	January 2019	
c. Environmental Documentation (CEQA/NEPA)		N/A	
d. Permitting		N/A	
e. Tribal Consultation		N/A	
f. Design		N/A	
g. Construction/Implementation	Modifying the property to capture precipitation	January 2020	

WESTSIDE SAC IRWM
Integrated Regional Water Management Plan

IX. Project Technical Feasibility

Please provide any related documents (date, title, author, and page numbers) that describe and confirm the technical feasibility of the project.

a. List water planning documents that specifically identify this project.	YCFCWCD storm water temporary permit process for recharging
b. List the adopted planning documents the proposed project is consistent with (e.g. General Plans, UWMPs, GWMPs, Water Master Plans, Habitat Conservation Plans, etc.)	YCFCWCD Conjunctive Use Policy and Program; and YCFCWCD storm water temporary permit with State Water Board
c. List technical reports and studies supporting the feasibility of this project.	
d. If you are an Urban Water Supplier:	
1. Have you completed an Urban Water Management Plan and submitted to DWR?	☐ Yes ☐ No ☑ N/A
2. Are you in compliance with AB1420?	☐ Yes ☐ No ✔ N/A
3. Do you comply with the water meter requirements (CWC §525)	☐ Yes ☐ No ☑ N/A
4. If the answer to any of the questions above is "no", do you intend to comply prior to receiving Project funding	☐ Yes ☐ No ☑ N/A
e. If you are an Agricultural Water Supplier:	
1. Have you completed and submitted an AWMP (due 12/31/12)?	✔ Yes ☐ No ☐ N/A
2. If not, will you complete and submit an AWMP prior to receiving project funding?	☐ Yes ☐ No ☐ N/A
f. If the project is related to groundwater:	
1. Has a GWMP been completed and submitted for the subject basin?	☑ Yes ☐ No ☐ N/A
2. If not will a GWMP be completed within 1 year of the grant submittal date?	☐ Yes ☐ No ☐ N/A

Project Information Form

SWRP Projects Addendum

The Yolo WRA is accepting suggestions for projects for inclusion in the Yolo Storm Water Resource Plan (SWRP). Projects submitted for consideration should contribute to the attainment of the IRWM Plan and SWRP Objectives. To have your project considered for inclusion, please complete this project information form in its entirety and submit the completed form by **July 28, 2017** to **Kristin Sicke (ksicke@ycfcwcd.org)**.

Please provide information below:

I. Has this project been submitted to the Westside IRWMP previously?

○ Yes — Please provide the Project Name as submitted on the Westside Sac IRWMP Project Information Form:

◉ No — If you answered no, the Westside Sac IRWMP Project Information Form must be completed and submitted with this form. The form can be downloaded at: http://www.westsideirwm.com/Westside%20IRWMP%20Web%20Page/documents/Projects/Project%20Update%20Form-09-01-14.pdf

If you answered yes to the above question, please provide any additional project description/details not provided in the original Westside IRWMP Project Form related to storm water:

Madison CSD Farmer Field Storm Water Capture and Groundwater Recharge

II. Land Availability

	Yes	No	N/A
a. Is the project located on lands with Public ownership?	☐	☑	☐
b. Have easements and/or all required land use agreements been obtained or are pending?	☐	☑	☐

c. Describe how this project will result in immediate or downstream storm water benefit to Yolo County:

Modification of approximately 1,200 acres of farmer fields to capture precipitation around Madison will reduce flood waters to the Madison Drain and roadside ditches and provide an immediate storm water benefit to Madison. Maximum capacity of 800 acre-fee for the 8-" berm fields. Modification of farmer field near Cache Creek (maybe half of APN 049-060-017) to allow for a 3-' storm water detention basin to capture precipitation and channel storm flows for capture, with maximum capacity of 1,100 acre-feet.

III. SWRP Objectives – In addition to IRWMP Objectives

Please mark (x) the SWRP Objectives that apply to the proposed project (choose all that apply).

- ☐ Convert paved and/or impervious areas and increase tree canopy and vegetation, reducing urban heat island effects.
- ☐ Optimize the rural storm water conveyance system to drain and retain storm water flows as necessary. Provide proper rural drainage and keep conveyance systems clear of debris to minimize county road flooding during storm events.
- ☑ Enable proper rural retention and modify rural landscape to maximize groundwater recharge of excess storm water.

IV. SWRP Guideline Benefit Categories

Please mark (x) all the project benefit categories that apply and provide a brief explanation. Suggested benefit descriptions are included in the SWRP Guidelines Tables 3 and 4.

MAIN BENEFIT(S)

	x	**Brief Explanation of Benefit**	**Quantification (e.g. acre---feet of water supplied, acres of habitat restored)**
Water Quality – Increased filtration and/or treatment of runoff	X	Settling of pathogens, nutrients, and metals during delayed detention period.	Likely minimal benefit
Water Supply – Water supply reliability	X	Groundwater recharge from stormwater detention	300 AF - 1,100 AF per storm event (farmer fields - detention basin)
Water Supply – Conjunctive use	X	Groundwater recharge from stormwater detention	300 AF - 1,100 AF per storm event (farmer fields - detention basin)
Flood Management – Decreased flood risk by reducing runoff rate and/or volume	X	Decreased flood risk by reducing runoff	300 AF - 1,100 AF per storm event (farmer fields - detention basin)
Environmental – Environmental and habitat protection and improvement			
Environmental – Increased urban green space			
Community – Employment opportunities provided			
Community – Public education	X	Great pilot project opportunity to test farmers willingness to participate and the crop durability to excessive flooding	Likely will report on the outcome

SECONDARY BENEFIT(S)

	x	Brief Explanation of Benefit	Quantification (e.g. acre---feet of water supplied, acres of habitat restored)
Water Quality – Nonpoint source pollutant control			
Water Quality – Reestablished natural water drainage and treatment	X	Slowing of flows will result in reestablished natural water drainage and settling of solids in a detention pond	Likely minimal
Water Supply – Water conservation			
Flood Management – Reduced sanitary sewer overflows			
Environmental – Reduced energy use, greenhouse gas emissions, or provides			
Environmental – Reestablishment of the natural hydrograph			
Environmental – Water temperature improvements			
Community – Community involvement			
Community – Enhance and/or create recreational and public use areas			

Project Information Form

The Westside Region is accepting suggestions for projects for inclusion in the Westside Integrated Regional Water Management (IRWM) Plan. Projects submitted for consideration should contribute to the attainment of the IRWM Plan Goals and Objectives. To have your project considered for inclusion, please complete this project information form in its entirety and submit the completed form to info@westsideirwm.com .

Please provide information in the tables below:

I. Project Proponent Information

Lead Agency/ Organization	Madison Community Services District
Name of Primary Contact	Leo Refsland
Mailing Address	PO Box 40 Madison, CA 95653
E---mail	lrefmcsdist@yahoo.com
Phone (###)###---####	
Other Cooperating Agencies/Organizations	Yolo County Flood Control and Water Conservation District, The Stockholm Environment Institute
Is your agency committed to the project through completion? If not, please explain	Yes

II. General Project Information

Project Title	Western Yolo Sloughs Citizen Science Program
Project Description (Briefly describe the project, in 300 words or less,)	Sloughs surrounding the Madison area are known to cause regular flooding in Madison and beyond. Namely, Cottonwood Slough, Lamb Valley Slough, the South Fork Willow Slough and the Madison Drain have been identified as sources of flooding in Madison in various studies and reports. It seems likely that mitigation upstream in these sloughs to remove water before the sloughs reach Madison and Esparto, and management of the sloughs to keep them free of debris could help in alleviating flooding in the area. However, none of these channels are monitored, therefore, it is unknown what capacity these sloughs have, when that capacity is reached (during or after a storm), or what type of mitigation would be most fitting for each slough. Additionally, it is not known if the Winters Canal is also full when sloughs are full, or if it may have capacity that could be used to alleviate the sloughs when they are over flowing. The Madison CSD with its partners will develop a citizen science program where Madison residents and residents from the nearby areas will visit sloughs and canals that carry water in and around Madison following rain events. The program members will record whether they see water flowing in the sloughs and canals at previously determined locations, and record observations such as whether the channels are successfully carrying the flows, appear to be obstructed, or are overflowing. The information will be compiled in an easy to use format so that members can easily share the information with Madison CSD and others. The information will initially be used until a flow monitoring network can be developed in the sloughs, and potentially beyond. The goal is to gain a better understanding of the slough flow patterns and information that can be used to plan for flood mitigation in Madison, while also engaging and educating the community.

Project Location:	Northwestern region of Yolo County, west of Hwy 505 and south of Cache Creek
Latitude:	N/A
Longitude:	N/A
Can you provide a map of the project location including boundaries upon request?	☒ Yes ☐ N/A ☐ No
Project Location Description:	Sites to be visited regularly by program members include various points on the Cottonwood Slough, Lamb Valley Slough, the South Fork Willow Slough and the Madison Drain and winters Canal in and around Madison, CA. various points on the Cottonwood Slough, Lamb Valley
County:	
City/Community:	
Watershed:	Willow Slough
Groundwater Basin:	Yolo Subbasin
Planning Area:	509. Central Basin West
Additional Comments:	
Project Status (Check only one)	☐ Conceptual ☒ Planning ☐ CEQA/NEPA ☐ Permitting ☐ Design ☐ Construction/Implementation ☐ Study/Other ☐ Maintenance/Monitoring
Earliest expected start date (mm/dd/yr)	10/01/2018

III. Plan Goals/Objectives Addressed

For each of the goals/objectives addressed by the project, provide a one to two sentence description of how the project contributes to attaining the objective. Information related to the proposed goals and objectives can be found at www.westsideirw.com/irwmplan . If the project does not address any of the draft IRWM plan objectives, provide a one to two sentence description of how the project relates to a challenge or opportunity of the region.

Goal(s) that the Project will contribute to:	Plan Goals 2 (improve education & awareness), 3 (improve collective understanding of watershed characteristics & functions), 4 (improve the form & function of degraded channels), 7 (preserve, improve & manage water quality), 10 (provide reliable water supplies), 11 (reduce the risks of disruptive natural disturbances), 12 (support improved regional water management)
Objective(s) that the Project will help accomplish:	Education and Awareness Objective 2; Risk Management Focus Objective 14 and 15; Understand Watershed Function Focus Objective 17 and 18; Water Supply Focus Objective 24

Explanation of Project linkage to goals and objectives	Including the community in data collection can lead to an increased understanding of the watershed where they live, the issues and opportunities that their community is faced with, and to more collaborative solutions to problems. The data collected my the program members will help water managers and decisions makers understand the flooding issues that Madison is faced with, specifically from slough over-topping, and therefore to better design solutions and actively manage the issue.
How will the project be measured to ensure the goals and objectives are being fulfilled?	The success of the project will be measured in number of program members, and number of observations recorded.

IV. Resource Management Strategies

For each resource management strategy employed by the project, provide a one to two sentence description in the table below of how the project incorporates the strategy. A description of the Resource Management Strategies can be found in Volume 2 of the 2009 California Water Plan here: http://www.waterplan.water.ca.gov/cwpu2009/index.cfm

Reduce Water Demand	
Agricultural Water Use Efficiency	
Urban Water Use Efficiency	
Improve Operational Efficiency and Transfers	
Conveyance --- Delta	
Conveyance --- Regional / local	Improve understanding of the storm conveyance system in place around Madison, so that it can be better managed and modified to alleviate flooding.
System Reoperation	
Water Transfers	
Increase Water Supply	
Conjunctive Management & Groundwater	A better understanding of where and when too much water is available, can give water managers the information they need to design solutions to use that water as a resource for goundwater recharge
Desalination	

Precipitation Enhancement	
Recycled Municipal Water	
Surface Storage ------ CALFED	
Surface Storage ------ Regional / Local	

Improve Water Quality	
Drinking Water Treatment and Distribution	
Groundwater and Aquifer Remediation	
Matching Water Quality to Use	
Pollution Prevention	
Salt and Salinity Management	
Urban Runoff Management	
Practice Resources Stewardship	
Agricultural Lands Stewardship	
Economic Incentives (Loans, Grants, and Water Pricing)	
Ecosystem Restoration	
Forest Management	
Land Use Planning and Management	This will ultimately improve land use planning and management by improving knowledge of slough conditions and storm water flows.
Recharge Areas Protection	
Water---dependent Recreation	
Watershed Management	Bolstering information management in the area will improve watershed management and result in management actions for improved storm water management
Improve Flood Management	
Flood Risk Management	Ultimately, flood risk management will improve because of the increase in local knowledge of the behaviors of sloughs and storm flows that will result in better management and reduced flooding.

V. Project Impacts and Benefits

Please select all the project benefit categories that apply and provide a brief explanation. If the project benefits do not fit any of the listed categories, please explain in the box below. Suggested benefit descriptions are included in the Project Information Form instructions sheet.

Benefit Categories:		**Brief Explanation of Selected Benefits**	**Quantification (e.g. acre---feet of water supplied, acres of habitat restored)**
Increase Water Supply			
Improve Water Quality			
Groundwater Improvements			
Water Conservation and Reuse			

☐

Watershed Rehabilitation	☐		
Habitat Improvements			
Flood Management		Increased knowledge of existing flooding issues can help water managers and	Conceptual project, but will result in action that can reduce localized flooding

Other Benefits:

Please provide a summary of the expected project benefits and impacts in the table below.

a. Describe any expected impacts of the project	Use of community members' time
b. If applicable, describe benefits or impacts of the project with respect to Native American Tribal Community considerations.	Highway 16 at Madison is often flooded, and this is the highway giving access to the Cache Creek Casino, owned and operated by the Yocha Dehe Wintun Nation. When the highway is closed due to flooding, the casino and the Yocha Dehe Wintun Nation's land in the Capay Valley is inaccessible from the rest of Yolo County.
c. If applicable, describe benefits or impacts of the project with respect to Disadvantaged Communities*.	Madison is a Disadvantaged Community and the project aims to gain information that will eventually lead to alleviating flooding in Madison.
d. If applicable, describe benefits or impacts of the project with respect to Environmental Justice ** considerations.	Madison already experiences inequitable effects of California's weather patterns with the evident regular flooding, as compared to the larger, wealthier cities in Yolo County such as Davis and Woodland which do not experience flooding to the same extent or frequency.

e. If applicable, describe how the project assists the region in adapting to effects of climate change.	As climate change further exacerbates floods and droughts in California, Madison, a small Disadvantaged Community will continue to feel these effects though means of worse and more frequent flooding. Additional information to allow water managers to plan for and mitigate this flooding will make Madison more resilient in the face of climate change.
f. If applicable, describe the generation or reduction of greenhouse gas emissions associated with the project.	N/A

*A Disadvantaged Community is defined as a community with an annual median household (MHI) income that is less than 80 percent of the Statewide annual MHI. A map identifying DACs in the Westside Region is available at www.westsideirwm.com.

** Environmental Justice is 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.

VI. Statewide Program Preferences and Priorities

Please select the Program Preferences and Statewide Priorities that apply to the proposed project (choose all that apply).

Program Preferences

- [ ] Include regional projects or programs (CWC §10544)
- [ ] Effectively integrate water management programs and projects within a hydrologic region identified in the California Water Plan; the Regional Water Quality Control Board (RWQCB) region or subdivision; or other region or sub---region specifically identified by DWR
- [x] Effectively resolve significant water---related conflicts within or between regions
- [ ] Contribute to attainment of one or more of the objectives of the CALFED Bay---Delta Program
- [ ] Address critical water supply or water quality needs of disadvantaged communities within the region
- [x] Effectively integrate water management with land use planning
- [ ] For eligible SWFM funding, projects which: a) are not receiving State funding for flood control or flood prevention projects pursuant to PRC §5096.824 or §75034 or b) provide multiple benefits, including, but not limited to, water quality improvements, ecosystem benefits, reduction of instream erosion and sedimentation, and groundwater recharge.

Statewide Priorities

Drought Preparedness

- [ ] Promote water conservation, conjunctive use, reuse and recycling
- [ ] Improve landscape and agricultural irrigation efficiencies Achieve
- [ ] long term reduction of water use
- [ ] Efficient groundwater basin management
- [ ] System interties

Use and Reuse Water More Efficiently

- [ ] Increase urban and agricultural water use efficiency measures such as conservation and recycling
- [ ] Capture, store, treat, and use urban stormwater runoff (such as percolation to usable aquifers, underground storage beneath parks, small surface basins, domestic stormwater capture systems, or the creation of catch basins or sumps downhill of development
- [ ] Incorporate and implement low impact development (LID) design features, techniques, and practices to reduce or eliminate stormwater runoff

Climate Change Response Actions

- [ ] Adaptation to Climate Change: Advance and expand conjunctive management of multiple water supply sources
- [ ] Adaptation to Climate Change: Use and reuse water more efficiently
- [x] Adaptation to Climate Change: Water management system modifications that address anticipated climate
  - [ ] Adaptation to Climate Change: Establish migration corridors, re---establish river---floodplain hydrologic continuity, re---introduce anadromous fish populations to upper watersheds, enhance and protect upper watershed forests and meadow systems
- [ ] Reduction of Greenhouse Gas (GHG) Emissions: Reduce energy consumption of water systems and uses
- [ ] Reduction of Greenhouse Gas (GHG) Emissions: Use cleaner energy sources to move and treat water
- [ ] Reduce Energy Consumption: Water use efficiency
- [ ] Reduce Energy Consumption: Water recycling
- [ ] Reduce Energy Consumption: Water system energy efficiency

Expand Environmental Stewardship

- [ ] Expand Environmental Stewardship to protect and enhance the environment by improving watershed, floodplain, and instream functions and to sustain water and flood management

ecosystems.

Practice Integrated Flood Management

- [ ] Better emergency preparedness and response
- [x] Improved flood protection
- [x] More sustainable flood and water management systems
- [ ] Enhanced floodplain ecosystems
- [x] LID techniques that store and infiltrate runoff while protecting groundwater

Protect Surface Water and Groundwater Quality

- [ ] Protecting and restoring surface water and groundwater quality to safeguard public and environmental health and secure water supplies for beneficial uses
- [ ] Salt/nutrient management planning as a components of an IRWM Plan

Improve Tribal Water and Natural Resources

- [x] Improve Tribal Water and Natural Resources and include the development of Tribal consultation, collaboration, and access to funding for water programs.

Ensure Equitable Distribution of Benefits

- [x] Increase the participation of small and disadvantaged communities in the IRWM process.
- [x] Develop multi---benefit projects with consideration of affected disadvantaged communities and vulnerable populations.
- [ ] Contain projects that address safe drinking water and wastewater treatment needs of DACs.
- [ ] Address critical water supply or water quality needs of California Native American Tribes within the region.

VII. Project Cost and Financing

Please provide any estimates of project cost, sources of funding, and operation and maintenance costs as well as the source of the project cost in the table below.

a. Project Costs		
1. Capital (2014 Dollars)		
2. Annual Operations and Maintenance (O&M)		
b. List secured source(s) of funding	**Source(s)**	**Amount**

c. List proposed source(s) of funding and certainty of the sources.		
d. For capital projects, explain how operation and maintenance costs will be financed.		
e. Basis for project cost		
f. Can a detailed cost estimate be provided upon request?	☐ Yes ☐ No	

VIII. Project Status and Schedule

Please provide a status of the project, level of completion as well as a description of the activities planned for each project stage.

Project Stage	Description of Activities in Each Project Stage	Planned/Actual Start Date	Planned/Actual Completion Date
a. Conceptual	Develop how the Citizen Science program will operate, who will do what, which sites will be visited and how data will be collected	3/8/18	10/1/18
b. Planning	Identify individuals to participate in the program and train them on data collection	3/8/18	10/1/18
c. Environmental Documentation (CEQA/NEPA)			
d. Permitting			
e. Tribal Consultation			
f. Design			

g. Construction/Implementation	Begin collecting information	10/1/18	10/1/18

WESTSIDE SAC IRWM
Integrated Regional Water Management Plan

IX. Project Technical Feasibility

Please provide any related documents (date, title, author, and page numbers) that describe and confirm the technical feasibility of the project.

a. List water planning documents that specifically identify this project.	Conceptual project to assist Madison's localized flooding issues by improving information management and local knowledge and observations.
b. List the adopted planning documents the proposed project is consistent with (e.g. General Plans, UWMPs, GWMPs, Water Master Plans, Habitat Conservation Plans, etc.)	
c. List technical reports and studies supporting the feasibility of this project.	☐ ☐ ☐
d. If you are an Urban Water Supplier:	
1. Have you completed an Urban Water Management Plan and submitted to DWR?	☐ Yes ☐ No ✔ N/A
2. Are you in compliance with AB1420?	Yes ☐ No ☑ N/A
3. Do you comply with the water meter requirements (CWC §525)	☐ Yes ☐ No ☑ N/A
4. If the answer to any of the questions above is “no”, do you intend to comply prior to receiving Project funding	Yes No ✔ N/A
e. If you are an Agricultural Water Supplier:	
1. Have you completed and submitted an AWMP (due 12/31/12)?	☐ Yes ☐ No ☑ N/A
2. If not, will you complete and submit an AWMP prior to receiving project funding?	Yes No ✔ N/A ☐ ☐ ☐
f. If the project is related to groundwater:	
1. Has a GWMP been completed and submitted for the subject basin?	☐ Yes ☐ No ☑ N/A

2. If not will a GWMP be completed within 1 year of the grant submittal date?	Yes No ✔ N/A

Project Information Form

SWRP Projects Addendum

The Yolo WRA is accepting suggestions for projects for inclusion in the Yolo Storm Water Resource Plan (SWRP). Projects submitted for consideration should contribute to the attainment of the IRWM Plan and SWRP Objectives. To have your project considered for inclusion, please complete this project information form in its entirety and submit the completed form by **July 28, 2017** to **Kristin Sicke (ksicke@ycfcwcd.org)**.

Please provide information below:

I. Has this project been submitted to the Westside IRWMP previously?

○ Yes — Please provide the Project Name as submitted on the Westside Sac IRWMP Project Information Form:

Western Yolo Sloughs Citizen Science Program

◉ No — If you answered no, the Westside Sac IRWMP Project Information Form must be completed and submitted with this form. The form can be downloaded at: http://www.westsideirwm.com/Westside%20IRWMP%20Web%20Page/documents/Projects/Project%20Update%20Form-09-01-14.pdf

If you answered yes to the above question, please provide any additional project description/details not provided in the original Westside IRWMP Project Form related to storm water:

II. Land Availability

	Yes	No	N/A
a. Is the project located on lands with Public ownership?	☐	☐	☑
b. Have easements and/or all required land use agreements been obtained or are pending?	☐	☐	☑

c. Describe how this project will result in immediate or downstream storm water benefit to Yolo County:

Information from this program will fill some existing gaps in knowledge for water managers to be able to design and implement future projects and management actions to reduce flooding result from sloughs in and around Madison.

III. SWRP Objectives – In addition to IRWMP Objectives

Please mark (x) the SWRP Objectives that apply to the proposed project (choose all that apply).

- ☐ Convert paved and/or impervious areas and increase tree canopy and vegetation, reducing urban heat island effects.
- ☑ Optimize the rural storm water conveyance system to drain and retain storm water flows as necessary. Provide proper rural drainage and keep conveyance systems clear of debris to minimize county road flooding during storm events.
- ☑ Enable proper rural retention and modify rural landscape to maximize groundwater recharge of excess storm water.

IV. SWRP Guideline Benefit Categories

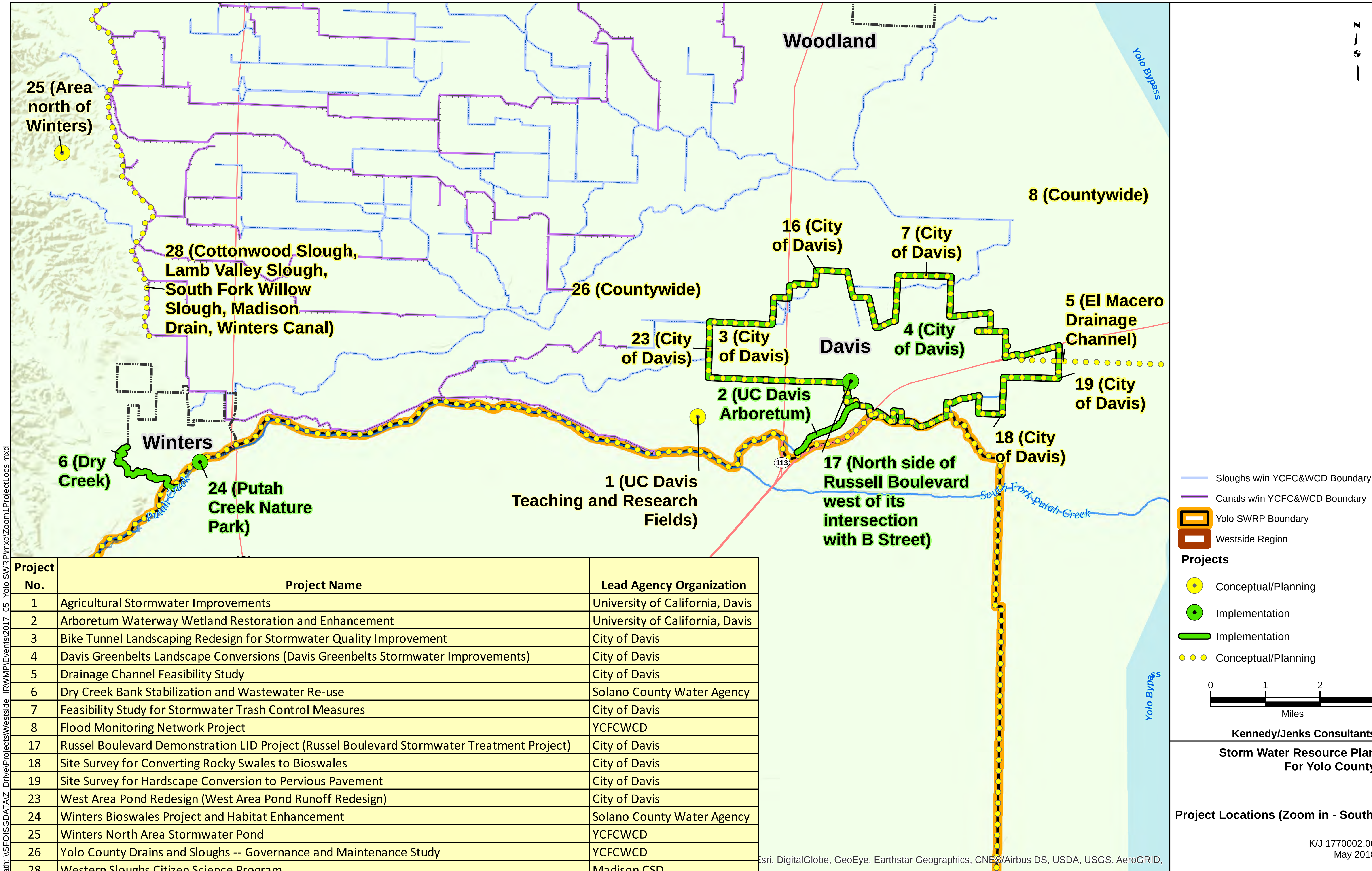
Please mark (x) all the project benefit categories that apply and provide a brief explanation. Suggested benefit descriptions are included in the SWRP Guidelines Tables 3 and 4.

MAIN BENEFIT(S)

	x	**Brief Explanation of Benefit**	**Quantification (e.g. acre---feet of water supplied,**
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	X	Information from this program will fill some existing gaps in knowledge for water managers to be able to design and implement future projects and management actions to reduce flooding result from sloughs in and around Madison.	N/A
Environmental – Environmental and habitat protection and improvement			
Environmental – Increased urban green space			
Community – Employment opportunities provided			
Community – Public education	X	Involving the community in data collection can improve individuals understanding of their watershed and stormwater system.	N/A

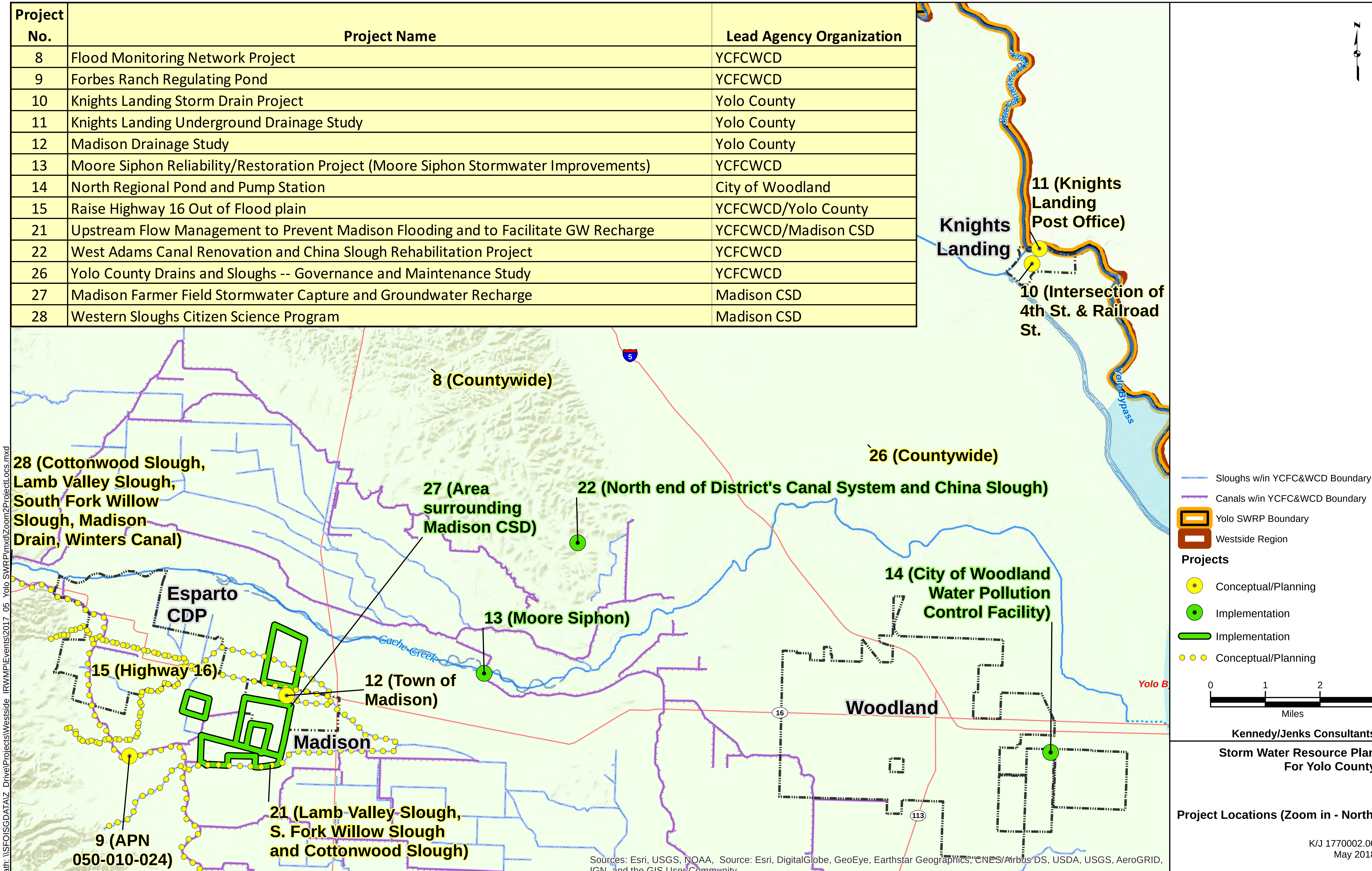
SECONDARY BENEFIT(S)

	x	Brief Explanation of Benefit	Quantification (e.g. acre---feet of water supplied, acres of habitat restored)
Water Quality – Nonpoint source pollutant control			
Water Quality – Reestablished natural water drainage and treatment			
Water Supply – Water conservation			
Flood Management – Reduced sanitary sewer overflows			
Environmental – Reduced energy use, greenhouse gas emissions, or provides			
Environmental – Reestablishment of the natural hydrograph			
Environmental – Water temperature improvements			
Community – Community involvement	X	Involving the community in data collection can lead to more collaborative solutions that benefit all members of the community.	N/A
Community – Enhance and/or create recreational and public use areas			



Project No.	Project Name	Lead Agency Organization
1	Agricultural Stormwater Improvements	University of California, Davis
2	Arboretum Waterway Wetland Restoration and Enhancement	University of California, Davis
3	Bike Tunnel Landscaping Redesign for Stormwater Quality Improvement	City of Davis
4	Davis Greenbelts Landscape Conversions (Davis Greenbelts Stormwater Improvements)	City of Davis
5	Drainage Channel Feasibility Study	City of Davis
6	Dry Creek Bank Stabilization and Wastewater Re-use	Solano County Water Agency
7	Feasibility Study for Stormwater Trash Control Measures	City of Davis
8	Flood Monitoring Network Project	YCFCWCD
17	Russel Boulevard Demonstration LID Project (Russel Boulevard Stormwater Treatment Project)	City of Davis
18	Site Survey for Converting Rocky Swales to Bioswales	City of Davis
19	Site Survey for Hardscape Conversion to Pervious Pavement	City of Davis
23	West Area Pond Redesign (West Area Pond Runoff Redesign)	City of Davis
24	Winters Bioswales Project and Habitat Enhancement	Solano County Water Agency
25	Winters North Area Stormwater Pond	YCFCWCD
26	Yolo County Drains and Sloughs -- Governance and Maintenance Study	YCFCWCD
28	Western Sloughs Citizen Science Program	Madison CSD

Project No.	Project Name	Lead Agency Organization
8	Flood Monitoring Network Project	YCFCWCD
9	Forbes Ranch Regulating Pond	YCFCWCD
10	Knights Landing Storm Drain Project	Yolo County
11	Knights Landing Underground Drainage Study	Yolo County
12	Madison Drainage Study	Yolo County
13	Moore Siphon Reliability/Restoration Project (Moore Siphon Stormwater Improvements)	YCFCWCD
14	North Regional Pond and Pump Station	City of Woodland
15	Raise Highway 16 Out of Flood plain	YCFCWCD/Yolo County
21	Upstream Flow Management to Prevent Madison Flooding and to Facilitate GW Recharge	YCFCWCD/Madison CSD
22	West Adams Canal Renovation and China Slough Rehabilitation Project	YCFCWCD
26	Yolo County Drains and Sloughs -- Governance and Maintenance Study	YCFCWCD
27	Madison Farmer Field Stormwater Capture and Groundwater Recharge	Madison CSD
28	Western Sloughs Citizen Science Program	Madison CSD



Kennedy/Jenks Consultants

Storm Water Resource Plan For Yolo County

Project Locations (Zoom in - North)

K/J 1770002.00
May 2018

Appendix I

Regional Quantitative Analysis (WEAP, HEC-HMS)

Supporting the Yolo Storm Water Resources Plan (Yolo SWRP)

Final report in fulfillment of Proposition 1 Storm Water Planning Grant Program

Agreement No. D1612620

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Chapter 1. Introduction

Yolo County is largely rural, with almost half of its area under cultivation (Borcalli and Associates, 2000). A large portion of Yolo County is in the alluvial floodplain of the Coastal Range. Historically, it was subject to annual flooding in the winter. Some of the sloughs are reported to have once run perennially (Jones & Stokes Associates, 1996) ; now summer runoff is primarily a result of irrigation return flows in wet years.

Today, noticeable flooding from small to medium storms (from 2 to 5 year recurrence interval) is still common, but disproportionately affects rural residents, farmers, small towns and unincorporated communities as compared to larger cities. In unincorporated communities and Disadvantaged Communities (DAC)'s that lack adequate storm water drainage systems , entire residential neighborhoods can be flooded up to a foot or so, from medium storm events (of about 5 to 10-year return period).

As part of the team developing the Yolo Storm Water Resource Plan (Yolo SWRP), our efforts at the Stockholm Environment Institute (SEI) focus on possible water management efforts at the larger landscape scale, which could result in SWRP benefits and achieve some SWRP objectives, as articulated in the SWRP Guidelines[1] and in Chapter 1 of the Yolo SWRP.

SEI's contributions, reported in this document, were largely related to modeling several aspects of storm water management in Yolo County. For these contributions, we developed, modified and/or used three different models (Table 1.1), which are described in more detail in the subsequent chapters. In the process, several other resources were also gathered/developed, in the form of storm water design related manuals, online resources, GIS datasets, secondary literature, informal interviews with key informants, and a photo catalog. These resources are included with this report. We also conducted several field trips related to Disadvantaged Community (DAC) outreach concerning Madison, which frequently experiences flooding, even from relatively small storms of 2-year recurrence interval.

We note that SEI modeling efforts fit into the larger water management scale and context, that of Yolo County being largely rural. These efforts are therefore pertinent to the conceptual and planning sections of the Yolo SRWP and are not specific to the small-scale (e.g. sub-city scale, implementation-ready) projects that are included in the Plan. The project team arrived at this decision through the course of the project for several reasons. Although SEI has a county-scale WEAP model, it was determined that it was not feasible to include the anticipated benefits of

[1] View the guidelines at: https://www.waterboards.ca.gov/water_issues/programs/grants_loans/swgp/docs/prop1/swrp_finalguidelines_dec2015.pdf

each project in the Yolo SWRP into the model because each project proponent had developed its own quantitative method (as it was free to do so). The time it would have taken to disaggregate the model into a sub-city scale and in addition use various methods in each case, made it exceed the scope of our effort. Additionally, the volumes of water involved at each project scale, while very important in their own context, are very small compared to the county-wide water balance; the latter is the scale that the WEAP model is most useful for. Further explanation of modifications to the originally proposed work plan are discussed in Appendix C.

A summary of SEI's efforts and resulting findings are captured below, along with the Yolo SWRP Benefits that could be realized upon implementation (Table 1.2).

Table 1.1 Models used in this analysis

Model	Timestep	Duration	Spatial Extent	Spatial Disaggregation	Analysis	Software	Notes
Western Yolo Model	Event-based	Jan 2017 storm and design storm	Western Yolo Sloughs	4 small catchments	Storm runoff in western Yolo sloughs (Chapter 2)	Hec-HMS (http://www.hec.usace.army.mil/software/hec-hms/)	Developed for this analysis
Cache Creek Model	Monthly	Water Year 1976 to Water Year 2010	Cache Creek and Yolo County	9 upper Cache Creek catchments, 3 Yolo County catchments	Storm water conveyance via canal operations for groundwater recharge (Chapter 3)	Water Evaluation and Planning (WEAP) (Yates et al., 2005)	Previously developed (Mehta et al., 2013)
Yolo Storm Water Model	Daily	Water Year 1976 to Water Year 2010	Cache Creek and Yolo County	9 upper Cache Creek catchments, 38 Yolo County catchments	Rainfall capture on farm fields (Chapter 4)	Water Evaluation and Planning (WEAP) (Yates et al., 2005)	Modified from the Cache Creek Model for this analysis

Summary description of activities and outputs

1. Storm runoff in western Yolo sloughs

Madison is one of the Disadvantaged Communities (DAC) in Yolo County that is regularly flooded in the winter. Although a few hydraulic studies have been conducted in the past[2], no permanent solutions have been implemented to date.

The 1999 Madison flood modeling study conducted by Borcalli Associates, Inc. informs us that Madison is "***..subject to flooding from South Fork Willow Slough, Cottonwood Slough, the Madison Drain, and local runoff from agricultural land north, west and south of Madison***"(Borcalli and Associates, 1999, pp. 4–6). We were interested in characterizing upstream runoff contributions – namely in three sloughs, Lamb Valley Slough, South Fork Willow Slough, and Cottonwood Slough – that are west and south of Madison. The Western Yolo Model (Table 1.1) was built in HEC-HMS for these sloughs to estimate peak and volumetric runoff for one actual and one design storm. Details of this analysis are presented in Chapter 2.

2. Storm water conveyance via canal operations for groundwater recharge

The Yolo County Flood Control and Water Conservation District (District)'s service area covers approximately 30% of the county's land area. The District also provides a large share of the County's surface water supply for irrigation – at 234,000 acre-feet in wet years, almost a quarter of the county's total estimated irrigation requirements. Its extensive canal system is largely unlined and known to contribute to substantial groundwater recharge (Borcalli and Associates, 2000; Mehta et al., 2013; YCFCWCD, 2012). In a previous modeling study, SEI had found that winter recharge of diverted Cache Creek streamflows was one of the most promising of several winter runoff management strategies investigated (Mehta et al., (accepted)). Chapter 3 of this report includes quantitative estimates from the Cache Creek WEAP Model (Table 1.1), run for 35 years at a monthly timestep.

3. Rainfall capture on farm fields

In recent years, the idea of capturing winter rainfall on agricultural fields has gained ground, due to its potential to provide both flood management and water supply benefits (through groundwater recharge). We assessed two scenarios of capturing precipitation on selected farm fields using the Yolo Storm Water WEAP model (Table 1.1). Fields were selected based on crop coverage and the Soil Agricultural Groundwater Banking Index (O'Geen et al., 2015). A daily

[2] For example, (Borcalli and Associates, 1999; Wood Rodgers Inc, 2017)

timestep WEAP model was used. In the more conservative scenario, surface runoff reduction was estimated as 5,000 acre-feet on average over 35 years of simulation; and 9000 acre-feet in the less conservative scenario. The modeled water balance shows that almost all of this reduced runoff augments groundwater recharge.

4. Additional on-farm

In Chapter 5, we discuss two additional on-farm options for winter run-off mitigation and groundwater recharge : flooding of fields and winter irrigation. The chapter summarizes learnings from recent literature and interviews with key informants. No modeling analysis was conducted for this Chapter.

5. Flow monitoring network

This output, described in Chapter 6, compiles recommendations on establishing and enhancing existing flow monitoring sites in western Yolo County, focusing on storm runoff from Lamb Valley, South Fork Willow and Cottonwood Sloughs. Related pictures from the sites and site descriptions are included.

6. Other Outputs

To produce the final outputs above, several intermediary products were collected or produced. These are summarized and provided in Chapter 7.

Summary of Findings

Noticeable flooding from small to medium storms disproportionately affects rural residents, farmers and unincorporated communities as compared to larger, wealthier cities. Flooding in the Madison and Esparto area exists after small to medium storms (even less than 5 year recurrence interval) as a result of a combination of sources: runoff from farm fields, slough overtopping from capacity restrictions (sloughs too confined due to restrictive vegetation, silting or undersized culverts and bridges), capacity exceedance (too much water, even if sloughs are clear), and aggregated effects of all these processes in low-lying parts of the landscape.

Field investigations, combined with the findings of earlier foundational studies, lead us to conclude that storm water management will need to occur at multiple scales simultaneously;

1. management and maintenance of storm drains at the local scale so that sloughs can more effectively convey water
2. on-field management of winter run-off at the distributed, farm-field scale to reduce runoff into the sloughs

3. management of upstream storm flows in sloughs to reduce flows in the slough before reaching areas vulnerable to flooding, and
4. canal operations to convey water out of flood-prone areas, or take advantage of storm flows for groundwater recharge with minimal risks compared to other recharge options

The area could also greatly benefit from the knowledge of canal and slough flows that would be gained from an increased flow monitoring network in areas that contribute to flooding.

The scope of the storm water management measures explored in this report is limited to the small and medium storms. These measures will be too small to handle the rare, big storms (with say 50 to 100 year or more return periods[3]). Nevertheless, these measures are warranted and justified because they are needed, are feasible, and because the greatest proportion of cumulative long-term flood damage in these rural areas is from small and medium storms (US Soil Conservation Service, cited in Jones and Stokes, 1996).

[3]For some management possibilities for large storms, see for example the CalTrans studies on Highway 16 http://www.dot.ca.gov/d3/projects/subprojects/0C470/files/newsPDFs/0C470Road.pdf

Table 1.2 Outputs related to SWRP Benefits

SWRP Objectives		SEI Activities: Storm runoff in western Yolo sloughs	Storm water conveyance via canal operations for groundwater recharge	Rainfall capture on farm fields	Additional farm field-groundwater recharge strategies	Flow monitoring network	Other Outputs
Reasonable Use Focus	Increase adoption of agricultural Best Management Practices			x	x		
Risk Management Focus	Manage watershed activities to reduce large erosion events			x	x	x	
	Provide adequate flood protection	x		x			
Understand Watershed Function Focus	Monitor conditions/improve understanding to support sustainable groundwater basins					x	x
	Maintain/enhance watershed and natural resource monitoring network and information sharing					x	x
Water Quality Focus	Address pollutant sources to meet runoff standards and Total Maximum Daily Load (TMDL) targets			x			
	Reduce public health risks by reducing contaminants in drinking water sources			x			
Water Supply Focus	Provide agricultural water supplies to support a robust agricultural industry		x	x	x		
Storm Water Focus	Optimize the rural storm water conveyance system to drain and retain storm water flows as necessary. Provide proper rural drainage and keep conveyance systems clear of debris to minimize county road flooding during storm events.	x	x	x		x	
	Enable proper rural retention and modify rural landscape to maximize groundwater recharge of excess storm water.		x	x	x		

Chapter 2. Storm runoff in western Yolo sloughs

Executive Summary

Storm runoff was estimated from three watersheds in the foothills west-southwest of Esparto, which may contribute to flooding in Madison. These three drainages are Lamb Valley Slough, South Fork Willow Slough, and Cottonwood Slough. A fourth, small drainage boundary was identified that feeds directly into the Madison Drain. One subwatershed was also identified in each of the three slough drainages to a point to intersections with Winters canal. Total runoff from the modeled area resulting from an actual January storm was 577 acre-feet, with 307 acre-feet from the upstream portions of the sloughs. Peak flows ranged from 276 to 1,088 cfs across the three sloughs. For a 100-year 24-hour storm, total runoff was 6,383 acre-feet with peak flows ranging from 2,053 to 6,491 cfs. It is difficult to determine how realistic these estimated flows are however, because there are no flow gauges or sensors in the area. We recommend adding flow monitoring to better understand the hydrologic behavior of these sloughs and the Winters Canal.

Introduction

The Willow Slough Watershed Integrated Resources Management Plan (Jones & Stokes Associates, 1996), although more than 10 years old, contains the most relevant information regarding flooding, and in general, about integrated water resources management possibilities and challenges in southwestern Yolo County. It informs us that flooding is common in the valley floor in this part of the county, in response to small and medium storms of less than 10-year recurrence interval. Our field investigations (Chapter 6), and flood photo catalog (Chapter 7, see "Relating Madison flooding to flood and rainfall frequency") confirm this narrative. Sources of flooding from small to medium events that have been identified include runoff from agricultural fields, and overflowing sloughs. Sloughs overflow due to channel constriction caused by debris obstruction, silting and/or overgrown channels, and undersized bridges and culverts downstream. It is also likely that even if slough channels were clear, they would not have the capacity to convey flows from large storms.

This chapter was motivated by the regular flooding experienced by the town of Madison, which faces flooding problems in events of 5- to 10-year frequencies, or even more frequently occurring storms. Sources of flooding seem to be many, echoing the general regional causes of flooding mentioned above. For example, the 1999 Madison flood hazard modeling study conducted by Borcalli Associates, Inc., informs us that Madison is "***..subject to flooding from South Fork Willow Slough, Cottonwood Slough, the Madison Drain, and local runoff from agricultural land north, west and south of Madison***"(Borcalli and Associates, 1999, pp. 4–6). Although there is reference to several hydrologic models that were built for this region, there are no flow gauges in these sloughs to compare and calibrate any of the modeling efforts so far. We were also unable to access previous HEC models from this region, referred to, for example, in Jones and Stokes (1996) and Borcalli and Associates (1999). Hence, we constructed our own model of the watersheds and outlets of interest. We used the model to estimate flows in sloughs at locations upstream of Madison. The information produced could be used to design appropriate stormwater management measures that could prevent or slow down storm flows reaching Madison. Examples of such measures include detention ponds/check dams, off-stream storage, and diversions into Winters Canal.

Methods

Storm runoff was estimated for selected watersheds using the HEC-HMS modeling platform. HEC-HMS offers several different options (algorithms) for runoff volume and hydrograph estimation. Most of these require information regarding the watershed, such as topography, landuse/landcover and soil properties. We used the SCS Curve Number loss method and SCS Unit Hydrograph transform method. These require the estimation of watershed area, Curve Numbers, percent imperviousness, and lag time. In order to generate these input parameters for HEC-HMS, several datasets were downloaded (Table 2.1) and processed, as described in the following sections. Additionally, HEC-HMS has multiple options for entering storm event data for modeling. We modeled two storms, which required downloading datasets from two sources (Table 2.1).

Table 2.1. Input data and sources

Dataset	Source	URL	Accessed/ downloaded	HEC-HMS input derived from dataset
Elevation	NED 10m elevation	https://nationalmap.gov/3DEP/3dep_prodserv.html 1 deg x 1deg tiles n39w123 and n39w122 covering study area	Apr 27, 2017	Watershed area, Lag time
Landcover Percent Impervious	NLCD 2011 (2014 update)	https://www.mrlc.gov/nlcd11_data.php	Oct 7, 2017	Curve Number, Percent Imperviousness
Soils in Yolo County	SSURGO dataset NRCS Soil Explorer	https://gdg.sc.egov.usda.gov/ https://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx	Oct 7, 2017	Curve Number
Hourly Precipitation (Brooks, BSS)	CDEC	http://cdec.water.ca.gov/cdecstation2/?KNO	Aug 1, 2017	Actual storm event
Precipitation-frequency and duration tables	NOAA precipitation frequency server	https://hdsc.nws.noaa.gov/hdsc/pfds/pfds_printpage.html?lat=38.6793&lon=-121.9693&data=depth&units=english&series=pds	July 18, 2017	Design storm event

Watershed area

Watershed boundaries (Figure 2.1) were delineated using a 10m resolution National Elevation Dataset (NED, Table 2.1). Watershed delineation routines are standard in most GIS software: depressions in the elevation data are filled to develop a conditioned Digital Elevation Model (DEM), which is then used to derive flow accumulation and direction maps. We used ArcGIS to develop these maps and to identify specific points (called pour points) of interest as watershed and sub-watershed outlets. We then generated watershed boundaries to those points using the above mentioned maps. Pour points were selected (as shown in Figure 2.1) to generate watershed boundaries for Lamb Valley Slough, South Fork Willow Slough, and Cottonwood Slough with outlets closest to Esparto and Madison. Upstream pour points were selected to estimate flows to the outlet close to the edge of the foothills, at locations where potential flood monitoring and/or mitigation could occur. For Lamb Valley Slough, the subwatershed is delineated to the bridge near the cemetery. For South Fork Willow and Cottonwood Sloughs, they are delineated to intersections with Winters Canal. In addition, one pour point was placed at the western edge of Madison Drain to estimate local contributions to this channel, which regularly overflows.

Figure 2.1. Study Area

Watershed boundaries for Lamb Valley Slough, South Fork Willow Slough, Cottonwood Slough, and Madison Drain are shown in solid colors, along with canals and sloughs. Also shown are the upstream sub-watersheds for each slough. US means upstream point and DS means downstream point.

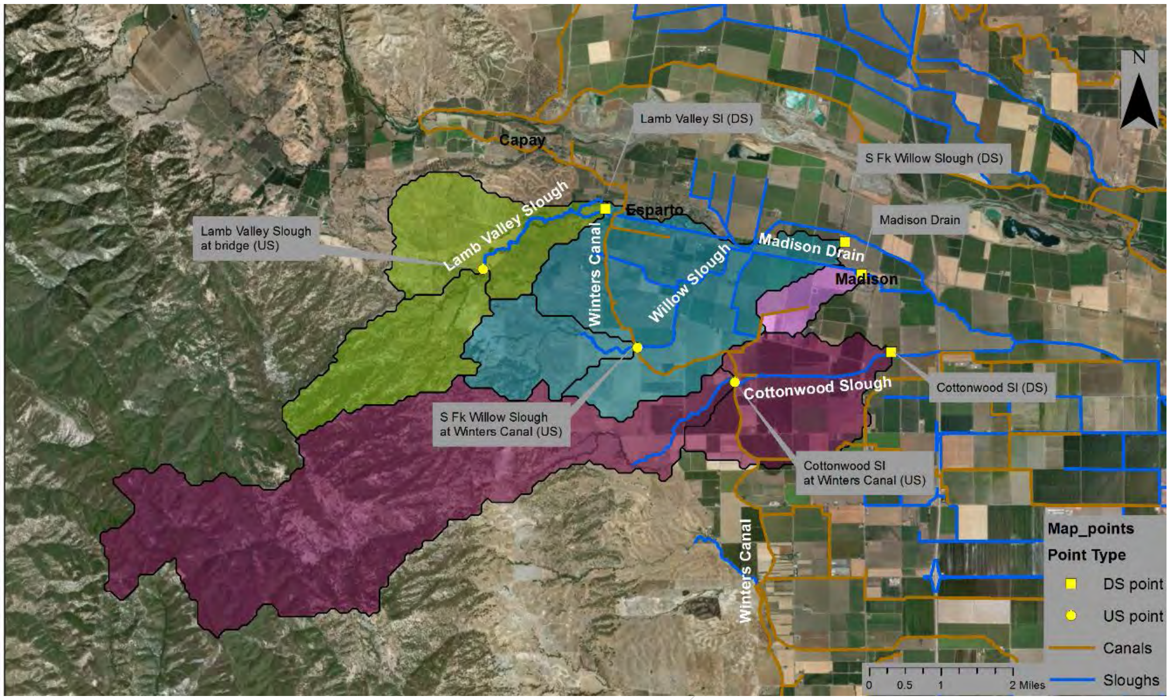


Table 2.2. HEC model input parameters for each watershed

Soil groups are hydrologic soil groups, CN is Soil Conservation Serivce Curve Number, imperv is impervious, L is the length of the longest flow path, S is maximum capacity of the soil to retain water, Y is the average slope of the drainage and Tl is lag time.

Watershed	Area sq mi	Dominant Landcovers Class	% Area	Soil Groups Group	% Area	Weighted CN	Imperv (%)	L ft	S (in)	Y (%)	Tl (min)	Tl (hr)
Lamb Valley Slough to Esparto		Herbaceuous	64	C	38							
	6.4	Shrub/Scrub	20	D	62	77	0.11	37346	2.9	19.7	85	1.4
		Cultivated Crops	10									
Lamb Valley Slough to Bridge		Herbaceuous	49	C	27							
	3.0	Shrub/Scrub	41	D	73	75	0.05	23340	3.3	27.7	52	0.9
		Mixed Forest	6									
Cottonwood Slough		Shrub/Scrub	36	C	28							
	17.5	Herbaceuous	27	D	48	82	0.14	82908	2.3	27.7	118	2.0
		Cultivated Crops	25	Rock	18							
Cottonwood Slough to Winters Canal		Shrub/Scrub	46	C	13							
	13.8	Herbaceuous	34	D	61	81	0.04	69702	2.3	35.0	93	1.5
		Mixed Forest	10	Rock	23							
Willow Slough		Cultivated Crops	43	B	5							
	8.8	Herbaceuous	34	C	88	78	1.29	42829	2.9	4.0	207	3.4
		Hay/Pasture	13	D	7							
Willow Slough to Winters Canal	2.1	Herbaceuous	88	C	72	76	0.04	19113	3.2	12.1	66	1.1
		Shrub/Scrub	6	D	28							
Madison Drain	0.75	Cultivated Crops	75	B	57	78	1.29	9619	2.7	0.5	166	2.8
		Hay/Pasture	20	C	43							

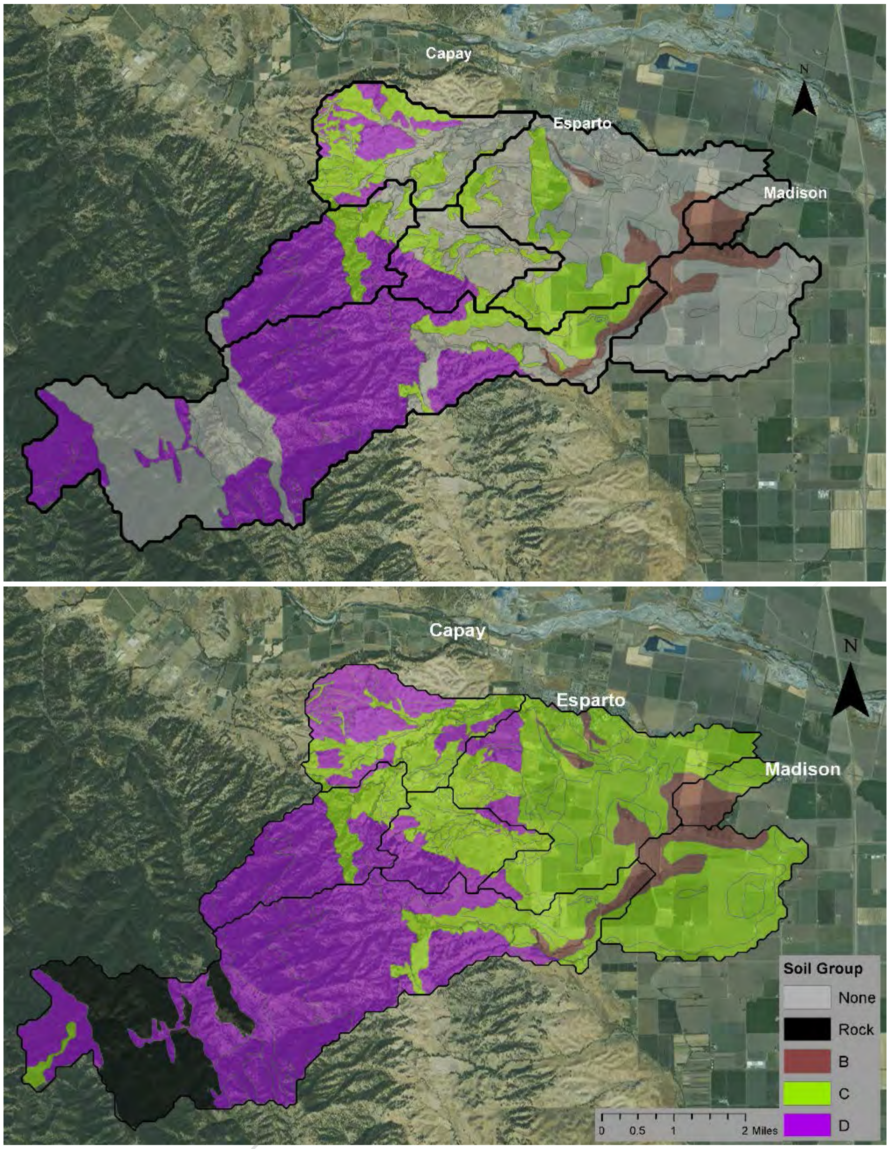
Curve Number

Curve Numbers are based on landcover conditions and soil hydrologic groups. To develop a Curve Number for each drainage area, landcover and soil data were downloaded from the National Landcover Dataset (NLCD) and the SSURGO soils dataset (Table 2.1).

Because the NLCD dataset landcover classes do not directly exist in Curve Number tables, they need to be mapped to categories that do. Table A 1 in Appendix A shows the mapping we used. When the SSURGO soil data (Table 2.1) are downloaded, they are divided into spatial and tabular datasets. Recommend changing to “SSURGO data were processed in ArcGIS, with the help of information from the NRCS Soil Explorer in filling in data gaps. (Table 2.1). The final classification of soils in the study area is shown in Figure 2.2. A substantial portion of Cottonwood slough watershed is classified as being rocky. All land area underlain with “Rock” was assigned a Curve Number of 98, which indicates high runoff potential.

Figure 2.2. Study area soil classifications

Top figure shows the study area with raw classifications from SSURGO spatial and tabular data. Bottom figure shows the study area after areas with no classification ("none") were reclassified based on nearby dominant soil types.



Using ArcGIS, polygons with unique land class-soil group combinations were generated in each drainage area. Table 2.2 shows a summary of the percent area of dominant landcover classes and soil groups for each drainage area. As with any intersection, some slivers existed where the landcover layer boundaries and soil layer boundaries did not perfectly align. These slivers accounted for <0.18% of the study area and were omitted from the remainder of the analysis.

Each of these polygons was assigned a Curve Number using Table A 1. From this, an area-weighted curve number was calculated for each watershed (Table 2.2).[4]

Percent Imperviousness

Percent Imperviousness of each drainage was calculated using the NLCD 2011 Percent Developed Imperviousness dataset. This dataset gives the percent of imperviousness cover per pixel for the coterminous U.S. The calculated percent impervious area for each watershed is shown in Table 2.2.

Lag Time

We calculated the watershed lag time (T_l in hours), defined as the time between the center of mass of the effective rainfall to the resulting hydrograph peak, using the Watershed lag method[5]. This requires the estimation of various parameters representing the topography of the drainage area. Using the previously mentioned flow accumulation and direction maps (see Watershed area section above), L, S, and T_l were calculated, and then used to calculate the lag time, using Equation 2.2.

[4] The majority of the steps outlined in the "Creating SCS Curve Number Grid using HEC-GeoHMS" tutorial by Venkatesh Merwade (https://web.ics.purdue.edu/~vmerwade/education/cngrid.pdf) were followed in this analysis to calculate the Curve Number for each watershed, and this can be viewed for more detailed information about the data processing. Because at the time of this analysis HEC-GeoHMS was no longer supported by the Army Corps of Engineers and the newest version by ESRI was not yet developed, the weighted Curve Numbers were calculated manually for this analysis rather than using the automated tool mentioned in the tutorial.

[5] See Chapter 15 in the National Engineering Handbook (developed by the USDA and NRCS) for a detailed explanation of the variables and equations described in this section: https://directives.sc.egov.usda.gov/OpenNonWebContent.aspx?content=27002.wba

Equation 2.1

$$S = \frac{1000}{CN} - 10$$

Where

S=Maximum potential retention (in)

CN=Weighted curve number for the basin

Equation 2.2

$$T_l = \frac{L^{0.8} * (S+1)^{0.7}}{1900 * Y^{0.5}}$$

Where

T_l= Lag time in hours

L= Length of the longest flow path (ft)

S= Maximum potential retention (in)

Y=Average slope (%)

Precipitation Events

We modeled one actual storm that occurred in the area and one design storm. For the actual storm, the closest station with hourly precipitation data was the Brooks precipitation station. We downloaded data from the Brooks station for a storm event that occurred January 3 and January 4, 2017, totaling 1.59 inches over 21 hours (Table 2.1, Table A 2). The January storm event may represent a rather typical storm as its recurrence interval is less than two years. The storm was entered into the HEC-HMS model as a specified hyetograph.

The NOAA precipitation frequency data server (Table 2.1) provides and estimated rainfall total of 5.7 inches for a 100-year, 24-hour design storm for a point over Madison. Fifteen-minute interval precipitation data for the design storm was produced and is shown in Table A 3[6]. These synthetic data were also entered as a specified hyetograph. Both storms were applied uniformly across each watershed.

Results and Discussion

January 2017 Storm Event

Estimated runoff volume from the actual storm of January 3-4 2017, for the entire area modeled, was 577 acre-feet. 307 acre-feet of this runoff volume was estimated as contributions from the upper portions of the watersheds (i.e Cottonwood and South Fork Willow Sloughs above their intersection with the Winters Canal and Lamb Valley Slough above the bridge, Table

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[6] Fifteen-minute interval precipitation values were produced using: Haan, Charles Thomas, Billy J. Barfield, and Julie Candler Hayes. *Design hydrology and sedimentology for small catchments*. Elsevier, 1994. Table 3.4, p. 48.

2.3). Cottonwood Slough contributes the largest volume of water, both in the upstream area and overall (Table 2.3), which is consistent with its area being the largest (Table 2.3).

Relative contributions of runoff volume from upper subwatersheds follow their relative areas. Hence, the majority of runoff volume from the South Fork Willow Slough is from the downstream portion of the watershed; the opposite is true of the Cottonwood Slough watershed; and runoff volume from the upper Lamb Valley Slough watershed is generated about 40% of the entire Lamb Valley Slough watershed (Figure 2.3).

Estimated peak flows from this storm are listed in Table 2.3, and modeled hydrographs are presented in Figure 2.3. The peaks at the downstream points of Lamb Valley Slough and in Cottonwood Slough appear to occur shortly after the peak flows in the respective upstream points (Figure 2.3). The peak in Willow Slough's upstream point occurs approximately 3 hours before the peak in the downstream point (Figure 2.3). Additionally the peak flow in downstream Lamb Valley Slough and Cottonwood Slough occurs 1 and 1.5 hours after the peak precipitation, respectively, and occurs while it is still raining where the peak flow in downstream Willow Slough occurs 3.5 hours after the peak precipitation and once the rain has stopped (Figure 2.3).

Design Storm

Modeled runoff volume from the 100-year, 24-hour design storm of 5.7 inches was an estimated 6,383 acre-feet from the study area. 3,536 acre-feet of this runoff volume was contributed from the upstream watersheds (Table 2.3). As expected from this larger storm, larger volumes of runoff are generated. Similar patterns of proportional runoff from the upstream areas compared to overall watersheds are seen in this storm as with the previous storm (Figure 2.4).

Table 2.3 Summary of drainage area, modeled peak flow and modeled flow volume, for each watershed and storm. US means upstream point and DS means downstream point. (DS values correspond to total runoff from that watershed)

	Watershed	Drainage Area (mi^2)	Peak Flow (cfs)		Flow Volume (AF)	
			Jan 2017 Storm	100-year, 24-hr storm	Jan 2017 Storm	100-year, 24-hr storm
DS	Cottonwood Slough	17.5	1,088	6,491	355	3,527
US	Cottonwood Slough at Winters Canal	13.7	922	5,549	253	2,685
DS	S Fk Willow Slough	8.8	276	2,053	130	1,599
US	S Fk Willow Slough at Winters Canal	2.1	112	880	24	357
DS	Lamb Valley Slough at Esparto	6.4	322	2,421	81	1,120
US	Lamb Valley Slough at bridge	3.0	165	1,370	30	494
	Madison Drain	0.75	28	200	11	136

Figure 2.3. Runoff from drainage areas and their relative upstream watersheds for the January 2017 storm. US means upstream point and DS means downstream point. (DS values correspond to total runoff from that watershed)

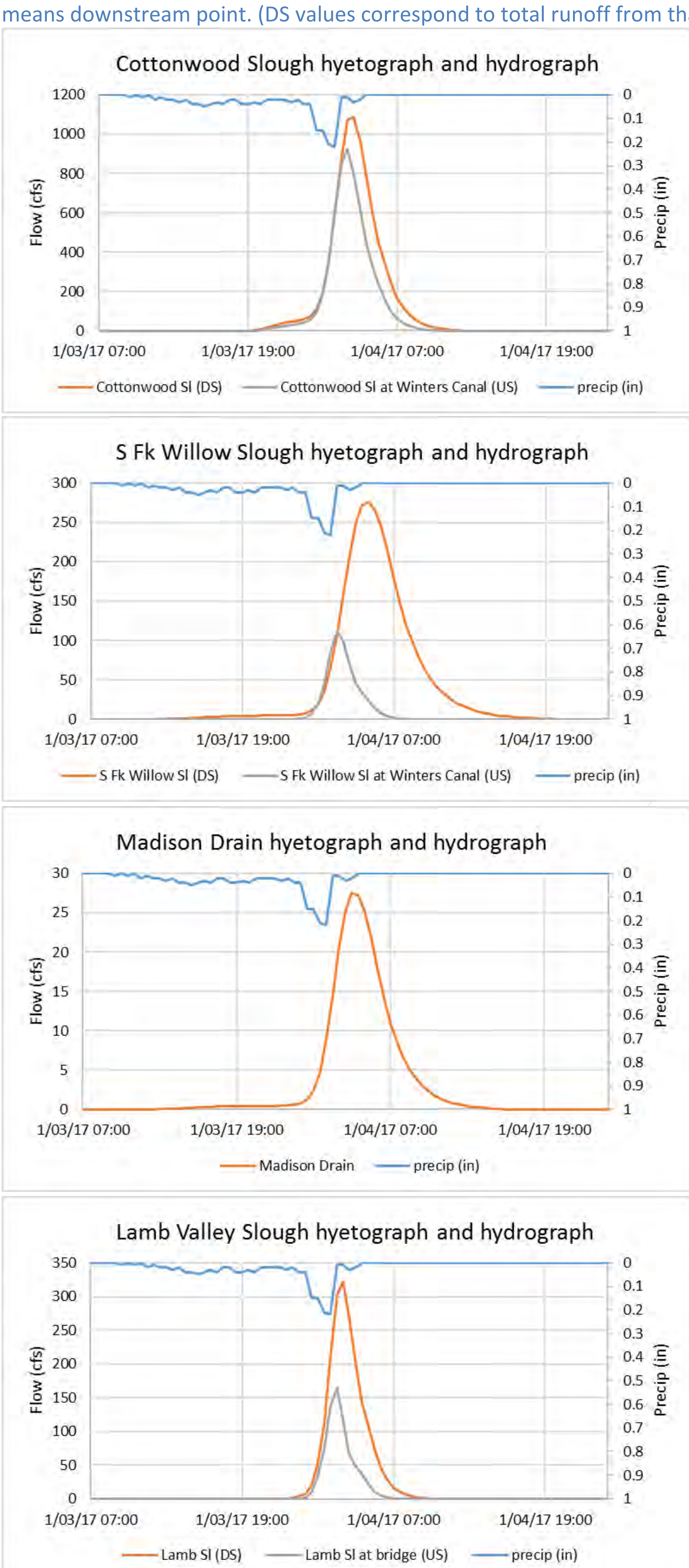
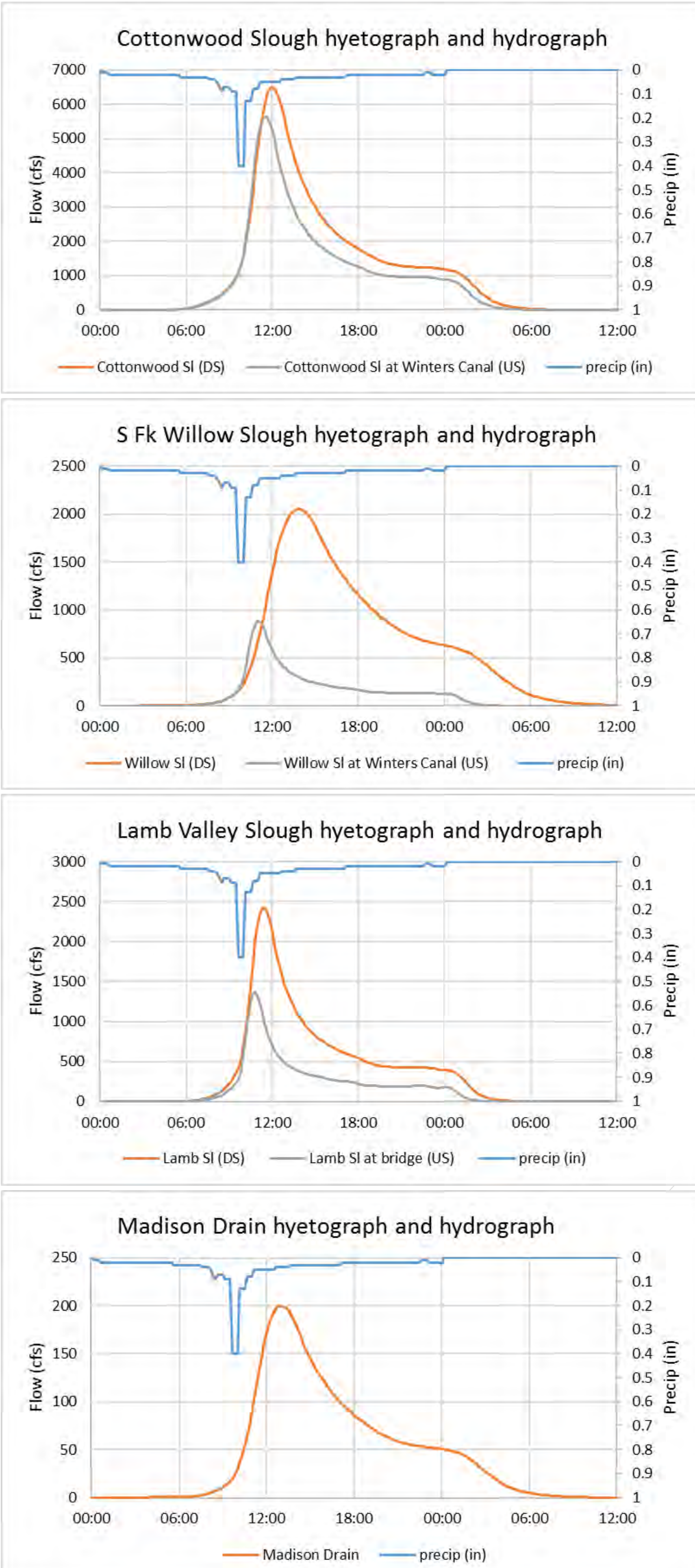


Figure 2.4. Runoff from drainage areas and their relative upstream watersheds for the 100-year, 24-hour design storm. US means upstream point and DS means downstream point. (DS values correspond to total runoff from that watershed)



It is difficult to determine if the modeled flows from either storm are reasonable because there are no flow measurements in any of the sloughs. We can compare our results to other models that have been developed in the area. These are mentioned in The Willow Slough Watershed Integrated Resources Management Plan (Jones & Stokes Associates, 1996):

"The accuracy of simulated peak flows is unknown because of the lack of gauged streamflow data to calibrate the model. A comparison of the results of different flood studies reveals the range in simulated flows that can result from different, but perhaps equally reasonable, assumptions for model input data. For example, Borcalli & Associates (1993) estimated a 10-year peak flow in Dry Slough at Road 95 of 1,400 cfs, whereas Yolo County Resource Conservation District et al. (1981) estimated that the 10-year peak flow for only a part of that drainage area (Chickahominy Slough at Road 89) is 3,190 cfs. Similarly, Nolte & Associates (1993) calculated a 100-year peak flow of 2,600 cfs in Chickahominy Slough near Winters Canal, which contrasts with the estimate of 4,580 cfs developed for this study."

While our estimates for the 100-year, 24-hour storm (approximately 2,000-6,500 cfs, Table 2.3), fall within the range mentioned above, we still do not know whether ours, or any of the other studies are accurate. Additionally, it is difficult to compare our models directly with others', as they were developed using different methods, estimated flow at different locations, and are disaggregated in different ways.

To get a better understanding of the behavior of these sloughs during storms, we visited them on three different occasions (see Chapter 6 for documentation of these trips). One visit (on January 9, 2018) occurred shortly after a storm similar to the January 2017 storm modeled here (total precipitation was about 3 inches over two days, with no rainfall in the weeks leading up to the storm which is similar to the antecedent conditions assumed in our model). We found no <u>flowing</u> water in any of the upstream points of the sloughs and while there was some pooled water, it did not appear as though there was significant water flowing previously. We did however, find flowing water in the downstream points, but found that this was due to water flowing out of the Winters Canal into the sloughs. It was later discovered that there was an operational malfunction at the head of the Winters Canal. The findings during the field visit would suggest that our model is over predicting flow in the sloughs, as there should not be any flowing water in a storm similar to the size of the January 2017 modeled storm.

<u>Recommendations and Conclusions</u>

1. Establishing flow monitoring stations

Despite several studies of flooding on one or more of the sloughs spanning now more than 30 years (Jones & Stokes Associates, 1996), these sloughs remain ungauged. Recommended sites for establishing new flow/flood monitoring stations are listed in Chapter 6, based on field visits.

2. Establishing a Citizen Science data collection program until a flow monitoring network can be installed.

Because substantial time may pass before a monitoring network can be installed, we recommend developing a Citizen Science data collection method in the meantime. The goal would be for individuals to note when and where flowing water is seen in the sloughs, just as was done during field visits for this study. This would provide a better understanding of which storms cause flooding and where (more information in Chapter 6).

3. Upstream mitigation methods

In addition to assessing sites for monitoring feasibility, we recommend that the upstream sites also be considered for management measures such as diversions (into the Winters canal), on or off-channel detention ponds, or check dams. Removing flows from the slough upstream would mean they are less full by the time they reach the valley floor and Madison. Because the majority of runoff within the Cottonwood Slough watershed results from the upstream area, diverting flows from this slough into Winters Canal or off-channel storage may provide the most benefits and the most flood relief downstream, of the three watersheds assessed here. Diverting flows from Lamb Valley Slough into Winters Canal or off-stream storage would also likely provide some benefits in flood relief to Esparto as well as Madison. Likely, a combination of mitigation efforts among the three sloughs is needed. Currently, diversions into the Winters Canal are not immediately feasible as the Canal flows over the sloughs at the crossings and a pump would be necessary. However, we suggest further consideration for infrastructure modifications or additions, and evaluation.

4. Investigate canal contributions to slough flows

While no water was found flowing in the upstream points of the sloughs on the January 9th 2018 field trip (see Chapter 6 for documentation of sites visited), flowing water was seen in downstream points of the sloughs. We also found water flowing in Winters canal, and some of this water was spilling into sloughs. It was discovered later that (i) some malfunction at the head of Winters canal allowed Cache Creek water at Capay dam to flow into Winters Canal, and (ii) that there appears to be a historical practice of keeping canal sluice gates at slough intersections open during the winter. As a result, during our field trip water from Winters Canal was contributing to flows in the sloughs. If canals have diverted water (from Cache Creek) in them during wetter periods, it could pose an added flooding risk to communities like Madison. District operations during and immediately after storms should be evaluated to determine whether any flexibility exists in canal-slough gate operations (see Chapter 6 for more information).

5. On-farm mitigation methods

Other mitigation methods such as capturing floodwater on farm fields for recharge should be considered. Forcing precipitation to infiltrate on the fields rather than runoff may result in smaller peak flows in the sloughs. This could be effective in reducing flooding caused by water from South Fork Willow Slough because the majority of its contributing area is agricultural and downstream of potential diversion locations. This could also reduce local flooding from surrounding fields. See Chapter 4 for a more detailed explanation of this recommendation.

Chapter 3. Storm water conveyance via canal operations for groundwater recharge

Executive Summary

As part of the quantitative analysis for the Yolo Storm Water Resources Plan (Yolo SWRP), we assessed the long term (35 year) groundwater recharge potential from diversions of Cache Creek winter flows into the Yolo County Flood Control and Water Conservation District's (District) unlined canal system. The assessment utilized The Cache Creek Model (Table 1.1). Using the 1976-2010 historical period as a baseline, the average net change in groundwater recharge from this strategy is estimated as 24,893 acre-feet (AF), varying widely across the years from a minimum of 266 AF to a maximum of 38.9 thousand AF (TAF). The benefits are constrained by canal capacities for diversions as well as the infiltration rates (about 150 cfs is assumed to infiltrate as water flows from the top of the canal to the bottom). Estimates appear to match the magnitudes of diversions actually implemented in the past two years. We recommend continued canal recharge diversions when applicable. We also recommend monitoring canal flows in the winter, which historically has not been done.

Introduction

In this chapter, we investigate the potential for augmenting winter groundwater recharge by diverting excess storm water flows from Cache Creek into the District's unlined canal system. Based on data from water releases and sales, canal leakage losses ranging from 18,000 acre feet (in 2009) to 64,000 acre feet (1989) have been estimated (Borcalli and Associates, 2000; YCFCWCD, 2012), most of which is considered to infiltrate into the aquifer. Wee leveraged past modeling work by SEI, which studied this management strategy along with other strategies.

Methods

This analysis was conducted with the previously developed Cache Creek Model (Table 1.1). In Mehta et al. (2013), the Cache Creek Model was applied to investigate the performance of the District under several scenarios and uncertainties. The uncertainties explored included climate and land use changes, and the shape of any policies that might emerge from the (then imminent) Sustainable Groundwater Management Act. Performance under 84 different future scenarios was assessed against three measures: financial viability of the District, water supply reliability to growers in Yolo County, and the groundwater level sustainability. While details of this analysis are in Mehta et al. (2013), Table 3.1 summarizes the strategies explored in that work, as some of them are relevant to the analysis conducted here. Figure 3.2 shows the spatial extent and scope of the Cache Creek Model.

Table 3.1 Summary of management strategies modeled in earlier work

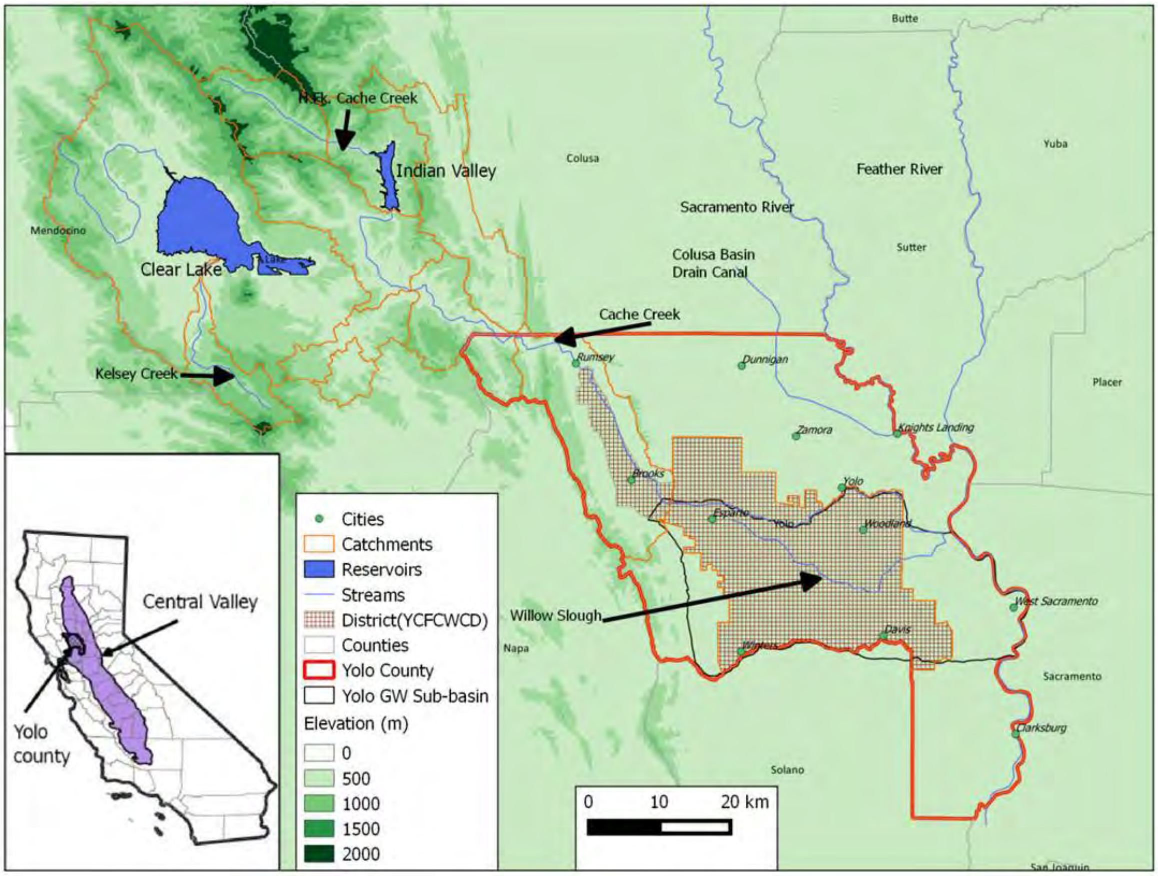
Index	Strategy	Description
1	Baseline	Current management into the future
2, 3, and 4	Groundwater infrastructure operated by the District	Add 2, 10 and 20 pumps that would respectively extract approximately 2,000, 10,000 and 20,000 AF/yr, supplied for summer irrigation. Capital costs of USD225,000 / pump. Loan payment at 1.7% interest over 15 years.
5	Canal recharge	Direct winter flows from Cache Creek (during Nov-Feb) into the canal network, recharging up to 150 cfs when Cache Creek flows are greater than 100 cfs. Use existing infrastructure.
6	Periphery pond storage	Build periphery storage of up to 20,000 AF in four ponds that will be filled in the winter and utilized in the summer. Some of the directed flows will percolate (up to 50 cfs), the rest (up to 80 cfs) will be available to fill the ponds in Nov-Feb. An investment of $20 million is estimated, financed at 1.7% interest over 15 years. Water supplied by this source priced at $100/AF
7	Combined strategy	Combine strategies 3, 5 and 6.

For the current Yolo SWRP study, two scenarios were run in the Cache Creek Model: the "baseline", representing historical conditions from Water Years (WY) 1976-2009 and "canal recharge", strategy 5 (Table 3.1). In the "canal recharge" strategy, during November through February, when Cache Creek flows are greater than 100 cfs, water is diverted into the canals up to 150 cfs.

Important assumptions

In this scenario it is assumed that all water that is diverted into the canals recharges groundwater. Estimates of losses (infiltration) to groundwater from various methods range from 0.3 cfs/mile to 13.4 cfs/mile (YCFCWCD, 2012). When multiplied by 166 miles of canal, canal-wide estimates of infiltration to groundwater range from a minimum of 49.8 cfs to a maximum of 2,224 cfs. We assumed an infiltration rate of 150 cfs over the entire canal system, which falls between these estimates. This means that if 150 cfs is released into the top of the canal, we assume all water will have infiltrated by the time it reaches the bottom of the canal system. These scenario assumptions were elicited in consultations with District management.

Figure 3.1 Modeled area of the Cache Creek model



Results and discussion

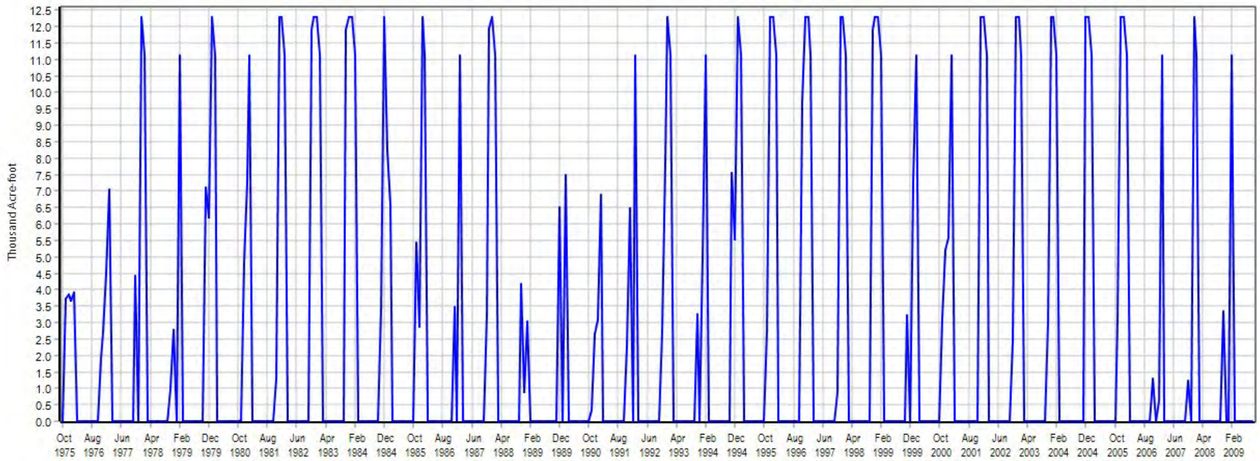
Diversions into the canals

Modeled diversions of Cache Creek storm water runoff into canals are compared against a baseline without winter diversions. Over the 35-year simulation period, the average annual volume of diversions equals 28.8 TAF, with a minimum of 8.1 TAF and a maximum of 47.6 TAF. Table 3.2 below lists the corresponding monthly average diversions over a 35-year simulation period. Figure 3.2 shows the 35-year monthly time series of diversions estimated by the model.

Table 3.2 Average monthly canal diversions in winter months, in TAF

Month	TAF
November	3.6
December	6.9
January	8.3
February	10.1

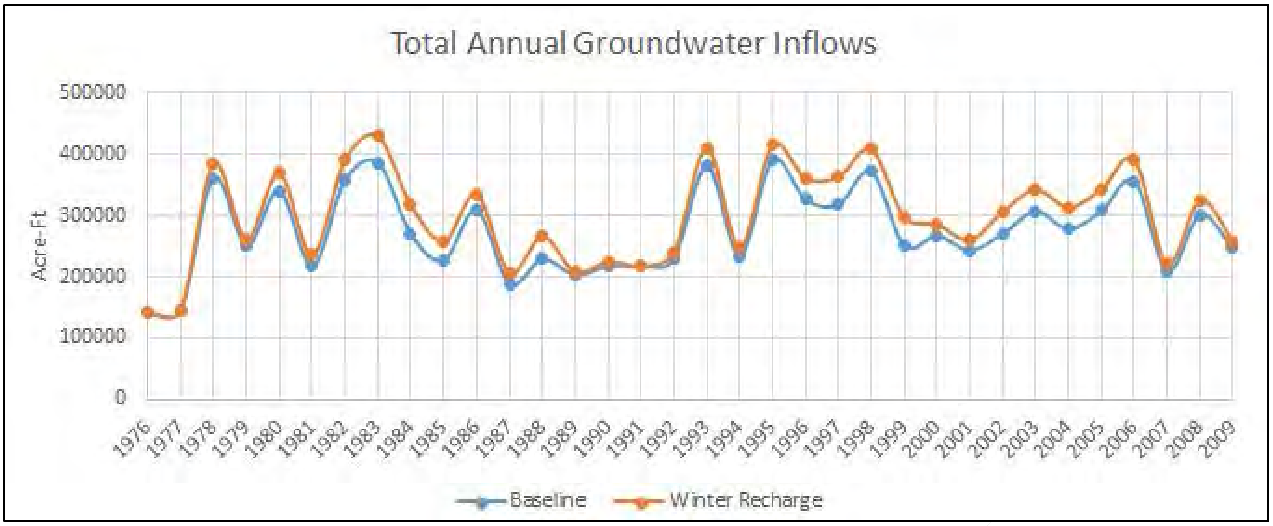
Figure 3.2 Modeled monthly diversions into YCFC canal system Water Year 1976:WY 2010, in TAF, under the ”winter recharge” scenario



We can compare our modeled diversions in the “canal recharge” scenario against some recent experience. In 2016 and 2017, the District applied for temporary permits from the State Water Resources Control Board (State Water Board) for diverting excess storm water into the canals for groundwater infiltration and underground storage. In 2016, diversions occurred between February 4 and April 15 and resulted in a total of 50 inconsecutive diversion days and total diversions of 11,128 acre-feet. In 2017, diversions occurred between March 16 and April 30 and resulted in a total of 41 inconsecutive diversion days and total diversions of 6,210 acre-feet (Kristin Sicke, personal communication, 1/12/2018).

Comparing actual diversions per day (223 AF/day in 2016 and 151 AF/day in 2017) to the average, maximum, and minimum modeled results (240 AF/day, 396 AF/day, and 68 AF/day, respectively) volumes actually diverted appear to correspond fairly well with the range of modeled results. The timing of the diversions in the model will need to be updated to reflect a later start and a later end, which is tied to and dependent on the State Water Board’s permitting process and the Dist. Although all the diverted water is assumed to recharge groundwater, these diversions could possibly reduce surface-to-groundwater flow in downstream, losing reaches of Cache Creek. The model captures this trade- off, which on average over the 35-year simulation period is about 4,000 AF. Therefore, the net change in groundwater recharge of the “canal recharge” scenario averages 24.4 TAF, with a minimum of 0.27 TAF and a maximum of 47.2 TAF. Figure 3.3 below shows the 30-year annual time series of groundwater inflows estimated by the model under both “baseline” and “canal recharge” scenarios.

Figure 3.3 Monthly potential recharge WY 1976:WY 2009, in TAF



Flood mitigation benefits

Only if flows above 100 cfs occur in Cache Creek, is the water up to 150 cfs diverted from Cache Creek at Capay Dam into the canals. Therefore, the potential flood mitigation benefits of reducing Cache Creek flows by 150 cfs occur downstream of Capay Dam, and are relevant only if Cache Creek over tops its banks downstream of Capay dam, and that spillage causes problematic flooding.

Historical flow records and flood frequency analysis inform us that Cache Creek's channel capacity downstream at and around Yolo is lower than upstream at, for example, Rumsey. According to a hydraulic analysis of Cache Creek between Road 94B and I-5 (near Yolo) from 2002, the "natural banks between Road 94B and Yolo begin to overtop between 36,000 to 38,000 cfs" (MBK Engineers, 2002). This flow is just around the 20-year return period for Cache Creek at Yolo, according to a flood frequency analysis presented in the 2017 Cache Creek Area Plan update (Tompkins et al., 2017). <u>The flooding in that region in March 1995 and February 1998 was the result of Cache Creek overtopping its banks</u> (MBK Engineers, 2002)**.** In the December 31, 2005 flood event, Cache Creek exceeded its flood stage of 81 feet at Yolo. In general, a threshold flow of concern has been identified for Cache Creek at about 20,000 cfs (Yolo County, 2006).

A possible exploration of the benefit of diverting 150 cfs of flow out of Cache Creek, would be to compare the corresponding water surface elevations i.e. for example, comparing the water surface elevations (and thereby extent of flooding) when flow at Yolo was 34,600 cfs (the peak recorded on Feb 3 1998), against 150 cfs less. This is left to a future effort, since water surface modeling was out of the scope of our effort, and the monthly WEAP model used in this chapter would not be useful for assessing peak *event* flows. Additionally, due to the key questions listed below, it is unlikely that during the largest storms that cause flooding from Cache Creek, canal diversions would be feasible. This is explained in further detail below.

Key Questions

1. Canal capacity

One of the questions conditioning the practicality of diverting winter Cache Creek flow at Capay Dam into the District's canals is whether the canals have enough capacity to carry the flows. There is a high probability that the canals may already be carrying water when Cache creek has really high flows (say, greater than 10,000 cfs in Cache Creek at Rumsey), from a variety of sources, including:

- Direct runoff from precipitation on canal reaches;
- agricultural field runoff
- planned, required, or inadvertent releases from Capay Dam into canals at headgates, for example as seen on January 9, 2018 during a field visit)

If the canals are carrying water during these higher flow periods in Cache Creek, would the canals be able to handle the additional inflows?

2. Permitting

That State Water Resources Control Board's (State Water Board) Division of Water Rights issues water rights permits and licenses as an authorization to develop a water diversion and use project. The District has existing appropriative water rights for diverting water from Cache Creek during the irrigation season; however, that right is specific to a certain time in the year and primarily for applying the water to an irrigation beneficial use. For the District to apply surface water to underground storage, or groundwater recharge, the District must apply for a separate water rights permit specific to diverting excess storm flows to groundwater recharge. The excess flows to groundwater recharge temporary permitting process is currently streamlined through the State Water Board's process and does not require California Environmental Quality Act (CEQA) procedures. However, the District must consult with the California Department of Water Resources and Department of Fish and Wildlife, the United States Bureau of Reclamation, and the Central Valley Regional Water Quality Control Board prior to receiving an approved permit from the State Water Board. Since the District has submitted applications over the past three years, the internal process has become streamlined, but typically takes six weeks to allow for District staff time and communication with state and federal agencies.

Under the existing temporary permit conditions, diversions are allowed from February 1 through April 31, 2018. Diversions at the Capay Diversion Dam can only occur if there is 50 cfs in Cache Creek at the Yolo gauge from February 1 through March 31, or 100 cfs in Cache Creek at the Yolo gauge during April. Future temporary permitting start dates will depend on the time the application is submitted, but the end date will always be April 30 because of the District's need to switch to the irrigation season.

Recommendations

1. Flow monitoring

Given the key question on canal and slough flows during storm events mentioned above, we recommend flow monitoring at the intersections of western Yolo sloughs with canals; canals with road intersections; and sloughs with road intersections. Recommended locations are listed in Chapter 6. Additionally, monitoring of the canal flows while winter flows are being diverted (at the inflow from Cache Creek to the outflows) could provide additional verification for our assumption – if the canals are not spilling over, or releasing water into the intersecting sloughs, we can affirm that all water that enters the canal infiltrates. Monitoring, along with more detailed hydraulic modeling that includes the infiltration capacity limitations in canal reaches, could provide even more insight.

2. Consider timing of winter diversions

The District has already successfully implemented canal recharge the past two winters. However, given the key questions above, it may be unlikely that diversions into the canal system could reasonably take place in peak flood events, for example, those approaching 20,000 cfs in Cache Creek at Rumsey. During large storms (10 year return period and larger) it is possible the canals are already full of water and adding more could cause an increased risk to flood prone areas downstream. Additionally, these large flows may happen before the permitting process begins. It is more likely that these diversions should take place for relatively smaller storm frequencies. This way, the groundwater recharge benefit could be obtained without increasing minor flooding risks in small western Yolo towns or country roadways. As the District continues to implement canal recharge when possible, the potential for canal spills into sloughs should be explicitly monitored.

Chapter 4. Rainfall capture on farm fields

Executive Summary

The potential recharge benefits resulting from capturing precipitation on selected farm fields during the winter in Yolo County for groundwater recharge were estimated using a WEAP model. Modeled estimates suggest implementing rainfall capture on all fields considered suitable by this analysis, could result in an average of 5,000 to 9,000 acre-feet of reduced storm water runoff from the county that would instead be recharging groundwater. Implementing this strategy would require growers to build temporary berms on their fields to prevent storm water runoff. Landowner participation would be a key determinant for implementation, as would site-specific detailed studies of soils, crops and groundwater depths. We suggest investigating growers' willingness to participate, and conducting pilot studies in the area southwest of Madison and Esparto, as this could contribute to flood mitigation benefits in these towns.

Methods

WEAP model development

For this analysis, we modified the Cache Creek Model to develop the Yolo Storm Water Model. In short, the modifications included dividing the county area into 38 catchments representing entities with water or land use management responsibilities and converting the catchments to a daily timestep. Explanation of these modifications and model re-calibration are outlined in Appendix B.

Scenario development and field selection

The fields included in this analysis were selected based on soil suitability and crop type. Determination of suitable soils and crops are based on O'Geen et al. (2015) and communication with experts. O'Geen et al. (2015) developed the Soil Agricultural Groundwater Banking Index (SAGBI), which categorizes soil suitability for groundwater banking across the state of California based on six soil criteria: deep percolation, root zone resistance time, chemical limitations, topographic limitations, and surface condition. The index results in a rating of 0 to 100, with 0 being the least suitable soil and 100 being the most. The authors categorized these ranks into five classifications: excellent, good, moderately good, moderately poor, poor, and very poor. The authors used existing soil surveys. They also assumed that all tree and vine cropland areas with a restrictive layer were modified by deep tillage (a common practice) thereby increasing drainage (O'Geen et al., 2015). The soils classification used in this analysis is this “modified” version and is shown in Figure 4.1a for Yolo County. Based on the spatial dataset (Figure 4.1a) and conversations with the authors[7], two groups of soil classifications were considered “suitable” in this study: 1) soils categorized as moderately good to excellent and 2) soils categorized as moderately poor to excellent.

As on-farm rainfall capture could result in pooled water, and extended periods of wet root zone conditions, crop tolerance to flooding is an important concern. Some perennial crops may be better able to tolerate flooding than others (O’Geen et al., 2015 Table 1) and if flooded, annual crop fields need to be dry in time for growers to prepare them for spring planting. Based on prevalent perennial crops in Yolo County, information from Table 1 in O’Geen et al. (2015) and communication with experts[8], the following crops were considered amenable for rainfall capture: alfalfa, almond and pistachio, other deciduous, pasture, tomato, and vine. Crop coverage in the model varies from year to year as described in Appendix B. To determine what area of each crop coverage within each catchment should be included in this analysis, SAGBI soil categories (Figure 4.1a) were intersected with the selected crop categories for the 2014 County Crops spatial data layer (Figure 4.1b, see Appendix B for details on how this layer was developed). We used the 2014 layer because it was the most recent spatial dataset available to us at the time, and reflected the recent conversion of annual crops to perennials seen in Yolo County. It should be noted however, that this was also a drought year and therefore crop coverage may reflect growers decisions to grow more drought tolerant crops.

Two scenarios for rainfall capture were developed:

- **Scenario 1**: Areas classified as moderately good, good, or excellent underlying the selected crops (Figure 4.2, black area)
- **Scenario 2**: Areas classified as moderately poor, moderately good, good or excellent underlying any of the selected crops (Figure 4.2, black and gray area)

From this, a percentage of the area of each crop within each catchment that should be included was calculated, and this percentage was applied to every year in the model. The overall percentage of each crop category area in the county where this was implemented is shown in Table 4.1. Because area of crop coverage changes each year in the model, the actual area

[7] In personal communication with Dr. Anthony O’Geen (Sept 20, 2017), Dr. O’Geen suggested that even moderately poor soils could be sufficient for groundwater banking for certain crops. In email communication with Dr. Helen Dahlke (Sept 21, 2017), Dr. Dahlke noted that in the field, success with recharge has only occurred on moderately good or better soils.

[8] In email communication with Dr. Helen Dahlke (Sept 21, 2017), Dr. Dahlke mentioned that other than alfalfa, almonds and grapes, there are no known other crops that would tolerate flooding. In personal communication with Anthony O’Geen (Sept 20, 2017), Dr. O’Geen mentioned that alfalfa should be considered for flooding, with restrictions on timing, and annuals should be considered with restrictions reflective of planting dates. Dr. O’Geen also mentioned grapes, prunes, plums, almonds, walnuts and peaches could be tolerant of flooding.

where this is implemented this year varies, but the percent of each cropped area remains the same. The areas that were included in one year are shown in Table 4.2 and Table 4.3 so that the scale of this analysis between the scenarios can be compared.

Figure 4.1 SAGBI categorization of Yolo County (a) and WEAP crop categorization of Yolo County from the 2014 County Crops dataset (b)

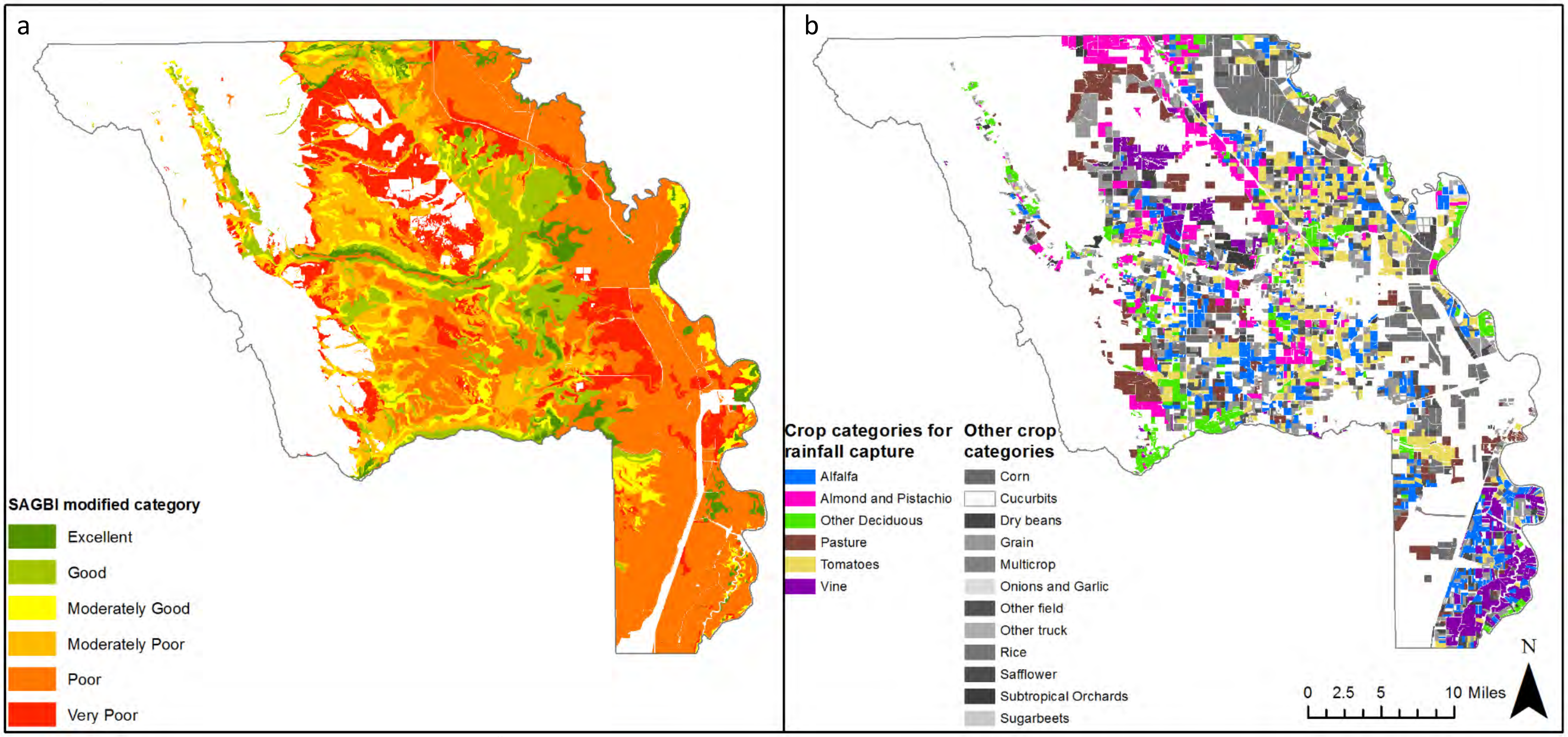


Figure 4.2 Fields where rainfall capture was modeled in this study.
Areas included in Scenario 1 are shown in black. Additional areas added in Scenario 2 are shown in gray. Madison and Esparto are shown in red and blue, respectively and a zoom-in of the surrounding area is shown in the box to the right.

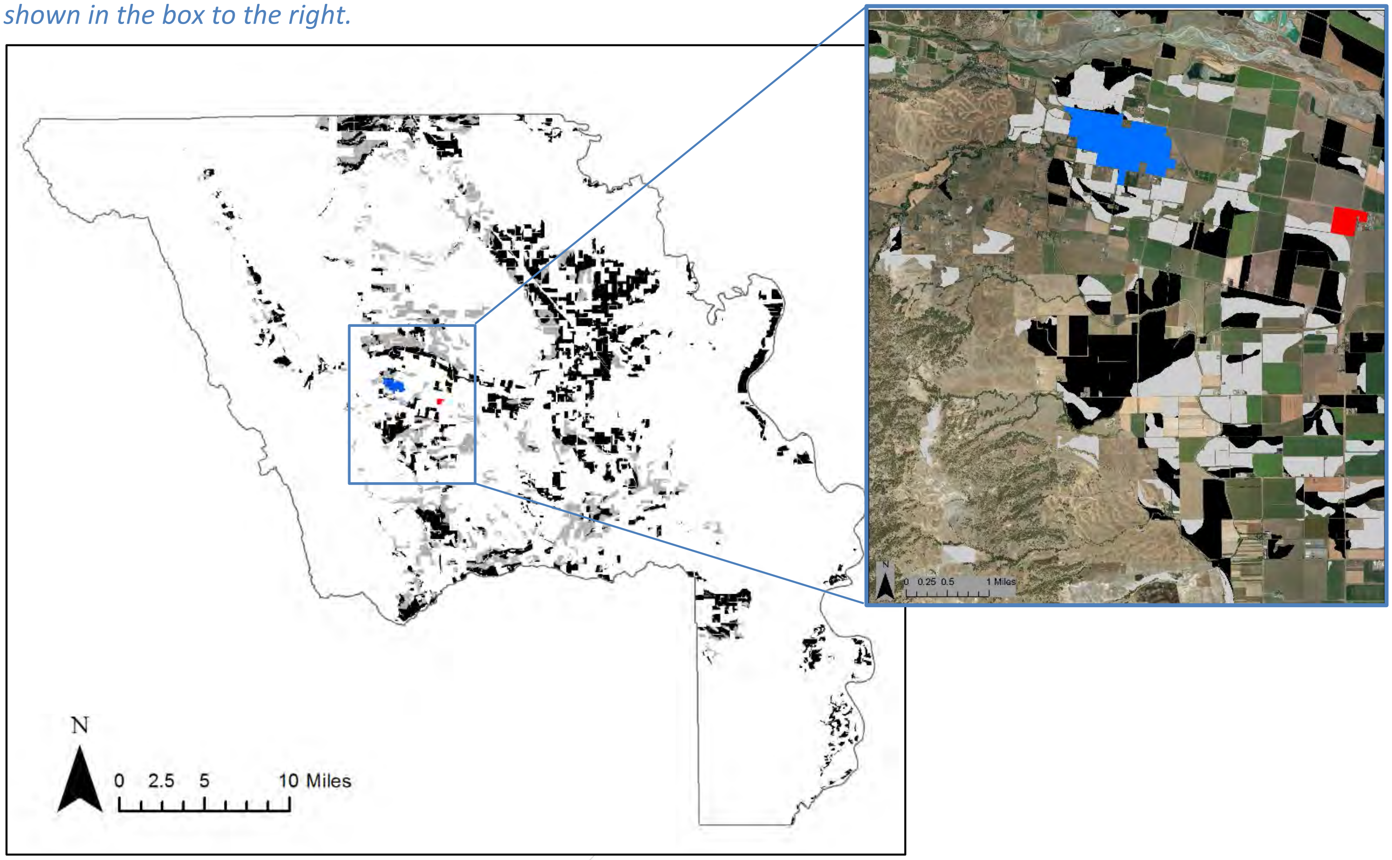


Table 4.1 Percent of county crop areas where rainfall capture was modeled.

Crop	**Percent of County Crop area to implement rainfall capture on**	
	Scenario 1	**Scenario 2**
Alfalfa	25	45
Almond and Pistachio	39	74
Other Deciduous	53	80
Pasture	9	21
Tomatoes	40	57
Vine	12	27

Table 4.2 Example areas of Yolo County where rainfall capture was modeled in Scenario 1, in acres.

WEAP Crop Category	SAGBI Soil category Excellent	Good	Moderately Good	Total
Alfalfa	932	4,276	3,515	8,723
Almond and Pistachio	1,241	5,186	4,053	10,479
Other Deciduous	2,113	3,940	3,607	9,659
Pasture	451	913	928	2,293
Tomatoes	2,345	8,413	4,808	15,566
Vine	1,192	193	947	2,332
Total	8,274	22,920	17,858	49,052
Total county irrigated area				290,716

Table 4.3 Example areas of Yolo County where rainfall capture was modeled in Scenario 2, in acres.

WEAP Crop Category	SAGBI Soil category Excellent	Good	Moderately Good	Moderately Poor	Total
Alfalfa	932	4,276	3,515	7,246	15,970
Almond and Pistachio	1,241	5,186	4,053	9,242	19,721
Other Deciduous	2,113	3,940	3,607	4,912	14,571
Pasture	451	913	928	3,133	5,426
Tomatoes	2,345	8,413	4,808	6,697	22,263
Vine	1,192	193	947	3,013	5,345
Total	8,274	22,920	17,858	34,244	83,296
Total county irrigated area					290,716

Major assumptions

The time when rainfall capture was allowed on fields in the model is based on the crop coverage of the area and shown in Table 4.4. From November to mid-March, alfalfa is not actively growing, and therefore the period when rainfall capture is allowed is restricted to November 15 to March 15.[9] The same assumption was made for pasture. Almond/pistachio orchards are only allowed to hold rainwater until mid-January because almond trees begin to bud and emerge from dormancy in late January to early February.[10] The same assumption was made for the other perennial crop: deciduous trees and vines to be conservative.

The timing of rainfall capture on tomato fields was determined based on expert opinion on tomato planting dates. [11] Recent practices have shifted to planting transplants rather than seeds, which can occur between mid-March and as late as early June. Earliest harvest can occur in early July, with some extending into mid-October. Although not all growers will plant and harvest at the same time, to be conservative, we allowed rainfall capture on tomato fields to begin in mid-November (when rains typically begin) until mid-February (Table 4.4).

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[9] Personal communication with Anthony O'Geen, and student Sept 20, 2017
[10] http://thealmonddoctor.com/2009/06/22/the-seasonal-patterns-of-almond-production/
[11] Personal communication with Gene Miyao, Nov 7, 2017.

Table 4.4 Periods when rainfall capture is allowed on fields in the model, per crop

Crop category	Period when rainfall capture is allowed
Alfalfa	Nov 15-Mar 15
Almond and pistachio	Nov 15-Jan 15
Pasture	Nov 15-Mar 15
Other deciduous trees	Nov 15-Jan 15
Tomato	Nov 15-Feb 15
Vine	Nov 15-Jan 15

In both scenarios, for fields selected for rainfall capture, it was assumed that an approximate 8-inch berm was built around the field. This is the same height of the berms built around rice fields, so it was assumed reasonable for growers to implement. For each field, the maximum percolation rate, which determines the rate at which the water leaves the bottom of the root zone and contributes to groundwater was assumed to be 2.5 inches per day, as observed by Bachand et al. (2014) in a field study with similar soil.

Results and Discussion

The water balance of the catchments is presented in Table 4.5. This is the sum of water flowing into all catchments that contain fields shown in Figure 4.2 (precipitation and irrigation); and the outflows to the atmosphere (transpiration and evaporation), the neighboring surface water bodies (surface runoff) and the underlying groundwater basins (flow to groundwater). Implementing rainfall capture in Scenario 1 results in, on average, 5,000 acre-feet less of runoff into surface water bodies, and that 5,000 acre-feet is instead recharged (Table 4.5). Scenario 2 results in 9,000 acre-feet less runoff and more groundwater recharge (Table 4.5).

The benefits do, however, vary from year to year. The years when the runoff and groundwater recharge are impacted the most are wet years, therefore this is most effective in years with high precipitation and may need to be combined with other methods, such as canal recharge of storm water runoff to augment groundwater recharge in dry years (Figure 4.4). These estimated volumes from rainfall capture are similar in magnitude to the canal recharge volumes reported earlier (6,000 – 11,000 acre-feet in recharge, see Chapter 3 for details). This suggests that if this strategy were implemented on the ground in conjunction with canal recharge, the groundwater recharge and supply reliability benefits could be approximately doubled. Or, that this could be a good replacement for canal recharge in years that are too wet to implement that strategy due to the concerns stated in Chapter 3. This is referring to county-wide overall benefits, as the groundwater recharge resulting from this strategy would occur in a different location from canal recharge.

Figure 4.5 suggests that daily runoff can be effectively reduced with this method. This may be especially pertinent to Madison and Esparto. There is a large area of fields that was deemed potentially suitable by our methodology southwest of Madison and Esparto (Figure 4.2), (see Chapter 2 for a detailed explanation of flooding issues in these areas).

Model results do not predict any standing water on the fields. This may be because of the high percolation rate used, 2.5 inches per day, based on a study of on-farm flood capture in the King's River basin (Bachand et al., 2014). Because the rate is so high, the root zone never becomes fully saturated and therefore water never pooled on the surface. It is straightforward to run the model with more appropriate percolation rates, as needed.

Table 4.5 Average of Annual water balance for each scenario, and the difference between them, rounded to the nreaest thousand acre foot. The difference is also shown in Figure 4.3.

	Baseline	Scenario 1	Δ Scenario 1 and Baseline	Scenario 2	Δ Scenario 2 and Baseline
Evaporation	-357	-357	0	-357	0
Flow to GW	-580	-585	5	-589	9
Irrigation	962	960	-2	961	-1
Precipitation	1,171	1,171	0	1,171	0
Surface Runoff	-190	-185	-5	-181	-9
Transpiration	-1,013	-1,012	-1	-1,012	-1

Figure 4.3 Difference between average annual water budget for the two scenairos, in acre feet

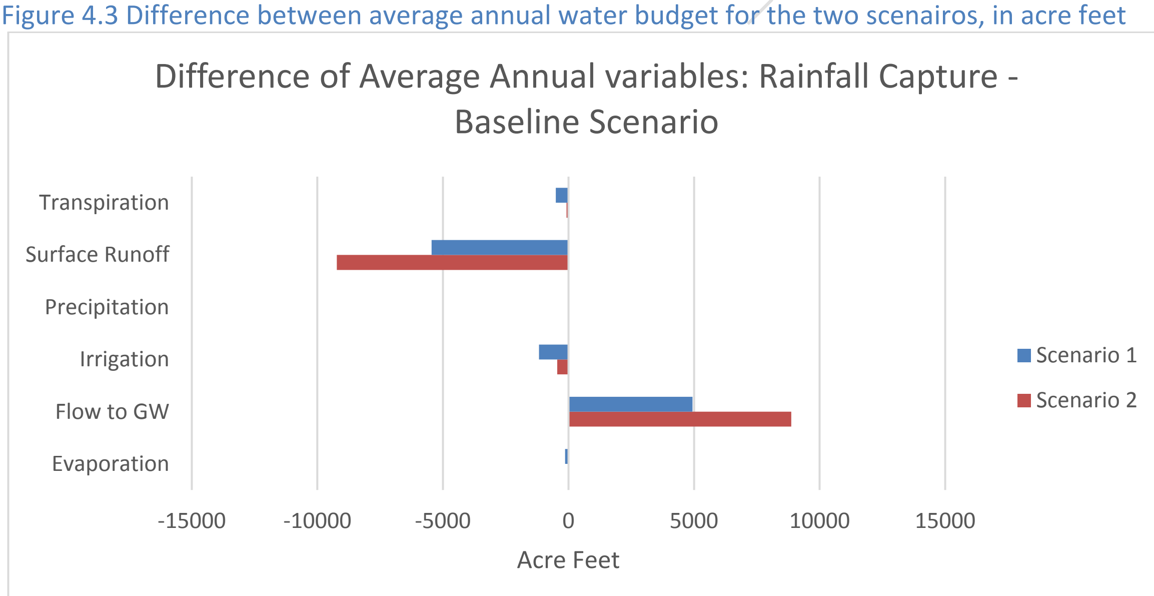


Figure 4.4 Difference of annual surface runoff and flow to groundwater between the rainfall capture and baseline scenarios.

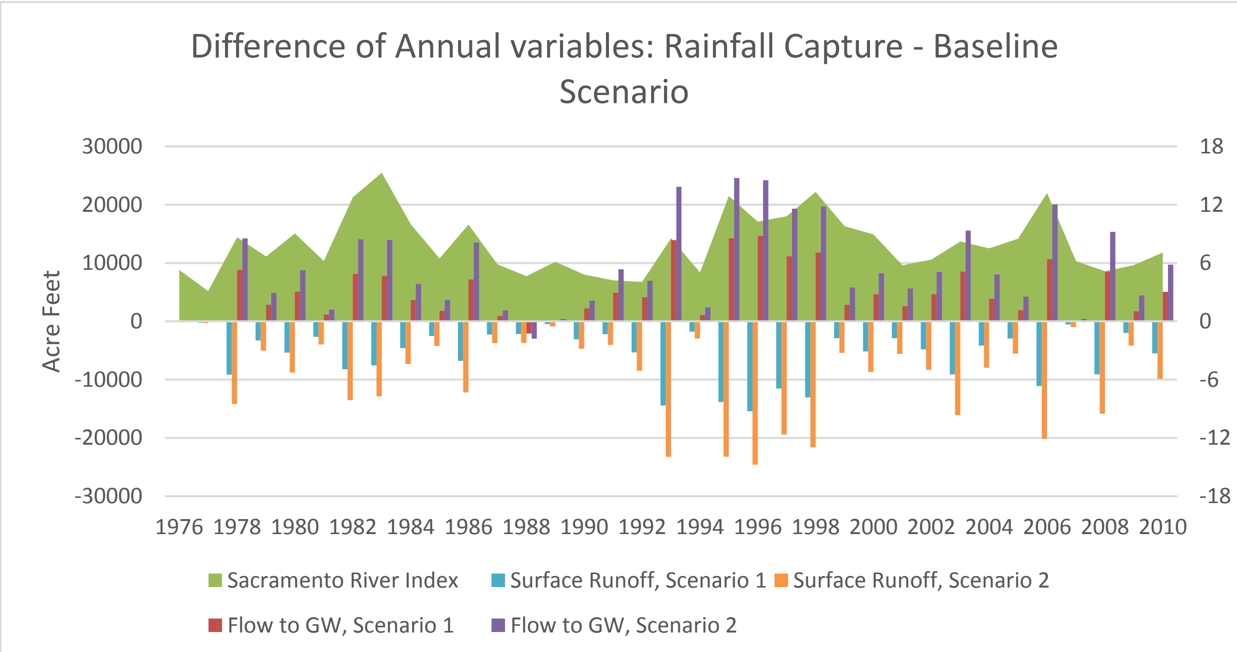
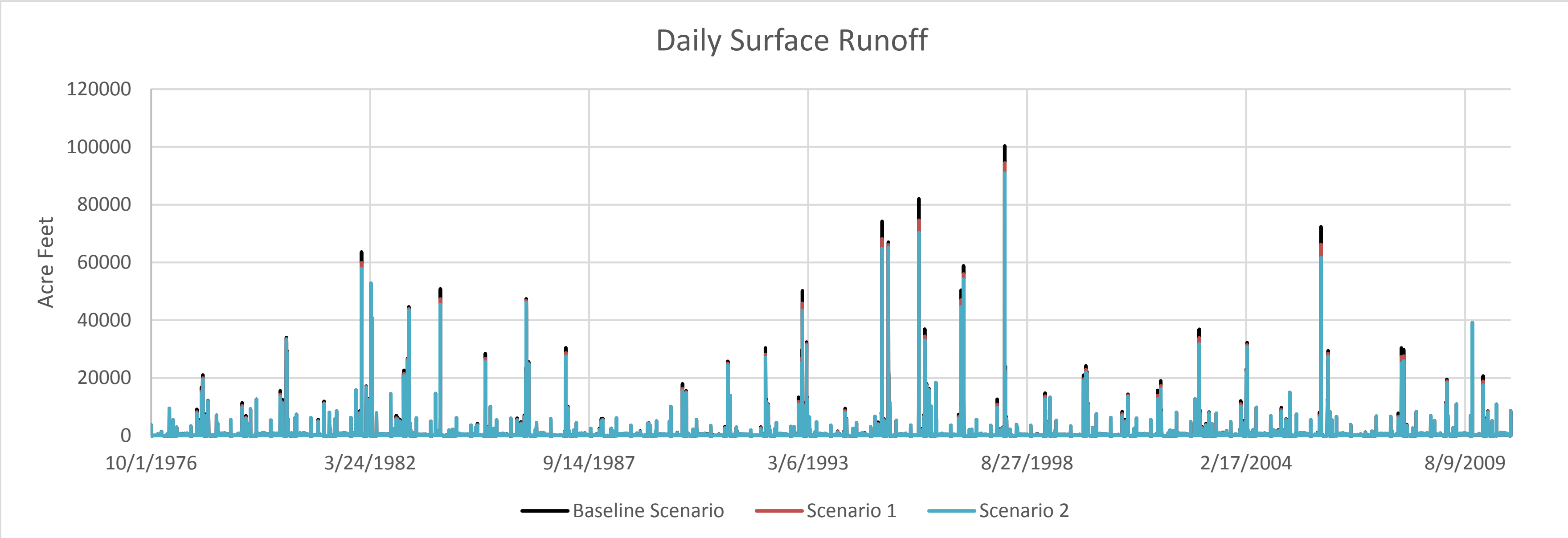


Figure 4.5 Daily runoff from managed catchments, with and without rainfall capture



Limitations and Risks

One of the major determinants to implementing on-farm rainfall capture is growers' willingness to participate. Grower hesitation can arise from many concerns, including perceived or actual risk to their crops, costs and other inconvenience of modifying their property, and allowing time for the field to drain and dry. There is inherent risk in allowing pooled water on fields of any crop, and there is still not sufficient information to definitively say one site is fitting and another is not. Infiltration rates vary across the county, and often diverge from those listed in soil surveys. Field experimentation on effects and results of flooding different soils and different crops are still underway[12] (these are slightly different strategies than what is proposed here, but with potentially similar impacts to crops); the impacts to overall crop health are still relatively uncertain. Building a berm may be inconvenient. Additionally, impacts to drip irrigation lines that could get submerged in pooled water in the fields should be considered. Because of these considerations, the area included in the two scenarios here is likely an overestimation of the area that could be included in implementation.

Suitable fields may be further limited by characteristics not assessed in this analysis. The water quality implications of this strategy may limit the extent of potential implementation. Nitrogen and other potentially harmful contaminants in the vadose zone can be pushed into the aquifer if ponding were to occur. We also did not assess depth to groundwater as a part of this analysis; some areas we considered suitable may have groundwater tables that are too shallow for implementing on-farm rainfall capture.

Recommendations and Conclusions

1. Investigate growers' willingness to participate

Based on conversations with the District[13], growers within their service area may be more likely to participate in a management strategy such as this if asked by the District because of the long standing good relations and trust they have with the District. We suggest this be a place to start these conversations. Additionally, as shown in Figure 4.2, many fields southwest of Madison and Esparto were considered suitable for rainfall capture based on our criteria. This may be a potentially viable solution for localized flooding in these areas (see Chapter 2 for a detailed explanation of flooding issues in these areas). Even more specifically, these landowners should be prioritized initially to gauge willingness to participate.

[12] Email communication with Dr. Helen Dahlke (Sept 21, 2017)
[13] Personal communication with Kristin Sicke, District Assistant General Manager, December 20, 2017.

2. Better understand groundwater considerations not assessed here

We imagine that on-farm rainfall capture could pose fewer risks to groundwater quality than other groundwater recharge options such as actively flooding fields (e.g. in the Kings river study) because ponding at the surface (and subsequent downward flushing of nutrients and pesticides) will be less frequent (see Chapter 5 for more information about other on-farm management options). This strategy would rather result in surface water quality benefits by reducing runoff from fields which may carry contaminants to surface water bodies. It seems likely that the benefits to reducing contamination in surface water might be greater than the risks to groundwater. However, the risks to groundwater contamination by nutrients and pesticides should be better understood.

As mentioned earlier, the fields selected here should likely be further narrowed down by an assessment of groundwater depth, where fields with high groundwater tables should be removed from consideration.

3. Better estimate infiltration rates

One major assumption in our modelling efforts was the percolation rate. The high rate we used prevented water from pooling on the surface in the model, suggesting that the risks presented by pooling would not be an issue. This is unlikely to be valid everywhere on the landscape and should be further investigated on-site.

4. Implement a pilot project

On-farm flood flow capture and groundwater recharge management studies are already underway in California and in Yolo County (Bachand et al., 2014; Dahlke et al., 2018a). We suggest implementing a pilot project, which incorporates the above three recommendations. We recommend choosing suitable fields in the area southwest of Madison (Figure 4.2). Alfalfa fields seem promising candidates from recent studies, both from crop impact and groundwater quality risk perspectives (Dahlke et al., 2018b). In parallel, an outreach effort can be made to find willing landowners. A collaboration between the District, willing landowners and UC Davis researchers could help facilitate the implementation.

Chapter 5. Additional on-farm storm water management

In this chapter, we discuss other on-farm strategies for combining flood mitigation with groundwater recharge benefits in the winter. This discussion is based on literature review and expert interviews; we did not develop model-based quantitative benefits.

The first option is building berms around fields (like what is discussed for on-farm rainfall-capture in Chapter 4) and flooding the fields to a ponded depth with surface water. The same concerns mentioned in Chapter 4, namely, selecting areas of suitable soil and crop type and determining suitable timing for allowing flooding, exist for this option as well as some additional concerns and limitations.

Two challenges facing the implementation of this type of farm flooding are infrastructure and growers' willingness to participate. Substantial infrastructure may need to be developed to deliver water to all fields deemed suitable for applying flood flows, unless the existing canal infrastructure is deployed. Additionally, annual temporary permits, as was needed by the District to conduct canal recharge (Chapter 3) would be needed and therefore could narrow the window of time when this could occur. In 2016 and 2017 when the District did release storm water into their canals for recharge, they did not apply any excess storm flows to farm fields. However, as recently as February 2018, conversations between District managers and growers about applying storm water for irrigation did take place (Kristin Sicke, personal communication 2/20/2018.)

Because this strategy involves ponded water, the risks to growers and their crops may be more than that from simply retaining rainfall as described in the previous chapter. It has been suggested that growers' willingness to participate and the timing of their seasonal operations may be the biggest limiting factor to implementing something like this.[14] Additional risks include the potential impacts to soils e.g. bulk density or erosion, the spread of soil borne diseases and weeds from one area to another.[15] However, it is important to note that some growers are already doing this, specifically in fields in the Yolo Bypass. In this area, some tomato fields are part of an annual crop rotation with rice and other crops that are flooded for wildlife habitat in the winter.[16] This may suggest that in this area, the impacts of flooding do not impede tomato growth, but more should be learned from this particular community of growers.

[14] Personal communication with Anthony O'Geen, Sept 20, 2017: Determining where to flood is highly dependent on who is willing to have their fields flooded.
Personal communication with Gene Miyao, Nov 7, 2017: Many tomato farmers think that flooding is generally a good idea for groundwater recharge but are not necessarily interested in allowing it to happen on their fields
[15] Personal communication with Gene Miyao, Nov 7, 2017.
[16] Ibid.

As for timing, not all storms may be well suited for this practice, particularly those later in the season when the ground is already saturated and fields may already have ponded water.

At the same time, if growers with relatively dry fields remove water from canals and sloughs, this may alleviate overflowing of canals and sloughs in known problem areas (See Chapter 6).

The window where permits to divert surface water are available to the District, is later in the season: February to April, which poses additional challenges to ensuring fields are dry for planting. Planting dates can vary from year to year, with warmer drier winters forcing growers to plant earlier than cooler wetter winters.[17] While the risks and uncertainties of this practice are greater than rainfall capture, the potential benefits to groundwater recharge and water supply reliability are likely much greater.

The concerns for impact to groundwater quality, where nutrients and contaminants accumulated in the soil would be forced into the aquifer by the flooded field is likely greater with this option than with rainfall capture or winter irrigation (winter irrigation is explained in the next graph). The Central Valley Regional Water Quality Control Board has had concerns over water quality issues with applying storm flows to farm fields: conditions have been included in the temporary permit to ensure that farmers are participating in the Yolo County Farm Bureau's Irrigated Lands Regulatory Program.[18]

The second option, which may be more appealing to growers than on-farm flooding, is winter irrigation. This involves using the existing infrastructure to irrigate fields in the winter with surface water, with the main goal of recharging groundwater as opposed to irrigating crops. In the winter, because evapotranspiration is low, most of the irrigated water would contribute to groundwater recharge. This could also be implemented on fallowed fields. For this option, temporary permits to use surface water in the winter months would likely be needed but the risks to crops and equipment of ponded water do not exist, as growers could control the amount or frequency of irrigation. This would likely be a good strategy in winters when there are intermittent rainstorms throughout the season, and fields are not already entirely saturated.

Field studies are already underway, improving our understanding of the risks and opportunities (Bachand et al., 2014; Dahlke et al., 2018a). There is good potential that other on-farm studies could be conducted in Yolo County, similar to the one conducted by (Dahlke et al., 2018a) in Yolo County.

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[17] Personal communication with Kristin Sicke, Yolo County Flood Control and Water Conservation District, 21 February, 2018.
[18] Contribution from Kristin Sicke, Yolo County Flood Control and Water Conservation District, 8 February, 2018.

Chapter 6. Flow monitoring network and slough maintenance

Executive Summary

This chapter compiles recommended locations for establishing new flow/flood monitoring stations, and focusing slough maintenance efforts, based on previous chapters' findings and the observations from three field trips. The observations also led to some recommendations beyond monitoring.

Documentation of potential monitoring sites

Three field trips were conducted through the course of the project, motivated by the regular flooding in Madison, and our investigation into western Yolo sloughs, described in Chapter 2. Locations visited on these trips (4/13/2017, 11/16/2017, 1/9/2018) are mapped here: https://goo.gl/maps/3XviRKyeeJH2, and shown in Figure 6.1. Table 6.1 below summarizes the locations and observations from these trips. Field visits and observations led to our recommendations for added and improved monitoring throughout the area. Note that the GPS locations correspond to where the pictures were taken. Photographs from these sites are provided in the pages that follow this table.

Figure 6.1 Map of locations visited throughout three field trips, shown by blue markers

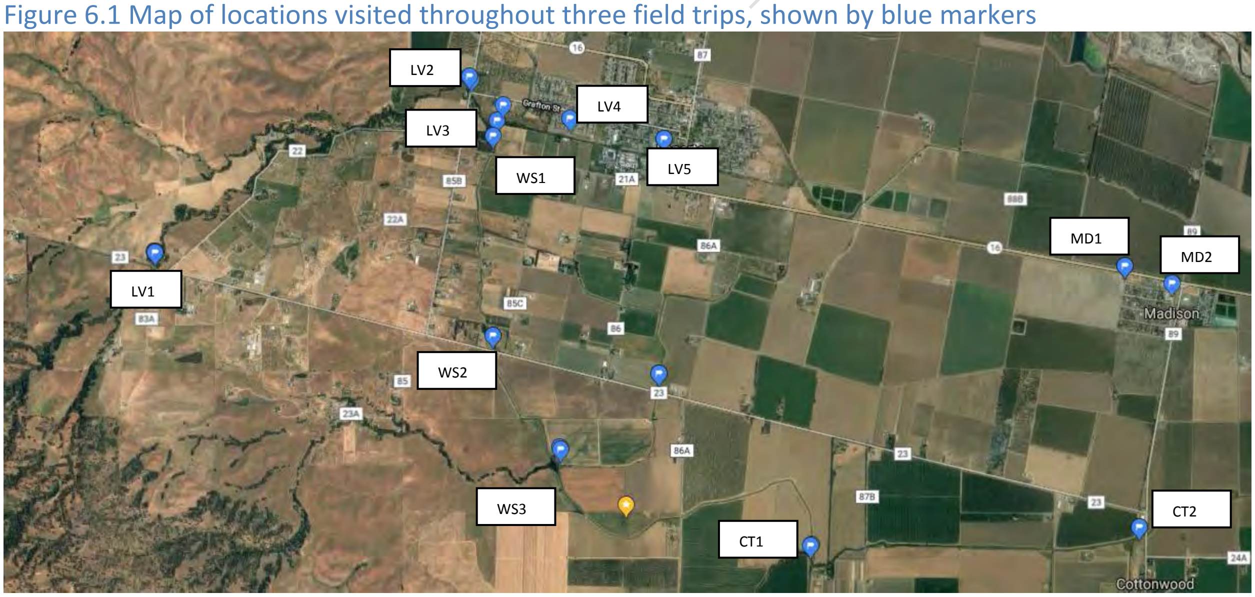


Table 6.1 Summary of locations visited

Location	Accessed	Latitude	Longitude	Dates Visited	Other Observations	Pictures	Recommend
LV1. Lamb Valley Sl at Rd 23 Bridge	By road	38.682785	-122.069251	4/13/2017 11/16/2017 1/9/2018	Trash barrier fence is present under the bridge No flowing water on all 3 visits Standing pools on last 2 visits	*LV1a_20171116_141530.jpg LV1b_20171116_141530.jpg LV1c_20170413_.jpg*	Flow monitoring. Channel is open and conducive for gauge at/near bridge
LV2. Lamb Valley Sl at 85B near Esparto	By road	38.696418	-122.038182	11/16/2017 1/9/2018	No flowing water	*LV2a_20171116_143714.jpg LV2b_20180109_143445.jpg*	Flow monitoring. Probably in downstream section, or at bridge.
LV3. Lamb Valley Sl at Winters Canal	0.21 miles off road	38.694135	-122.034960	11/16/2017	No flowing water A broken weir downstream Canal Camera may be able to capture slough	*LV3a_WintersCanal_IMG_20171116_145406.jpg LVSb_WintersCanal_IMG_20171116_145309.jpg*	Keep existing canal flow gage switched on; Monitor flow in slough. Canal releases impact points LV4 and LV5 below. Recommended not spilling into the slough during storms.
LV4. Lamb Valley Slough in Esparto near storm water detention pond	By road. Access from ponds by gate. Overgrown channel.	38.693089	-122.028259	1/9/2018	Observed flowing water. The flow here is result of 3 potential sources: upstream in Lamb Valley Slough (LV1-2), Winters Canal (LV3) and adjacent detention ponds. This contributes to flooding at LV5.	LV4_20180109_145114.jpg	Flow monitoring may be possible if channel and access were cleared.
LV5. Lamb Valley Sl in Esparto at Plainfield St Bridge/culvert	By road	38.691540	-122.018967	1/9/2018	Flowing water, probably spilling from Winters canal, & small drip from Esparto detention pond	LV5a_20180109_143425.jpg LV5b_20180109_143445.jpg	Channel may need deepening. Flow overtops at this point fairly regularly. Upstream flows could be regulated better through coordinated canal spills/no-spills.
WS1. Winters canal Rd 21 A near Rd 85B	By road	38.691662	-122.036026	11/16/2017 1/9/2018	Ponded (Not flowing water) on 11/16/2017 Flowing water on 1/9/2018	*WS1_WintersCanalRd21A_20180109_131420.jpg*	Keep existing canal flow station switched on.
WS2. Winters Canal Rd 23 near Rd 85C	By road	38.676262	-122.035858	1/9/2018	Flowing water	*WS2_WintersCanal_Rd23_85C_20180109_125417.jpg*	
WS3. S Fk Willow Sl at Winters Canal	0.75 miles off road	38.667606	-122.029369	11/16/2017	Distance between canal and slough top of water: ~5ft, bottom of slough: ~7ft Canal Camera may be able to capture slough	*WS3a_WIntersCanal_Int_SFk_WIllowSl_20171116_152414.jpg WS3b_20171116_152638.jpg*	Keep existing canal flow station switched on; Monitor flow in slough. Channel appears conducive to monitoring.

Location	Accessed	Latitude	Longitude	Dates Visited	Other Observations	Pictures	Recommend
WS4. S Fk Willow Sl at Rd 23	By road	38.673233	-122.019608	1/9/2018	Flowing water, probably spilling from Winters canal	*WS4a_SFlWillowSl_Rd23.jpg* *WS4b_SFlWillowSl_Rd23_20180109_124448.jpg*	
CT1. Cottonwood Sl at Winters Canal	0.75 miles off road	38.659988	-122.004253	11/16/2017	No flowing water. Heavily vegetated. Canal camera cannot spot slough.	*CT1a_SL_NR_WINTERSCANAL_20171116_155147.jpg* *CT1b_WINTERSCANAL_NR_CTN_SL_20171116_155729.jpg*	Keep existing canal flow station switched on; Monitor flow in slough.
CT2. Cottonwood Sl at Rd 89	By road	38.661362	-121.971626	1/9/2018	Flowing water, probably spilling from Winters canal	CT2a_SL_AT_RD89_20180109_124436.jpg CT2b_SL_ATRD89_20180109_123813.jpg	
MD1. Madison Drain at rock wall	By road	38.681817	-121.972956	4/13/2017 11/16/2017 1/9/2018	Channel clear, banks overgrown, water flowing (4/13/2017) Heavily overgrown (11/16/2017) Channel and banks Cleared and flowing water (1/9/2018)	MD1_20170413.jpg MD2_20171116_135100.jpg MD3_20180109_121116.jpg	Keep channel clear
MD2. Madison Drain at Rd 89	By road			1/9/2018	Flowing water, Channel clear but silted up	MD4_20180109_122437.jpg	Water overtops road here quite regularly. Keep channel clear; remove silt
WA1. West Adams Canal near Capay bridge	By road	38.711582	-122.047264	1/9/2018	Flowing water	WestAdamsCanal_20180109_133224.png	-

Plate 6-1 Madison Drain. From left to right: April 13, 2017; November 16, 2017; January 9, 2018. This is Location MD1 in Table 6.1.

Plate 6-2 Madison Drain at Rd 89 on January 9,2018. This location is MD2 in Table 6.1.

Plate 6-3 Lamb Valley Slough on Rd 23 Bridge. From left to right: Downstream reach from bridge (Nov 16, 2017); Upstream reach from bridge (Nov 16, 2017);From the bridge (April 13, 2017). This is location LV1 in Table 6.1.

Plate 6-4 Lamb Valley Slough at Rd 85B on November 16,2017. This is location LV2 in Table 6.1

Plate 6-5 Lamb Valley Slough at intersection with Winters Canal. Location LV 3 in Table 6.1. Top: on top of canal crossing the slough. Bottom: downstream view of slough from canal. Notice an old weir. Both photos are from November 16, 2017.

Plate 6-6 Lamb Valley Slough in Esparto. From left to right: Lamb Valley Slough near Esparto storm water ponds (location LV4 in Table 6.1); center and right:Lamb Valley slough at Plainfield St in Esparto (location LV5). All [photos are from January 9, 2018.

Plate 6-8 Winters Canal at Rd21 A and Rd23 op: Winters canal at Rd 21A (location WS1 in Table 6.1); bottom: at Rd 23 and 85C (location WS2 in Table 6.1). Both photos are from November 16,2017.

Plate 6-9 Intersction of Winters Canal and South Fork Willow Slough. This corresponds to location WS3 in Table 6.1. Both photos are from November 16, 2017.

Plate 6-10 South Fork WIllow Slough at Rd 23. This is location WS4 in Table 6.1. Both photos were taken November 16, 2017.

Plate 6-11 Cottonwood Slough near Winters Canal. Left: Cottonwood slough where Winters canal crosses it; Right Winters canal gate and telemetry close by (location CT1 in Table 6.1). Both photos were taken November 16, 2017.

Plate 6-12 Cottonwood Slough at Rd 89. This is location CT2 in Table 6.1. Both photos were taken January 9, 2018.

Plate 6-13 West Adams canal near Capay bridge on January 9, 2018. This is location WA1 in Table 6.1

Recommendations

Based on the previous chapters and field trips throughout Yolo County, we suggest improving the flow monitoring and slough network in five ways.

1. Switch on and monitor the *existing District* canal flow monitoring network during the winter, when it is usually dormant. A practice of doing this in tandem with forecast monitoring, as well as during actual storm events, is advised (LV3, WS1, WS3, CT1, Figure 6.1, Table 6.1).

2. Add new flow monitoring locations, likely in the form of a stage monitor due to the dynamic dimensions and obstructions and debris in sloughs, focusing on western Yolo sloughs: Lamb Valley, Cottonwood, and South Fork Willow Sloughs. Establishing new flow networks upstream as well as close to canal and road intersections in the valley floor will help close a major knowledge gap that is documented in every hydraulic monitoring study reviewed by us, since at least 1995 (LV1, LV2, LV3, WS3, CT1, Figure 6.1, Table 6.1).

3. Add an additional gauge for flow monitoring at Capay Diversion Dam. Although this site was not visited throughout this project, it is assumed that adding this knowledge will assist in informing where flows in the Winters Canal originate from, and therefore how to either mitigate them when needed, or determine the best time periods for implementing canal recharge.

4. We also recommend establishing a citizen science/citizen monitoring effort involving the landowners and small towns in western Yolo County. This could be a good way of involving the community actively, and generating richer, finer-scale information on flows, problem spots in the short term, for flood management opportunities in the future. At the simplest level, community members could document locations, dates, and times where they do or do not see flows in the sloughs, especially following storms as we did in Table 6.1. At a more advanced level, community members could be trained in measuring slough discharge with a flow meter.

5. We recommend keeping sloughs clear of silt, debris and vegetation to maximize the capacity of the existing infrastructure. This includes deepening channels that have been restricted due to sediment deposits, especially those that are known to cause flooding (LV5, MD2 Figure 6.1, Table 6.1) and potentially replacing culverts that are known to restrict flows. The Willow Slough Management Plan highlights in importance of coherent slough management. For example, clearing the slough in an area that doesn't typically back up may result in increasing flows in the sloughs, so that when those flows reach a constriction such as a bridge or culvert, the flooding issue is actually worse than if vegetation in the slough upstream would have helped slow the streamflow (Jones & Stokes Associates, 1996). We recommend a drainage district be established to manage the sloughs throughout the Esparto Madison area so that one area's diligent management doesn't result in added flooding in another area downstream.

Chapter 7. Other Outputs

In this Chapter we compile the several outputs – intermediary and final that were produced. (Table 7.1)These have been provided to the District.

Table 7.1 Summary of outputs produced for the SWRP

Output Name	Type	Description/ source	Suggested citation for future users
		Outputs relevant to Chapter 2	
WYSlough_catchments.zip	Multiple shapefiles	Boundaries of Western Yolo sloughs	
Catchment_pour_points.zip	shapefile	Pour points of Western Yolo sloughs	
soilmu_a_ca113_WYSloughs.zip	Shapefile	SSURGO soil for Western Yolo sloughs (Figure 2.2 top)	
soilmu_a_ca113_WYSloughs_revised.zip	shapefile	SSURGO soil for Western Yolo sloughs, revised to fill in missing NRCS soil groups (Figure 2.2 bottom)	
WYSlough_catch_SSURGO_NLCD.zip	Multiple shapefiles	Western Yolo slough catchments, divided by soil group and NLCD landuse category, used to calculate weighted Curve Numbers per catchment	
WYSlough_CN.xlsx	Excel file	Calculations for weighteCurve Numbers for each catchment, based on shapefile above	
Western_yolo_model.zip	HEC-HMS Model folder	Western Yolo event-based slough runoff HEC-HMS model	
		Outputs Relevant to Chapter 3	
Cache_creek_model.zip	WEAP model folder	Monthly WEAP model for canal recharge analysis	
		Outputs relevant to Chapter 4	
sagbi_mod.zip sagbi_unmod.zip	shapfiles	Modified and unmodified SAGBI data from (O'Geen et al., 2015), can be viewed on https://casoilresource.lawr.ucdavis.edu/sagbi/. Modified data were used in the anaysis.	
Suitable_area_modgood_exc.zip	shapefile	Farm fields considered suitable in Scenario 1 for groundwater banking strategies.	
Suitable_area_modpoor_exc.zip	shapefile	Farm fields considered suitable in Scenario 2 for groundwater banking strategies.	
Yolo_storm water_model.zip	Weap model folder	Daily WEAP model for rainfall capture analysis	
		Outputs relevant to Chapter 6	
Photo catalog of Madison flooding	Excel file with pictures linked	See Chapter 6 for description.	
Flow monitoring and field observations	Excel file with pictures linked	This is in Table 6.1 of this report	
		General Outputs	

Literature review and Bibliiography	Word document	Selected papers/reports provided	
Final report	Word document	This report	

Photo catalog: Madison flooding

As mentioned earlier (see Chapter 2, and also Table 6.1 above), Madison experiences regular flooding. We assembled a photo catalog, in the form of a spreadsheet linked to the locations of pictures taken, and metadata (as far as possible) on dates and times. Photographs were contributed by Leo Refsland (Madison Service District), Madison residents and the YCFCWCD staff. The catalog has been shared with the YCFCWCD and with Madison Service District, with the expectation that it will be a living document to be added to over time. **As of 2/22/2018, we had cataloged more than 200 photos with the earliest from 1978 and the latest from 2017.**

Figure 7.1 Screenshot of photo catalog of Madison floods

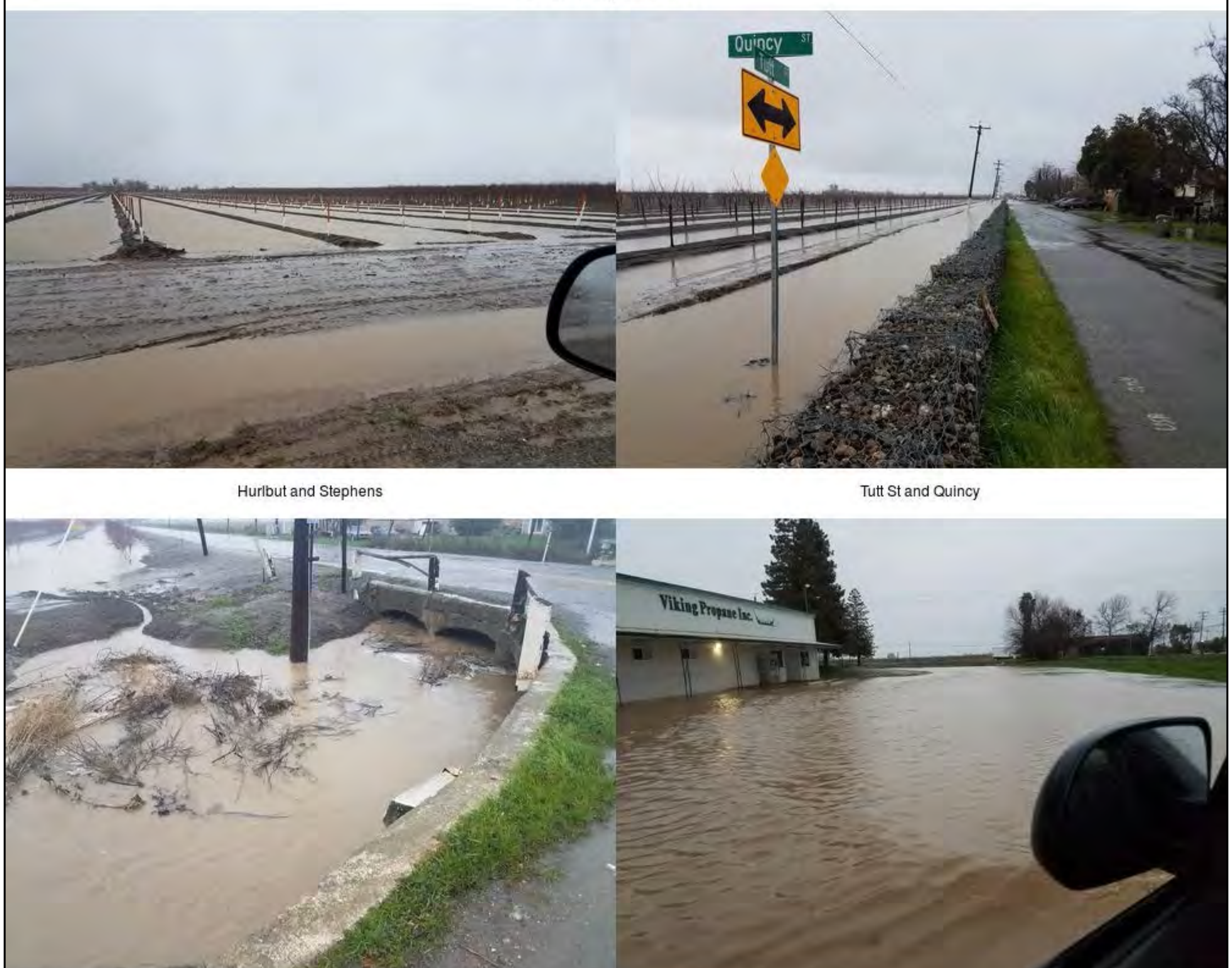
Filename	Source of	Date-time	Latitude	Longitude	Altitude(m)	True Direction	Source of metadata	URL to Google Maps
8-26-13 182.JPG	Leo	2012:12:23 17:15:30	38.6803	-121.96833	30	164.400269	Camera info	https://www.google.com/maps/place/38%C2%
8-26-13 178.JPG	Leo	2012:12:23 17:13:44	38.6808	-121.96833	34	101.553932	Camera info	https://www.google.com/maps/place/38%C2%
8-26-13 181.JPG	Leo	2012:12:23 17:15:22	38.6803	-121.96833	30	152.445831	Camera info	https://www.google.com/maps/place/38%C2%
8-26-13 177.JPG	Leo	2012:12:23 17:13:39	38.6808	-121.96833	36	95.114479	Camera info	https://www.google.com/maps/place/38%C2%
8-26-13 185.JPG	Leo	2012:12:23 17:16:51	38.68	-121.96833	36	102.945557	Camera info	https://www.google.com/maps/place/38%C2%
8-26-13 186.JPG	Leo	2012:12:23 17:17:10	38.68	-121.96833	31	131.445831	Camera info	https://www.google.com/maps/place/38%C2%

Relating Madison flooding to flood frequency and rainfall frequencies

We combined some of the storm photos collected, with Cache Creek flow records and rainfall records at the Brooks station. In the following three pages, we can see how flooding looks for 2, 5 and 10 year storms.

Flood event	Cache Creek flow at Rumsey		Rainfall		
	Observed peak flow (cfs)	Flow frequency	Event rainfall (inches)	Rainfall frequency	Cumulative rainfall from Oct 1 (inches)
Jan 7-Jan 8 2017	21,500 *3:30pm, Jan 8, 2017*	Between 2 to 5 years	3.5 *48 hr period ending 4pm Jan 8th, 2017*	2 years *For 48 hr duration*	12.05

January 8 2017



Hurlbut and Stephens

Tutt St and Quincy

Madison drain culvert at Rd 89

Viking propane near Rd 89

Flood event	Cache Creek flow at Rumsey		Rainfall		
	Observed peak flow (cfs)	Flow frequency	Event rainfall (inches)	Rainfall frequency	Cumulative rainfall from Oct 1 (inches)
Dec13-Dec 16 2002	24,805 *6:45am, Dec 16, 2002*	Close to 5 years	5.31 *96 hr period ending 4pm Dec 16th, 2002*	5 years *For 96 hr duration*	7.88

Dec 16 2002

Tutt St betweeen Main and Quincy

Southeast corner of Main and Tutt

Flood event	Cache Creek flow at Rumsey		Rainfall		
	Observed peak flow (cfs)	Flow frequency	Event rainfall (inches)	Rainfall frequency	Cumulative rainfall from Oct 1 (inches)
Dec 30-31 2005	35,263 *9:15am, Dec 31, 2005*	10 years	3.39 *24 hr period ending 4pm Dec 31, 2005*	Between 5 - 10 years *For 24 hr duration*	29.54

Dec 31 2005

Rd 90 looking north to I505 overpass

Rd 90 and Willow Slough

Tutt St near Quincy

17921 Tutt and Main

Hwy 16 near Esparto welcome sign

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Appendix A. Western Yolo Model Supplementary Information

Table A 1. Landcover-soil group look up table

NLCD (2011)		Reclassification to Curve Number classes		Curve numbers for Hydrologic Soil Group				
ID	Label and Description	Reclass ID	Reclass Description	A	B	C	D	Rock
11	**Open Water**- areas of open water, generally with less than 25% cover of vegetation or soil.	1	Water	0	0	0	0	98
12	**Perennial Ice/Snow**- areas characterized by a perennial cover of ice and/or snow, generally greater than 25% of total cover.	2	Ice	98	98	98	98	98
21	**Developed, Open Space**- areas with a mixture of some constructed materials, but mostly vegetation in the form of lawn grasses. Impervious surfaces account for less than 20% of total cover. These areas most commonly include large-lot single-family housing units, parks, golf courses, and vegetation planted in developed settings for recreation, erosion control, or aesthetic purposes.	3	Open Space (Good condition)	39	61	74	80	98
22	**Developed, Low Intensity**- areas with a mixture of constructed materials and vegetation. Impervious surfaces account for 20% to 49% percent of total cover. These areas most commonly include single-family housing units.	4	Residential avg lot size 1/3 acre (30%imp)	57	72	81	86	98
23	**Developed, Medium Intensity** -areas with a mixture of constructed materials and vegetation. Impervious surfaces account for 50% to 79% of the total cover. These areas most commonly include single-family housing units.	5	Residential avg lot size 1/3 acre (1⁄8 acre or less (town houses) (65% imp.)	77	85	90	92	98
24	**Developed High Intensity**-highly developed areas where people reside or work in high numbers. Examples include apartment complexes, row houses and commercial/industrial. Impervious surfaces account for 80% to 100% of the total cover.	6	Urban districts commercial and business (85% imp.)	89	92	94	95	98
31	**Barren Land (Rock/Sand/Clay)** - areas of bedrock, desert pavement, scarps, talus, slides, volcanic material, glacial debris, sand dunes, strip mines, gravel pits and other accumulations of earthen material. Generally, vegetation accounts for less than 15% of total cover.	7	Fallow, bare soil	77	86	91	94	98

NLCD (2011)		Reclassification to Curve Number classes		Curve numbers for Hydrologic Soil Group				
ID	Label and Description	Reclass ID	Reclass Description	A	B	C	D	Rock
41	**Deciduous Forest**- areas dominated by trees generally greater than 5 meters tall, and greater than 20% of total vegetation cover. More than 75% of the tree species shed foliage	8	Woods, Good	30	55	70	77	98
42	**Evergreen Forest**- areas dominated by trees generally greater than 5 meters tall, and greater than 20% of total vegetation cover. More than 75% of the tree species maintain their leaves all year. Canopy is never without green foliage.	8	Woods, Good	30	55	70	77	98
43	**Mixed Forest**- areas dominated by trees generally greater than 5 meters tall, and greater than 20% of total vegetation cover. Neither deciduous nor evergreen species are greater than 75% of total tree cover.	8	Woods, Good	30	55	70	77	98
52	**Shrub/Scrub**- areas dominated by shrubs; less than 5 meters tall with shrub canopy typically greater than 20% of total vegetation. This class includes true shrubs, young trees in an early successional stage or trees stunted from environmental conditions.	9	Brush—brush-weed-grass mixture with brush the major element	30	48	65	73	98
71	**Grassland/Herbaceous**- areas dominated by gramanoid or herbaceous vegetation, generally greater than 80% of total vegetation. These areas are not subject to intensive management such as tilling, but can be utilized for grazing.	10	Pasture, grassland, or range—continuous forage for grazing	39	61	74	80	98
81	**Pasture/Hay**-areas of grasses, legumes, or grass-legume mixtures planted for livestock grazing or the production of seed or hay crops, typically on a perennial cycle. Pasture/hay vegetation accounts for greater than 20% of total vegetation.	11	Pasture, grassland, or range—continuous forage for grazing	39	61	74	80	98
82	**Cultivated Crops** -areas used for the production of annual crops, such as corn, soybeans, vegetables, tobacco, and cotton, and also perennial woody crops such as orchards and vineyards. Crop vegetation accounts for greater than 20% of total vegetation. This class also includes all land being actively tilled.	12	Straight rows, good	67	78	85	89	98
90	**Woody Wetlands**- areas where forest or shrubland vegetation accounts for greater than 20% of vegetative cover and the soil or substrate is periodically saturated with or covered with water.	13	NA					

NLCD (2011)		Reclassification to Curve Number classes		Curve numbers for Hydrologic Soil Group				
ID	Label and Description	Reclass ID	Reclass Description	A	B	C	D	Rock
95	**Emergent Herbaceous Wetlands**- Areas where perennial herbaceous vegetation accounts for greater than 80% of vegetative cover and the soil or substrate is periodically saturated with or covered with water.	13	NA					

Table A 2. Actual January storm event

Date, time	Cumulative Precip depth (in)
1/2/2017 12:00	0
1/2/2017 13:00	0.04
1/2/2017 14:00	0.04
1/2/2017 15:00	0.04
1/2/2017 16:00	0.04
1/2/2017 17:00	0.04
1/2/2017 18:00	0.04
1/2/2017 19:00	0.04
1/2/2017 20:00	0.06
1/2/2017 21:00	0.06
1/2/2017 22:00	0.06
1/2/2017 23:00	0.06
1/3/2017 0:00	0.06
1/3/2017 1:00	0.06
1/3/2017 2:00	0.06
1/3/2017 3:00	0.1
1/3/2017 4:00	0.12
1/3/2017 5:00	0.12
1/3/2017 6:00	0.13
1/3/2017 7:00	0.13
1/3/2017 8:00	0.15
1/3/2017 9:00	0.16
1/3/2017 10:00	0.17
1/3/2017 11:00	0.2
1/3/2017 12:00	0.24
1/3/2017 13:00	0.29
1/3/2017 14:00	0.36
1/3/2017 15:00	0.45
1/3/2017 16:00	0.52
1/3/2017 17:00	0.56
1/3/2017 18:00	0.64
1/3/2017 19:00	0.71
1/3/2017 20:00	0.75
1/3/2017 21:00	0.78
1/3/2017 22:00	0.83
1/3/2017 23:00	0.91
1/4/2017 0:00	1.21
1/4/2017 1:00	1.64
1/4/2017 2:00	1.66
1/4/2017 3:00	1.71
1/4/2017 4:00	1.72

Table A 3. 100 year, 24 hours design storm event

Time	Cumulative Precip Depth (in)
0:00	0.00
0:15	0.02
0:30	0.05
0:45	0.07
1:00	0.10
1:15	0.12
1:30	0.15
1:45	0.17
2:00	0.20
2:15	0.23
2:30	0.25
2:45	0.28
3:00	0.31
3:15	0.34
3:30	0.37
3:45	0.40
4:00	0.43
4:15	0.46
4:30	0.49
4:45	0.53
5:00	0.56
5:15	0.59
5:30	0.63
5:45	0.67
6:00	0.71
6:15	0.75
6:30	0.79
6:45	0.84
7:00	0.88
7:15	0.93
7:30	0.98
7:45	1.04
8:00	1.10
8:15	1.17
8:30	1.24
8:45	1.34
9:00	1.44
9:15	1.57
9:30	1.71
9:45	2.31
10:00	2.91

Time	Cumulative Precip Depth (in)
10:15	3.10
10:30	3.29
10:45	3.41
11:00	3.53
11:15	3.61
11:30	3.70
11:45	3.77
12:00	3.85
12:15	3.92
12:30	3.99
12:45	4.05
13:00	4.11
13:15	4.17
13:30	4.23
13:45	4.28
14:00	4.33
14:15	4.38
14:30	4.44
14:45	4.48
15:00	4.53
15:15	4.57
15:30	4.61
15:45	4.65
16:00	4.69
16:15	4.73
16:30	4.76
16:45	4.80
17:00	4.84
17:15	4.87
17:30	4.90
17:45	4.94
18:00	4.97
18:15	5.00
18:30	5.03
18:45	5.07
19:00	5.10
19:15	5.13
19:30	5.16
19:45	5.20
20:00	5.23
20:15	5.26
20:30	5.29

Time	Cumulative Precip Depth (in)
20:45	5.32
21:00	5.34
21:15	5.37
21:30	5.40
21:45	5.42
22:00	5.45
22:15	5.47
22:30	5.50
22:45	5.53
23:00	5.55
23:15	5.57
23:30	5.60
23:45	5.62
0:00	5.65

Appendix B. Yolo Storm Water Model Development

Acronyms

AF	-	Acre Feet
CFS	-	Cubic Feet per second
CWA	-	Clean Water Agency
RD	-	Reclamation District
UCD	-	University of California Davis
USBR	-	U.S. Bureau of Reclamation
UWMP	-	Urban Water Management Plan
WY	-	Water year
YCFC	-	Yolo County Flood Control and Water Conservation District

Model Overview

The Yolo Storm Water Model (YSWM) is a modification of the Cache Creek Model , described in Mehta et al. (2013). The model covers the entirety of Yolo County (valley floor) as well as the Cache Creek upper watershed. The development and calibration of the Cache Creek upper watershed is documented in Mehta et al., 2013, and the only change to this area within this version of the model is the climate input data. This area of the model is only further discussed in the Climate data section further on this appendix. The main modifications made since Mehta et al., 2013 are changes to the break up and operation of the valley floor modeled area, which is further discussed below. The majority of the model operates at a monthly timestep, except the valley floor catchments, which operate at a daily timestep. All calculations and analyses relative to this analysis are conducted and reported at the daily timestep.

Spatial Coverage of the model

WEAP Catchments

The area of Yolo County is broken into 38 subareas, called catchments within WEAP. Most valley floor catchments represent a governing body with water or land use responsibilities (entity), and the remaining cover the areas between entities' boundary areas. Catchment boundaries were developed using the entities' boundaries, YCIGSM area boundaries[19] (so that this model's outputs can be compared to YCIGSM outputs) and USGS HUC 8 area boundaries[20] (for significant hydrologic boundaries). Certain entities' areas are divided into multiple catchments (ie, YCFC) because the entity's boundary expands across another boundary (such as

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[19] http://www.ycfcwcd.org/documents/ycigsm_report_060106.pdf
[20] https://water.usgs.gov/GIS/huc.html

a HUC boundary or CASGEM boundary), and some are fully contained in only one catchment. The complete list of Valley Floor and Cache Creek watersheds is given in Table B 1 and the areas they represent are show in Figure B 1. Each catchment contains land use information (as outlined in the Land Use Section, below), climate information (as outlined in the Climate data Section), is connected to at least one groundwater node and, if irrigation occurs within the entity's boundary, the catchment is connected to at least one water source (both outlined in the Catchment Interactions with Surface and Groundwater Section).

Catchment Interactions with Surface and Groundwater

Rainfall-runoff calculations occur within the catchments, so volumes of runoff and infiltration from the catchment area are generated for each time step based on precipitation information, irrigation (based on crop type and soil moisture in the previous time step), land use, and soil parameters. The valley floor catchments use WEAP's MABIA method for calculating rainfall-runoff, irrigation demand, evapotranspiration and other catchment data, consistent with FAO 56.[21] Each catchment is connected to at least one surface water and groundwater object, representing the runoff and infiltration from that land area to the surface water body and groundwater body, respectively. Some catchments run off to more than one water body or infiltrate to more than one groundwater subbasin because the catchment area overlies two watersheds or groundwater subbasins.

The surface water bodies and groundwater basins included in the model are listed in Table B 1. Figure B 2 depicts the catchment delineations in WEAP, and how they overlap with the watersheds of Cache Creek, The Colusa Basin Drain, Willow Slough and the Sacramento River (the main water bodies represented in the model), in Yolo County, and Figure B 3 shows how they are represented within WEAP. Figure B 4 depicts how the catchments overlap with the Bulletin 118 groundwater subbasins[22], and Figure B 5 shows their representation within WEAP.

If an entity has water demands other than irrigation (for example, cities which have municipal and industrial demands), the entity is also represented by a demand object. The demand object is connected to at least one water supply to meet the corresponding demands. Data within the demand object such as water demand per capita, population etc. were derived from public documents such as Urban Water Management Plans. For the purposes of this study, demand

[21] More information about WEAP's MABIA method can be found here: http://www.weap21.org/WebHelp/Mabia_Algorithms.htm, and the FAO 56 documentation can be found here: http://www.kimberly.uidaho.edu/water/fao56/fao56.pdf.

[22] http://www.water.ca.gov/pubs/groundwater/bulletin_118/california's_ground_water__bulletin_118-75_/b118-1975.pdf

objects and their associated information do not affect the analysis nor the results, and therefore are not further discussed here.[23]

Most catchments which represent entities that have Water Rights are connected to those surface water bodies for which they have rights, with transmission links. Rules on the transmission links limit available water based on the water right.[24] The exceptions are the Woodland-Davis Clean Water Agency and the Yolo County Flood Control and Water Conservation District, which have more complex water rights and distribution systems and therefore are represented by diversion arcs in WEAP. All catchments and demand objects are set up such that they use surface water primarily, if it is available, and only use groundwater when there is not sufficient surface water to meet the demand. Because the scenario implemented here only deals with rainfall capture, available surface or groundwater was not required nor limiting for this analysis and therefore is not further discussed here.

[23] Additional information about each individual demand node and its data can be found within the model, in the data view, under the notes tab for each demand.

[24] Additional information about each water right and when water is available to each catchment can be found within the model, in the data view, under the notes tab for each transmission link.

Table B 1. List of WEAP objects in the model. Demand and Waste water treatment plant nodes are not listed as they are not relevant to this analysis.

Valley Floor Catchments	Cache Creek Upper Watershed Catchments	Surface Water Bodies	Groundwater Basins
Bird Creek	Bear Creek	Bear Creek*	Capay
Buckeye Creek	Clear Lake	Cache Creek	Colusa
Cacheville CSD catch	Copsey Creek	Clear Lake	Lake County*
Capay Other	Kelsey Creek	Colusa Basin Drain	Solano
CBD North	Lower Cache Creek	Copsey Creek*	Yolo
CBD South	Lower Indian Valley	Indian Valley Reservoir	
Davis catch	Middle Indian Valley	Kelsey Creek*	
Dunnigan Other	Seigler Canyon	North Fork Cache Creek	
Dunnigan Water District	Upper Cache Creek	Putah Creek	
Esparto CSD catch	Upper Indian Valley	Sacramento River	
Goodnow Slough		Willow Slough	
Knights Landing catch		YCFC Canal System*	
Madison CSD catch		Yolo Bypass*	
North Delta East			
North Delta West			
Oat Creek			
RD 108			
RD 1600			
RD 2035			
RD 537			
RD 730			
RD 785			
RD 787			
RD 827			
Sac River			
UCD catch			
West Sac catch			
Willow Slough			
Winters catch			
Woodland catch			
YCFC Capay			
YCFC Dunnigan Hills			
YCFC East			
YCFC Hungry Hollow			
YCFC West			
YCFC Zamora			
Yolo Zamora North			
Yolo Zamora South			

*WEAP elements are not relevant to this analysis and therefore are not shown in Figure B 1, Figure B 2 or Figure B 4.

Figure B 1. Map of the catchments within the WEAP model. Cache Creek upper watershed catchments are shown in shades of gray and valley floor catchments in color. The main surface water bodies included in the model are shown, and the county boundary is outlined in black.

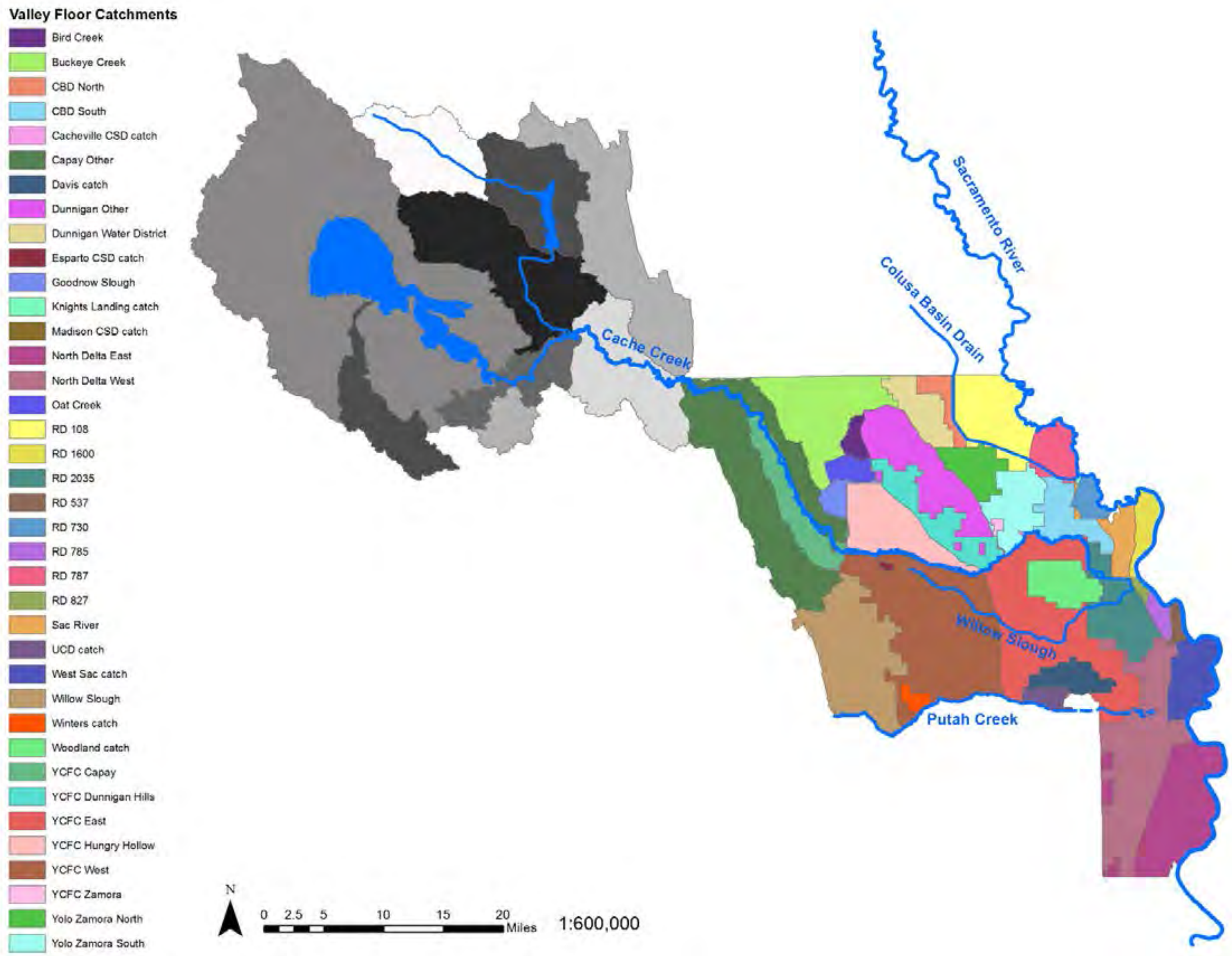


Figure B 2. Map of catchments in WEAP and watersheds for the water bodies represented in WEAP

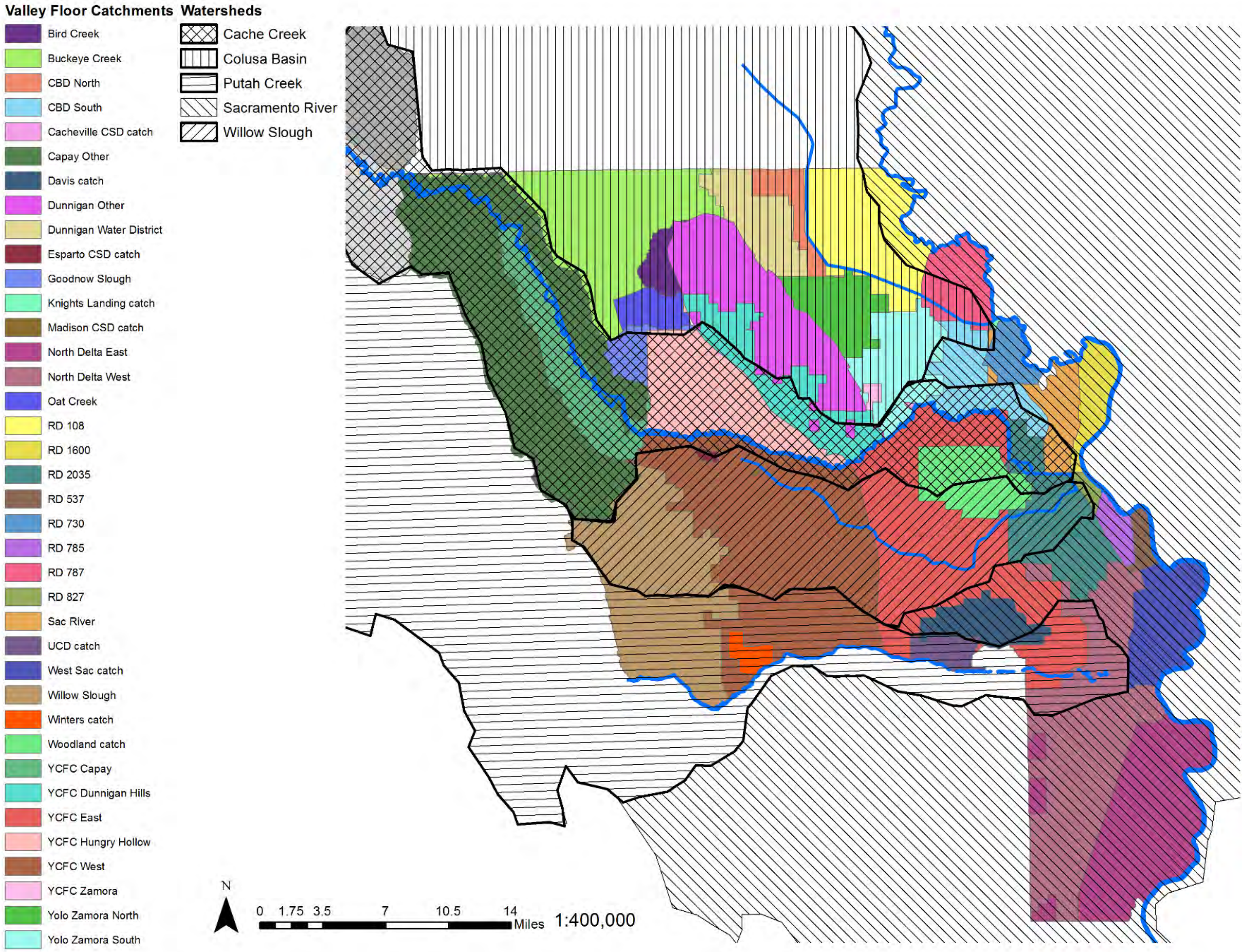


Figure B 3. WEAP Schematic of catchments and surface water bodies

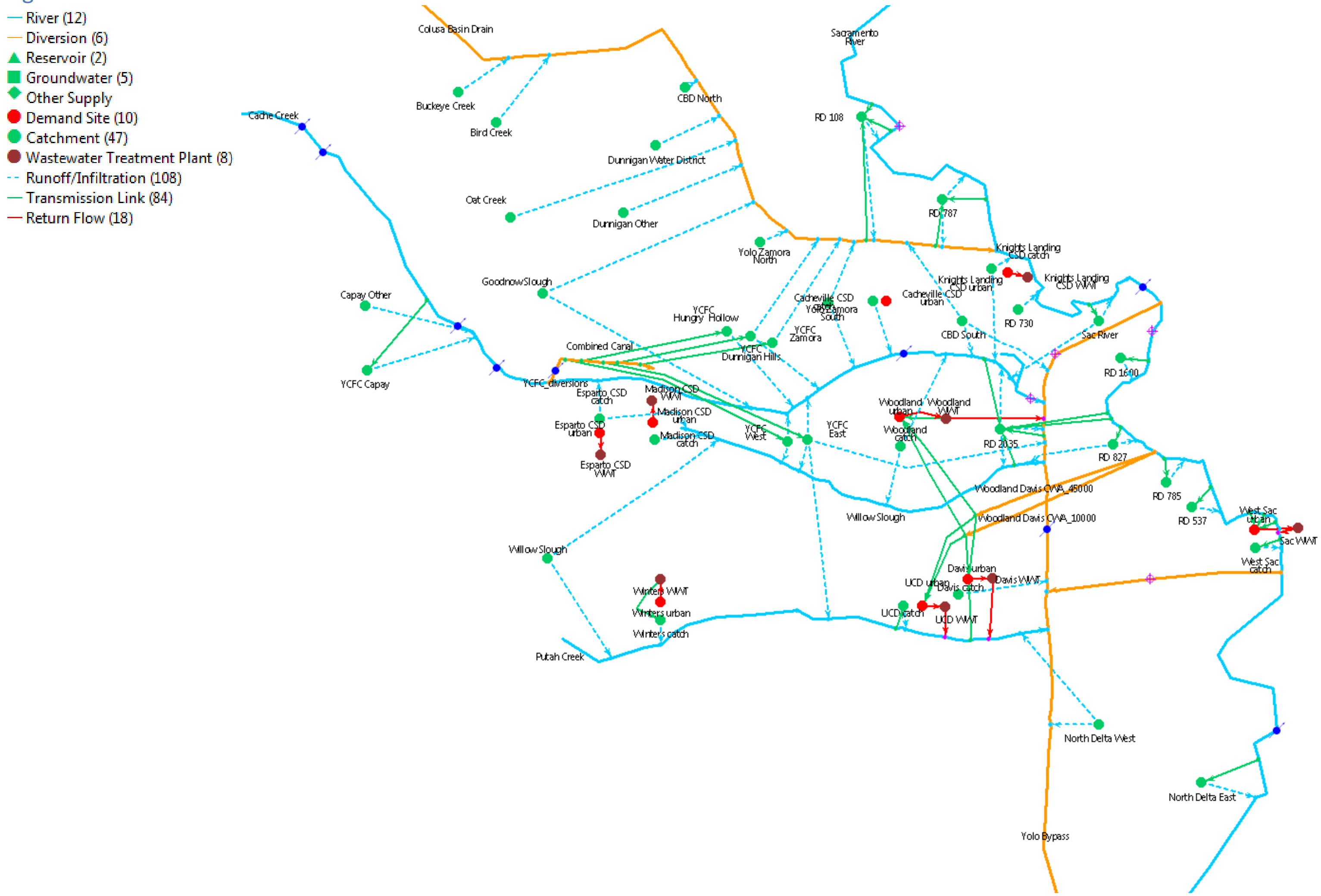


Figure B 4. Map of catchments in WEAP with Bulletin 118 groundwater subbasins underlying Yolo County.

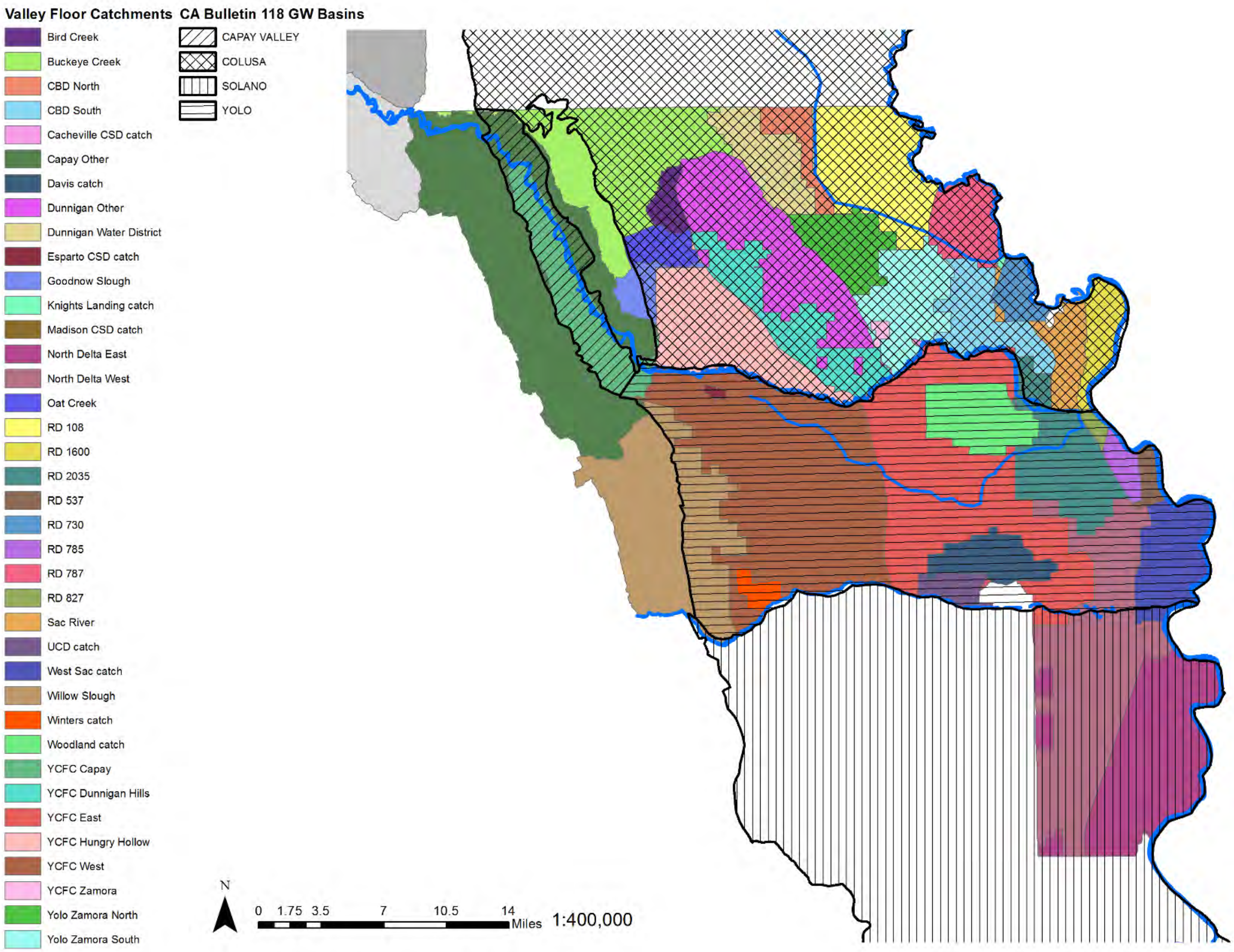
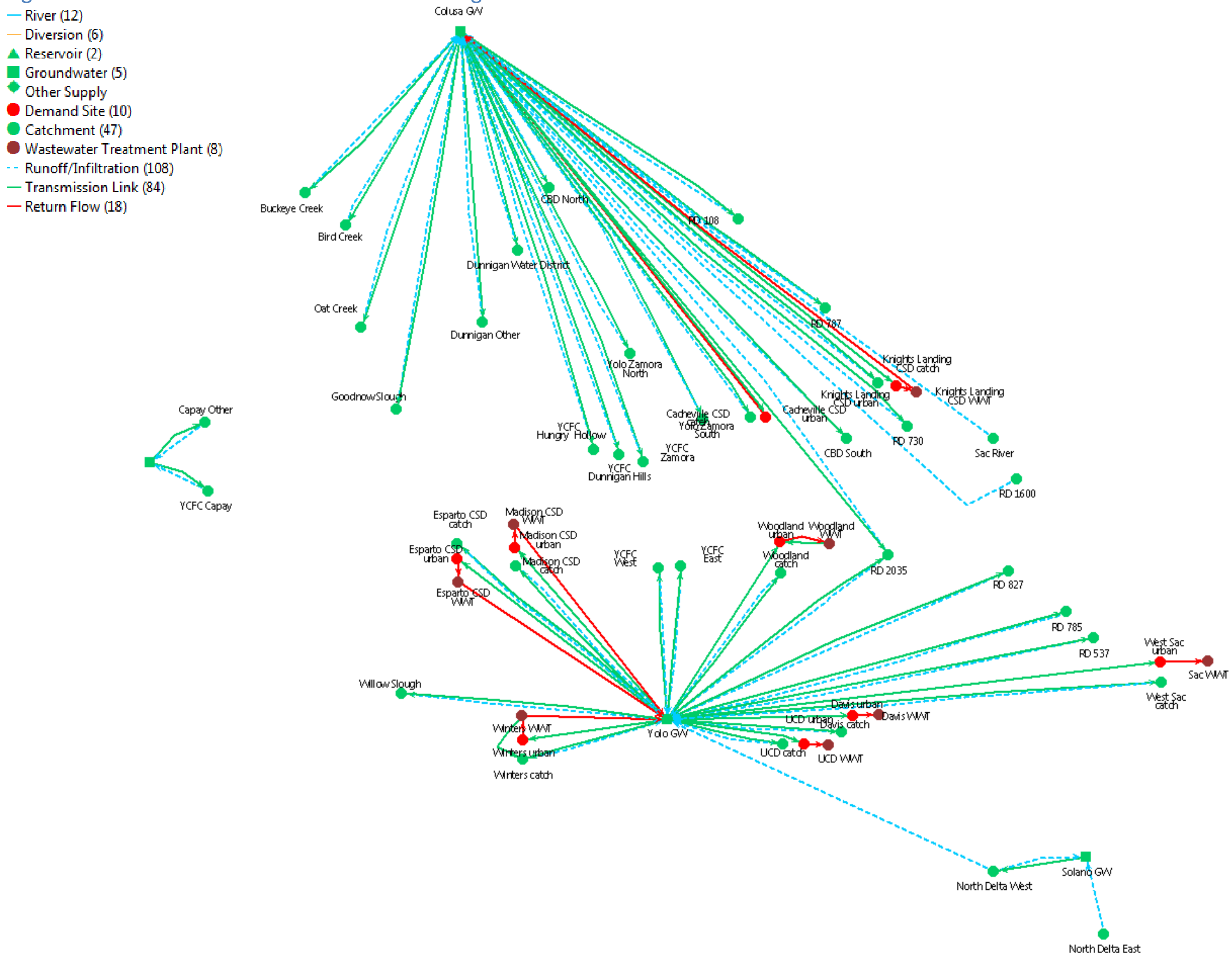


Figure B 5. WEAP schematic of catchments and groundwater basins



Land Use

Crop Coverage

The irrigated agricultural area within the model is divided into 16 crop categories. Categories were derived based on the DWR water use surveys[25] (water use surveys). Table B 2 shows the names and definitions used in the DWR dataset and the corresponding name in the WEAP model.

Land use data from DWR is only available for years 1981, 1989, 1997 and 2008. However, there is significant fluctuation in crop coverage and total irrigated area annually within the County, as made clear by the Yolo County Agricultural Commission's Crop Reports (Crop Reports).[26] To represent this annual fluctuation between these years (and before 1981), these two data sets were combined in the model. From the Crop Reports, the total irrigated area was estimated as the sum of the total acreage of each crop listed in the Crop Reports, minus the "Pasture, Dry" acreage. Livestock is not included in the model. From the Crop reports, the total area of each irrigated crop category within the County in each year was also estimated. This required mapping the Crop Report categories to the WEAP categories, which was straight forward and by comparing crop names. From the four water use surveys, the percent of each crop's area that falls within each catchment was calculated. This percent per crop per catchment was then multiplied by the annual acreage per crop from the Crop Reports, resulting in a dynamic cropping pattern where the area of each crop in each catchment varies each year, as well as the total irrigated area, but each catchment's area and the county's area remain constant.

[25] http://www.water.ca.gov/landwateruse/anlwuest.cfm
[26] http://www.yolocounty.org/general-government/general-government-departments/agriculture-cooperative-extension/agriculture-and-weights-measures/crop-statistics.

Table B 2. DWR crop names, and corresponding model assignations

DWR Landuse Codes from Landuse Surveys	DWR Crop name from wateruse dataset	DWR Crop Definition	WEAP crop category	Notes
G	Grain	Wheat, barley, oats, miscellaneous grain and hay, and mixed grain and hay	Grain	Winter wheat is the representative crop
R	Rice	Rice and wild rice	Rice	
F1	Cotton	Cotton		No cotton acreage in Yolo, so not included
F5	SgrBeet	Sugar beets	Sugar beet	
F6	Corn	Corn (field and sweet)	Corn	
F10	DryBean	Beans (dry)	Dry Beans	
F2	Safflwr	Safflower	Safflower	
F(all other)	Oth Fld	Flax, hops, grain sorghum, sudan, castor beans, miscellaneous fields, sunflowers, hybrid sorghum / sudan, millet and sugar cane	Other field	Dominated by sunflower in Yolo County
P1	Alfalfa	Alfalfa and alfalfa mixtures	Alfalfa	
P(all other)	Pasture	Clover, mixed pasture, native pastures, induced high water table native pasture, miscellaneous grasses, turf farms, bermuda grass, rye grass and klein grass	Pasture	Note this is irrigated pasture.
T15	Pro Tom	Tomatoes for processing	Tomatoes	
T26	Fr Tom	Tomatoes for market		
T9	Cucurb	Melons, squash and cucumbers	Cucurbits	
T10	On Gar	Onions and garlic	Other truck	
T12	Potato	Potatoes		
T(all other)	Oth Trk	Artichokes, asparagus, beans (green), carrots, celery, lettuce, peas, spinach, flowers nursery and tree farms, bush berries, strawberries, peppers, broccoli, cabbage, cauliflower and brussel sprouts		
D12	Al Pist	Almonds and pistachios	Almonds	Dominated by Almonds in Yolo County
D(all other)	Oth Dec	Apples, apricots, cherries, peaches, nectarines, pears, plums, prunes, figs, walnuts and miscellaneous deciduous	Other Deciduous	Dominated by walnuts in Yolo County
C	Subtrop	Grapefruit, lemons, oranges, dates, avocados, olives, kiwis, jojoba, eucalyptus and miscellaneous subtropical fruit	Subtropical	Dominated by olives in Yolo County
V	Vine	Table grapes, wine grapes and raisin grapes	Vine	

Non-crop land use categories

The non- agricultural areas in each catchment (e.g. urban areas, native vegetation etc.) were also categorized based on the DWR dataset into three categories: native vegetation, urban, and water. The area of urban and water was calculated using the three DWR datasets during each year they are available. They remain constant between the years and before 1981. The area of native vegetation makes up the difference of all of the other categories subtracted from the total area of the catchment.

Crop data for rainfall capture field selection

The areas that were selected as locations to simulate rainfall capture were based on crop type and soil type as described in the Methods Section in Chapter 4. To use the most recent crop coverage information available to select areas for implementing rainfall capture, we downloaded (in April 2017) GIS data from the Yolo County website, which are likely based on Pesticide Use Reports (PUR). These were available from 2009 every year to 2014. The 2014 spatial data set was used in this analysis. PUR data has more than 100 crop types; and therefore, another lookup table (Table B 3) was devised to match these crop types to the WEAP model crop names in Table B 2. If an area delimited by the County Crop data was categorized as covered by one crop type, Table B 3 was used to reassign a WEAP crop type to that area.

Table B 3. County Crop-WEAP Look up table

County crop category	WEAP crop category (from Table 1)	County crop category	WEAP crop category (from Table 1)	County crop category	WEAP crop category (from Table 1)
ALFALFA	Alfalfa	ORG WATERMELON	Cucurbits	ORG WHEAT FOR FOD	Grain
ALFALFA GRASS M		PICKLE		RYE	
ALFALFA SEED		PUMPKIN		TRITICALE	
ORG ALFALFA		PUMPKIN SEED		WHEAT	
ALMOND	Almond and Pistachio	SQUASH		WHEAT FOR/FOD	
NUTS		SQUASH SEED		WHEAT SEED	
ORG ALMOND		WATERMELON		BANK	N/A
ORG PISTACHIO		WATERMELON SEED		BEEHIVE	
PISTACHIO		ZUCCHINI		COMM. FUMIGATN	
CORN	Corn	BEAN DRIED	Dry beans	COMMR/INST/IND	
CORN FOR/FOD		BEAN DRIED SEED		DAIRY EQUIPMENT	
CORN SEED		BEAN SUCCULENT		DITCH	
ORG CORN FOR FOD		BEAN UNSPECIFD		FUMIGATN	
ORG CORN HMN CO		BEANS		HUMAN CON	
COTTON	Cotton	FAVA BEAN		INDUSTRIAL SITE	
CANTALOUPE	Cucurbits	GARBANZO BEAN		LANDSCAPE MAIN	
CUCUMBER		LIMA		ORG UNCULTIVATED AG	
CUCUMBER SEED		ORG BEAN UNSP		RECREATION AREA	
HONEYDEW MELON		BARLEY	Grain	REG PEST CONTRL	
MELON		BARLEY FOR/FOD		RESEARCH COMMOD	
MELON SEED		FORAGE HAY/SLGE		RIGHTS OF WAY	
ORG CUCUMBER		GRAIN		SOIL FUM/PREPLT	
ORG MELON		OAT		SOIL FUM/PREPLT	
ORG PUMPKIN		OAT FOR/FOD		UNCUL NON-AG	
ORG PUMPKIN		OAT SEED		UNCULTIVATED AG	
ORG SQUASH		ORG BARLEY		UNDECLARED COMM	
ORG SQUASH		ORG OAT FOR/FOD		VETCH	
ORG SQUASH SUMMER		ORG TRITICALE		GARLIC	Onions and Garlic
ORG SQUASH WINTER		ORG WHEAT		ONION DRY ETC	

County crop category	WEAP crop category (from Table 1)	County crop category	WEAP crop category (from Table 1)	County crop category	WEAP crop category (from Table 1)
ONION GREEN	Onions and Garlic	PERSIMMON	Other deciduous	BERRY	Other truck
ONION SEED		PLUM		BLACKBERRY	
ORG GARLIC		STONE FRUIT		BLUEBERRY	
ORG ONION DRY		TANGERINE		BOK CHOY LSE LF	
ORG ONION SEED		WALNUT		BROCCOLI	
POME FRUIT	Other Deciduous	CANOLA (RAPE)	Other Field	BROCCOLI SEED	
POMEGRANATE		HOPS		BURDOCK (ROOT CROP)	
PRUNE		MUSTARD		CABBAGE	
APPLE		OF-FLOWER SEED		CABBAGE SEED	
APRICOT		OF-FLWRNG PLANT		CARROT	
CHERRY		ORG LEEK		CARROT SEED	
CHESTNUT		ORG MUSTARD		CAULIFLOWER	
FIG		ORG SASFFLOWER		CAULIFLOWR SEED	
GP-DEC. TREE		ORG SORGHUM MILO		CHINESE GREEN	
JUJUBE		ORG SUNFLOWER SEED		CHRISTMAS TREE	
MULBERRY		RAPE		CILANTRO	
NECTARINE		SORGHUM FOR/FOD		COLE CROP	
ORG APPLE		SORGHUM MILO		COLLARD	
ORG APRICOT		SORGHUM SEED		COLLARD SEED	
ORG CITRUS		SOYBEAN		DAIKON	
ORG FIG		SOYBEAN GRAIN		DANDELION GREEN	
ORG NECTARINE		SOYBEAN SEED		EGGPLANT	
ORG PEACH		SUDANGRASS		FRUIT	
ORG PEAR		SUNFLOWER		GF-EVG. TREE	
ORG PLUM		SUNFLOWER SEED		HERB	
ORG STONE FRUIT		ANISE	Other truck	KALE	
ORG WALNUT		ARTICHOKE		KALE SEED	
OT-DEC. TREE		ARTICHOKE SEED		KOHLRABI	
PEACH		ASPARAGUS		KOHLRABI SEED	
PEAR		ASPARAGUS SEED		LEEK	

County crop category	WEAP crop category (from Table 1)	County crop category	WEAP crop category (from Table 1)	County crop category	WEAP crop category (from Table 1)
LETTUCE LEAF	Other truck	ORG SWISS CHARD	Other truck	ORG PASTURELAND	Pasture
N-GRNHS PLANT		ORG TURNIP		OT-TURF	
N-GRNHS TRANSPL		ORG VEGETABLE		PASTURELAND	
N-OUTDR FLOWERS		ORG VEGETABLE LEAF		RANGELAND	
N-OUTDR PLANTS		ORG VEGETBLE FRTNG		RYEGRAS FOR/FOD	
N-OUTDR TRANSPL		ORG-N-GRNHS TRANSPT		TURF/SOD	
OP-PINE TREE		OTHER		ORG RICE	Rice
ORG ARUGULA		OT-ROSE		RICE	
ORG ASPARAGUS		PEAS		WILD RICE	
ORG BOK CHOY LSE LF		PEPPER FRUIT SD		SAFFLOWER	Safflower
ORG BROCCOLI		PEPPER FRUITNG		BANANA	Subtropical Orchards
ORG CABBAGE		PEPPER SPICE		CITRUS	
ORG CARROT		POTAT		GRAPEFRUIT	
ORG CAULIFLOWER		POTATO		KIWI	
ORG COLLARD		RADISH		LEMON	
ORG DAIKON		RADISH SEED		OLIVE	
ORG FENNEL		SPICE		ORANGE	
ORG KALE		SPINACH		ORG POMEGRANATE	
ORG LETTUCE LEAF		STRAWBERRY		BEET	Sugarbeets
ORG LETTUCE LEAF		SWEET BASIL		BEETS	
ORG PEAS		SWISS CHARD		ORG BEET	
ORG PEPPER FRUITING		TURNIP		ORG TOMATO	Tomatoes
ORG PEPPERS		TURNIP SEED		ORG TOMATO PROCESSING	
ORG RADICCHIO		VEGETABLE		TOMATILLO	
ORG RADISH		VEGETABLE FRTG		TOMATO	
ORG RADISH		VEGETABLE ROOT		TOMATO PROCESS	
ORG RADISH		WINTER		TOMATO SEED	
ORG SPICE/HERB		GRASS SEED	Pasture	GRAPE	Vine
ORG SPICE/HERB		OP-TURF		ORG GRAPE	
ORG SPINACH		ORCHARDGRASS		OT-VINE	
				WINE	

Beyond developing the crop lookup table, the county crop dataset required some additional cleaning before use. First, some polygons were assigned multiple county crop types. Second, there were many overlapping polygons.

Steps for addressing multiple county crop categories for one polygon

In some cases, single polygons from the County Crop dataset were assigned multiple crop types. The following steps were followed to reassign these areas one single WEAP crop category.

With each unique multicrop entry, each individual entry was separated out and mapped to a WEAP category using Table B 3.

Example:

County Multicrop	WEAP Crop 1	WEAP Crop 2	WEAP Crop 3	WEAP Crop 4
ALMOND, SOIL FUM/PREPLT	Almond and Pistachio	Delete		
CANTALOUPE, SOIL FUM/PREPLT, CUCUMBER SEED	Cucurbits	Delete	Cucurbits	
CABBAGE SEED, BARLEY FOR/FOD, CARROT SEED, UNCULTIVATED AG	Other truck	Grain	Other truck	Delete

1. Non-crop entries, ie “UNCULTIVATED AG”, or “SOIL FUM/PREPLT” which, based on the lookup table mapped to “N/A” were deleted.

   Example:

County Multicrop	WEAP Crop 1	WEAP Crop 2	WEAP Crop 3	WEAP Crop 4
ALMOND, SOIL FUM/PREPLT	Almond and Pistachio			
CANTALOUPE, SOIL FUM/PREPLT, CUCUMBER SEED	Cucurbits		Cucurbits	
CABBAGE SEED, BARLEY FOR/FOD, CARROT SEED, UNCULTIVATED AG	Other truck	Grain	Other truck	

2. If the above steps resulted in a single WEAP category, this was the final WEAP category (first example, below). If all remaining WEAP categories were the same, this was the resulting WEAP category (second example, below). If the remaining WEAP categories were different, the final WEAP category was considered “Multicrop” (third example, below). However, if a tree crop and an annual crop were combined in the county’s designation, this was categorized based on the tree crop and was not classified as “multicrop” (fourth example, below). If a county category had multiple trees and/or multiple other crops listed with a tree crop, the WEAP category “multicrop” was designated.

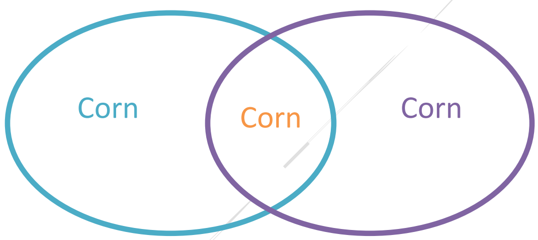
Example:

County Multicrop	**Final WEAP Crop**
ALMOND, SOIL FUM/PREPLT	Almond and Pistachio
CANTALOUPE, SOIL FUM/PREPLT, CUCUMBER SEED	Cucurbits
CABBAGE SEED, BARLEY FOR/FOD, CARROT SEED, UNCULTIVATED AG	Multicrop
ALMOND, WHEAT FOR FOD	Almond and Pistachio

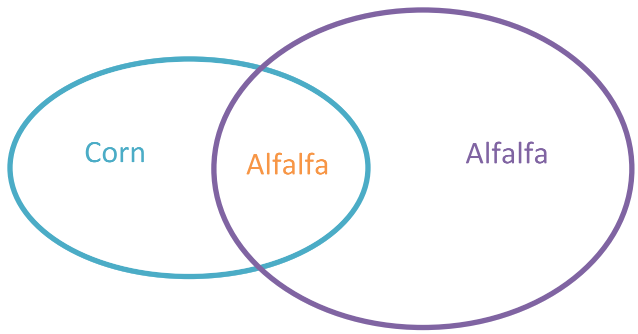
Steps for addressing overlaps in County Crop dataset

In some cases, two or more polygons from the County Crop dataset had overlapping areas. To eliminate these overlaps, the following steps were followed:

1. Every polygon in each County Crop shapefile was mapped to a WEAP Crop category (using the methods outlined above)
2. Polygons with "N/A" and blank WEAP Crop categories (blank occurred when the original County Crop was blank) were deleted from the shapefile
3. A shapefile of the intersecting areas was developed, and those areas were mapped to a single WEAP_Crop:
    a. If two overlapping polygons had the same WEAP Crop, this was the single WEAP Crop assigned to the intersecting area.



    b. If the two overlapping polygons had different WEAP Crop types, the single WEAP Crop for the intersecting area is the same as the original polygon with the largest area.



4. The shapefile of intersections was clipped from the County Crop shapefile and then combined with the clipped County Crop file to generate one shapefile, with intersecting areas as their own individual polygons.
5. If some intersections still occurred after this process, the intersecting areas were clipped out of the polygon and were not replaced.

Even after cleaning, there is still some uncertainty with this dataset that could not be resolved at the time of this analysis, such as whether the PUR data includes lands on which no pesticides were used which may exclude some areas that may have the correct crop type. However, the dataset was deemed sufficient for use in this analysis with the understanding that it may represent an underestimation of the total crop coverage in the county. Once every polygon in the data set was assigned a single WEAP crop, and not overlapping with any other polygon, it was used to select the areas that would receive the rainfall capture management strategy. This methodology is outlined in Chapter 4 in the main body of the document.

Climate data

Apart from the reorganization of the valley floor catchments, the other major change in the model from its version in Mehta et al., (2013) was an update on climate data. Because the valley floor catchments are simulated using the MABIA method, which generates daily outputs, the model requires daily input data for these catchments. Although the Cache Creek upper watershed catchments remained operating at the monthly time step with WEAP's rainfall runoff method, so that all data in the model were from the same source, the climate data for these catchments were also updated. Climate data were downloaded from PRISM[27] and incorporated into the model as shown in Table B 4.

[27] http://www.prism.oregonstate.edu/explorer/

Table B 4. PRISM Climate data for corresponding catchments

	Time Step	Variables downloaded*	Duration available	Derived variables*	Download date
Cache Creek Upstream Catchments	Monthly	P, T_{avg}, T_{dew}	1/1/1949-03/1/2017	RH_{avg}	4/16/2017
Valley Floor catchments	Daily	P, T_{min}, T_{max}, VPD_{min}, VPD_{max}	1/1/1981-6/5/2017	RH_{max}, RH_{min}	6/6/2017

P = precipitation (mm); T_{avg}=Average temperature (°C); T_{dew}=dewpoint temperature (°C); Tmin=minimum temperature (°C); T_{max}=Maximum temperature (°C); RH=average relative humidity (%); RH_{max}=Maximum relative humidity (%); RH_{min}=minimum relative humidity (%); VPD_{min}=minimum Vapor pressure deficit (hPa); VPD_{max}=maximum vapor pressure deficit (hPa).

Relative humidity for Cache Creek upstream catchments was calculated as:

$$RH = \frac{e_a}{e_s}$$

Where:

E_a (Pa)= vapor pressure at dew point temperature T(°C):

$$e_a = 0.6108^{\frac{17.27*T_{dew}}{T_{dew}+237.3}}$$

Es=saturation vapor pressure at ambient temperature T(°C):

$$e_s = 0.6108^{\frac{17.27}{T+237.3}}$$

Relative humidity for valley floor catchments was calculated as:

$$RH = 100 - (100 * \frac{VPD}{SVP})$$

Calibration

The model was calibrated for solar radiation, reference evapotranspiration (ET), actual ET, applied water, streamflows in Cache Creek at various points and reservoir volume in Clear Lake and Indian Valley reservoirs. Table B 5 below shows the data sources and period for each calibration. Calibration for solar radiation, and ET are most relevant for this analysis, and therefore are discussed in detail below. Other calibration metrics are shown but not discussed in detail.

Table B 5. Calibration field and datasets

Type	Subtype	Location	Period	Data source
Catchment water balance	Streamflow	Hough Springs	Oct 1976-Sept 2008, monthly	USGS: https://waterdata.usgs.gov/ca/nwis/uv?11451100
Catchment water balance	Streamflow	Kelsey Creek	Oct 1976-Sept 2008, monthly	USGS: https://waterdata.usgs.gov/ca/nwis/uv?11449500
Catchment water balance	Streamflow	Cache Creek at Yolo	Oct 1974- Sept 2009, monthly	USGS: https://waterdata.usgs.gov/nwis/uv?site_no=11452500
Catchment water balance	Reference ET (ETo)	Davis CIMIS station	Available and downloaded: Aug 1982 to July 2017, monthly timestep	CIMIS: http://www.cimis.water.ca.gov/WSNReportCriteria.aspx Downloaded on 8/28/2017
Catchment water balance	Applied Water	DWR water portfolio, at Detailed Analysis Unit (DAU) resolution	Available and downloaded: 1998-2010, annual timestep	DWR Land and Water Use http://www.water.ca.gov/landwateruse/anlwuest.cfm
Operations	Reservoir Levels	Clear Lake and Indian Valley	1974-2009, monthly timestep	YCFC, personal communication, 2015

Solar Radiation and Reference ET

Modeled Solar radiation and reference ET were compared against CIMIS downloaded data from the Davis CIMIS station. Average monthly modeled and CIMIS solar radiation values are shown in the following tables and figures (Solar radiation: Table B 6 and Figure B 6, reference ET: Table B 7, Figure B 7) for water years 1983-2015.

Table B 6. Monthly average solar radiation (WY 1983-WY-2015)

Month	Modeled S (W/m^2)	CIMIS S (W/m^2)	Diff (Model-CIMIS), (W/m^2)
Jan	91	80	11
Feb	128	124	4
Mar	181	183	-2
Apr	245	250	-5
May	295	294	1
Jun	325	328	-3
Jul	333	330	3
Aug	301	298	3
Sep	242	238	3
Oct	169	168	1
Nov	109	103	6
Dec	82	72	10

Figure B 6. Monthly average solar radiation (WY 1983-WY-2015)

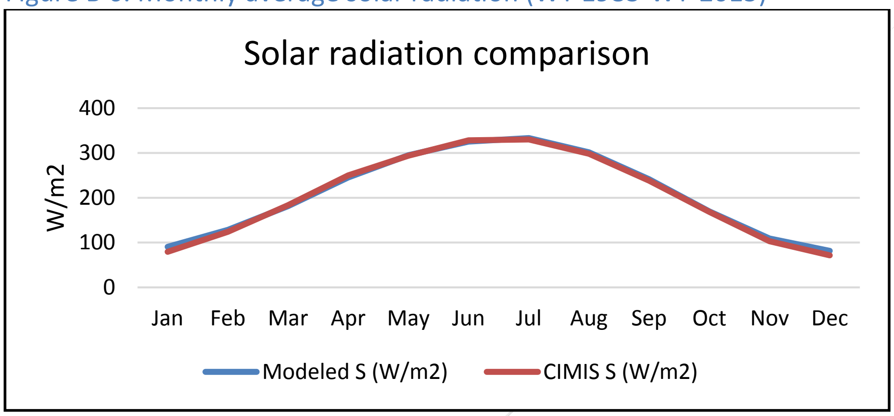
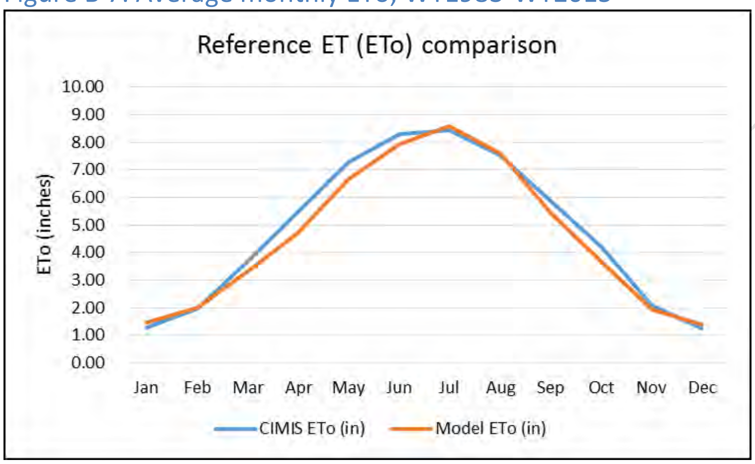


Table B 7. Average monthly Reference ET (ETo) WY 1983-2015

Month	CIMIS ET_o (in)	Model ET_o (in)	Percent Difference
Jan	1.27	1.48	16.54
Feb	1.96	2.01	2.55
Mar	3.69	3.30	-10.57
Apr	5.46	4.71	-13.74
May	7.27	6.68	-8.12
Jun	8.30	7.95	-4.22
Jul	8.45	8.60	1.78
Aug	7.53	7.60	0.93
Sep	5.86	5.46	-6.83
Oct	4.21	3.66	-13.06
Nov	2.08	1.95	-6.25
Dec	1.26	1.38	9.52
Total	**57.34**	**54.77**	**-4.48**

Figure B 7. Average monthly ETo, WY1983-WY2015



Actual ET

To calculate actual ET, WEAP uses a dual crop coefficient (k_c) model, one k_c for bare soil evaporation and one for crop ET. The k_c values for the crop ET, called k_{cb} in WEAP, were developed based on the Sacramento San Joaquin Basin Study (Basin Study)[28], which uses a single crop coefficient model, where bare soil evaporation and crop ET are calculated based on a single k_c value. In the WEAP Crop library, we began with k_c values and growth period lengths for the initial, development and late stage growth periods from the Basin Study (Table B 8), but most had to be adjusted due to the differing model types. Actual ET for each WEAP Crop,

[28] Available at: https://www.usbr.gov/watersmart/bsp/docs/finalreport/sacramento-sj/Sacramento_SanJoaquin_TechnicalReport.pdf

calculated as the monthly total, averaged over the catchments included in the Lower Cache Creek DAU (Figure B 8) from the year 2005, was compared to total monthly ET from the Basin Study for the corresponding crops. In WEAP, the k_{cb} values were adjusted until the total ET from WEAP during the irrigation season was within 3% difference of the same value from the basin study. For tomato, grain and other truck, only adjusting k_{cb} was not sufficient, and therefore the length of the growth periods was also adjusted (Table B 8). For other truck, cucumber was selected as the representative crop, but significant adjustments had to be made from the initial cucumber values to achieve similar ET values (see cucumber/other truck in Table B 8 and Figure B 9). The final k_{cb} and growth stage lengths are shown in Table B 8 and Figure B 9 compared to the Basin Model.

Even with additional adjustments, grain actual ET could only be calibrated within a 5% difference from the Basin Model (Table B 9). This due to the difference in June between the two models (Figure B 9, grain), which is likely occurring due to discrepancy over whether precipitation occurred in that month. Precipitation occurs on some days in the WEAP model which is a result of the gridded climate data, but was not registered at the CIMIS station in Davis despite being overcast on those same days. Because grain does not grow during the main growing season, is not typically irrigated, and covers a small area in Yolo County, it has a small impact on the water budget and therefore we did not adjust further to improve actual ET.

For some crops, k_{cb} and stage length adjustments were not sufficient to calibrate actual ET. For alfalfa and pasture, the “fraction covered” variable in WEAP, the fraction of the ground covered by the crop, was set to 1 for the entire year. The irrigation schedule was adjusted for safflower to stop irrigation on July 15, even though harvest occurs on July 31, based on the literature which states that safflower is minimally irrigated, sometimes only once a season, and irrigation could be stopped as early as May.[29] The final ET from the WEAP model incorporating all adjustments and Basin Study for each crop are shown in Table B 9 and Figure B 10.

[29] https://coststudyfiles.ucdavis.edu/uploads/cs_public/63/a9/63a948b0-8cef-4843-b66c-ac27006f726f/safflowersv2011.pdf

Figure B 8. Map of Lower Cache Creek DAU (outlined in black) and WEAP catchments compared with the DAU data to calibrate applied water (colored).

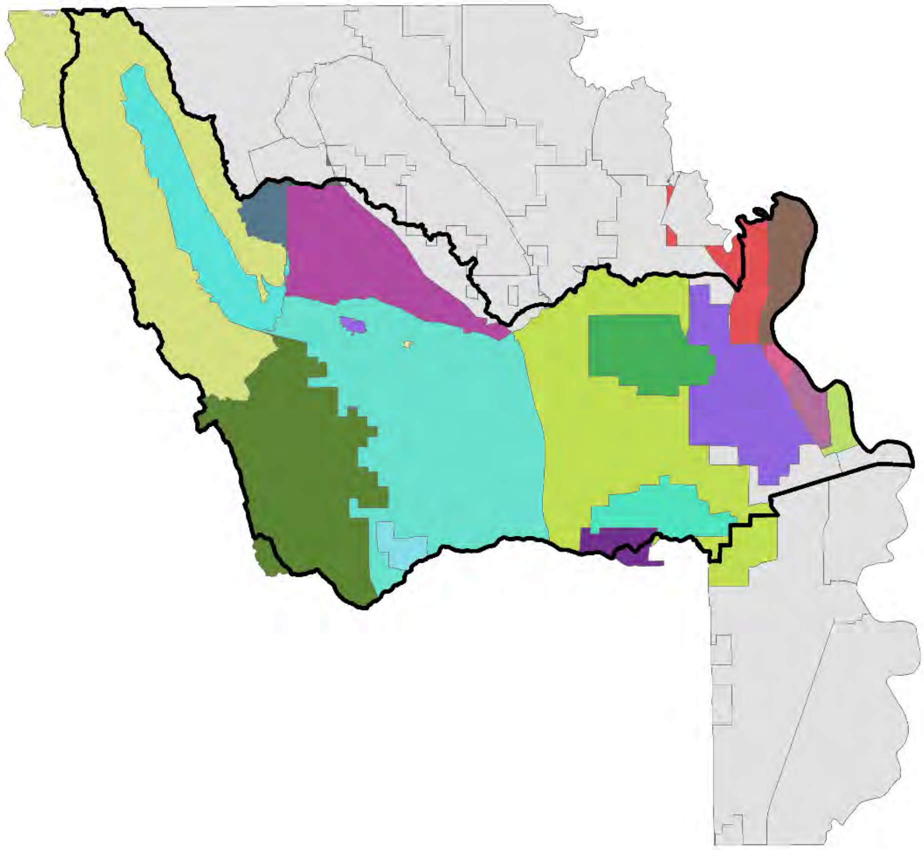


Table B 8. Growth stage length and kc values from the Basin Study and the WEAP model

Basin Study								WEAP model								Both models	
Crop name	Stage length (days)				Crop Coefficients			Crop Name	Stage length (days)				Crop Coefficients			Plant Date	Tot
	Init	Dev	Mid	Late	K_c ini	K_c mid	K_c end		Init	Dev	Mid	Late	K_{cb} ini	K_{cb} mid	K_{cb} end		
Alfalfa	91	91	91	91	1	1	1	**Alfalfa**	91	92	91	91	0.9	0.9	0.9	1-Jan	365
Almonds[1]	0	115	92	23	0.55	1.2	0.65	**Almonds**	0	115	91	23	0.4	0.95	0.65	1-Mar	229
Apple	0	115	57	57	0.55	1.15	0.8	**Other Deciduous**	0	115	57	57	0.6	0.95	0.85	1-Apr	229
Corn (grain)	31	38	46	38	0.2	1.05	0.6	**Corn**	31	38	46	38	0.12	0.85	0.52	1-May	153
Corn (silage)	21	27	59	0	0.2	1.05	1	**Other Field**	21	27	59	0	0.15	0.85	0.85	1-May	107
Cucumber	18	26	35	14	0.8	1	0.75	**Other Truck**	21	30	40	17	0.15	0.4	0.3	15-May	93
Melon[2]	26	36	41	21	0.75	1.05	0.75	**Cucurbits**	26	36	40	21	0.15	0.7	0.15	15-May	123
Pasture	91	91	91	91	0.95	0.95	0.95	**Pasture**	91	92	91	91	0.9	0.9	0.9	1-Jan	365
Rice	33	18	68	19	1.2	1.05	0.8	**Rice**	33	18	69	19	1.16	0.9	0.9	15-May	139
Safflower	21	34	43	24	0.2	1.05	0.25	**Safflower**	21	34	43	24	0.15	0.85	0.25	1-Apr	122
Tomato	38	38	46	31	0.2	1.2	0.6	**Tomato**	48	39	45	21	0.05	0.85	0.35	1-Apr	153
Wheat	53	74	64	21	0.3	1.05	0.15	**Grain**	53	79	39	41	0.05	0.7	0.05	1-Nov	212
Wine grapes	0	54	108	54	0.45	0.8	0.35	**Vine**	0	54	107	54	0.15	0.65	0.3	1-Apr	215

[1] Mid-season crop coefficients for almonds and other tree crops may vary between 0.90 – 1.15 depending on whether a cover crop is present.

[2] The growing season for melons was revised from 229 days given in CUP to 123 days.

Figure B 9. Growth stage length and kc values from the Basin Study and the WEAP model

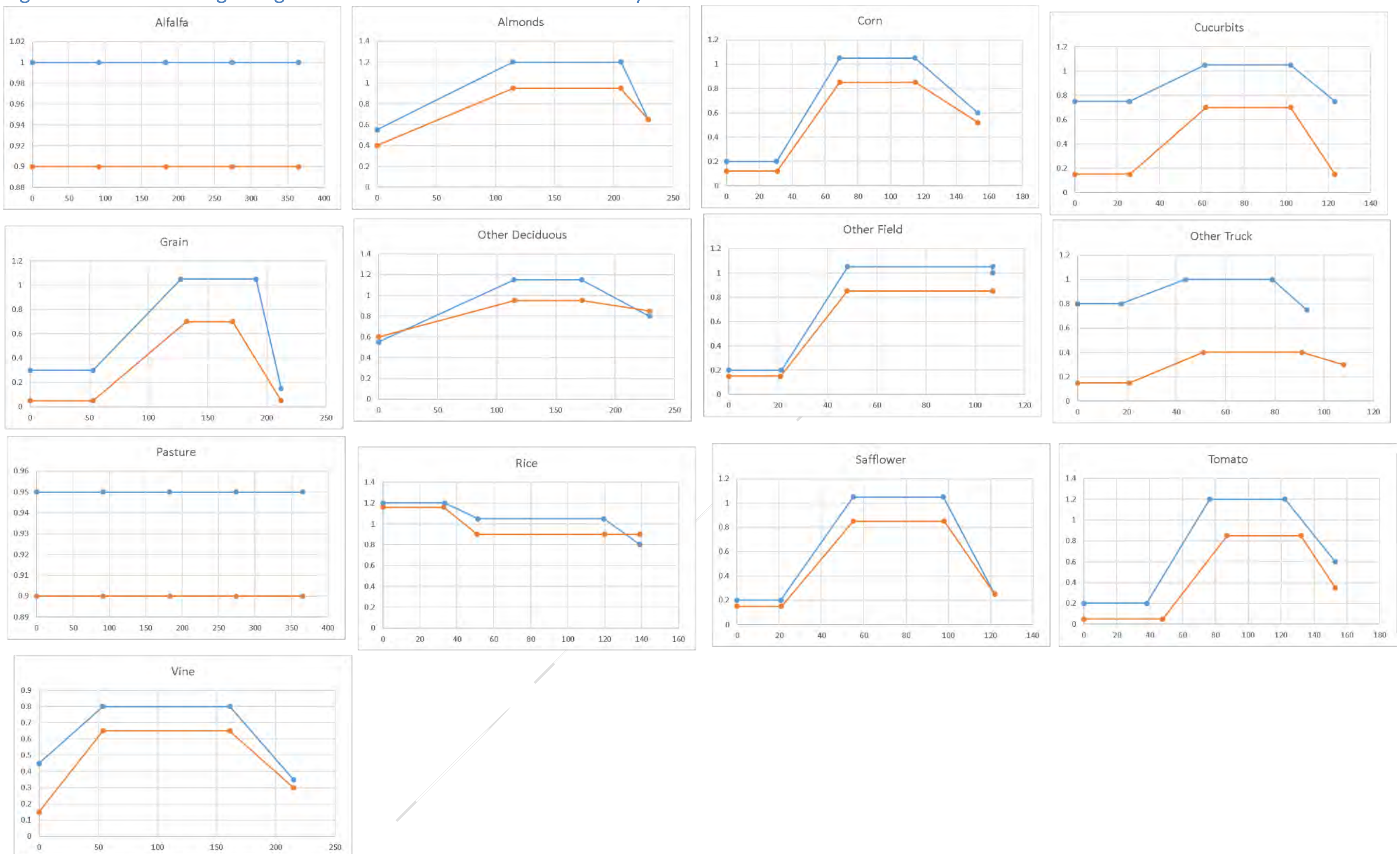


Figure B 10. Actual ET comparisons between the Basin study, the WEAP model and C2VSim

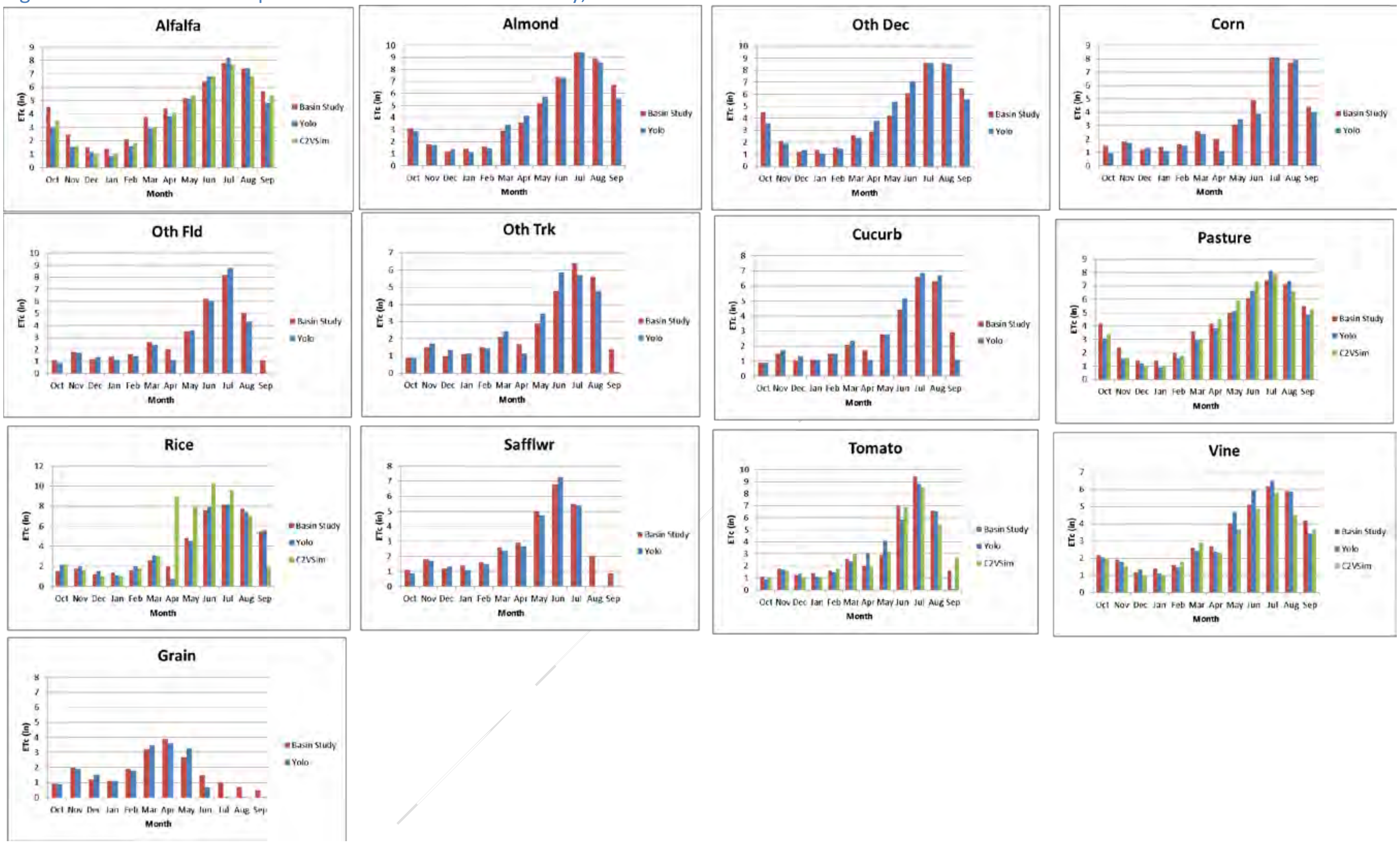


Table B 9. WEAP and Basin Study actual ET

	Irrigation Season	BasinStudy Actual ET (in)	WEAP Actual ET (in)	Percent Difference
Alfalfa	Apr-Sep	36.9	36.3	-1.5
Almond	March-Oct	47.2	47.1	-0.1
Oth Dec	Apr-Nov	43.5	44.4	2.0
Corn	May-Sep	28.2	27.5	-2.6
Oth Fld	May-Aug	22.9	22.8	-0.6
Oth Trk	May-Aug	19.7	19.8	0.7
Cucurb	May-Sep	23.0	22.6	-1.5
Pasture	Apr-Sep	35.3	35.9	1.7
Rice	May-Sep	33.9	33.6	-0.8
Safflwr	Apr-Jul	20.2	20.1	-0.7
Tomato	Apr-Aug	27.9	28.4	1.8
Vine	Apr-Nov	32.2	32.7	1.6
Grain	Nov-May	16.0	16.6	3.8

Applied Water

The applied water in the model was calibrated to DWR's applied water data (Table B 5) for the Detailed Analysis Unit titled "Lower Cache Creek" (Figure B 8). Average annual applied water was calculated over 1998-2010 in af/ac for all crops that existed in those years. For other crops, only the years where those crops existed in both models were averaged.[30] Each crop was compared between the WEAP calculated values and the DWR DAU values. Where applied water did not match between the WEAP model and DWR reported values, the irrigation efficiency for each crop was adjusted until the average was within 0.05 af/ac and 2% difference of the DWR reported values for all crops except rice and safflower. For rice, the variable "release requirement" was adjusted to calibrate applied water to the standards stated above. The final irrigation efficiencies and applied water for the Lower Cache Creek DAU, WEAP model, percent difference between them, and other nearby DAU's is shown in Table B 10, Figure B 11 and Figure B 12.

[30] For most crops, the average is calculated as annual applied water averaged over 1998-2010. Although cotton exists in the DAU dataset, there was no area within the WEAP model with cotton and therefore it is not included. Dry beans are only compared for year 1998 because it is the only year in the model with dry beans. Other truck in the WEAP model is compared to the average of other truck and onions and garlic in the DWR data. Sugar beet applied water was only averaged over 1998-2000 because these are the only years in both data sets with sugar beet plantings. Average applied water on tomatoes in the WEAP model are compared with the average of fr and pr tomato categories in the DWR data.

Table B 10. Comparison of average applied water from DWR DAU's and WEAP for each crop.

Crop	Irrigation Efficiency	WEAP Applied Water	Lower Cache Creek DAU Applied Water	Percent Difference	Sacramento DAU Applied Water	Vacaville DAU Applied Water	Willows Arbuckle DAU Applied Water
Alfalfa	57	5.20	5.29	-1.74	5.93	5.18	4.59
Almond	82	4.01	4.10	-2.11		3.82	3.26
Corn	68	2.91	2.99	-2.74	3.08	2.95	2.57
Cucurb	88	1.88	1.83	2.49	1.96	1.82	1.39
DryBean	83	1.95	1.91	1.84		2.55	2.05
Grain	36	1.15	1.16	-1.21	1.27	1.1	0.92
Oth Dec	76	4.14	4.12	0.62	3.91	3.89	3.26
Oth Fld	62	2.58	2.58	0.12	2.46	2.53	2.16
Oth Trk	50	2.83	2.88	-1.99	3	2.97	2.41
Pasture	52	5.68	5.77	-1.66	5.79	5.65	4.76
Rice	2*	5.51	5.52	-0.18			5.12
Safflwr	100	1.24	0.90	27.70	0.89	0.82	0.89
SgrBeet	72	4.00	4.02	-0.49	4.02	3.97	3.04
Subtrop	85	3.37	3.30	2.16	3.74	3.39	2.54
Tomato	70	2.92	2.98	-2.09		3.01	2.715
Vine	100	2.21	1.59	27.92	1.77	1.49	1.88

*This value is the release requirement in flooding, in millimeters. This is the value that was adjusted in calibration for rice rather than irrigation efficiency

Figure B 11. Comparison of average applied water from Lower Cache Creek DAUE and average irrigation from WEAP for each

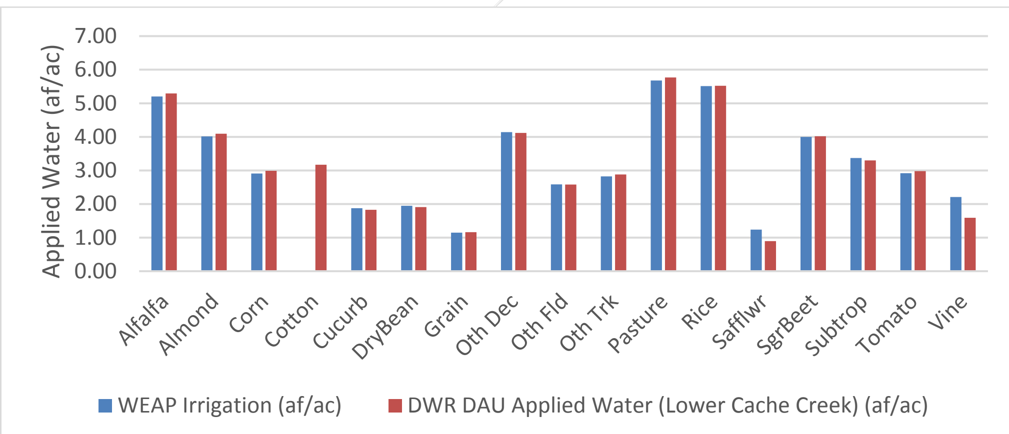
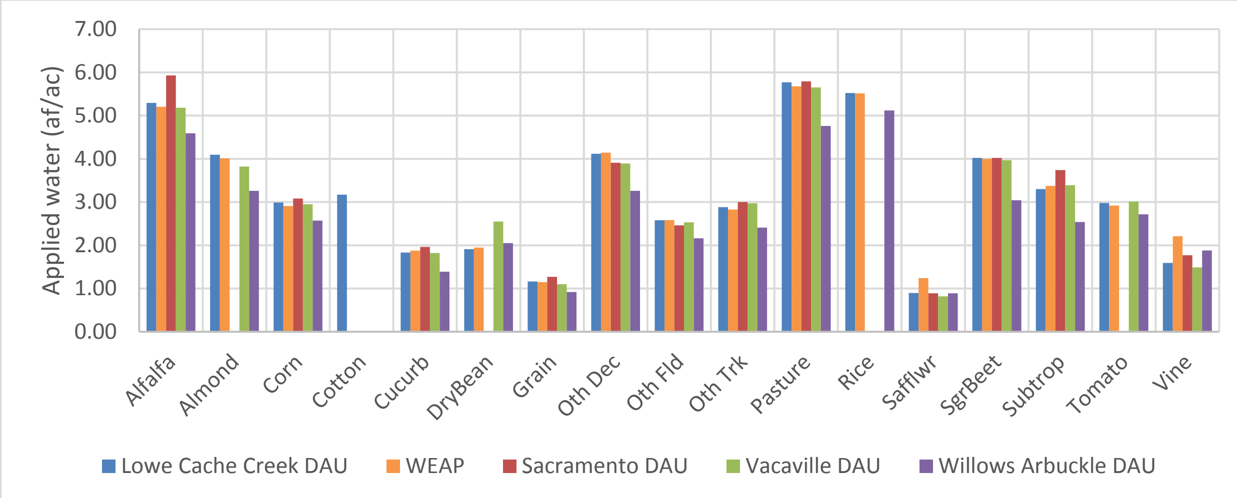


Figure B 12. Comparison of average applied water from nearby DAUs and WEAP for each crop.



Streamflows

Streamflows in North Fork of Cache Creek and Kelsey Springs, the tributaries to Indian Valley Reservoir and Clear Lake, respectively, which have USGS stream gauges, were calibrated in the model by adjusting soil parameters in the catchments which runoff into these creeks. Cache Creek downstream, at Yolo, was also calibrated by adjusting reservoir outflows and soil parameters in the corresponding catchments. Calibration statistics are shown in Table B 11 and the observed and modeled streamflows for each creek are shown inFigure B 13, Figure B 14 and Figure B 15.

Table B 11. Calibration statistics for streamflows, compared to USGS gauges.

	Kelsey Creek	North Fork Cache Creek	Cache Creek
NSE	0.89	0.82	0.81
RMSE (AF)	2,592	5,609	40,247
PBias (%)	-5	-13	-13
Calibration period	Oct 1976-Sept 2008, monthly	Oct 1976-Sept 2008, monthly	Oct 1974- September 2009, monthly

Figure B 13. Observed and modeled streamflow in Cache Creek at Yolo

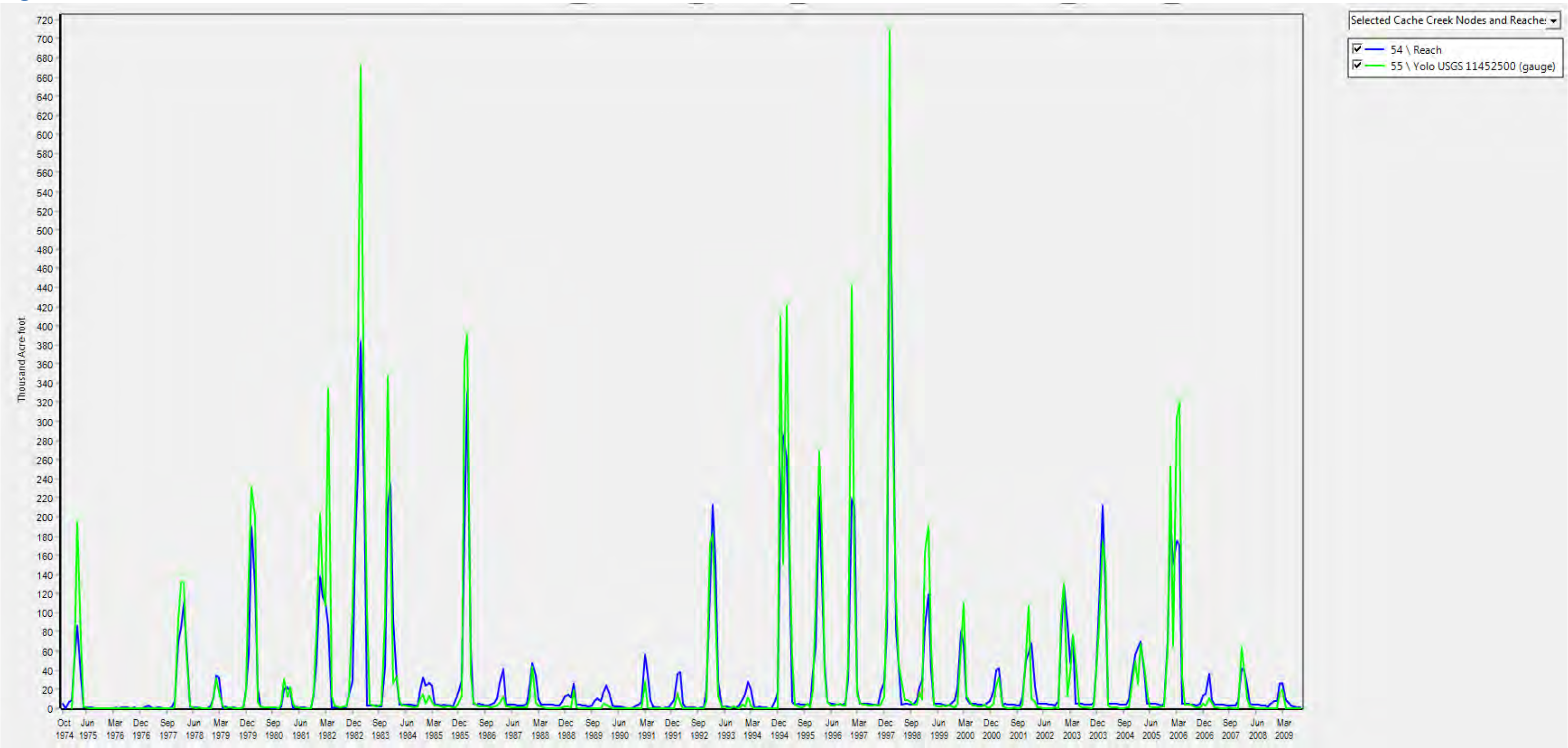


Figure B 14. Observed and modeled streamflow in Kelsey Creek

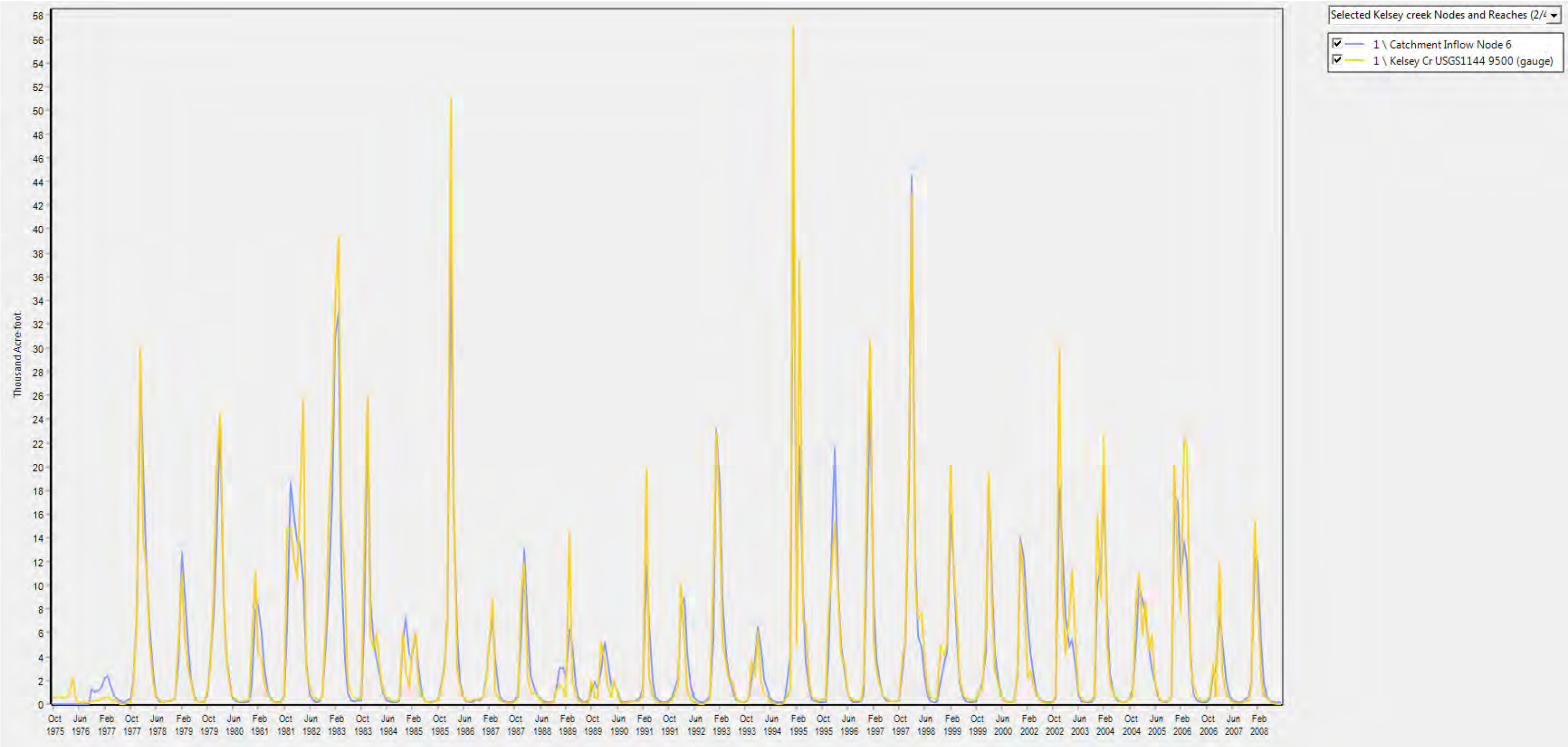
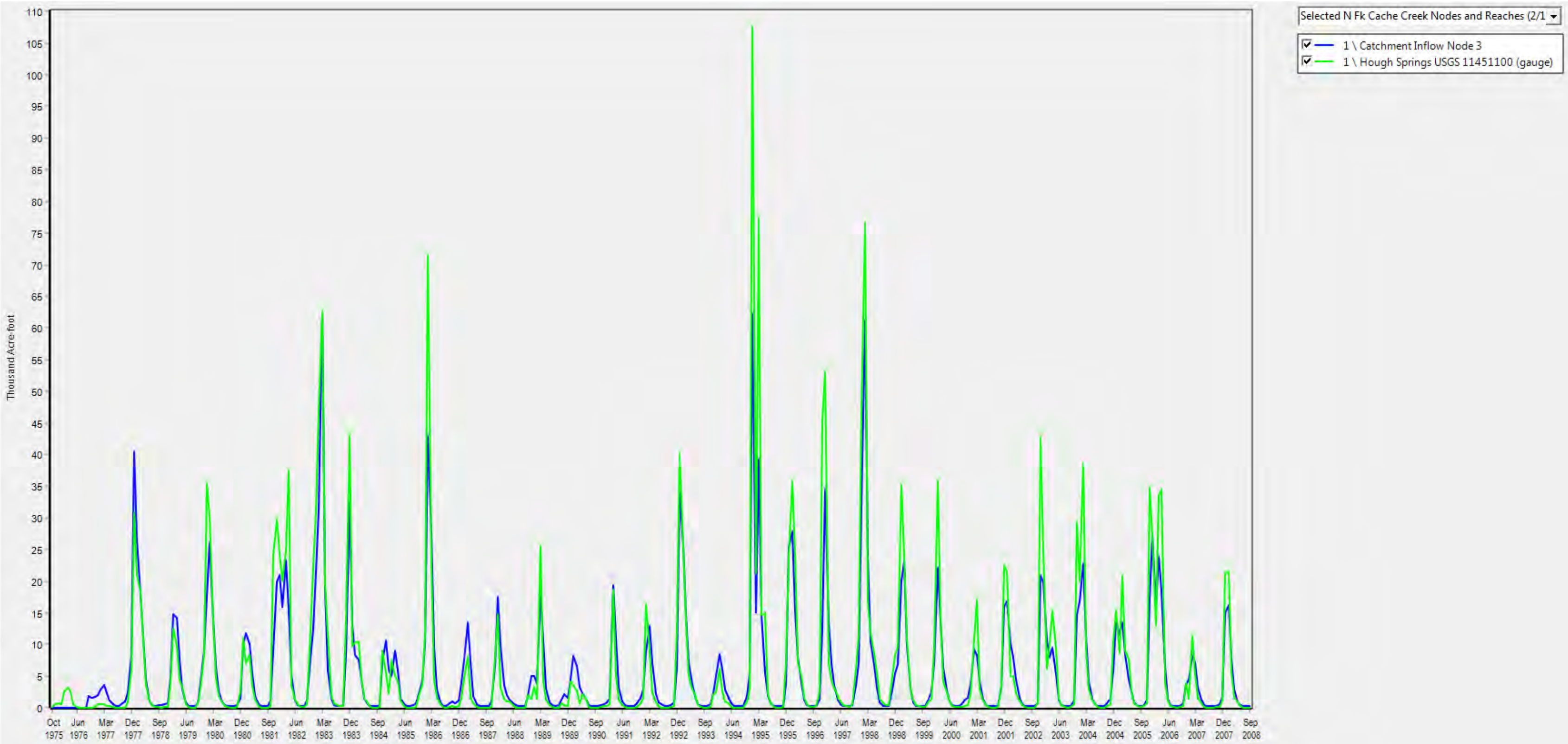


Figure B 15. Observed and modeled streamflow in the North Fork of Cache Creek at Hough Springs



Reservoir Volumes

After streamflows upstream of Clear Lake and Indian Valley were calibrated, the reservoirs were calibrated by adjusting reservoir operating rules which deliver water to the YCFC catchments. Those rules and calibration methods are described in detail in Mehta et al., 2013 and were not further adjusted in this version of the model. The resulting statistics for the two reservoirs are shown in Table B 12 and the modeled and observed volumes are shown in Figure B 16 and Figure B 17.

Table B 12. Calibration statistics for the two reservoirs in the model

	Clear Lake	**Indian Valley**
NSE	0.91	0.89
RMSE (AF)	32,937	31,001
PBias (%)	-1.4	-2.4
Calibration period	Water Year 1974-2010 (monthly)	Oct 1975- May 2010 (monthly)

Figure B 16. Clear Lake observed and modeled volumes.

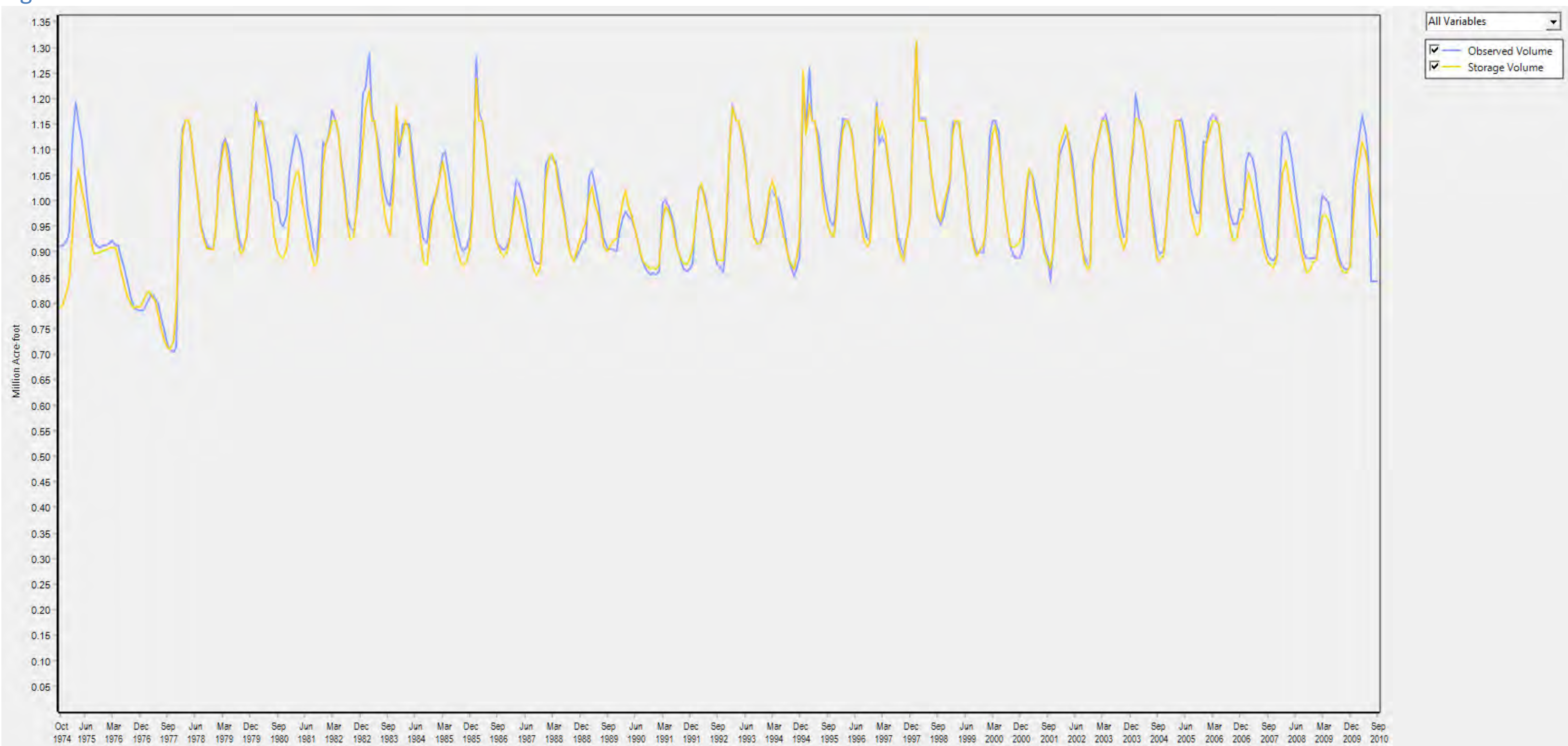
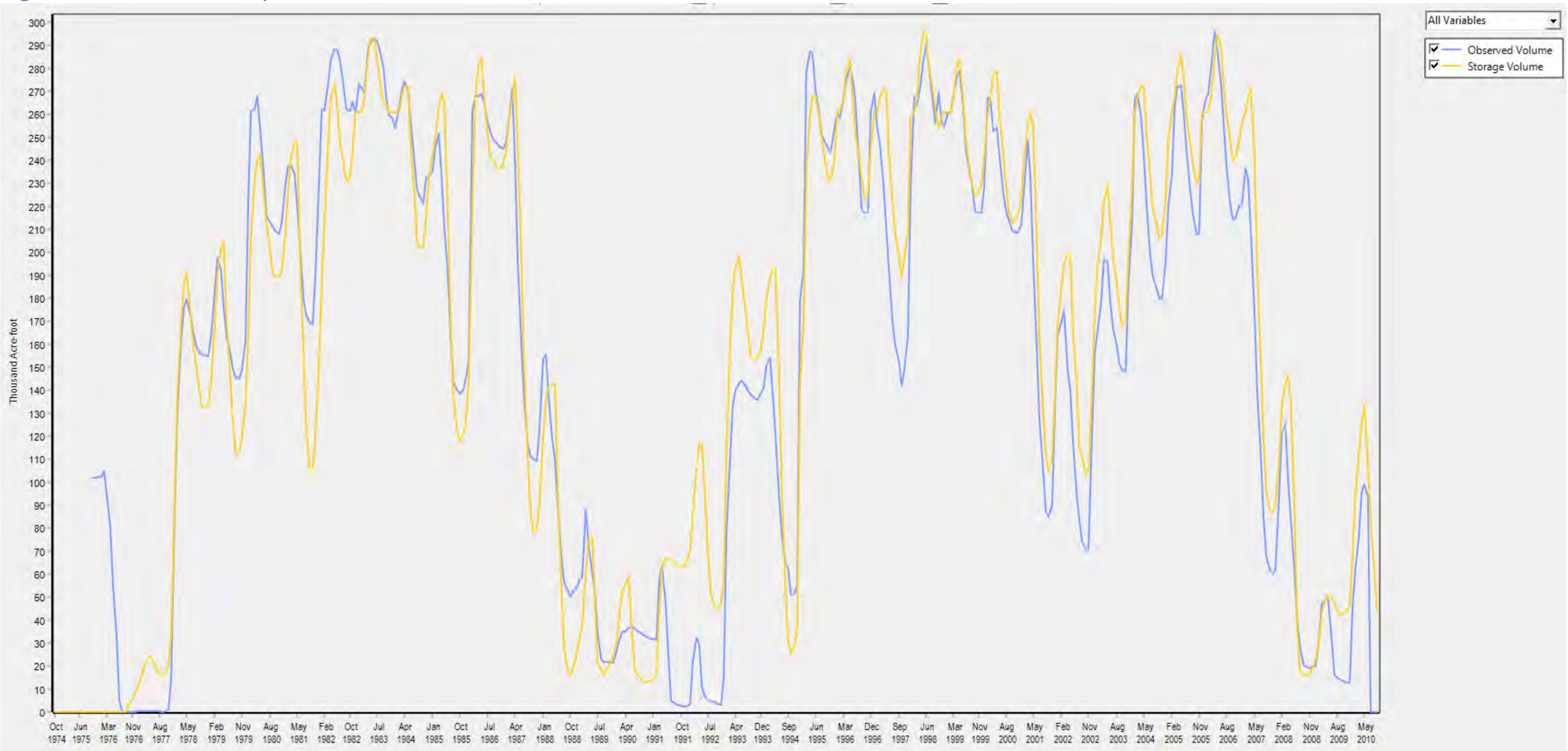


Figure B 17. Indian Valley Reservoir observed and modeled volumes



Appendix C. Justification for modifications from original scope of work

For various reasons, the work presented in this document is a slight modification from what was originally proposed in our scope of work. This appendix lays out the modifications and rationale for them.

Original scope of work:

"The SWRP will include an expansion of the WEAP model by SEI for the entire planning area and investigate the impacts of existing and potential new storm water management strategies, of water purveyors within this expanded area plus [Yolo County Flood Control and Water Conservation District] that will address the following questions:

- *What are the opportunities for co-benefits of augmented groundwater recharge with storm water and the resulting increased summer irrigation water availability?*
- *What do individual recharge plans mean at a collective scale for the planning area/county?*
- *How will this improve the water system resiliency in the face of climate change/variability?*

Once the WEAP model is updated, it is anticipated that the above questions will be answered by the model outputs: groundwater recharge volume, groundwater quality impacts/improvements, water supply availability for agricultural irrigation, and financial impacts."

As the main text of the report describes, SEI modified an existing WEAP model for the entire planning area, dividing it into 38 catchments, plus the upstream Cache Creek watershed (modifications from the Cache Creek Model to the Yolo Storm Water Model, Table 1.1). SEI then used both the Cache Creek Model and the Yolo Storm Water Model for two for the analyses presented in this report in Chapter 3 and Chapter 4. In Chapter 3, we investigated the runoff and groundwater recharge trade-offs of canal operation from diverting Cache Creek winter flows into Yolo County Flood Control and Water Conservation District's unlined canal system. In Chapter 4, the same trade-offs were investigated in implementing a farm-field scale management of winter field runoff by imagining the construction of berms around selected fields.

In each scenario, a long historical period of 35 years was simulated, from water years 1976-2010. This period captures very dry periods (e.g. 1976/77; late 1980's) as well as wet periods, allowing us to understand the potential impacts of climate variability on water management scenarios.

As the introduction describes, over the course of the project, the project team collectively decided that the best use of the WEAP model was at the larger landscape scale, and not at the scale of individual projects, which were largely at the sub-city scale. Additionally, each projects quantitative benefits were estimated by different methods by each entity, which made it difficult to incorporate into one platform. As a result, the focus of WEAP scenarios remained at the larger scales of water management. This also meant that water quality and financial metrics could not be investigated.

Along with this decision, the project team also agreed that event-based modeling of upstream sloughs could be informative. Thus, SEI built a HEC-HMS model of slough watersheds (the Western Yolo Model, Table 1.1, an addition to the original scope of work), and also conducted three field trips in service of understanding the interplay between flows from upstream sloughs, runoff from farm fields, local drainages and canal operations. These investigations, in concert with a deeper literature review, plus the modeling described above, led to our final conclusions and recommendations.

Appendix J

Grant Opportunities for Storm Water Projects

Appendix J: Grant Opportunities for Storm Water Projects
Category: Water/ Wastewater/ Water Quality

Program	Agency	Description	Deadline	Website
Sustainable Groundwater Planning (SGWP) Grant Program	DWR	Grants to support local groundwater planning efforts.	Round 1 applications due November 13, 2017	1. http://www.water.ca.gov/irwm/grants/sgwp/index.cfm 2. http://www.water.ca.gov/irwm/grants/sgwp/
Prop 1 Integrated Regional Water Management Grant Program	DWR	The IRWM Grant Program is designed to encourage integrated regional strategies for management of water resources by providing funding for projects and programs that support integrated water management.	Draft PSP expected Feb/March with applications possibly due in Sept/Oct 2018 (but will need applications to IRWMP group beforehand)	1. http://www.water.ca.gov/irwm/grants/prop1index.cfm 2. http://www.water.ca.gov/irwm/grants/docs/p1Guidelines/2016Prop1IRWM_GuidelinesPublicReviewDraft.pdf
Infrastructure State Revolving Fund (ISRF)	I-Bank	The California Infrastructure and Economic Development Bank (I-Bank) provides low interest loans for projects that promote economic development, and attract, create and sustain long-term employment opportunities. Infrastructure projects must meet the following definition: real and personal property, structures, conveyances, equipment, thoroughfares, buildings and supporting components thereof, excluding any housing, directly related to providing among the following (but not limited to): (1) Drainage, Water Supply, and Flood Control ; (2) Environmental Mitigation Measures; (3) Sewage Collection and Treatment; (4) Water Treatment and Distribution; (5) Power and communications facilities; (6) City streets and county highways; (7) Parks and recreational facilities.	Continuous	1. http://www.ibank.ca.gov/ibank/programs/isrf 2. http://www.ibank.ca.gov/
Clean Water State Revolving Fund (CWSRF)	SWRCB	This program provides low interest loans for water quality projects. The loan has a current interest rate of 1%. **Eligible projects include**, but are not limited to Construction of publicly-owned treatment facilities: (1) Wastewater treatment; (2) Local sewers; (3) Sewer interceptors; (4) Stormwater treatment; (5) Water reclamation and distribution facilities; (6) Combined sewers; (7) Landfill leachate treatment; (8) Repair and rehabilitation of wastewater treatment plants; (9) Energy efficiency upgrade for publicly owned treatment works; (10) Implementation of nonpoint source projects to address pollution associated with agriculture, forestry, urban areas, marinas, hydro-modification, and wetlands; (11) Development and implementation of estuary comprehensive conservation and management plans for San Francisco Bay, Morro Bay, Santa Monica Bay.	Continuous	1. www.waterboards.ca.gov/water_issues/programs/grants_loans/srf 2. http://abcrs.resources.ca.gov/guidelines/guideline_576.pdf
Stormwater Grant Program (SWGP)	SWRCB	Grants will be available through this program for multi-benefit stormwater management projects. Planning grants available for development of Storm Water Resource Plans. Implementation grants for green infrastructure, rainwater and stormwater capture, and stormwater treatment facilities.	Round 2 tentative for 2018.	1. http://www.waterboards.ca.gov/water_issues/programs/grants_loans/swgp/prop1/ 2. http://www.waterboards.ca.gov/water_issues/programs/grants_loans/proposition1.shtml

Program	Agency	Description	Deadline	Website
WaterSMART – Water and Energy Efficiency Grants	USBR	Grants are provided for projects that produce quantifiable and sustained water savings, increase use of renewable energy and improve energy efficiency in water management, benefit endangered species, create water markets, or carry out activities to address climate-related impacts on water or prevent any water-related crisis or conflict. Funds are also made available for water management improvements that complement ongoing efforts to address water supply sustainability. Project examples include the following: (1) Canal Lining/Piping; (2) Municipal Metering; (3) Landscape Irrigation Measures; (4) Groundwater Recharge; (5) Installation of renewable energy facilities related to water management and delivery; (6) Producing and using biomass or renewable fuels ; (7) Retrofitting water management facilities or equipment to increase energy efficiency; (8) Improving habitat, making additional water available, and managing vegetation; (9) Installing fish bypasses and fish screens; (10) Development of water markets to avoid or reduce water conflicts; (11) Projects that would make conserved water available for other uses.	Jan-18	1. http://www.usbr.gov/WaterSMART/weeg/index.html
Water Conservation Field Services Program	USBR	Funding for pre-project activities such as planning and design to support four categories of water conservation and water efficiency programs: system optimization reviews, designing water management improvements, demonstration of innovative technologies, and development of water management plans.	mid-Dec 2017	
WaterSMART - Small-Scale Water Efficiency Projects	USBR	A new funding category used to support small-scale water management projects that have been identified through previous planning efforts.	Jan-18	
Cooperative Watershed Management Program	USBR	Funding for established watershed groups with a completed watershed restoration plan to undertake watershed restoration projects	May-18	
USDA Water and Waste Disposal Loan and Grant Program	USDA	Provides funding for clean and reliable drinking water systems, sanitary sewage disposal, sanitary solid waste disposal, and storm water drainage to households and businesses in eligible rural areas.	Continuous	1. http://www.rd.usda.gov/programs-services/water-waste-disposal-loan-grant-program

Category: Habitat/ Agricultural Lands

Program	Agency	Description	Deadline	Website
Watershed Restoration Grant Program	CDFW	Funding for more reliable water supplies, the restoration of important species and habitat, and more resilient, sustainably managed water resources systems. Projects must be regional in nature and located outside of the Delta. Funding shall only be used for projects that will provide fisheries or ecosystem benefits or improvements that are greater than required applicable environmental mitigation measures or compliance obligations.	Anticipated in Summer 2018	1. https://www.wildlife.ca.gov/conservation/watersheds/restoration-grants
Wetlands Restoration for Greenhouse Gas Reduction	CDFW	Funding for projects that reduce greenhouse gasses while providing other benefits such as enhanced fish and wildlife habitat, improved water quality and quantity, and climate change adaptation. No project will be considered for funding that is a required mitigation. No project that is under an enforcement action by a regulatory agency will be considered for funding.	Potential future solicitation - depending on funding.	1. https://www.wildlife.ca.gov/Conservation/Watersheds/Greenhouse-Gas-Reduction
Environmental Enhancement Fund	CDFW	Grants to support environmental enhancement projects located within or immediately adjacent to waters of the state. Must acquire, restore, or improve habitat or restore ecosystem function, or both, to benefit fish and wildlife.	Potential future solicitation in 2018.	1. https://www.wildlife.ca.gov/ospr/science/environmental-enhancement-fund/about

Program	Agency	Description	Deadline	Website
California Riparian Habitat Conservation Program	CA WCB	This program aims at protecting, preserving, restoring, and enhancing riparian habitat throughout California. Examples of eligible projects include: (1) Bank stabilization and revegetation (2) Restoration of riparian vegetation on flood (3) prone land (4) Installation of fencing along the riparian corridor to control and/or manage livestock or wildlife. (5) Removal of nonnative invasive plant species and restoration of native riparian vegetation.	Continuous	1. https://www.wcb.ca.gov/Programs/Riparian.aspx
California Coastal Conservancy Proposition 1 Grant Program	California Coastal Conser-vancy	All Proposition 1 grants funded by the Conservancy must achieve one of the following: (1) Protect and increase the economic benefits arising from healthy watersheds, fishery resources and instream flow. (2) Implement watershed adaptation projects in order to reduce the impacts of climate change on communities and ecosystems. (3) Restore river parkways throughout the state, including but not limited to projects pursuant to the California River Parkways Act of 2004 and urban river greenways. (4) Protect and restore aquatic, wetland and migratory bird ecosystems including fish and wildlife corridors and the acquisition of water rights for instream flow. (5) Fulfill the obligations of the state of California in complying with the terms of multiparty settlement agreements related to water resources. (6) Remove barriers to fish passage. (7) Collaborate with federal agencies in the protection of fish native to California and wetlands in the central valley of California. (8) Implement fuel treatment projects to reduce wildfire risks, protect watersheds tributary to water storage facilities and promote watershed health. (9) Protect and restore rural and urban watershed health to improve watershed storage capacity, forest health, protection of life and property, stormwater resource management, and greenhouse gas reduction. (10) Protect and restore coastal watershed including but not limited to, bays, marine estuaries, and nearshore ecosystems. (11) Reduce pollution or contamination of rivers, lakes, streams, or coastal waters, prevent and remediate mercury contamination from legacy mines, and protect or restore natural system functions that contribute to water supply, water quality, or flood management. (12) Assist in the recovery of endangered, threatened, or migratory species by improving watershed health, instream flows, fish passage, coastal or inland wetland restoration, or other means, such as natural community conservation plan and habitat conservation plan implementation. (13) Assist in water-related agricultural sustainability projects. Funds may only be used for projects that will provide benefits or improvements that are greater than required applicable environmental mitigation measures or compliance obligations.	October 31, 2017, February 2018, May 2018	1. http://scc.ca.gov/grants/proposition-1-grants/ 2. http://scc.ca.gov/webmaster/ftp/pdf/sccbb/2016/1609/20160929Board04B_Rev_SCC_Prop_1_Grant_Guidelines_Ex1.pdf
Agricultural Drainage Program	State Water Resources Control Board	The Agricultural Drainage Loan Program was created by the Water Conservation and Water Quality Bond Act of 1986 to address treatment, storage, conveyance, or disposal of agricultural drainage water that threatens waters of the State. Loan repayments are for a period of up to 20 years. Projects must address treatment, storage, conveyance or disposal of agricultural drainage that threaten waters of the State.	Continuous	1. http://www.waterboards.ca.gov/water_issues/programs/grants_loans/agdrain/agdrain_loan.shtml
Agricultural Drainage Management Loan Program	State Water Resources Control Board	The Agricultural Drainage Management Loan Program, created by Proposition 204 and distributed through the Agricultural Drainage Management Subaccount, provides loan and grant funding for Drainage Water Management Units. Drainage Water Management Units are land and facilities for the treatment, storage, conveyance, reduction or disposal of agricultural drainage water that, if discharged untreated, would pollute or threaten to pollute the waters of the State.	Continuous	1. http://www.waterboards.ca.gov/water_issues/programs/grants_loans/agdrain/agdrain_mgmt.shtml

Program	Agency	Description	Deadline	Website
Conservation Innovation Grants	Natural Resources Conserva-tion Service	The purpose of CIG is to stimulate the development and adoption of innovative conservation approaches and technologies, while leveraging the Federal investment in environmental enhancement and protection in conjunction with agricultural production.	Potential future solicitation in 2018.	1. https://www.nrcs.usda.gov/wps/portal/nrcs/main/ca/programs/financial/cig/ 2. https://www.grants.gov/custom/viewOppDetails.jsp?oppId=292998
Climate Ready Grant Round 4	California Coastal Conser-vancy	The Coastal Conservancy's Climate Ready Program seeks to encourage local governments and non-governmental organizations to take steps to prepare for a changing climate by advancing planning and implementation of on-the-ground actions that reduce greenhouse gas emissions and/or lessen the impacts of climate change on California's coastal communities and natural resources. Selected applicants will receive technical assistance rather than financial assistance.	Potential future solicitation in 2018.	1. http://scc.ca.gov/climate-change/climate-ready-program/ 2. http://scc.ca.gov/grants/grant-application/
Agriculture and Food Research Initiative - Resilient Agroecosystems in a Changing Climate Challenge Area	National Institute of Food and Agriculture	The AFRI Resilient Agroecosystems in a Changing Climate Challenge Area supports activities that enable the nation's agriculture and forest lands to adapt to current and future climate conditions (including increased droughts and other extreme events), maintain or increase production, efficiently use soil and water resources, and improve soil, water and air conditions. Land managers are experiencing more variable weather patterns, especially with regard to water issues such as more intense patterns of droughts and floods, and the lengthening of the growing season over the last three decades. Research results from this challenge area will lead to improved management systems and crop varieties that consider the risks associated with a more variable environment. Another long-term outcome of this challenge area is reducing the environmental impact while maintaining a productive food, feed, fiber, and fuel system.	Potential future solicitation in 2018.	1. https://nifa.usda.gov/node/2951
Agriculture and Food Research Initiative - Foundational Program	National Institute of Food and Agriculture	The AFRI Foundational Program is offered to support grants in the six AFRI priority areas to continue building a foundation of knowledge critical for solving current and future societal challenges. The six priority areas are: Plant Health and Production and Plant Products; Animal Health and Production and Animal Products; Food Safety, Nutrition, and Health; Bioenergy, Natural Resources, and Environment; Agriculture Systems and Technology; and Agriculture Economics and Rural Communities. Single-function Research Projects, multi-function Integrated Projects, and Food and Agricultural Science Enhancement (FASE) Grants are expected to address one of the Program Area Priorities (see Foundational Program RFA for details).	various deadlines through 9/30/2018	1. https://nifa.usda.gov/funding-opportunity/agriculture-and-food-research-initiative-foundational-program
Rural Community Development Initiative (RCDI)	Utilities Programs	Qualified private, nonprofit and public including tribal intermediary organizations proposing to carry out financial and technical assistance programs will be eligible to receive the funding. The Intermediary will be required to provide matching funds in an amount at least equal to the RCDI grant. The respective minimum and maximum grant amount per Intermediary is $50,000 and $250,000. The Intermediary must provide a program of financial and technical assistance to recipients to develop their capacity and ability to undertake projects related to housing, community facilities, or community and economic development that will support the community.	Future solicitation anticipated in 2018.	1. https://www.rd.usda.gov/programs-services/rural-community-development-initiative-grants 2. https://www.gpo.gov/fdsys/pkg/FR-2017-05-26/pdf/2017-10776.pdf

Category: Flooding/ Drainage

Program	Agency	Description	Deadline	Website
Small Community Flood Risk Reduction	DWR	The Small Communities Flood Risk Reduction Program (Small Communities Program) is a cost-share grant program that provides local assistance to communities with fewer than 10,000 residents that are protected by the State Plan of Flood Control (SPFC). The Small Communities Program was created as a result of the 2012 Central Valley Flood Protection Plan (CVFPP), and is intended to help small communities achieve 100-year flood protection. Initially, funding is being provided to study the feasibility of flood risk reduction projects.	Potential future solicitation.	1. http://www.water.ca.gov/floodmgmt/funding/small-communities.cfm
Flood Protection Corridor Program	DWR	This program provides funding for non-structural flood management projects that include wildlife habitat enhancement and/or agricultural land preservation components. In addition to demonstrating a significant reduction of peak flood flows, flood stage, flood risk or potential flood damage, projects must also include an agricultural land conservation component, wildlife habitat conservation or enhancement component, or a combination of both. The proposed project activity must be at least 50 percent by area within, or provide substantial flood risk reduction benefits to, the 100-year floodplain. Less than 20 percent of grant funds can go towards structural actions.	Unknown (Potential Future Opportunity)	1. http://www.water.ca.gov/floodmgmt/fpo/sgb/fpcp/ 2. http://www.water.ca.gov/grantsloans/grants/corridor.cfm
15-558 Hydrologic Sciences (HS)	NSF	The Hydrologic Sciences Program focuses on the fluxes of water in the environment that constitute the water cycle as well as the mass and energy transport function of the water cycle. The Program supports the study of processes from rainfall to runoff to infiltration and streamflow; evaporation and transpiration; the flow of water in soils and aquifers; and the transport of suspended, dissolved, and colloidal components. The Hydrologic Sciences Program retains a strong focus on linking fluxes of water and the components carried by water across boundaries between various interacting facets of the terrestrial system and the mechanisms by which these fluxes co-organize over a variety of timescales and/or alter fundamentals of water cycle interactions within the terrestrial system. The Program is also interested in how water interacts with the landscape and the ecosystem as well as how the water cycle and its coupled processes are altered by land use and climate. Studies may address physical, chemical, and biological processes that are coupled directly to water transport. Projects submitted to Hydrologic Sciences commonly involve expertise from basic sciences, engineering and mathematics; and proposals may require joint review with related programs. The Hydrologic Sciences Program will also consider synthesis projects.	Continuous	1. https://www.nsf.gov/funding/pgm_summ.jsp?pims_id=13684

Appendix K

Existing Data Collection, Monitoring Programs, and Decision Support Tools

Appendix K: Existing Data Collection, Monitoring Programs, and Decision Support Tools

This Appendix was prepared to identify information needs, potential information sources, and tools for tracking progress on Yolo County SWRP implementation and achievement of objectives. This Appendix is intended for use by project proponents and the Yolo WRA to aid in measuring implementation project performance as described in Section 6. This Appendix was prepared using the 10 April 2013 Technical Memorandum for Westside Sacramento IRWMP, "Information Needs, Potential Sources, and Suggested Implementation Steps for Tracking Progress on Plan Objectives," and information has been updated appropriately for the SWRP for Yolo County. Because this Appendix will be referenced during the tracking of Yolo County SWRP implementation projects, it is anticipated that this Appendix N will be updated as data gaps and outdated information are identified.

This Appendix is organized by each SWRP Objective as presented in Section 1 and includes the potential benefit categories met, potential qualitative measurement, potential quantitative measurement, and local and statewide Data Sources/Decision Support Tools.

1. Provide and promote use of educational curricula for K-12 students

Potential Benefit Categories Met

Community

Potential Qualitative Measurement

None

Potential Quantitative Measurement

- Availability of curricula suitable to each grade and student population within Yolo County.
- Number of schools contacted each year to promote use of curricula.
- Number of students who receive instruction from grade-suitable curricula.

Notes

May host an education summit as part of Plan implementation that could result in new targets to replace the current ones.

Data Sources/Decision Support Tools

Education and outreach are available through various agencies within the SWRP area that provide workshops, seminars, field trips, trainings conference presentations, site tours and environmental education to local schools.

<u>Local Resources</u>

- Yolo County Resource Conservation District – Currently run educational workshops for the public however do not have an active education program to target students (http://www.yolorcd.org/nodes/programs/education_outreach.htm)
- Yolo Basin Foundation (http://yolobasin.org/#)
- Cache Creek Conservancy (https://sites.google.com/site/cccpractice2/environmental-education) – Does keep track of the number of students mainly focus on 3rd -6th grade students

- Center for Land-Based Learning (http://landbasedlearning.org/)
- Putah Creek Council (https://www.putahcreekcouncil.org/k-12-environmental-education-and-field-trips)
- Yolo County Office of Education (www.ycoe.org/)

General Resources

- California Environmental Protection Agency Education and the Environment Initiative (http://www.californiaeei.org/); A cooperative, statewide effort already in place to help K-12 students learn about the environment and how it relates to their everyday lives called the California Education and Environment Initiative (EEI). Curriculum information provided by the California Department of Education.
- California Department of Fish and Wildlife (https://www.wildlife.ca.gov/Learning)
- Water Education Foundation (http://www.watereducation.org/education)
- NPDES Phase II Small Municipal Separate Storm Sewer System Permits (https://www.waterboards.ca.gov/water_issues/programs/stormwater/ms4/phsii/eduoutreach.shtml)

Potential Information Needs

- Total estimated number of students in Yolo County by grade level
- Total estimated number of schools in Yolo County by type and location

In order to know if Yolo County is meeting or making progress towards this objective, the total number schools and students within Yolo County will need to be obtained. This information can be approximated from the U.S. Census (http://www.census.gov) or by contacting the school districts within Yolo County to obtain student counts by grade and number of schools.

2. Provide educational information to encourage stewardship by public

Potential Benefit Categories Met

Community

Potential Qualitative Measurement

None

Potential Quantitative Measurement

- Number of people who receive the educational materials/messages within Yolo County each year.

Notes

Likely will be able to coordinate and share resources with agencies in Westside and neighboring IRWM Regions (e.g. the Regional Water Authority in the American River Basin Region has expressed interest in collaborating on this objective) who intend to conduct similar public education campaigns.

Data Sources/Decision Support Tools

Education and outreach are available through various agencies within Yolo County that provide workshops, seminars, field trips, trainings conference presentations, site tours and environmental education to local schools and communities.

Local Resources:

- Yolo County Resource Conservation District - Currently runs educational workshops for the public and have several publications such as "Welcome to the Watershed" (http://www.yolorcd.org/nodes/programs/education_outreach.htm)

- Yolo Basin Foundation (http://yolobasin.org/#)
- Cache Creek Conservancy (https://sites.google.com/site/cccpractice2/environmental-education) – Does keep track of the number of students mainly focus on 3rd -6th grade students
- Putah Creek Council (https://www.putahcreekcouncil.org/k-12-environmental-education-and-field-trips)

General Resources:

- California Environmental Protection Agency Education and the Environment Initiative (http://www.californiaeei.org/)
- California Department of Fish and Wildlife (https://www.wildlife.ca.gov/Learning)

Potential Information Needs

- Availability of benchmarked current public communications through various sources including outreach events, materials, and publications disseminated

In order to know if Yolo County is meeting or making progress towards this objective the total population of Yolo County will need to be obtained. This information can be approximated from the U.S. Census (http://www.census.gov).

3. Restore native vegetation/form/function along riparian/aquatic corridors

Potential Benefit Categories Met

Water Quality, Environmental

Potential Qualitative Measurement

None

Potential Quantitative Measurement

- Acres restored along corridors, canals and ditches
- Number of native plants planted
- Improved connectivity of habitat corridors

Notes

- Support goals established within Natural Community Conservation Plans (NCCPs), Habitat Conservation Plans (HCPs), and other habitat planning documents for Yolo County.
- As habitat planning documents are added or updated these targets need to be updated as well.

Data Sources/Decision Support Tools

Local Resources:

- Bay Delta Conservation Plan (http://baydeltaconservationplan.com/Home.aspx)
- California Stormwater Quality Association. Stormwater Best Management Practice Handbook, New Development and Redevelopment. 2003. (https://www.casqa.org/resources/bmp-handbooks/new-development-redevelopment-bmp-handbook)
- Lower Putah Creek Watershed Management Action Plan documents. Lower Putah Creek Coordinating Committee. (http://www.scwa2.com/water-supply/lpccc)
- Cache Creek Resources Management Plan. Revised Final August 2002. Yolo County. (http://www.yolocounty.org/general-government/general-government-departments/county-

administrator/county-administrator-divisions/natural-resources/the-cache-creek-area-plan-ccap-/the-cache-creek-resources-management-plan-ccrmp-)

- Yolo County Resource Conservation District (http://www.yolorcd.org/) – Actively engaged in restoration work and partners with Solano RCD and the Audubon Landowner Stewardship Program (http://ca.audubon.org/landowner-stewardshipprogram)
- Cache Creek Conservancy (https://sites.google.com/site/cccpractice2/) – Restoration is main focus and where most of their budget is dedicated they manage a nature preserve. Complete annual maintenance on invasive removal along Cache Creek.
- Conaway Preservation Group (https://www.facebook.com/Conaway-Ranch-314930978535026/)
- Yolo Bypass Wildlife Area Management Plan. 2006. California Department of Fish and Wildlife. (https://www.wildlife.ca.gov/Lands/Planning/Yolo-Bypass-WA)
- Integrated Regional Water Management Plan. 2007. Water Resources Association of Yolo County.
- Westside Sacramento Integration Regional Water Management Plan. Westside Sacramento Regional Water Management Group. 2013. (http://www.westsideirwm.com/)

General Resources:

- California Essential Habitat Connectivity Project: A Strategy for Conserving a Connected California (https://www.wildlife.ca.gov/conservation/planning/connectivity/CEHC)
- Department of Fish and Wildlife (https://www.wildlife.ca.gov/Conservation/Planning)
- Vegetation Treatment Program. Board of Forestry and Fire Protection. (http://bofdata.fire.ca.gov/board_committees/resource_protection_committee/current_projects/vegetation_treatment_program_environmental_impact_report_%28vtpeir%29/)
- Estimated Total Water Use. Model Water Efficient Landscape Ordinance in Division 2, Title 23, California Code of Regulations. Revised 2015.

Potential Information Needs

- Compilation of goals and targets from final adopted planning documents
- Confirm existence or need for specific habitat planning document in upper Cache and upper Putah creek watersheds
- Availability of compiled and benchmarked program implementation and timing information to be able to determine to what extent the IRWM program will support goals established in NCCPs/HCPs

4. Quantify the extent of suitable life-cycle habitat for Threatened/Endangered/Imperiled native fish

Potential Benefit Categories Met

Environmental

Potential Qualitative Measurement

None

Potential Quantitative Measurement

Existence of documentation of extent of suitable life-cycle habitat currently accessible to threatened, endangered, or imperiled native fish within Yolo County.

Data Sources/Decision Support Tools

<u>Local Resource:</u>

- Bay Delta Conservation Plan (http://baydeltaconservationplan.com/Home.aspx)
- Lower Putah Creek Watershed Management Action Plan documents. Lower Putah Creek Coordinating Committee. (http://www.scwa2.com/water-supply/lpccc)
- Cache Creek Resources Management Plan. Revised Final August 2002. Yolo County. (http://www.yolocounty.org/general-government/general-government-departments/county-administrator/county-administrator-divisions/natural-resources/the-cache-creek-area-plan-ccap-/the-cache-creek-resources-management-plan-ccrmp-)
- Yolo County Resource Conservation District (http://www.yolorcd.org/) – Recently involved in creation of on-farm habitat for species of special concern Sacramento Perch worked with Dr. Peter Moyle at UC Davis.
- Dr. Peter B. Moyle, Associate Director, Center for Watershed Sciences, University of California, Davis. (https://watershed.ucdavis.edu/cws-wfcb-fish-conservation-group)
- Patrick Crain, Fish Biologist, University of California, Davis.
- Yolo County Natural Resources Manager – Elisa Sabatini (http://www.yolocounty.org/Home/Components/StaffDirectory/StaffDirectory/543/664)

<u>General Resources:</u>

- San Diego Zoo. *Missing Linkages: Restoring Connectivity to the California Landscape*. 2000. (http://www.scwildlands.org/)
- California Essential Habitat Connectivity Project: A Strategy for Conserving a Connected California (https://www.wildlife.ca.gov/conservation/planning/connectivity/CEHC)
- Department of Fish and Wildlife – General information regarding natural community conservation planning (https://www.wildlife.ca.gov/Conservation/Planning)

Potential Information Needs

- Documented research and GIS mapping identifying suitable life-cycle habitat for targeted species
- Prepare summary of findings in study for further implementation of SWRP

5. Prioritize/plan/schedule improvements to suitable life-cycle habitat for T/E/I native fish

Potential Benefit Categories Met

Environmental

Potential Qualitative Measurement

None

Potential Quantitative Measurement

The existence of a document with planned, prioritized, and scheduled improvements.

Notes

Data Sources/Decision Support Tools

<u>Local Resource:</u>

- Bay Delta Conservation Plan (http://baydeltaconservationplan.com/Home.aspx)
- Lower Putah Creek Watershed Management Action Plan documents. Lower Putah Creek Coordinating Committee. (http://www.scwa2.com/water-supply/lpccc)
- Cache Creek Resources Management Plan. Revised Final August 2002. Yolo County. (http://www.yolocounty.org/general-government/general-government-departments/county-administrator/county-administrator-divisions/natural-resources/the-cache-creek-area-plan-ccap-/the-cache-creek-resources-management-plan-ccrmp-)
- Yolo County Resource Conservation District (http://www.yolorcd.org/) – Recently involved in creation of on-farm habitat for species of special concern Sacramento Perch worked with Dr. Peter Moyle at University of California, Davis.
- Dr. Peter B. Moyle, University of California, Davis. (https://watershed.ucdavis.edu/cws-wfcb-fish-conservation-group)
- Patrick Crain, Fish Biologist, University of California, Davis.
- Yolo County Natural Resources Manager – Elisa Sabatini (http://www.yolocounty.org/Home/Components/StaffDirectory/StaffDirectory/543/664)

General Resources:

- San Diego Zoo. Missing Linkages: Restoring Connectivity to the California Landscape. 2000. (http://www.scwildlands.org/)
- California Essential Habitat Connectivity Project: A Strategy for Conserving a Connected California (https://www.wildlife.ca.gov/conservation/planning/connectivity/CEHC)
- Department of Fish and Wildlife (https://www.wildlife.ca.gov/Conservation/Planning)

Potential Information Needs

- Documented research and GIS mapping identifying suitable life-cycle habitat for targeted species
- Prepare summary of findings in study for further implementation of SWRP

6. Increase availability of suitable life-cycle habitat for Threatened/Endangered/Imperiled native fish identified

Potential Benefit Categories Met

Environmental

Potential Qualitative Measurement

None

Potential Quantitative Measurement

Change in the area of suitable life-cycle habitat that is accessible to target species.

Notes

Data Sources/Decision Support Tools

Local Resource:

- Bay Delta Conservation Plan (http://baydeltaconservationplan.com/Home.aspx)
- Lower Putah Creek Watershed Management Action Plan documents. Lower Putah Creek Coordinating Committee. (http://www.scwa2.com/water-supply/lpccc)

- Cache Creek Resources Management Plan. Revised Final August 2002. Yolo County. (http://www.yolocounty.org/general-government/general-government-departments/county-administrator/county-administrator-divisions/natural-resources/the-cache-creek-area-plan-ccap-/the-cache-creek-resources-management-plan-ccrmp-)
- Yolo County Resource Conservation District (http://www.yolorcd.org/) – Recently involved in creation of on-farm habitat for species of special concern Sacramento Perch worked with Dr. Peter Moyle at University of California, Davis.
- Dr. Peter B. Moyle, University of California, Davis. (https://watershed.ucdavis.edu/cws-wfcb-fish-conservation-group)
- Patrick Crain, Fish Biologist, University of California, Davis.
- Yolo County Natural Resources Manager – Elisa Sabatini (http://www.yolocounty.org/Home/Components/StaffDirectory/StaffDirectory/543/664)

General Resources:

- San Diego Zoo. Missing Linkages: Restoring Connectivity to the California Landscape. 2000. (http://www.scwildlands.org/)
- California Essential Habitat Connectivity Project: A Strategy for Conserving a Connected California (https://www.wildlife.ca.gov/conservation/planning/connectivity/CEHC)
- Department of Fish and Wildlife (https://www.wildlife.ca.gov/Conservation/Planning)

Potential Information Needs

- Documented research and GIS mapping identifying suitable life-cycle habitat for targeted species
- Prepare summary of findings in study for further implementation of SWRP

7. Prevent colonization by quagga mussels/zebra mussels and eliminate/prevent spread of New Zealand mud snails

Potential Benefit Categories Met

Environmental

Potential Qualitative Measurement

None

Potential Quantitative Measurement

Presence (or absence) of target invasive species by location within Yolo County.

Notes

A number of aquatic invertebrate prevention programs are operational within Yolo County now.

Data Sources/Decision Support Tools

Local Resources:

No information found.

General Resources:

- U.S. Bureau of Reclamation (https://www.usbr.gov/mussels/)
- U.S. Geological Survey (https://nas.er.usgs.gov/queries/FactSheet.aspx?speciesID=5)

- California Department of Fish and Wildlife (https://www.wildlife.ca.gov/Conservation/Invasives)
- The 100th Meridian Initiative (http://100thmeridian.org)

Potential Information Needs

- Documentation of an active regional, coordinated invasive aquatic invertebrates management and monitoring program.

8. Establish invasive plant management plan

Potential Benefit Categories Met

Environmental

Potential Qualitative Measurement

None

Potential Quantitative Measurement

Existence of an invasive plant management plan for Yolo County or integration of existing plans.

Notes

Data Sources/Decision Support Tools

Local Resources:

- Cache Creek Watershed Weed Management Plan, Yolo County Resource Conservation District. (http://www.yolorcd.org/nodes/programs/projects/Cache_Creek_Watershed_Weed_Management_Plan.htm)
- Yolo County Resource Conservation District (http://www.yolorcd.org/nodes/programs/invasives.htm)
- Lower Putah Creek Watershed Management Action Plan documents. Lower Putah Creek Coordinating Committee. (http://www.scwa2.com/water-supply/lpccc)
- Cache Creek Resources Management Plan. Revised Final August 2002. Yolo County. (http://www.yolocounty.org/general-government/general-government-departments/county-administrator/county-administrator-divisions/natural-resources/the-cache-creek-area-plan-ccap-/the-cache-creek-resources-management-plan-ccrmp-)

General Resources:

- California Invasive Plant Council (http://www.cal-ipc.org/)
- US Geological Survey, Ecosystems - Invasive Species Program (http://www.usgs.gov/ecosystems/invasive_species).
- Vegetation Treatment Program. Board of Forestry and Fire Protection. (http://bofdata.fire.ca.gov/board_committees/resource_protection_committee/current_projects/vegetation_treatment_program_environmental_impact_report_%28vtpeir%29/)

Potential Information Needs

- Select targeted invasive species (e.g. tamarisk, arrundo, etc.)
- Consistent geographic and species coverage throughout Yolo County.
- Understanding of existing invasives management activities
- Description and synthesis of existing invasives management activities
- Existence of invasive plant management plan

9. Implement invasive plant management plan

Potential Benefit Categories Met

Environmental

Potential Qualitative Measurement

No

Potential Quantitative Measurement

Measures appropriate to the targeted outcomes designated in the Invasive Plant Management Plan.

Data Sources/Decision Support Tools

Local Resources:

- Cache Creek Watershed Weed Management Plan, Yolo County Resource Conservation District. (http://www.yolorcd.org/nodes/programs/projects/Cache_Creek_Watershed_Weed_Management_Plan.htm)
- Yolo County Resource Conservation District (http://www.yolorcd.org/nodes/programs/invasives.htm)
- Lower Putah Creek Watershed Management Action Plan documents. Lower Putah Creek Coordinating Committee. (http://www.scwa2.com/water-supply/lpccc)
- Cache Creek Resources Management Plan. Revised Final August 2002. Yolo County. (http://www.yolocounty.org/general-government/general-government-departments/county-administrator/county-administrator-divisions/natural-resources/the-cache-creek-area-plan-ccap-/the-cache-creek-resources-management-plan-ccrmp-)

General Resources:

- California Invasive Plant Council (http://www.cal-ipc.org/)
- US Geological Survey, Ecosystems - Invasive Species Program (http://www.usgs.gov/ecosystems/invasive_species).
- Vegetation Treatment Program. Board of Forestry and Fire Protection. (http://bofdata.fire.ca.gov/board_committees/resource_protection_committee/current_projects/vegetation_treatment_program_environmental_impact_report_%28vtpeir%29/)

Potential Information Needs

- Regional Invasive Plant Management Plan

10. Create asset management plan for key water management infrastructure

Potential Benefit Categories Met

Water Supply

Potential Qualitative Measurement

None

Potential Quantitative Measurement

Existence of Asset Management Plan

Notes

The California Emergency Management Agency "critical infrastructure protection" criteria and the work done for existing Natural Hazard Mitigation Plans may be a reasonable place to start to identify key water management infrastructure within Yolo County and to set priorities for investment.

Data Sources/Decision Support Tools

Local Resources:

- City of Davis Water Distribution System Optimization Plan. 2011. (http://water.cityofdavis.org/Media/PublicWorks/Documents/PDF/PW/Water/Documents/Davis-Water-Distribution-System-Optimization-Plan-Report.pdf)
- City of Davis 2014 Water Rate Cost of Service Update. 2014. (http://38.106.5.235/home/showdocument?id=1247)
- City of Vacaville Infrastructure, Facilities and Services Status Report (http://www.cityofvacaville.com/index.aspx?page=66). 2007.
- City of Vacaville Municipal Services Review for Comprehensive Sphere of Influence Update. 2017. (http://www.ci.vacaville.ca.us/home/showdocument?id=7985)
- City of Winters Municipal Services Review. 2008. (http://www.cityofwinters.org/pdf/LAFCO%20Public%20Draft%20Winters%20MSR.pdf)
- City of Winters Sewer Collection System Master Plan. 2006. (http://www.cityofwinters.org/public_works/pdf/WintersFINAL2006SewerCollectionSystemMasterPlan_20070216.pdf)
- City of Winters Water Master Plan. 2006. (http://www.cityofwinters.org/public_works/pdf/WintersWaterMasterPlan_FINAL%2020070216.pdf)

General Resources:

- International Infrastructure Management Manual. 2015. (http://www.nams.org.nz/pages/273/international-infrastructure-management-manual-2011-edition.htm)
- California Emergency Management Agency, Critical Infrastructure Protection Program (http://www.caloes.ca.gov/for-businesses-organizations/plan-prepare/critical-infrastructure-protection)

Potential Information Needs

- Define what is key water management infrastructure (e.g., water supply, distribution, treatment, wastewater, flood management)
- Select key metrics from International Infrastructure Management Manual.
- Synthesis of existing infrastructure plans including geographic coverage that match the criteria for key water management infrastructure.

11. Meet 20% by 2020 conservation targets

Potential Benefit Categories Met

Water Supply

Potential Qualitative Measurement

None

Potential Quantitative Measurement

Water conservation measured in gallons per capita day as defined by the Water Conservation Act of 2009 and DWR guidance methodologies. Use UWMPs to measure progress. The 2015 interim demand and 2020 compliance targets for each urban water supplier are summarized in the following table:

Urban Water Supplier	Baseline (gpcd)	2015 Interim Demand (gpcd)	2020 Compliance Target (gpcd)
City of Davis	215	119	172
City of West Sacramento	293	183	234
City of Woodland	290	260	232

Notes

- The UWMP compliance targets are subject to review and revision during the 2020 UWMP development cycle. Water use efficiency is critical to all water agencies, but is particularly important to those agencies that use imported water diverted from the Sacramento River as meeting this objective will be key to reducing Yolo County's dependence on the Delta for water supply.
- Portions of Yolo County are not required to prepare an Urban Water Management Plan; however, there are multiple conservation programs and regional conservation is encouraged.

Data Sources/Decision Support Tools

Local Resources:

- City of Davis 2015 Urban Water Management Plan (http://cityofdavis.org/Home/ShowDocument?id=5586)
- City of West Sacramento 2015 Urban Water Management Plan (http://www.cityofwestsacramento.org/civica/filebank/blobdload.asp?BlobID=14238)
- City of Woodland 2015 Urban Water Management Plan (http://www.cityofwoodland.org/civicax/filebank/blobdload.aspx?blobid=16640)

General Resources:

- California Department of Water Resources Urban Water Management Programs (http://www.water.ca.gov/urbanwatermanagement/uwmp2015.cfm)
- Estimated Total Water Use. Model Water Efficient Landscape Ordinance in Division 2, Title 23, California Code of Regulations. Revised 2015.

Potential Information Needs

- Annual progress and 2020 UWMP updates to measure performance.

12. Increase adoption of agricultural Best Management Practices

Potential Benefit Categories Met

Water Quality, Water Supply

Potential Qualitative Measurement

None

Potential Quantitative Measurement

- Compliance with Senate Bill SBX7-7, the Water Conservation Act of 2009 (http://www.water.ca.gov/wateruseefficiency/sb7/).

- Number of required Efficient Water Management Practices (EWMPs) adopted.
- Number of optional EWMPs adopted.
- Number of other Best Management Practices (BMPs) adopted (beyond EWMPs).

Notes

- EWMPs are a subset of all potential BMPs.
- A list of EWMPs can be found in California Water Code §10608.48(c).
- Other agricultural BMPs include actions to protect or improve water quality, to improve soil conservation, or to reduce impacts on habitat.
- Since agricultural water users can divert up to 600,000 AFY from the Sacramento River, use of EWMPs is critical to reducing Yolo County's dependence on the Delta for water supply.

Data Sources/Decision Support Tools

Local Resources:

No information found.

General Resources:

- California Farm Bureau Federation (http://www.cfbf.com/)
- Natural Resources Conservation Service (https://www.nrcs.usda.gov/wps/portal/nrcs/site/national/home/
- Agricultural Water Council (http://www.agwatercouncil.org/)
- Department of Water Resources Agricultural Water Management Guidebook. (http://www.water.ca.gov/wateruseefficiency/agricultural/agmgmt.cfm)

Potential Information Needs

- Number of Ag water suppliers complying with Act in Yolo County; availability of Agricultural Water Management Plans for review
- Number and type of Ag BMPs and EWMPs currently implemented by suppliers in Yolo County.

13. Maintain and increase water-related recreational opportunities

Potential Benefit Categories Met

Community

Potential Qualitative Measurement

None

Potential Quantitative Measurement

- Describe maintenance activities that benefit water-related recreation performed annually.
- Describe additional or enhanced water-related recreational opportunities provided annually.

Notes

Some areas within Yolo County rely more heavily on water-related recreational opportunities as part of the local economy than other areas and so actions designed to maintain water-related recreation may hold a higher priority for those areas (e.g., communities surrounding Clearlake).

Data Sources/Decision Support Tools

Local Resources:

- Cache Creek Conservancy – provides creek side access to visitors can provide estimates (https://sites.google.com/site/cccpractice2/)
- Yolo County Parks, Recreation, & Wildlife Advisory Committee. (http://www.yolocounty.org/general-government/general-government-departments/parks/parks-recreation-wildlife-advisory-committee)

General Resources:

- U.S. Bureau of Reclamation – (https://www.usbr.gov/recreation/)
- U.S. Bureau of Land Management – (https://www.blm.gov/programs/recreation)
- California Department of Parks and Recreation (http://www.parks.ca.gov/)

Potential Information Needs

- Estimated usage at non-fee facilities/water bodies
- Existence of compiled estimates of recreation usage throughout Yolo County.
- List of recreation areas to be tracked in Yolo County.
- Summary of recreation-related maintenance activities throughout Yolo County.

Recreation areas that are non-fee do not have a means to track the number of people.

14. Provide adequate flood protection

Potential Benefit Categories Met

Flood Management

Potential Qualitative Measurement

None

Potential Quantitative Measurement

- Change in calculated level of flood protection.

Notes

Provide flood protection consistent with the Central Valley Flood Protection Plan; for urban and urbanizing areas meet the urban level of flood protection; for other developed areas meet the FEMA standard of flood protection; for rural areas provide the level of protection warranted for the assets subject to damage.

Data Sources/Decision Support Tools

Local Resources:

- Yolo County Flood Control and Water Conservation District (http://www.ycfcwcd.org/)
- Yolo County. Floodplain Management. (http://www.yolocounty.org/community-services/planning-public-works/building-inspection-services/floodplain-management)
- FloodSAFE Yolo Pilot Program (http://www.ycfcwcd.org/floodsafeyolo.html)
- California Department of Water Resources. *Central Valley Flood Protection Plan Update*. 2017. (http://www.water.ca.gov/cvfmp/2017-cvfpp-docs.cfm)

- California Department of Water Resources. Flood Control Systems Status Report. 2017. (http://www.water.ca.gov/cvfmp/docs/2017/2017FSSR-Compiled-Aug2017.pdf)
- Federal Emergency Management Agency. Flood Insurance Study, Yolo County. 2010.
- Water Resources Association of Yolo County. Storm runoff modeling for foothills west-southwest of Esparto. Stockholm Environment Institute. 2017.
- FloodSAFEYolo. Yolo County City/County Drainage Manual. Wood Rogers, 2010.

General Resources:

- California Department of Water Resources Flood Management (http://www.water.ca.gov/floodmgmt/)
- Governor's Office of Emergency Services. Pre-Disaster & Flood Mitigation. (http://www.caloes.ca.gov/cal-oes-divisions/hazard-mitigation/pre-disaster-flood-mitigation)

Potential Information Needs

- Identify current and targeted levels of flood protection deemed appropriate in Yolo County.
- GIS mapping coverages showing current and desired levels of flood protection.

15. Manage watershed activities to reduce large erosion events

Potential Benefit Categories Met

Water Quality, Flood Management, Environmental

Potential Qualitative Measurement

None

Potential Quantitative Measurement

- Number of large erosion events documented each year.
- Number of preventive measures taken and repairs made to reduce large erosion events.

Notes

Tracking progress on this objective will require establishing a definition of (and possibly criteria to identify) a "large erosion event" including consideration of wildfires, landslides, and construction-related discharges.

Data Sources/Decision Support Tools

Local Resources:

- Water Resources Association of Yolo County. Storm runoff modeling for foothills west-southwest of Esparto. Stockholm Environment Institute. 2017.
- FloodSAFEYolo. Yolo County City/County Drainage Manual. Wood Rogers, 2010.

General Resources:

- Bureau of Land Management Resource Management Plans for California's Public Lands (https://www.blm.gov/programs/planning-and-nepa/plans-in-development/california)
- California Stormwater Quality Association. Stormwater Best Management Practice Handbook, New Development and Redevelopment. 2003. (https://www.casqa.org/resources/bmp-handbooks/new-development-redevelopment-bmp-handbook)

- U.S. Department of Agriculture Forest Service Pacific Southwest Region Land and Resource Management Plan Mendocino National Forest (https://www.fs.usda.gov/resources/mendocino/landmanagement/resourcemanagement)
- U.S. Department of Agriculture Natural Resources Conservation Service (http://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/landscape/)
- Vegetation Treatment Program. Board of Forestry and Fire Protection. (http://bofdata.fire.ca.gov/board_committees/resource_protection_committee/current_projects/vegetation_treatment_program_environmental_impact_report_%28vtpeir%29/)

Potential Information Needs

- Define "large erosion event" and criteria that will be used to identify such an event.
- Documentation of preventative measures, programs, and activities currently undertaken throughout Yolo County
- Quantify number of acres burned in Yolo County

16. Monitor state/federal Delta programs

Potential Benefit Categories Met

Water Quality, Environmental, Community

Potential Qualitative Measurement

- Scientific information and studies available that characterize potential impacts to Yolo County.
- Active participation and engagement in specifically identified state and federal water resources planning and projects

Potential Quantitative Measurement

None

Notes

Data Sources/Decision Support Tools

<u>Local Resources:</u>

No information found.

<u>General Resources:</u>

- California Department of Water Resources. Water Data Library. (http://www.water.ca.gov/waterdatalibrary/)
- U.S. Geological Survey (USGS). USGS Water-Data Site Information for California. (https://waterdata.usgs.gov/ca/nwis/si)

Many other general state and federal programs could be listed here.

Potential Information Needs

- Identify which programs to monitor and existence of current representatives in Yolo County that monitor such programs.
- Define "active participation"

17. Monitor conditions/improve understanding to support sustainable groundwater basins

Potential Benefit Categories Met

Water Quality, Water Supply, Community

Potential Qualitative Measurement

- Information to understand and predict status of aquifer functions over the long-term
- Understand opportunities to improve regional water supply portfolio through conjunctive management

Potential Quantitative Measurement

Prevent long-term declines in groundwater levels and quality throughout Yolo County.

Notes

- Potential long-term declines of groundwater levels can be assessed by computing and reporting a 10-year moving average of groundwater levels at key locations for active aquifers each year within Yolo County. Comparing a 10-year moving average each year should filter out most effects of annual variability in local precipitation, groundwater use and recharge.
- Potential long-term declines in water quality can be assessed by computing an annual average for key constituents from select groundwater wells in active aquifers. The list of aquifers and constituents to be tracked for each aquifer needs to be identified.

Data Sources/Decision Support Tools

Local Resources:

- Yolo County Flood Control and Water Conservation District. Groundwater Management Plan. 2006. (http://www.ycfcwcd.org/documents/gwmp2006final.pdf)
- Yolo County Flood Control and Water Conservation District. Groundwater Monitoring Program Report. 2004. (http://www.ycfcwcd.org/pdffiles/reports/ab%20303%20gw%20final%20report%20pdf%20reduced.pdf)
- City of Davis/University of California, Davis. Groundwater Management Plan. 2006. (http://water.cityofdavis.org/Media/PublicWorks/Documents/PDF/PW/Water/Documents/Groundwater-Management-Plan.pdf)
- City of Woodland Groundwater Management Plan
- Colusa County Groundwater Management Plan
- Yolo County Integrated Groundwater and Surface Water Model, Model Development and Calibration. 2006. (http://www.ycfcwcd.org/documents/ycigsm_report_060106.pdf)
- Yolo Subbasin Groundwater Agency (https://yologroundwater.org/)
- Stockholm Environment Institute. Water Evaluation and Planning (WEAP) Model for Yolo County.
- Water Resources Association of Yolo County. Storm runoff modeling for foothills west-southwest of Esparto. Stockholm Environment Institute. 2017.

General Resources:

- California Department of Water Resources. Groundwater. (http://www.water.ca.gov/groundwater/)
- California Department of Water Resources. Water Data Library. (http://www.water.ca.gov/waterdatalibrary/)

- California Statewide Groundwater Elevation Monitoring (CASGEM) (http://www.water.ca.gov/groundwater/casgem)– The Water Resources Association of Yolo County is the designated monitoring entity for Yolo County as of January 1, 2013.
- National Oceanic and Atmospheric Administration (NOAA). NOAA Atlas 14 Point Precipitation Frequency Estimates: CA. Yolo County. (https://hdsc.nws.noaa.gov/hdsc/pfds/pfds_map_cont.html?bkmrk=ca)
- The Soil Agricultural Groundwater Banking Index (SAGBI, https://casoilresource.lawr.ucdavis.edu/sagbi/) is a suitability index for groundwater recharge on agricultural land. The SAGBI is based on five major factors that are critical to successful agricultural groundwater banking: deep percolation, root zone residence time, topography, chemical limitations, and soil surface condition.
- U.S. Geological Survey (USGS). USGS Water-Data Site Information for California. (https://waterdata.usgs.gov/ca/nwis/si)

Potential Information Needs

- Selection of targeted basins for groundwater monitoring and key criteria for monitoring groundwater levels and quality.
- Determination of key locations for monitoring groundwater levels and constituents to be monitored.

18. Maintain/enhance watershed and natural resource monitoring network and information sharing

Potential Benefit Categories Met

Water Quality, Water Supply, Environmental, Community

Potential Qualitative Measurement

- Availability of important information
- Ease of access to data and information across agency boundaries

Potential Quantitative Measurement

None

Notes

Data Sources/Decision Support Tools

Local Resources:

- Yolo County Flood Control and Water Conservation District. Groundwater Management Plan and Monitoring Program. (http://www.ycfcwcd.org/groundwatermonitoring.html)
- Water Resources Association of Yolo County. Storm runoff modeling for foothills west-southwest of Esparto. Stockholm Environment Institute. 2017.

General Resources:

- California Department of Water Resources. Water Data Library. (http://www.water.ca.gov/waterdatalibrary/)
- California Statewide Groundwater Elevation Monitoring (CASGEM) (http://www.water.ca.gov/groundwater/casgem)– The Water Resources Association of Yolo County is the designated monitoring entity for Yolo County as of January 1, 2013.
- California State Water Resources Control Board, California Integrated Water Quality System Project (CIWIQS) (https://www.waterboards.ca.gov/ciwqs/)

- National Oceanic and Atmospheric Administration (NOAA). NOAA Atlas 14 Point Precipitation Frequency Estimates: CA. Yolo County. (https://hdsc.nws.noaa.gov/hdsc/pfds/pfds_map_cont.html?bkmrk=ca)
- State Water Resources Control Board. Watershed Management. (https://www.waterboards.ca.gov/water_issues/programs/watershed/)
- U.S. Geological Survey (USGS). USGS Water-Data Site Information for California. (https://waterdata.usgs.gov/ca/nwis/si)

Potential Information Needs

- Establish desired parameters, topics, and information related to natural resources that is to be shared throughout Yolo County.

19. Address pollutant sources to meet runoff standards and TMDL targets

Potential Benefit Categories Met

Water Quality

Potential Qualitative Measurement

Actions taken to address pollutant sources

Potential Quantitative Measurement

- Compliance with runoff standards as described in stormwater permits
- Progress toward meeting targets identified in specific TMDLs within Yolo County

Notes

The following table presents a summary of the TMDLs existing within Yolo County:

Water Body	Pollutant	Resolution No.	Target	Compliance Date
Cache Creek, Lower (Clear Lake Dam to Cache Creek Settling Basin near Yolo Bypass)	Mercury	R5-2005-0146	0.12 mg/kg wet weight in trophic level 3 fish 0.23 mg/kg wet weight in trophic level 4 fish	Regional Water Board will review the progress toward meeting the water quality objectives and the Basin Plan requirements at least every five years.

Data Sources/Decision Support Tools

Local Resources:

No information found.

General Resources:

- California Stormwater Quality Association. Stormwater Best Management Practice Handbook, New Development and Redevelopment. 2003. (https://www.casqa.org/resources/bmp-handbooks/new-development-redevelopment-bmp-handbook)
- Central Valley Regional Water Quality Control Board. Cache Creek, Bear Creek, Sulphur Creek, and Harley Gulch TMDL. (https://www.waterboards.ca.gov/rwqcb5/water_issues/tmdl/central_valley_projects/cache_sulphur_creek/index.shtml)

- Simple Method. Described in many resources such as the New York State Stormwater Management Design Manual (2015)
- U.S. Environmental Protection Agency. System for Urban Stormwater Treatment and Analysis Integration (SUSTAIN)

Potential Information Needs

- Understanding and benchmarking of existing stormwater permit compliance challenges, if any.
- Determination of activities stakeholders can participate in to help achieve TMDL targets.

20. Minimize accidental wastewater spillage/discharges

Potential Benefit Categories Met

Flood Management

Potential Qualitative Measurement

None

Potential Quantitative Measurement

- Number of spills reported per year
- Volume of wastewater spilled that reached receiving waters

Notes

Data Sources/Decision Support Tools

Local Resources:

No information found

General Resources:

- California State Water Resources Control Board, California Integrated Water Quality System Project (CIWQS) can be used to query data by Agency such as violations (i.e. sewer spills, exceedance in effluent limits) and enforcement actions (http://ciwqs.waterboards.ca.gov/ciwqs/readOnly/publicReportFacilityAtGlanceCriteria.jsp)
- Central Valley Regional Water Quality Control Board. Executive Officer's Reports to the Board. (https://www.waterboards.ca.gov/centralvalley/board_info/exec_officer_reports/)
- National Oceanic and Atmospheric Administration (NOAA). NOAA Atlas 14 Point Precipitation Frequency Estimates: CA. Yolo County. (https://hdsc.nws.noaa.gov/hdsc/pfds/pfds_map_cont.html?bkmrk=ca)

Potential Information Needs

- Compilation of annual number/quantity of spills for wastewater agencies for Yolo County
- Agencies that do not report to the CIWQS system

21. Reduce public health risks by reducing contaminants in drinking water sources

Potential Benefit Categories Met

Water Quality, Water Supply, Flood Management

Potential Qualitative Measurement

None

Potential Quantitative Measurement

- Improvements in source water quality for constituents of concern
- Cost savings for meeting quality standards for drinking water at point of delivery
- Reductions in concentration of constituents of concern in drinking water point of delivery

Notes

This objective highlights that there are multiple ways within a watershed to meet drinking water standards and that cleaner sources of water can provide lower levels of public health risk.

Data Sources/Decision Support Tools

Local Resources:

- Yolo County. Small Public Water Systems Program. (http://www.yolocounty.org/community-services/environmental-health-services/land-environmental-protection/drinking-water-program)
- Yolo County. Water Well Program. (http://www.yolocounty.org/community-services/environmental-health-services/land-environmental-protection/ground-water-protection-and-well-permits)

General Resources:

- California State Water Resources Control Board. Chemical and Contaminants in Drinking Water. (https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/Chemicalcontaminants.shtml)

Potential Information Needs

- Identify contaminants of concern in drinking water sources to be monitored
- Understanding of drinking water sources that have present challenges meeting drinking water quality standards.
- Track projects implemented by water suppliers to improve or provide treatment of contaminants

22. Meet all drinking water and wastewater discharge standards

Potential Benefit Categories Met

Water Quality, Water Supply, Flood Management

Potential Qualitative Measurement

None

Potential Quantitative Measurement

Compliance with all relevant quality standards

Notes

- Basin Plans consist of a designation or establishment for the waters within a specified area of beneficial uses to be protected, water quality objectives to protect those uses, and a program of implementation needed for achieving the objectives. The Basin Plans containing the water quality standards for the Central Valley Region are:
    - Water Quality Control Plan for the Sacramento River Basin and the San Joaquin River Basin.

- Water Quality Control Plan for the Tulare Lake Basin.

- State Implementation Policy (SIP) establishes a standardized approach for permitting discharge of toxic pollutants to non-ocean surface waters in a consistent manner.
  - Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays and Estuaries of California. State Water Resources Control Board California Environmental Protection Agency, 2005.
- The U.S. Environmental Protection Agency (EPA) promulgated numeric water quality criteria for priority toxic pollutants and other water quality standard provisions to be applied to waters of the State of California to protect human health and the environment.
  - California Toxics Rule (CTR)
- The California Safe Drinking Water Act authorizes the California Department of Public Health to protect the public from contaminants in drinking water by establishing maximum contaminant levels (MCLs) that are at least as stringent as those developed by the U.S. EPA.
  - Title 22, California Code of Regulations Division 4. Environmental Health Chapter 15. Domestic Water Quality and Monitoring Article 4. Primary Standards A—Maximum contaminant levels

Data Sources/Decision Support Tools

Local Resources:

No information found

General Resources:

- California State Water Resources Control Board. California Integrated Water Quality System Project (CIWIQS) can be used to query data by Agency such as violations (i.e. sewer spills, exceedance in effluent limits) and enforcement actions (http://ciwqs.waterboards.ca.gov/ciwqs/readOnly/publicReportFacilityAtGlanceCriteria.jsp)
- California State Water Resources Control Board. Annual Compliance Reports for Public Water Systems which includes summary of violations by contaminant category, individual contaminant and by violation category in each county (https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/Publications.shtml)

Potential Information Needs

- Inventory of all water and wastewater entities in Yolo County.
- Determine agencies that are not in compliance with water and/or wastewater standards

23. Provide 100% reliability of municipal and industrial water supplies

Potential Benefit Categories Met

Water Supply

Potential Qualitative Measurement

None

Potential Quantitative Measurement

- Number of days in reporting year that M&I water suppliers invoke drought ordinances
- Number of days rationing is required in reporting year

Notes

- Meeting this objective can be accomplished through a variety of approaches such as increased supplies, conjunctive management, water transfers, long-term demand management, water rationing, etc.
- Satisfaction of this objective should include consideration of availability of alternate supplies should a drinking water source become contaminated or otherwise disrupted.

Data Sources/Decision Support Tools

Local Resources:

- Stockholm Environment Institute. Water Evaluation and Planning (WEAP) Model for Yolo County.

General Resources:

- Estimated Total Water Use. Model Water Efficient Landscape Ordinance in Division 2, Title 23, California Code of Regulations. Revised 2015.

Potential Information Needs

- Survey all M&I water suppliers to determine existence of drought ordinances, stipulations, and number of days ordinance is invoked each year.
- Include consideration of available alternate water supplies for each agency.

24. Provide agricultural water supplies to support a robust agricultural industry

Potential Benefit Categories Met

Water Supply

Potential Qualitative Measurement

Changes in agricultural outputs within Yolo County over time

Potential Quantitative Measurement

- Groundwater levels and quality throughout Yolo County
- Annual surface water deliveries for agricultural use as compared to contracted amounts.

Notes

While it is true that a robust agricultural industry within Yolo County relies on many factors, a consistent water supply of appropriate quality is a major factor.

Data Sources/Decision Support Tools

Local Resources:

- Reclamation District No. 2035. Agricultural Water Management Plan 2016. (http://www.water.ca.gov/wateruseefficiency/docs/2016/Reclamation%20District%202035%202016%20AWMP.pdf)
- Yolo County Flood Control and Water Conservation District. Agricultural Water Management Plan 2015. (http://www.water.ca.gov/wateruseefficiency/sb7/docs/2016/YoloCoFCWCD%202015%20AWMP.pdf)
- Reclamation District No. 108. SBx7-7 Water Measurement Compliance Program. 2016. (http://www.water.ca.gov/wateruseefficiency/sb7/docs/2017/RD108%20Water%20Measurement%20Program.pdf)

- Yolo County. Crop Statistics Starting in 1937. (http://www.yolocounty.org/general-government/general-government-departments/agriculture-cooperative-extension/agriculture-and-weights-measures/crop-statistics) – As a performance measure can obtain annual crop reports.
- Stockholm Environment Institute. Water Evaluation and Planning (WEAP) Model for Yolo County.

General Resources:

- California Statewide Groundwater Elevation Monitoring (CASGEM) (http://www.water.ca.gov/groundwater/casgem)– The Water Resources Association of Yolo County is the designated monitoring entity for Yolo County as of January 1, 2013.
- National Oceanic and Atmospheric Administration (NOAA). NOAA Atlas 14 Point Precipitation Frequency Estimates: CA. Yolo County. (https://hdsc.nws.noaa.gov/hdsc/pfds/pfds_map_cont.html?bkmrk=ca)
- The Soil Agricultural Groundwater Banking Index (SAGBI, https://casoilresource.lawr.ucdavis.edu/sagbi/) is a suitability index for groundwater recharge on agricultural land. The SAGBI is based on five major factors that are critical to successful agricultural groundwater banking: deep percolation, root zone residence time, topography, chemical limitations, and soil surface condition.

Potential Information Needs

- Identify what measures will be used to track "robust agricultural industry" – suggest using multi-year moving average of economic production for Yolo County
- Contracted/requested amount of water compared to delivered (YCFC&WCD and other water suppliers)

25. Convert paved and/or impervious areas and increase tree canopy and vegetation, reducing urban heat island effects

Potential Benefit Categories Met

Environmental, Community

Potential Qualitative Measurement

- Reestablishment of the natural hydrograph
- Increased infiltration

Potential Quantitative Measurement

- Increased area of urban greenspace
- Water temperature improvements

Data Sources/Decision Support Tools

Local Resources:

No information found.

General Resources:

- California Stormwater Quality Association. Stormwater Best Management Practice Handbook, New Development and Redevelopment. 2003. (https://www.casqa.org/resources/bmp-handbooks/new-development-redevelopment-bmp-handbook)
- National Land Cover Database (NLCD) Percent Tree Canopy Collection. (https://catalog.data.gov/dataset/national-land-cover-database-nlcd-percent-tree-canopy-collection)

Potential Information Needs

- Inventory of physical structures in waterways
- Baseline water temperature
- Area of riparian vegetation and tree canopy

26. Optimize the rural storm water conveyance system to drain and retain storm water flows as necessary. Provide proper rural drainage and keep conveyance systems clear of debris to minimize county road flooding during storm events.

Potential Benefit Categories Met

Water Supply, Flood Management

Potential Qualitative Measurement

- Reduction in localized flooding events

Potential Quantitative Measurement

- Volume of runoff captured
- Percent of wet weather deliveries met

Data Sources/Decision Support Tools

Local Resources:

- Yolo County Flood Control & Water Conservation District. Water Information and Daily Water Report. (http://www.ycfcwcd.org/waterinfo.html)
- Yolo County Flood Control & Water Conservation District. Flow Monitoring Network. (http://www.ycfcwcd.org/flowmonitoring.html)
- Water Resources Association of Yolo County. Storm runoff modeling for foothills west-southwest of Esparto. Stockholm Environment Institute. 2017.
- FloodSAFEYolo. Yolo County City/County Drainage Manual. Wood Rogers, 2010.

General Resources:

- California Department of Water Resources. Water Data Library. (http://www.water.ca.gov/waterdatalibrary/)
- California Stormwater Quality Association. Stormwater Best Management Practice Handbook, New Development and Redevelopment. 2003. (https://www.casqa.org/resources/bmp-handbooks/new-development-redevelopment-bmp-handbook)
- National Oceanic and Atmospheric Administration (NOAA). NOAA Atlas 14 Point Precipitation Frequency Estimates: CA. Yolo County. (https://hdsc.nws.noaa.gov/hdsc/pfds/pfds_map_cont.html?bkmrk=ca)
- U.S. Geological Survey (USGS). USGS Water-Data Site Information for California. (https://waterdata.usgs.gov/ca/nwis/si)

Potential Information Needs

- Inventory of historical flooding in Yolo County and road closures due to localized flooding
- Capacity of conveyance systems throughout Yolo County

27. Enable proper rural retention and modify rural landscape to maximize groundwater recharge of excess storm water.

Potential Benefit Categories Met

Water Supply, Flood Management

Potential Qualitative Measurement

- Increased infiltration
- Reduction in localized flooding events

Potential Quantitative Measurement

- Volume of runoff captured
- Area of infiltration

Data Sources/Decision Support Tools

Local Resources:

- Yolo County Flood Control & Water Conservation District. Water Information and Daily Water Report. (http://www.ycfcwcd.org/waterinfo.html)
- Yolo County Flood Control & Water Conservation District. Flow Monitoring Network. (http://www.ycfcwcd.org/flowmonitoring.html)
- Water Resources Association of Yolo County. Storm runoff modeling for foothills west-southwest of Esparto. Stockholm Environment Institute. 2017.
- Stockholm Environment Institute. Water Evaluation and Planning (WEAP) Model for Yolo County.
- FloodSAFEYolo. Yolo County City/County Drainage Manual. Wood Rogers, 2010.

General Resources:

- California Statewide Groundwater Elevation Monitoring (CASGEM) (http://www.water.ca.gov/groundwater/casgem)– The Water Resources Association of Yolo County is the designated monitoring entity for Yolo County as of January 1, 2013.
- National Oceanic and Atmospheric Administration (NOAA). NOAA Atlas 14 Point Precipitation Frequency Estimates: CA. Yolo County. (https://hdsc.nws.noaa.gov/hdsc/pfds/pfds_map_cont.html?bkmrk=ca)
- The Soil Agricultural Groundwater Banking Index (SAGBI, https://casoilresource.lawr.ucdavis.edu/sagbi/) is a suitability index for groundwater recharge on agricultural land. The SAGBI is based on five major factors that are critical to successful agricultural groundwater banking: deep percolation, root zone residence time, topography, chemical limitations, and soil surface condition.

Potential Information Needs

- Capacity of conveyance systems throughout Yolo County

Appendix L

Stakeholder Meeting Agendas, Materials, and Sign-In Sheets

Meeting Agenda

Yolo County Storm Water Resources Plan

Kick-Off Meeting

Location: Yolo County Flood Control and Water Conservation District Boardroom, 34274 State Highway 16, Woodland 95695

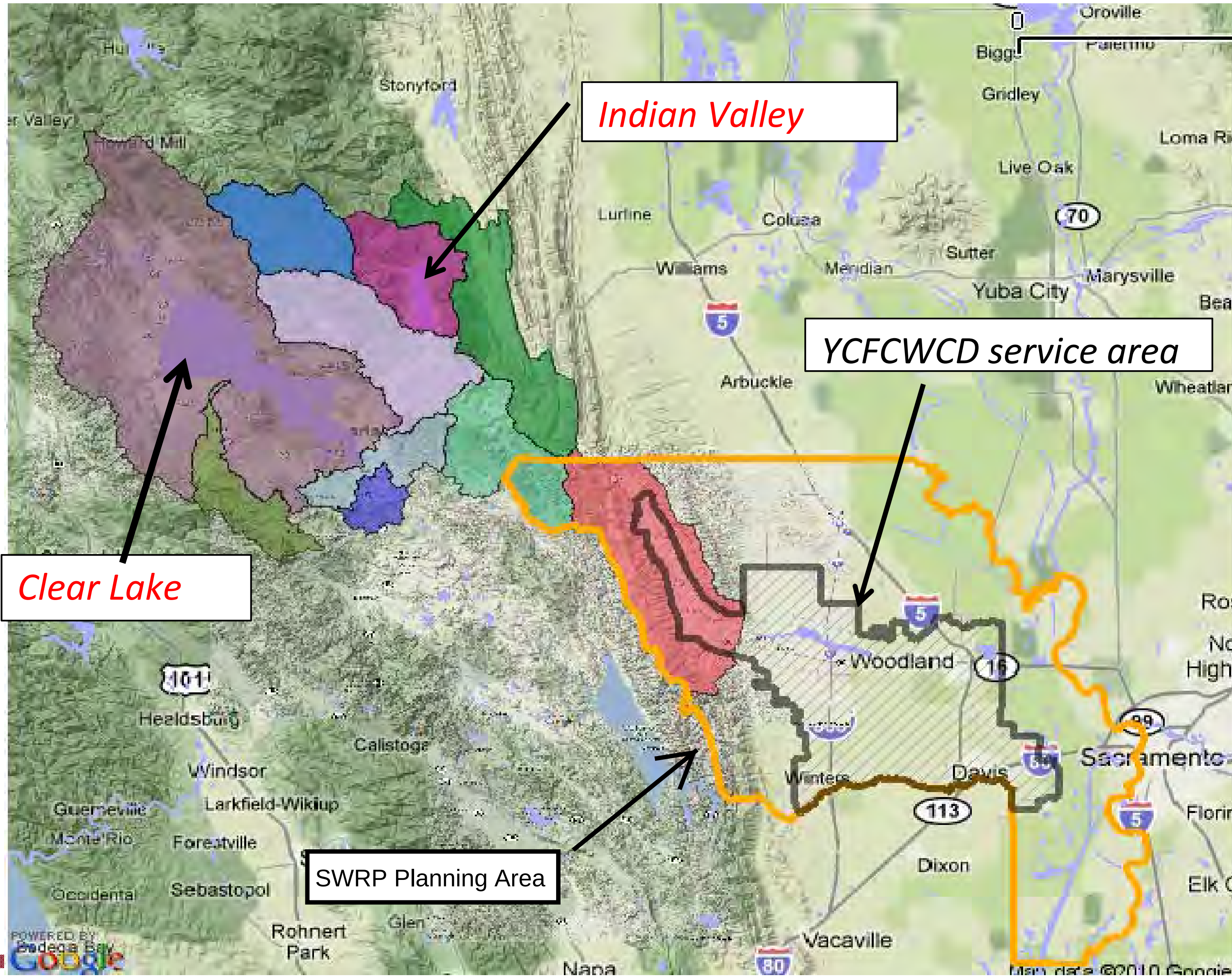
Date/Time: 02 March 2017, 10:30 AM

1	Introductions and Safety Moment	5 minutes
2	Storm Water Resources Plan (SWRP) Background • 2016 IRWMP Guidelines requirement for 2018 Implementation Funding 1. Link to SWRP Guideline: http://www.waterboards.ca.gov/water_issues/programs/grants_loans/swgp/docs/prop1/swrp_finalguidelines_dec2015.pdf 2. Link to Proposition 1 Grant Guidelines: http://www.waterboards.ca.gov/water_issues/programs/grants_loans/swgp/docs/prop1/prop1_swgpguidelines_final_dec2015.pdf • Planning Area (Handout #1) • Review SWRP Checklist (Handout #2) • Review SWRP Workplan approved by Water Board (Handout #3)	15 minutes
3	Projects Discussion • Project Selection Process • Quantification of Project Benefits 1. SEI-WEAP Model Update for Potential Regional Projects 2. Other quantification methods • Project Types 1. Projects not on Westside Sacramento IRWM Plan list? See Handout #4 2. Identification of potential projects through GIS	30-45 minutes
4	Discussion of other storm water related activities for SWRP	15 minutes

Yolo County Storm Water Resources Plan
Kick-Off Meeting
02 March 2017

5	Tentative Schedule	5 minutes
	TC Kickoff Meeting — 2-Mar-17 TC Meeting - SWRP Outline, Checklist, Data Gaps — Apr-17 TC Meeting - Watershed Identification and Water Quality Compliance — May-17 TC Meeting - Project Selection, Prioritization Process, and Call for Projects (8 Weeks) — Jun-17 EDA/DAC Meetings (x2) — Jun-17 TC Meeting - Organization, Coordination, and Collaboration — Aug-17 TC Meeting - Implementation of Strategy and Schedule — Sep-17 TC Meeting - Identification and Prioritization of Projects — Oct-17 TC Meeting - Quantitative Methods — Nov-17 TC Meeting - Education, Outreach, and Public Participation — Dec-17 TC Meeting - Draft SWRP — Feb-18 Final SWRP and Signed Self-Certification Checklist — Mar-18 WRA and TC Meeting - Final SWRP — Apr-18 IRWM Meeting - Final SWRP — Jun-18 Draft IRWMP PSP for Implementation — Spring 2018 Storm Water Implementation Funding Round 2 — Tentative 2018	
7	Other Discussion/Questions	10 minutes
6	Handouts 1. Planning area map 2. SWRP Checklist 3. SWRP Workplan 4. List of Projects currently on Sacramento Westside IRWM Plan Project List	

Handout #1 - Yolo SWRP Planning Area



STOCKHOLM
ENVIRONMENT
INSTITUTE

Handout 2: See Appendix A for completed Checklist and Self-Certification

Handout #3

YOLO COUNTY SWRP WORKPLAN

Task 5a: Project Administration

Task 5a.1 – Grant Administration

This task includes the support of administration of the planning grant. For the grant administration, the Kennedy/Jenks will provide a monthly invoice report that will support WRA/YCFCWD in the following reports, as discussed in the Draft Planning Grant Agreement Template:

- Quarterly Progress Reports
- As Needed Reports
- Annual Progress Summaries

- Final Reports
    - Draft Planning Report
    - Final Planning Report
    - Final Planning Summary

Kennedy/Jenks will provide monthly invoice reports which will be used to notify WRA/YCFCWCD of any proposed changes in scope, cessation or delay of work, monitoring activities, project publicity events, and/or work completion. Kennedy/Jenks invoices will be prepared monthly and submitted by WRA/YCFCWD quarterly to the SWRCB Grant Manager.

Task 5a.2 – SWRP Management and Coordination

This task is for management of the SWRP Team (i.e. Kennedy/Jenks and SEI) and includes bi-weekly status update conference calls with the up to 2 Kennedy/Jenks' staff and the WRA/YCFCWD's designated Project Director.

Task 5b: Planning, Design, Engineering, & Environmental

This task is for the preparation of the SWRP and is anticipated to be a 16-month process. This includes 13 months for the drafting of the SWRP and 3 months for presentation of the SWRP to the WRA and the Westside Integrated Regional Water Management (IRWM). The approach, which is similar to the preparation of the Westside IRWM, includes an interactive process that will use the monthly standing meetings of the WRA Technical Committee (TC) to present SWRP content including identifying key SWRP goals and objectives, reviewing technical content such as model results, as well as soliciting, reviewing and prioritization of projects, and reviewing draft SWRP sections.

With the support of WRA staff and Project Director for communications, the SWRP Team Project Manager, Sachi Itagaki, will lead the SWRP Team through the following tasks to complete the SWRP.

Task 5b.1 – Initial Coordination & Inventory of Current Resources

The SWRP Team Project Manager will hold an initial kickoff meeting with the SWRP Team and WRA TC where they will define the goals and objectives of the planning process and evaluate the current resources (plans, studies, personnel) available to develop the SWRP. Attachment 5 of the planning grant application provides an overview of the available resources identified to date that will be used to inform much of the SWRP content. Using the SWRP Self-Certification Form as a roadmap, gaps in required content will be identified. Initial gaps that have been identified include quantitative analysis of the SWRP planning area. Water Evaluation and Planning (WEAP) modeling for a smaller area has occurred and WEAP modeling will be expanded for the entire SWRP planning area in Task 5b.2.4 by SEI.

Key resources that will inform the SWRP are: the 2007 Yolo IRWM Plan, the 2013 Westside IRWM Plan and associated Geographic Information System (GIS) files, the individual stormwater management plans (SWMP) prepared by each agency for storm water compliance, the WEAP modeling that has been completed to date, data generated in connection with the North Gibson Pond Study, as well as individual modeling efforts by the agencies. Additional work necessary to complete the SWRP to meet the needs of the WRA are described in the tasks in Item 5b.2.

Deliverable: List of TC Members, Roles and Responsibilities, and Affiliations; TC Kickoff Meeting Summary; GIS Database, Annotated List of Data and Reports (for deliverable for submittal to SWRCB)

Task 5b.2 – Research/Writing of SWRP

The SWRP will address all 51 of the mandatory and suggested elements provided in Appendix A of the SWRP guidelines published by the SWRCB. A detailed SWRP Outline will be prepared for submittal to SWRCB as a deliverable. The following tasks correspond to the seven categories of elements that will be addressed.

Task 5b.2.1 – Watershed Identification

SWRP Guidelines: Section VI.A
Water Code Sections: 10565(c), 10562(b)(1)

The SWRP will be developed, using boundaries as delineated by USGS and informed by the Westside IRWM Plan boundaries as defined in the planning grant application. The SWRP will describe the planning area's internal boundaries, as well the surface and ground water resources, potable water sources and water quality priorities within the planning area. Maps showing the location of native habitats, creeks, lakes, rivers, parks, and other natural or open spaces will be developed using GIS files from the Westside IRWM Plan and provided by agency participants which. The SWRP will discuss the natural watershed processes that occur within the planning area. Some of the unique features of the watershed include significant modifications to the alluvial fan drainages as a result of the acres of agricultural cultivation in the planning area as well as the pockets of urbanization within this largely rural planning area. Irrigation canals present a significant opportunity to intercept and deliver storm water for recharge.

Deliverable: Draft Watershed Identification Plan Section (for deliverable for submittal to SWRCB).

Task 5b.2.2 – Water Quality Compliance

SWRP Guidelines: Section V
Water Code Sections: 10562(d)(7), 10562(b)(5, 6)

As described in planning grant Workplan Section 9, there are several Total Maximum Daily Load (TMDL) and permitting related topics within the SWRP planning area, as well as agencies that are required to comply with the Phase 2 Municipal Separate Storm Sewer System (MS4) National Pollutant Discharge Elimination System (NPDES) permit. The SWMP for each agency, identified in planning grant Attachment 5, will be a valuable source of information describing individual agency water quality challenges. The SWRP will identify activities that contribute to the pollution of storm water and dry weather runoff. The SWRP will identify the applicable TMDL plans such as the mercury TMDL with source areas outside the SWRP Planning area, other NPDES permits for industrial storm water permits and for wastewater treatment facilities and waste discharge permits such as for reclamation of wastewater and landfill operations within the planning area. The SWRP will identify how the proposed SWRP projects will be consistent with these plans and permits (Section 9 of the planning grant workplan provides some early examples). The SWRP will describe how each project contributes to the preservation, restoration, or enhancement of watershed processes through actions such as on-site infiltration, waterway restoration, and other measures that could result in pollutant load reduction.

Deliverable: Draft *Water Quality Compliance* Plan Section (for deliverable for submittal to SWRCB).

Task 5b.2.3 – Organization, Coordination, Collaboration
SWRP Guidelines: Section VI.B
Water Code Sections: 10565(a), 10562(b)(4)

Sections 3 and 4 of the planning grant workplan describe how the input of Disadvantaged Community (DAC)/ Economically Distressed Areas (EDA)/ Non-governmental Organization (NGO) and other stakeholders for this SWRP effort will occur through the existing WRA meetings and the Westside IRWM meetings. This task includes up to 4 outreach meetings specific to the DAC/EDA/NGO communities. These outreach efforts when combined with efforts in Task 5b.2.7 will ensure that local agencies, non-governmental organizations, nonprofit organizations, and the community are identified and consulted - throughout the SWRP development.

The SWRP will build off of the existing Yolo and Westside IRWM Plans, agency SWMPs, drainage plans, and other planning documents, ordinances, and programs established by local agencies, summarized in planning grant Attachment 5. The SWRP will develop SWRP sections using portions of this existing body of work.

The SWRP will identify the decisions that must be made by local, state or federal regulatory agencies for SWRP implementation. In some cases it may be necessary to create new or altered governance structures to support collaboration among two or more lead local agencies responsible for Plan implementation. Several broader efforts such as FloodSAFE Yolo, FloodProtect, the Bay-Delta Conservation Plan, and other regional/statewide efforts that incorporate state and federal agencies will also be discussed in the SWRP.

Deliverables: Draft *Organization, Coordination, Collaboration* Plan Section and agendas/attendee lists of DAC/EDA/NGO meetings (for deliverable for submittal to SWRCB).

Task 5b.2.4 – Quantitative Methods

SWRP Guidelines: Section VI.C
Water Code Sections: n/a

Various quantitative methods will be applied based on the specific projects proposed in the SWRP. At a minimum, all projects will be evaluated using GIS to identify optimal locations for implementation projects on a SWRP Planning area scale, and an integrated metrics-based analysis to demonstrate that the project will satisfy identified water management objectives and multiple benefits. This analysis will inform the prioritization of projects in Task 5b.2.5. It is anticipated that the North Gibson Pond Study will further inform feasibility of the opportunities for groundwater enhancement and maximizing multiple benefits within the City of Woodland's South Urban Growth Area and the Willow Slough Shed.

GIS mapping layers including the SWRP Planning Area boundary, location of surface water features including irrigation canals, depth to groundwater, Soil Conservation Service soil type (which is indicative of soil permeability), location of drainage and flooding areas and other relevant information will be georeferenced to a single coordinate system. Then, the GIS layers will be analyzed, at a SWRP planning area scale (of over 250,000 acres) to identify where the best opportunities to capture, divert, recharge, and/or treat storm water and dry weather runoff may occur. Once feasible opportunities are identified, further screening and analysis in WEAP (described below) will occur to evaluate the likely benefit of the opportunities.

The quantitative methods used in the SWRP preparation will vary by geographic scale and depend on whether the project offers water quality, water supply, flood, or other benefits. For example, quantitative water quality benefits in the Yolo SWRP planning area are more appropriate at a project-specific scale since most water quality focused projects will occur in the more urbanized areas, which comprise a small portion of the planning area. Water quantity benefits can be described at a SWRP planning area scale, primarily because of an existing WEAP model (described below under water supply and flood management project analysis) that can be efficiently expanded. The expanded WEAP model can be used to identify and quantify opportunities to operate the water resources infrastructure in a manner to maximize stormwater recharge.

For projects focused on improving water quality, the Kennedy/Jenks Project Team will simulate the proposed water quality outcomes using modeling, calculations, pollutant mass balances, water volume balances, and/or other methods of analysis. As an example, the Simple Method may be used as a basis for a project-specific pollutant load reduction tool. The Simple Method can be applied as a spreadsheet-based model that estimates stormwater runoff pollutant loads for urban areas. Combined with characteristic pollutant removal efficiencies, it can provide a general planning estimate of likely storm pollutant reduction as a result of implementing projects at the scale of a development site, catchment or subwatershed. The technique requires a modest amount of information, including the subwatershed drainage area and impervious cover, stormwater runoff pollutant concentrations, and annual precipitation from the WEAP model. Stormwater pollutant concentrations can be estimated from local or regional data, or from national data sources.

For water quality projects that are focused on implementing pollution control measures through green infrastructure, total maximum daily load requirements, and/or MS4 management practices, modeling of water quality improvements by the project proponents may be required in order to integrate the benefits into the region-wide analysis. Example models include Simple Method discussed above or the US Environmental Protection Agency's System for Urban Stormwater Treatment and Analysis IntegratioN (SUSTAIN). These tools will be provided to project proponents to analyze the water quality benefits of individual project concepts.

For storm water capture and use projects, the Kennedy/Jenks Project Team will analyze how the project will capture and use the proposed amount of storm water and dry weather runoff using development/drainage area, impervious area, soil permeability from the Soil Conservation Service, and intensity duration and frequency information for precipitation events from the National Oceanic and Atmospheric Administration (NOAA).

For water supply and flood management projects, the Kennedy/Jenks Project Team will assess the SWRP planning area to identify opportunities to maximize and/or augment water supply. Under a National Aeronautics and Space Administration (NASA) grant, a WEAP model was prepared by the SEI in partnership with YCFCWCD for a portion of the SWRP planning area as shown on planning grant workplan Figure 5. WEAP is a user-friendly software tool that takes an integrated approach to water resources planning. WEAP aims to incorporate supply, demand, water quality and ecological considerations into a practical yet robust tool for integrated water resources planning.

Under separate agreement between WRA/YCFCWCD and SEI, the SWRP will include an expansion of the WEAP model by SEI for the entire planning area and investigate the impacts of existing and potential new stormwater management strategies, of water purveyors within this expanded area plus YCFCWCD that will address the following questions:

- What are the opportunities for co-benefits of augmented groundwater recharge with storm water and the resulting increased summer irrigation water availability?
- What do individual recharge plans mean at a collective scale for the planning area/county?
- How will this improve the water system resiliency in the face of climate change/variability

SEI will lead the collection of data such as land use, climate, water rights, operations, existing and planned storm water recharge projects from the agencies (estimated at up to three agencies including Reclamation District 108) in the expanded WEAP model area. Kennedy/Jenks will share GIS and other data obtained in the course of the SWRP with SEI. SEI will update the model schematic based on the results of SWRP- Planning area GIS analysis, update model inputs, calibrate against existing historical information, add storm water management as a model component, , and integrate individual project benefits. Up to 15 runs will be conducted with varying assumptions of climate and runoff availability. YCFCWCD is also implementing Supervisory Control and Data Acquisition (SCADA) that will provide valuable on-the-ground information for the SWRP as discussed in Task 5b.2.4. SCADA data, when integrated with automatic gates in its irrigation infrastructure, can be used quantify and capitalize on this stormwater capture opportunity.

Once the WEAP model is updated, it is anticipated that the above questions will be answered by the model outputs: groundwater recharge volume, groundwater quality impacts/improvements, water supply availability for agricultural irrigation, and financial impacts. In addition, the WEAP model will contextualize project benefits and their significance of storm water capture on the overall water supply portfolio, as well as financial impacts and sustainability. These model updates and associated analyses and results will be provided in narrative and graphical form by SEI for inclusion in the SWRP.

Based on the updated data made available through the SWRP preparation, the SWRP will describe how data will be managed, stored and accessed by stakeholders and the public. Also discussed, as applicable, will be the assessment of existing water quality and water quality monitoring, the frequency at which data will be updated, and how data gaps will be identified.

Deliverable: Draft *Quantitative Methods* Plan Section (to be adapted into a Tech Memo for submittal to SWRCB) including model information provided by SEI.

Task 5b.2.5 – Identification and Prioritization of Projects
SWRP Guidelines: Section VI.D
Water Code Sections: 10562(d)(1-6), 10562(b)(2, 8)

The SWRP Team Project Manager will work with the WRA/YCFCWD Project Director to publish a Call for Projects, which will direct stakeholders to submit projects using a common information form, for inclusion in the SWRP. Projects submitted for consideration must contribute to the attainment of the SWRP Goals and Objectives. Discussion of the information form and assistance in completing the form will occur in one of the WRA TC meetings in Task 5b.2.7.

Once the list of projects has been compiled, the Kennedy/Jenks Project Team will prioritize this list using a metric-driven approach and a geospatial analysis (GIS) of project location and multiple benefits. Project prioritization criteria will be developed in collaboration with stakeholders during one of the meetings in Task 5b.2.7. At a minimum the process shall include:

1. Identify potential opportunities and multi-benefit storm water projects that augment water supply, water quality, flood protection, environmental benefits, and other community benefits within the watershed using the developed approach.

2. Screen potential opportunities and projects for feasibility and potential benefits by conducting site visits, gathering supplemental information, and using the developed approach.

3. Evaluate each feasible multi-benefit project and develop a list of prioritized projects using the developed approach.

4. Complete the evaluation of feasibility, and multiple benefits provided by the North Gibson detention ponds project. SWRCB has requested a summary describing an

approach for an enhanced assessment and prioritization of storm water management needs and opportunities to maximize multiple benefits of the planned North Gibson detention ponds. It is assumed that written documentation regarding the North Gibson detention ponds will be provided from which to prepare a brief summary.

Each project will contribute to at least two or more Main Benefits and the maximum number of Additional Benefits as listed in Table 4 of the SWRP Guidelines.

The project prioritization will also draw upon the integrated metrics-based analysis undertaken in Task 5b.2.4 for the projects and/or the planning area as derived from the WEAP model. High priority will generally involve the following elements, as appropriate:

- Augmentation of local water supply through groundwater recharge or storage for beneficial use of storm water and dry weather runoff
- Use of source control
- Re-establishment of natural water drainage treatment and infiltration systems
- Mimicking of natural system functions
- Development, restoration, or enhancement of habitat and open space
- Use of existing publicly owned lands and easements
- Identification of design criteria and best management practices for new and upgraded infrastructure

The projects and the associated prioritization will be summarized in the SWRP in tables and figures and project-specific information will be included as appendices to the SWRP.

Deliverable: Draft *Identification and Prioritization of Projects* Plan Section including results of project prioritization and North Gibson Pond evaluation summary(for deliverable for submittal to SWRCB).

Task 5b.2.6 – Implementation Strategy and Schedule
SWRP Guidelines: Section VI.E
Water Code Sections: 10562(d)(8), 10562(b)(7)

Project information collected during the Call for Projects will include implementation strategies such as funding sources for individual projects, permitting requirements, schedules, and other implementation related topics. In addition, the SWRP will identify resources necessary to implement the SWRP, including a projection of additional funding needs and sources for administration and implementation needs and a schedule for arranging and securing implementation financing.

Where appropriate, the SWRP will identify the development of appropriate decision support tools suggested for successful Plan implementation.

The Plan's implementation strategy will include:

- Specific implementation actions, and the entities responsible for each action;
- A strategy and timeline for obtaining necessary Federal, state, and local permits;

- Timelines for all active or planned projects and procedures to track the status of each project;
- A system for tracking implementation performance measures;
- Consideration for community participation; and
- Procedures for ongoing review, updates, and adaptive management of the Plan.

The implementation strategies and schedules will be documented in a SWRP section.

Deliverable: Draft *Implementation Strategy and Schedule* Plan Section (to be adapted into a Tech Memo for submittal to SWRCB).

Task 5b.2.7 – Education, Outreach and Public Participation
SWRP Guidelines: Section VI.F
Water Code Sections: 10562(b)(4)

The SWRP Team Project Manager will work with the WRA/YCFCWD Project Director to schedule a series of public meetings, in alignment with monthly WRA TC meetings to present the SWRP content and elicit feedback on major technical and policy issues related to the development and implementation of the SWRP. Outreach to the Westside IRWM is included in this task including participation in quarterly Westside IRWM coordinating calls. Additionally, the Project Team will develop mechanisms to engage communities in design and implementation of the projects proposed in the SWRP.

Key SWRP sections and project updates will be posted to the WRA website. Audiences include local ratepayers, developers, locally regulated commercial and industrial stakeholders, nonprofit organizations, and the general public.

The Project Team will consider environmental justice needs and issues in the development of the Plan. Disadvantaged and/or climate vulnerable communities within the Plan boundaries will be specifically targeted during DAC/EDA outreach meetings in Task 5b.2.3. Additional DAC/EDA involvement in the planning process will be tracked through mechanisms such as sign-in sheets at the regular WRA TC meetings and attendance at the DAC/EDA meetings.

Deliverable: Draft *Education, Outreach and Public Participation* Plan Section; Meeting Agenda, Notes, Sign-In Sheets and Action Items of WRA TC and Westside IRWM meetings/calls (for deliverable for submittal to SWRCB).

Task 5b.3 – Draft/Final SWRP Preparation

The draft sections of the SWRP developed in Task 5b.2 above will be compiled into a single draft SWRP document for review and comment by the stakeholders. Once a single set of comments has been received, the comments will be incorporated into a final SWRP document.

Deliverables: Detailed SWRP Outline; Stakeholder Plan; Draft SWRP in pdf form (includes compiling individual SWRP elements developed in Tasks 5.b.2. and Draft Self Certification Checklist; Summary of Comments; Final SWRP (up to 20 hard copies and electronic pdf) and Final Self-Certification Checklist; Final SWRP (up to 20 hard copies and electronic pdf) and Final Self-Certification Checklist.

Task 5b.4 – Presentation of Plan to WRA & IRWM

Upon completion of the final SWRP, the Project Team will present their findings to the WRA and Westside IRWM groups. This is expected to take place over a three-month period.

Westside Sacramento IRWM Plan 2013 **Handout #4**

Projects Located within the SWRP Planning Area

No	Project Name	Lead Agency	Project Location
124	Lower Cache Creek Campground and Habitat Restoration	Yolo County Parks	1479 Highway !6, Rumsey, CA 95679
1	Bees Lakes Preserve	West Sacramento Area Flood Control Agency	
3	Apricot Draw Bank Stabilization	Solano County Water Agency	3,000 feet of Apricot Draw to confluence with Putah Creek at Lake Solano
4	Dry Creek Wildlife Migration Corridor Feasibility Study	Solano County Water Agency	2 miles of Dry Creek above the confluence with Putah Creek inclusive.
5	Duncan-Giovannoni Channel Restoration Feasibility Study	Solano County Water Agency	1 mile of river channel mostly upstream of the Dry Creek Confluence.
8	Lower McNamara Pool Channel Reconfiguration Feasibility Study	Solano County Water Agency	2.5 miles east of 505
10	Mace to Road 106A Channel Restoration Feasibility Study	Solano County Water Agency	2.7 miles of channel between Mace Blvd and Road 106A
11	Nishikawa Channel Restoration Feasibility Study	Solano County Water Agency	11,258 feet of channel between Stevenson Bridge and Pedrick Road
17	Road 106A to Yolo Bypass Channel Restoration Feasibility Study	Solano County Water Agency	6000 feet of channel between Road 106A and the Yolo Bypass
19	Stevenson Bridge Channel Restoration Feasibility Study	Solano County Water Agency	2100 feet of channel centered on Stevenson Bridge
20	Thompson Canyon Bank Stabilization Design and Permits	Solano County Water Agency	All 30 miles of Putah Creek from Monticello Dam to the west wall of the Yolo Bypass
22	Warren Weed Control	Solano County Water Agency	North bank east of Yolo Housing
45	Lower Cache Creek Flood Risk Reduction Project	City of Woodland / floodSAFE Yolo Pilot Program	
52	Implementation of the Cache Creek Resources Management Plan	Cache Creek Conservancy	15 miles of lower Cache Creek (Capay Dam to the town of Yolo)
54	Wastewater Treatment Plant Secondary and Tertiary Improvements	City of Davis	45400 County Rd, Davis, CA 95616
80	Cache Creek Anadramous Fish Reintroduction Project	Tuleyome, Inc.	
83	Lower Sacramento and Delta North Regional Flood Management Plan	West Sacramento Area Flood Control Agency	Yolo, Solano, Sacramento and parts of Sutter counties (proposed - subject to DWR approval)
84	Winters Main Canal Modernization Project: Integrated Precision Water Mgmt.	Yolo County Flood Control and Water Conservation District	YCFCWCD Service Area
85	Abandoned Well Incentive Program	Yolo County Flood Control and Water Conservation District	Sacramento Westside IRWM Region
86	County Service Area (CSA) #6 Levee Repair Project	Yolo County Service Area #6	
93	Rural Disadvantaged Community (DAC) Partnership Project	Rural Community Assistance Corporation	Westside Sacramento IRWM
95	Sacramento River Joint Intake Project	Reclamation District 2035	County Road 117 (River Mile 70.8), Yolo County
96	Mid Valley, Knights Landing Repair Project	Knights Landing Ridge Drainage District	
97	Form Task Force/Subcommittee to strategize and implement Watershed Education and Outreach	Knights Landing Ridge Drainage District	
110	Davis-Woodland Water Supply Project	Woodland-Davis Clean Water Agency	Yolo County - eastern area
112	Deep Water Ship Canal Navigation Levee Repair	West Sacramento Area Flood Control Agency	
113	Port of West Sacramento North and South Levee Repair	West Sacramento Area Flood Control Agency	
114	Sacramento River Levee Repair	West Sacramento Area Flood Control Agency	Right bank of the Sacramento River from approximately River Mile 63.0 to approximately River Mile 46.0
115	Sacramento River Recreational Trail	West Sacramento Area Flood Control Agency	
116	Sacramento Bypass-Yolo Bypass Levee Repair Phase II	West Sacramento Area Flood Control Agency	
118	Conjunctive Water Use Program	Yolo County Flood Control and Water Conservation District	YCFCWCD Service Area
119	Moore Siphon Reliability/Restoration Project	Yolo County Flood Control and Water Conservation District	YCFCWCD Service Area
120	Yolo County Airport Drainage Plan	Yolo County	Yolo County Airport
121	Analysis of BDCP's Yolo Bypass Conservation Measure and Other Measures	County of Yolo	Yolo Bypass, Yolo County, California
122	Cache Creek Parkway Plan	Yolo County, Natural Resources Division	Lower Cache Creek (approx. 15 miles, from Capay Dam to town of Yolo)
123	Clarksburg Flood Protection Feasibility Study	Yolo County	Clarksburg Region of Yolo County
125	Methylmercury Impacts Analyses for the Yolo Bypass	County of Yolo	Yolo Bypass, Yolo County, California
127	Agricultural Drain, Slough and Canal Riparian Habitat Enhancement	Yolo County Resource Conservation District	
129	Native Plant Nursery to Support Putah-Cache Ecotype Restoration	Putah Creek Council	Winters, CA
130	Pollution Prevention and Watershed Education Project	Putah Creek Council	Winters, CA
135	Tule Canal Habitat Enhancement & Sediment Removal	Reclamation District 2035	
136	Levee Repairs/Maintenance- Segments 150, 173 and 297	Reclamation District 2035	
137	Installation of Groundwater Wells	Reclamation District 2035	
138	Groundwater Studies	Reclamation District 2035	
139	Floodway Corridor Project	Reclamation District 2035	
140	Cross Bypass Canal Modernization	Reclamation District 2035	
141	Conjunctive Use Study	Reclamation District 2035	
131	Pacific Flyway Center/Delta Gateway	Yolo Basin Foundation	
132	Lower Putah Creek Restoration from Toe Drain to Putah Creek Diversion Dam (Yolo Bypass Wildlife Area Element)	Yolo Basin Foundation	
133	Yolo Bypass Wildlife Area Public Use Improvements	Yolo Basin Foundation	

Yolo County Storm Water Resources Plan
Kick-Off Meeting
02 March 2017

Sign-In Sheet

Name/Organization	Email/Phone
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Yolo County Storm Water Resources Plan
Kick-Off Meeting
02 March 2017

Sign-In Sheet

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Meeting Agenda

Yolo Storm Water Resources Plan

Working Group Meeting 2

Handouts and Meeting Materials Available on Yolo WRA Website:
http://www.yolowra.org/meeting_irwmp.html

Location: Yolo County Flood Control and Water Conservation District Boardroom, 34274 State Highway 16, Woodland 95695
Call-In Number: (855) 813-2486; Access Code: 2714#
Date/Time: 06 April 2017, 10:30 AM

1	Review Agenda and Safety Moment	5 minutes
2	Summary of Last Meeting (March 9, 2017)	5 minutes
2	Storm Water Resources Plan (SWRP) Outline • Outline (Handout #1) • Data Gaps (GIS, Other) o Community zoning?	10 minutes
3	SWRP Objectives • SWRP Objectives 1. Westside IRWM Plan Objectives 2. SWRP Guidelines Multi-Benefit Objectives (Guidelines Page 9, Table 3 and Table 4) (Handouts #2 and #3) • IRWM Plan and SWRP Guidelines Objectives Comparison (Handout #4) o Proposed Objectives	20 minutes
4	Project Brainstorming and Discussion • Current Projects (Handout #5) • Potential Projects Survey (Google Docs) (Handout #6) • Draft Call for Projects	20 minutes
5	Other Discussion	10 minutes
6	Next Meeting – May 4, 2017, 10:30 am, Yolo County Flood Control and Water Conservation District Boardroom, 34274 State Highway 16, Woodland 95695 Topics: - Call for Projects Preparation - Introduction to Quantitative Methods (GIS analysis, WEAP, Simple Method) - Identification of EDAs/DACs - Draft Section 1: Introduction and SWRP Objectives	5 minutes

7	Handouts – Available on Yolo WRA IRWMP website: http://www.yolowra.org/meeting_irwmp.html 1. Outline 2. Guidelines Table 3. Benefit Metrics 3. Guidelines Table 4. Storm Water Management Benefits 4. IRWM Plan and Guidelines Objectives Comparison 5. Current Projects 6. Potential Projects Survey (Google Docs)	

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TABLE 3. BENEFIT METRICS

Benefit	Example	Metric Unit(s)
Water Quality *while contributing to compliance with applicable permit and/or TMDL requirements*	Increased filtration and/or treatment of runoff Nonpoint source pollution control Reestablished natural water drainage and treatment	**Pollutant Load Reduction** pounds (lbs)/day kilograms (kg)/day milligram/Liter microgram /Liter most probable number of bacteria or indicator organisms (mpn)/mL **Volume Treated** million gallons per day (mgd) acre-feet per year (afy)
Water Supply *through groundwater management and/or runoff capture and use*[11]	Water supply reliability Water conservation Conjunctive use	**Volume Captured** *in terms of augmentation/replacement of water supply, or reduced dependence on imported water* million gallons per day (mgd) acre-feet per year (afy) **Cost** dollars per volume per year (of augmented water supply)
Flood Management	Decreased flood risk by reducing runoff rate and/or volume Reduced sanitary sewer overflows	**Rate, Volume, and/or Size** cubic feet per second (cfs) acre-feet (af) cubic feet (cf) acres or linear feet
Environmental	Environmental and habitat protection and improvement, including: - wetland enhancement/creation; - riparian enhancement; and/or - instream flow improvement	**Size and/or Rate** acres cubic feet per second (cfs) carbon sequestration (megagrams of carbon per area)

[11] Groundwater management and/or runoff capture and use also includes "on-farm" flood flow capture and recharge projects located on suitable agricultural lands.

TABLE 3. BENEFIT METRICS

Benefit	Example	Metric Unit(s)
Environmental *(continued)*	Increased urban green space Reduced energy use, greenhouse gas emissions, or provides a carbon sink Reestablishment of the natural hydrograph Water temperature improvements	**Other**[12] area units of landscape and buffer measure of improved hydrology number of biotic structure number of physical structures reduced temperature (degrees)
Community	Enhanced and/or created recreational and public use areas Community involvement Employment opportunities provided	**Size** size of population served number of people number of jobs acres

2. Integrated Metrics-Based Analysis

The Storm Water Resource Plan should include an integrated watershed-based and metrics-based analysis demonstrating that the proposed storm water and dry weather runoff capture projects and programs within the watershed will collectively address the Plan's storm water management objectives and produce the proposed multiple benefits identified per the guidance in Section VI.D. The following guidance provides the minimum level of information to be included in an integrated metrics-based analysis for different types of projects within the watershed.

a. Water Quality Projects Analysis

The Storm Water Resource Plan should include a watershed-based analysis of how existing and proposed projects/programs comply with or are consistent with Total Maximum Daily Loads, applicable NPDES permit and/or waste discharge requirements. The analysis for water quality projects should simulate the proposed watershed-based outcomes using modeling, calculations, pollutant mass balances, water volume balances and/or other methods of analysis that provide the following, as applicable:

[12] California Wetlands Monitoring Workgroup (CWMW). 2013. California Rapid Assessment Method (CRAM) for Wetlands, Version 6.1 pp. 67:

- **Landscape and buffer** metrics includes aquatic area abundance (for bar-built estuaries this includes stream corridor continuity, aquatic area in adjacent landscape, and marine connectivity) and buffer (percent of area with buffer, average buffer width, and buffer condition).
- **Hydrology** metrics includes water source, hydroperiod or channel stability, and hydrologic connectivity.
- **Biotic structure** metrics includes plant community (number of plant layers present or endemic species richness (vernal pools only), number of co-dominant species, and percent invasion), vertical biotic structure, horizontal interspersion, and native plant species richness.
- **Physical structure** metrics includes structural patch richness and topographic complexity.

TABLE 4. STORM WATER MANAGEMENT BENEFITS

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

E. PLAN IMPLEMENTATION STRATEGY AND SCHEDULING OF PROJECTS

1. Resources for Plan Implementation

A Storm Water Resource Plan should identify the resources that the participating entities are committing for implementation of the Plan. The Plan should include the following items to ensure its effective implementation. (Wat. Code, § 10562, subd. (d)(8).):

a. Projection of additional funding needs and sources for administration and project implementation needs, above and beyond the needs of the existing storm water management plans and/or integrated regional water management plans; and

b. Schedule for arranging and securing Plan financing for project implementation, including identification of phased Plan and/or project implementation.

Westside Sacramento IRWM Plan Objectives vs SWRP Guideline Objectives

Westside Sacramento IRWM Plan, June 2013.
Section 6: Goals and Objectives, 6.4 Plan Objectives

Storm Water Resources Plan Guidelines, December 2015
Multi-Benefit / Multiple Benefit Projects, Page 9

Storm water and dry weather runoff capture projects that provide more than one benefit or meets more than one objective.

Westside Sacramento IRWM Plan Objectives	SWRP Guideline Objectives													
	1. Creates and restores wetlands (Wat. Code, § 10561(g))	2. Riverside [riparian] habitats (Wat. Code, § 10561(g))	3. Instream flows (Wat. Code, § 10561(g))	4. Increase in park and recreation lands (Wat. Code, § 10561(g))	5. Urban green space (Wat. Code, § 10561(g))	6. Augments recreation opportunities for communities (Wat. Code, § 10561(h))	7. Increases tree canopy (Wat. Code, § 10561(h))	8. Reduces heat island effect (Wat. Code, § 10561(h))	9. Improves air quality (Wat. Code, § 10561(h)	10. Maximizes water quality (Wat. Code, § 10562(b)(2))	11. Maximizes water supply (Wat. Code, § 10562(b)(2))	12. Maximizes flood management (Wat. Code, § 10562(b)(2))	13. Maximizes environmental benefits (Wat. Code, § 10562(b)(2))	14. Maximizes other community benefits (Wat. Code, § 10562(b)(2))
Education and Awareness Focus														
1. Provide and promote use of educational curricula for K-12 students														x
2. Provide educational information to encourage stewardship by public														x
Habitat Focus														
3. Restore native vegetation/form/function along riparian/aquatic corridors	x	x												
4. Quantify the extent of suitable life-cycle habitat for Threatened/Endangered/Imperiled native fish			x										x	
5. Prioritize/plan/schedule improvements to suitable life-cycle habitat forto T/E/I native fish			x										x	
6. Increase availability of suitable life-cycle habitat for Threatened/Endangered/Imperiled native fish identified.			x										x	
Invasive Species Focus														
7. Prevent colonization by quagga mussels/zebra mussels and eliminate/prevent spread of New Zealand mud snails		x											x	
8. Establish invasive plant management plan		x											x	
9. Implement invasive plant management plan		x											x	
Infrastructure Focus														
10. Create asset management plan for key water management infrastructure										x	x	x		
Reasonable Use Focus														
11. Meet 20% by 2020 conservation targets			x								x			
12. Increase adoption of agricultural Best Management Practices		x	x							x	x			
Recreation Focus														
13. Maintain and increase water-related recreational opportunities				x	x	x								
Risk Management Focus														
14. Provide adequate flood protection												x		
15. Manage watershed activities to reduce large erosion events	x	x							x	x		x	x	
Understand Watershed Function Focus														
16. Monitor state/federal Delta programs														
17. Monitor conditions/improve understanding to support sustainable groundwater basins											x			
18. Maintain/enhance watershed and natural resource monitoring network and information sharing										x				
Water Quality Focus														
19. Address pollutant sources to meet runoff standards and Total Maximum Daily Load (TMDL) targets										x				
20. Minimize accidental wastewater spillage/discharges										x		x		x
21. Reduce public health risks by reducing contaminants in drinking water sources										x	x			x
22. Meet all drinking water and wastewater discharge standards											x			x
Water Supply Focus														
23. Provide 100% reliability of municipal and industrial water supplies										x	x			
24. Provide agricultural water supplies to support a robust agricultural industry										x	x			
Proposed Objective														
25. Convert paved and/or impervious areas and increase tree canopy and vegetation, reducing urban heat island effects							x	x						
Benefit Totals	2	6	5	1	1	1	1	1	1	9	8	4	7	5

Westside Sacramento IRWM Plan Objectives vs SWRP Benefit Categories

Westside Sacramento IRWM Plan, June 2013.
Section 6: Goals and Objectives, 6.4 Plan Objectives

Storm Water Resources Plan Guidelines, December 2015
Multi-Benefit / Multiple Benefit Projects, Page 9

Storm water and dry weather runoff capture projects that provide more than one benefit or meets more than one objective.

	SWRP Guideline Benefit Categories																		
	Water Quality			Water Supply			Flood Management		Environmental								Community		
	Increase filtration and/or treatment of runoff	Nonpoint source pollution control	Reestablished natural water drainage and treatment	Water supply reliability	Water conservation	Conjunctive use	Decreased flood risk by reducing runoff rate and/or volume	Reduced sanitary sewer overflows	Environmental and habitat protection and improvement	Wetland enhancement/creation	Riparian enhancement	Instream flow improvement	Increased urban green space	Reduced energy use, greenhouse gas emissions, or provides a carbon sink	Reestablishment of the natural hydrograph	Water temperature improvements	Enhanced and/or created recreational and public use areas	Community involvement	Employment opportunities provided
Westside Sacramento IRWM Plan Objectives																			
Education and Awareness Focus																			
1. Provide and promote use of educational curricula for K-12 students																		x	
2. Provide educational information to encourage stewardship by public																		x	
Habitat Focus																			
3. Restore native vegetation/form/function along riparian/aquatic corridors			x						x	x	x	x			x				
4. Quantify the extent of suitable life-cycle habitat for Threatened/Endangered/Imperiled native fish									x	x	x	x				x			
5. Prioritize/plan/schedule improvements to suitable life-cycle habitat forto T/E/I native fish									x	x	x	x				x			
6. Increase availability of suitable life-cycle habitat for Threatened/Endangered/Imperiled native fish identified by Objective 5.									x	x	x	x				x			
Invasive Species Focus																			
7. Prevent colonization by quagga mussels/zebra mussels and eliminate/prevent spread of New Zealand mud snails									x		x								
8. Establish invasive plant management plan									x		x								
9. Implement invasive plant management plan									x		x								
Infrastructure Focus																			
10. Create asset management plan for key water management infrastructure				x															
Reasonable Use Focus																			
11. Meet 20% by 2020 conservation targets				x	x														
12. Increase adoption of agricultural Best Management Practices		x		x	x	x													
Recreation Focus																			
13. Maintain and increase water-related recreational opportunities																	x	x	
Risk Management Focus																			
14. Provide adequate flood protection							x	x											
15. Manage watershed activities to reduce large erosion events			x				x								x				
Understand Watershed Function Focus																			
16. Monitor state/federal Delta programs			x												x			x	
17. Monitor conditions/improve understanding to support sustainable groundwater basins	x			x		x												x	
18. Maintain/enhance watershed and natural resource monitoring network and information sharing	x			x		x			x	x	x	x				x		x	
Water Quality Focus																			
19. Address pollutant sources to meet runoff standards and Total Maximum Daily Load (TMDL) targets	x	x	x																
20. Minimize accidental wastewater spillage/discharges							x	x											
21. Reduce public health risks by reducing contaminants in drinking water sources	x	x	x	x			x	x											
22. Meet all drinking water and wastewater discharge standards	x	x	x	x			x	x											
Water Supply Focus																			
23. Provide 100% reliability of municipal and industrial water supplies				x															
24. Provide agricultural water supplies to support a robust agricultural industry				x															
Proposed Objective																			
25. Convert paved and/or impervious areas and increase tree canopy and vegetation, reducing urban heat island effects													x	x			x		
Benefit Totals	5	4	6	9	2	3	5	4	8	5	8	5	1	1	3	4	2	6	0

Westside SAC IRWM
Projects for Yolo SWRP Consideration

Project No.	Lead Agency Organization	Project Title	Project Description Briefly describe the project in 300 words or less
1	West Sacramento Area Flood Cont	Bees Lakes Preserve	Conserve and develop limited, low-impact pedestrian-only recreational access to a 23-acre open space area containing sensitive aquatic, riparian, emergent and upland habitats which are associated with the Sacramento River.
2	Lower Putah Creek Coord. Commit	505-East Channel Restoration	Restore 10 acres of riparian forest, 3/4 mile of river channel, remove 22 occurrences (2 net acres) of 6 primary invasive weeds: arundo, eucalyptus,Himalayan blackberry, tree of heaven, fig and tamarisk; reconfigure one thousand feet of river channel, restore 100 feet of eroding streambank, create 3/4 mile of south bank bench trail connecting Yolo Housing to the City of Winters at low flows.
3	Lower Putah Creek Coord. Commit	Apricot Draw Bank Stabilization	Restores 3,000 feet of Apricot Draw, stabilizing eroding banks, removing invasive weeds and planting native vegetation.
4	Lower Putah Creek Coord. Commit	Dry Creek Wildlife Migration Corridor Feasibility Study	Feasibility study to restore 2 miles of wildlife corridor from the confluence of Putah Creek along Dry Creek on the western boundary of Winters
5	Lower Putah Creek Coord. Commit	Duncan-Giovannoni Channel Restoration Feasibility Study	Determine feasibility to restore 80 acres of riparian forest, reconfigure one mile of river channel, remove 96 occurrences (7 net acres) of 5 primary invasive weeds: arundo, Himalayan blackberry, tree of heaven, fig and tree tobacco. Convert five acres of excess open water (gravel pit captured by the channel) to floodplain, restore natural meander form, pool-riffle sequence, functional floodplain elevations, salmon spawning habitat and native vegetation.
6	Lower Putah Creek Coord. Commit	Glide Ranch Channel Restoration Feasibility Study	Feasibility study to restore 160 acres of riparian forest, reconfigure 11,250 feet of river channel, remove 128 occurrences (8 net acres) of 8 primary invasive weeds: arundo, black locust, eucalyptus, fig, Himalayan blackberry, pepperweed, tamarisk and tree of heaven. Grade floodplain to functional elevation, convert 15 acres of excess open water to floodplain, restore natural meander form, pool-riffle sequence, salmon spawning habitat and native vegetation.
7	Lower Putah Creek Coord. Commit	Putah Creek Interdam Reach Invasive Weed Control	Remove 127 occurrences (8.6 net acres) of 11 primary invasive weeds: arundo, black locust, eucalyptus, fennel, fig, Himalayan blackberry, pampas grass, pepperweed, tree of heaven, tree tobacco and yellow star thistle from 6.5 river miles (400 acres) of riparian corridor between Monticello Dam and Putah Diversion Dam and install native vegetation where weeds are removed.
8	Lower Putah Creek Coord. Commit	Lower McNamara Pool Channel Reconfiguration Feasibility Study	Determine feasibility to: restore 25 acres of riparian forest, reconfigure 3,150 feet of river channel, remove 25 occurrences (0.5 net acres) of 6 primary invasive weeds: arundo, domestic almond, eucalyptus, Himalayan blackberry, tamarisk and tree of heaven. Convert seven acres of excess open water (gravel pit captured by the channel) to floodplain, restore natural meander form, pool-riffle sequence, functional floodplain elevations, salmon spawning habitat and native vegetation.
9	Lower Putah Creek Coord. Commit	MacQuiddy Channel Reconfiguration Feasibility Study	Determine feasibility to: restore 34 acres of riparian forest, reconfigure 3,800 feet of river channel, remove 44 occurrences (6 net acres) of 5 primary invasive weeds: arundo, eucalyptus, Himalayan blackberry, tamarisk and tree of heaven. Grade floodplain to functional elevation, restore natural meander form, pool-riffle sequence, salmon spawning habitat and native vegetation.
10	Lower Putah Creek Coord. Commit	Mace to Road 106A Channel Restoration Feasibility Study	Feasibility study to restore 305 acres of riparian forest, reconfigure 2.7 miles of river channel, remove 124 occurrences (12.8 net acres) of 5 primary invasive weeds: arundo, milk thistle, pepperweed, tamarisk and yellow star thistle. Grade floodplain to functional elevation, convert 17 acres of excess open water to floodplain, restore natural meander form, pool-riffle sequence, salmon spawning habitat and native vegetation.
11	Lower Putah Creek Coord. Commit	Nishikawa Channel Restoration Feasibility Study	Feasibility study to restore 37 acres of riparian forest, reconfigure 2,430 feet of river channel, remove 20 occurrences (1.36 net acres) of 6 primary invasive weeds: black locust, eucalyptus, pepperweed, tamarisk, tree of heaven and yellow star thistle. Grade floodplain to functional elevation, convert 3 acres of excess open water to floodplain, restore natural meander form, pool-riffle sequence, salmon spawning habitat and native vegetation.
12	Lower Putah Creek Coord. Commit	Old Davis Road to Mace Channel Restoration Feasibility Study	Feasibility study to restore 190 acres of riparian forest, reconfigure 3.4 miles of river channel, remove 172 occurrences (5 net acres) of 9 primary invasive weeds: arundo, eucalyptus, fig, Himalayan blackberry, pepperweed, tamarisk, tree of heaven, tree tobacco and Virginia creeper. Grade floodplain to functional elevation, convert 27 acres of excess open water to floodplain, restore natural meander form, pool-riffle sequence, salmon spawning habitat and native vegetation.
13	Lower Putah Creek Coord. Commit	Olmo-Hammond-UCD Channel Restoration Feasibility Study	Feasibility study to restore 109 acres of riparian forest, reconfigure 9,765 feet of river channel, remove 70 occurrences (2.5 net acres) of 9 primary invasive weeds: arundo, black locust, eucalyptus, Himalayan blackberry pepperweed, tamarisk, tree of heaven, tree tobacco and yellow star thistle. Grade floodplain to functional elevation, convert 17 acres of excess open water to floodplain, restore natural meander form, pool-riffle sequence, salmon spawning habitat and native vegetation.
16	Lower Putah Creek Coord. Commit	Restoria Channel Restoration Feasibility Study	Feasibility study to restore 93 acres of riparian forest, reconfigure 4,300 feet of river channel, remove 46 occurrences (3.2 net acres) of 6 primary invasive weeds: eucalyptus, Himalayan blackberry, pepperweed, tamarisk, tree tobacco and yellow star thistle. Grade floodplain to functional elevation, convert 2 acres of excess open water to floodplain, restore natural meander form, pool-riffle sequence, salmon spawning habitat and native vegetation.
17	Lower Putah Creek Coord. Commit	Road 106A to Yolo Bypass Channel Restoration Feasibility Study	Feasibility study to restore 52 acres of riparian forest, reconfigure 6,000 feet of river channel, remove 42 occurrences (8 net acres) of 6 primary invasive weeds: arundo, eucalyptus, Himalayan blackberry, pepperweed, tamarisk and yellow star thistle. Grade floodplain to functional elevation, convert 11 acres of excess open water to floodplain, restore natural meander form, pool-riffle sequence, salmon spawning habitat and native vegetation.
18	Lower Putah Creek Coord. Commit	Russell Ranch Channel Restoration Feasibility Study	Determine feasibility to: restore 50 acres of riparian forest, reconfigure 5,500 feet of river channel, remove 91 occurrences (2.75 net acres) of 8 primary invasive weeds: arundo, black locust, eucalyptus, fig, Himalayan blackberry, pepperweed, tamarisk and tree of heaven. Grade floodplain to functional elevation, convert 7 acres of excess open water to floodplain, restore natural meander form, pool-riffle sequence, salmon spawning habitat and native vegetation.
19	Lower Putah Creek Coord. Commit	Stevenson Bridge Channel Restoration Feasibility Study	Feasibility study to restore 22 acres of riparian forest, reconfigure 2,100 feet of river channel, remove 29 occurrences (0.5 net acres) of 6 primary invasive weeds: arundo, eucalyptus, fig, Himalayan blackberry, pepperweed, and tamarisk. Grade floodplain to functional elevation, convert 1.5 acres of excess open water to floodplain, restore natural meander form, pool-riffle sequence, salmon spawning habitat and native vegetation.
20	Lower Putah Creek Coord. Commit	Thompson Canyon Bank Stabilization Design and Permits	This study provides plans, specifications and permits to restore 1.5 miles of Thompson Canyon at the confluence of Putah Creek, stabilizing a poorly engineered legacy road that caused a massive mud slide into Putah Creek in 1995; and subsequent smaller mud flows that annually degrade water quality and smother prime trout spawning habitat below Monticello Dam. The study would develop shovel-ready plans, specifications and permits.
21	Lower Putah Creek Coord. Commit	Upper McNamara Pool Channel Reconfiguration Feasibility Study	Determine feasibility to restore 30 acres of riparian forest, reconfigure 3,300 feet of river channel, remove 52 occurrences (4 net acres) of 7 primary invasive weeds: arundo, catalpa, domestic almond, eucalyptus, Himalayan blackberry, tamarisk and yellow star thistle. Convert five acres of excess open water (gravel pit captured by the channel) to floodplain, restore natural meander form, pool-riffle sequence, functional floodplain elevations, salmon spawning habitat and native vegetation.
22	Lower Putah Creek Coord. Commit	Warren Weed Control	Restore 11 acres of riparian forest, 1,700 of river channel, remove 26 occurrences (2 net acres) of 8 primary invasive weeds:arundo, black locust, catalpa, eucalyptus, Himalayan blackberry, milk thistle, tamarsk and yellow star thistle. One of the densest thickets of eucalyptus with over 300 trees averaging 24 inches in diameter.
33	Solano County Water Agency	Research on Hydrodynamics and WQ Interactions in the Delta.	The Sacramento - San Joaquin Delta is a complex array of streams, tidal channels, and estuary mixing with the San Francisco Bay. With large projects such as the Bay Delta Conservation Plan, restoration of thousands of acres of tidal marsh habitat as part of the Delta Biological Opinions, and others, there is a need to better understand the hydrodynamic and water quality interactions in the Delta. Such modeling and monitoring can help Delta users protect ESA species, improve water quality, and maintain water supply for municipal and agricultural users within the Delta.
35	Solano County Water Agency	Risk Assessment of Delta Water Supplies	This project would entail a risk assessment of Delta Water supplies, and would look at the impacts of unforseen circumstances such as: Earthquakes, Delta levee failure, Sea level rise, and others as needed. The study would determine the risks and potential impacts to Delta water supplies such as the NBA. The project would inform and educate Delta and NBA water users.
38	Solano County Water Agency	Source water protection for Delta water sources	This project consists of various improvements such as best management practices, source water protection, and others to reduce the impact of point and non-point sources that could negatively impact Delta water quality, with a particular emphasis on drinking water quality.
39	Solano County Water Agency	Source water protection for Putah Creek watershed	This project consists of various improvements such as best management practices, source water protection, reduction of in-channel erosion, improved stream channel geomorphology, remediation of historic mining and others to reduce the impact of point and non-point sources that could negatively impact the Putah Creek watershed, as well as the Yolo Bypass.
40	RWMG with selected Lead Agency	Regional Invasive Plants, Aquatic and Terrestrial Weeds Management Plan	This project will include the formation of an Invasive Species Task Force/Subcommittee to prepare a Regional Invasive Species Management/Eradication Plan that documents the extent of invasive terrestrial and aquatic species within the Westside Region; evaluates existing programs to manage invasive species that could be leveraged, and identifies supplemental programs to be developed to fill gaps in existing programs to manage invasive species. The documentation phase will include review of existing GIS data and programs of local, state, and federal agencies, non-governmental organizations, and tribes. The Plan will include an implementation plan and indicate where coordination with other regional plans (e.g. Education Plan) is necessary. The Plan will be usable by all involved Regional agencies and could be expanded outside the Westside Region at a future date. This project could replace/incorporate LPCC - #2,3, 5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,21,22; SCWA - #27 and 32 LCWRD - #74, YCRCD - #127,

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43	Solano County Water Agency	Wetland Restoration Research and Impacts to Source Water Quality.	The project will consist of scientific study/research on wetland restoration, organic carbon generation, and other important areas of study, to determine the corresponding impacts on municipal source water quality. The study will address many of the concerns associated with large scale wetland restoration in the Suisun Marsh and Cache Slough Complex.
45	City of Woodland / floodSAFE Yolo	Lower Cache Creek Flood Risk Reduction Project	The primary purpose for the Project is to reduce the risk of flooding to the City of Woodland and adjacent land including the rural Town of Yolo and Interstate 5. The Project is part of the flood management element of the Cache Creek Integrated Project presented in the Yolo County IRWMP that was adopted by the WRA in July 2007. The features of the State Plan of Flood Control afford a nominal 10-year level of protection and the City, in keeping with the legislative intent of FloodSAFE California, will be seeking 200-year protection. The Project is in the initial phases of a feasibility study for which the City has executed a Federal cost share agreement with the USACE and CVFPB and a non-federal cost share agreement with the CVFPB. In striving to maintain the integrity of the IRWMP features for environmental enhancement and recreation will be investigated. Implementation of the feasibility study and project construction will be performed in concert with implementation of the CVFPP.
52	Cache Creek Conservancy	Implementation of the Cache Creek Resources Management Plan	This proposal will implement projects within the Cache Creek Resources Management Plan (CCRMP) area, located along 15 miles of lower Cache Creek from the Capay Dam to the town of Yolo. The Cache Creek Conservancy (CCC) has been working in this area for fifteen years, focusing on removal of non-native invasive plant species along with revegetation efforts at specific sites. The CCC also manages the Cache Creek Nature Preserve, a 130 acre area owned by Yolo County, which includes wetlands, oak woodlands, and the riparian corridor. This area is open to the public and serves as the site of our environmental education program, outreach activities for people of all ages, Native American gathering garden, and research projects. The proposed project consists of various phases of these activities that may meet specific grant requirements such as habitat restoration or enhancement, streambank stabilization, invasive plant removal, monitoring, and/or watershed stewardship through education, workshops, and outreach to landowners. The CCC works closely with partners including Yolo County and the Yolo County RCD.
54	City of Davis	Wastewater Treatment Plant Secondary and Tertiary Improvements	The City owns and operates the Davis WWTP, which is located east of the City limits at 45400 County Road 28H in Yolo County (Figure 1-1 and Figure 1-2). The wastewater treatment system at the WWTP consists of a mechanical bar screen, an aerated grit tank, two aeration ponds (typically used in winter), three facultative oxidation ponds, a lemna pond, an overland flow system, a chlorine disinfection system, and restoration wetlands. Solids collected from the primary sedimentation basin are treated in an anaerobic digester and then are dewatered in three on-site sludge lagoons. Treated solids are land applied on the City's overland flow slopes and the upland areas of the restoration wetlands. Treated effluent is discharged to the Willow Slough Bypass (Discharge Point 001) and/or through the Davis restoration wetlands to the Conaway Ranch Toe Drain (Discharge Point 002), both of which are considered Waters of the United States under the Clean Water Action and tributary to the Yolo Bypass. The City received a renewed permit for its discharge of treated effluent to the Willow Slough Bypass and Conaway Ranch Toe Drain on October 25, 2007. To maintain its surface water discharge, the Permit requires the City to meet new stringent effluent limitations within ten years of adoption of the Permit. To meet the new limit, the City has determined it necessary to cease its surface water discharge to Willow Slough, all or in part, through upgrades to its existing treatment process to provide for tertiary treatment. The City has until October of 2017 to implement a project to meet the new permit requirements. The proposed project is being developed in response to these new discharge requirements.
76	RWMG with selected Lead Agency	Regional Invasive Mussels Management Plan	This project will include the formation of an Invasive Species Task Force/Subcommittee to prepare a Regional Invasive Mussels Species Prevention Plan that evaluates existing programs to prevent invasive species that could be leveraged, and identifies supplemental programs to be developed to fill gaps in existing programs to manage invasive species. Special high priority emphasis will be placed on prevention of water body infestation by Quagga Mussels. The documentation phase will include review of existing GIS data and programs of local, state, and federal agencies, non-governmental organizations, and tribes. The Plan will include an implementation plan and indicate where coordination with other regional plans (e.g. Education Plan) is necessary. The Plan will be usable by all involved Regional agencies and could be expanded outside the Westside Region at a future date. This project could replace/incorporate LPCC - #2,3, 5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,21,22; SCWA - #27 and 32 LCWRD - #74, YCRCD - #127,
81	Tuleyome, Inc.	Comprehensive Mercury Assessment and Implementation for the Westside Region	Key Activities (generally in chronological order): • Compile and georeference existing maps, technical reports, land use and planning documents, hydrology and water quality data (e.g., flow rates, mercury and sediment concentrations, fish tissue mercury) and other information characterizing known and potential mercury priority areas (e.g., unmaintained roads, hillsides, streambanks and debris dams, mercury mines, mineral springs, surficial soil mineralogy, atmospheric deposition, and point sources) in the Westside Region. • Monitor mercury biosentinels and fine-grain streambed sediments in the Putah Creek Watershed to identify tributary "hot spots", implemented using methods comparable to monitoring performed in the Cache Creek and Clear Lake watersheds and consistent with Surface Water Ambient Monitoring Program protocols. • Upload relevant information into a regional or statewide on-line library such as SWIM (http://srwp.org/imf/imf.jsp?site=SWIM) for reports and CEDEN for water data. • Synthesize existing information and produce a "lessons learned" summary. • Develop a Best Management Practices Toolkit for addressing mercury concerns in relevant watershed management projects. • Work with land managers and other stakeholders to develop customizable decision-support tools that allow users throughout the Westside Region to (1) visualize mercury source areas,(2) catalog relevant data and other information spatially, (3) highlight priority areas for additional regional or local mercury control studies, and (4) identify cost-effective mercury reduction projects. • Identify 2-3 feasible priority projects and develop implementation measures using the Toolkit and decision-support tools. • Support and contribute to relevant state regulatory programs addressing mercury pollution (fish tissue objective, statewide reservoirs TMDL, trading policy and pilot projects). • Communicate and engage with landowners and other stakeholders in the region
83	West Sacramento Area Flood Cont	Lower Sacramento and Delta North Regional Flood Management Plan	The Central Valley Flood Protection Plan (CVFPP) calls for State of California Department of Water Resources (DWR) to work with local flood management agencies to prepare detailed Regional Flood Management Plans (RFMP) that, at a minimum, identify and articulate the following: • Describe flood management challenges and deficiencies at the regional level including operations and maintenance practices, levee and channel inspection, and emergency response plans. • Propose potential solutions/projects identified by local public agencies and interest groups for the region, estimated costs for projects, prioritization of the solutions/projects, enhanced operations and maintenance, emergency response, and floodplain management. • Propose financial strategies that identify benefits of the projects and sources of the funding for implementation of the projects. The CVFPP promotes the State's System-wide Investment Approach (SSIA) for sustainable, integrated flood risk management in areas currently protected by facilities of the State Plan of Flood Control. The purpose of the regional planning effort is to build upon the CVFPP by obtaining more region-specific information and local input for long term implementation of a sustainable and integrated flood risk reduction program in the Central Valley. The plan formulation process will document site-specific flood system improvement needs, ensure local public agencies' involvement in developing their region's long-term vision for flood management, and prepare strategies for implementation over the long term (next 25 years or so) to achieve the region's vision for significantly reducing flood risks.
84	Yolo County Flood Control and Wa	Winters Main Canal Modernization Project: Integrated Precision Water Mgmt.	Through the installation of automatic water control gates, pump flow meters and vegetated native grass canal banks, the District will modernize 16 miles of its main canal in an integrated, environmentally friendly way. The automatic water control gates will allow the District to operate its main system with more flexibility, thereby allowing the District and its water customers to manage their irrigations in a more efficient manner and achieve water conservation benefits. Planting the canal banks with native grasses will minimize erosion and improve water quality while also providing habitat value for wildlife. Additionally, converting from the use of a spray program to control undesired weeds, to native grasses will allow the District to limit the use of herbicides.

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Project No.	Lead Agency Organization	Project Title	Project Description Briefly describe the project in 300 words or less
85	Yolo County Flood Control and Wa	Abandoned Well Incentive Program	The Westside Regional Water Management Group would like to create a grant funded Abandoned Well Incentive Program. The Incentive program would pay for the proper destruction of old, abandoned wells. Currently hundreds, or possibly thousands, of abandoned wells in the Westside Region have not been properly destroyed, allowing low quality water to travel to higher quality zones. Current county ordinances and State water well construction standards mandate that unused wells be destroyed to protect groundwater quality. However, properly destroying a well can be expensive and in practice, many wells are not destroyed. Many wells were abandoned decades ago with the responsible party long gone. Additionally, there is no staff or program in place to enforce the ordinances and there is no "master list" of wells to look up. The current location of abandoned wells is unknown. The Westside RWMG feels the best way to find and properly destroy abandoned wells is to have private landowners step forward and enroll these wells in a Well Incentive Program. The incentive to enroll is that the program will pay for the proper destruction by licensed C-57 well contractors. The RWMG proposes a 3 year program, with one full time project manager, for approximately $2.2 million. Local Farm Bureaus would collect names of participants, and local well contractors would perform the work. We hope to properly destroy up to 500 wells, as funding permits.
86	Yolo County Service Area #6	County Service Area (CSA) #6 Levee Repair Project	The CSA #6 Levee Repair Project is a subset of the Mid-Valley Area Levee Reconstruction Project currently underway through a partnership between the U.S. Army Corp of Engineers and the Central Valley Flood Protection Board. This is a non-urban levee repair project that consists of one site with the combined length of 1.108 Miles located along the landside of the CSA #6 levee. The repair of these three sites would complete the levee rehabilitation identified to restore the District levee to its authorized level of flood protection as established for the Sacramento River Flood Control Project. The repairs include removing expansive clay materials used to construct the levees with a material the meets the Corps guidelines and to construct landside berms that will prevent further sloughing
94	Lake County Water Resources Dep	Increase Cache and Putah Creek Watershed Education and Outreach	Develop and improve education programs that provide public with information on watershed programs and related proper management techniques. This program will build on existing water education materials from sources including government agencies, the WET Program and the Water Education Foundation to create a broad education program suitable for students, involved government agencies and the general public. It will cover general principals of watershed management, good environmental stewardship, proper use of area recreational resources, proper management of area water bodies, what homeowners, businesses, and government can do to promote good management, and other related topics. It will be designed to be usable by all involved Regional agencies.
96	Knights Landing Ridge Drainage Di	Mid Valley, Knights Landing Repair Project	Subset of the Mid-Valley Area Levee Reconstruction Project currently underway through a partnership with ACOE and the Central Valley Flood Protection Board.. Non-urban levee Repair
97	Lake County Water Resources Dep	Form Task Force/Subcommittee to strategize and implement Watershed Education and Outreach	Support appointment of Education Task Force/Subcommittee to prepare a Regional Watershed Education Plan for a 2-year implementation period. The Education Plan identifies the breadth and depth of the educational need within the Westside Region; evaluates existing programs that meet the educational needs that could be leveraged, and identifies supplemental education and/or incentive programs to be developed to fill gaps in existing programs that provide both K-12 and the general public with information on watershed programs and related proper management techniques. The Plan will include an implementation plan for a 2-yr duration after plan development. Specific target areas for education may include: urban and agricultural water use efficiency, aquatic invasive species especially with relationship to recreation, stormwater quality best management practices for homeowners, businesses, and government, general public education around OHV use and water quality, algae blooms, etc. as well as general principals of watershed management and proper management of area water bodies. The identification phase will include review of existing water education materials and implementation programs from sources including government agencies, non-governmental organizations, tribes, the WET Program and the Water Education Foundation. The Plan will be usable by all involved Regional agencies. After the 2-yr implementation period, the plan will be evaluated and updated. (this project could replace/incorporate Lake Co specific project, as well as #130 of Putah Creek Council and #131 of Yolo Basin Foundation)
110	Woodland-Davis Clean Water Ager	Davis-Woodland Water Supply Project	The Davis-Woodland Water Supply Project (DWWSP) was one of the integrated actions contained in the adopted 2007 Yolo County IRWMP, and is on the WRA Project Priority List approved by the WRA Board in 2011. The Woodland-Davis Clean Water Agency (WDCWA) was formed in 2009 to design and construct the DWWSP to deliver up to 40 mgd of treated surface water to the cities of Woodland and Davis, and UC Davis by 2016. The project improves drinking water quality and reliability to over two-thirds of the urban population in Yolo County. The project EIR has been prepared and adopted which identified the DWWSP as the most environmentally superior water supply alternative for the partners to pursue. A majority of project permitting and land acquisition activities are now completed. The project is comprised of four regional facility components: (1) a joint RD 2035/WDCWA Sacramento River Intake facility (up to 80 cfs capacity for the WDCWA); (2) 4.5 mile raw water pipeline(s) to convey untreated surface water to a water treatment facility; (3) a regional water treatment facility to treat the surface water before delivery; and (4) 10 miles of treated water pipelines to deliver treated water to local water systems. There are local facility costs each entity would finance and construct to facilitate the delivery of treated surface water directly to their customers. The total project cost estimate is $293 million dollars. Initial project costs could be lower depending on project delivery capacity at start-up. The DWWSP includes investments in surface water supplies for water right permits (up to 45,000 acre-feet per year) and summer water purchases (up to 10,000 acre-feet per year) that will provide year around surface water for the communities relying on the project as a primary water supply. Part of the investment in project water supplies includes the design and construction of Aquifer Storage and Recovery (ASR) facilities that would allow the future storage of permit surface water supplies to improve overall project reliability. The joint WDCWA/RD 2035 Sacramento River Intake facility will be ready for construction in 2013. The new joint Intake facility will be equipped with a state-of-the-art fish screen to protect future fishery populations in the Delta watershed. This would be a high priority regional facility to move forward on once all project funding has been secured. The DWWSP also meets several of Westside IRWMP goals and objectives.
111	West Sacramento Area Flood Cont	Deep Water Ship Channel East Levee Repair	Correct deficiencies, protect against underseepage, and maintain the Port of West Sacramento levees to current standards for FEMA 100 yr and urban levee 200 year levels of flood protection. Physical improvements may include, but not be limited to, restoration and armoring of water-side levee slopes, slurry cutoff walls in the levee prism, etc.
112	West Sacramento Area Flood Cont	Deep Water Ship Canal Navigation Levee Repair	Correct deficiencies, protect against underseepage, and maintain the Deep Water Ship Canal Levees to current standards for FEMA 100 yr and urban levee 200 year levels of flood protection. Physical improvements may include, but not be limited to, restoration and armoring of water-side levee slopes, increased levee height through crown raising or crown-top walls, slurry cutoff walls in the levee prism, seepage blankets on the levee land-side, levee setbacks, etc.
113	West Sacramento Area Flood Cont	Port of West Sacramento North and South Levee Repair	Correct deficiencies, protect against underseepage, and maintain the Port of West Sacramento levees to current standards for FEMA 100 yr and urban levee 200 year levels of flood protection. Physical improvements may include, but not be limited to, restoration and armoring of water-side levee slopes, slurry cutoff walls in the levee prism, flood walls, etc.
114	West Sacramento Area Flood Cont	Sacramento River Levee Repair	Correct deficiencies, protect against underseepage, and maintain the Sacramento River Levees to current standards for FEMA 100 yr and SB 5 200 year levels of flood protection. Physical improvements may include, but not be limited to, restoration and armoring of water-side levee slopes, increased levee height through crown raising or crown-top walls, slurry cutoff walls in the levee prism, seepage blankets on the levee land-side, levee setbacks, etc.
115	West Sacramento Area Flood Cont	Sacramento River Recreational Trail	Construct a continuous 13.1 mile, 192-acre recreation corridor along the entire length of the Sacramento River within City limits. Improvements will consist of paved and un-paved trail surfaces, vehicular staging areas and access controls, and location-based amenities ranging from major community parks (e.g., River Walk Park, River Walk Trail, Riverfront Promenade) to occasional experiences (e.g., picnic tables, trash/recycling receptacles, information kiosks, drinking fountains, shade structures, landscaping, viewing areas, bank fishing access, etc.). Improvements will be phased according to available funding and other opportunities
116	West Sacramento Area Flood Cont	Sacramento Bypass-Yolo Bypass Levee Repair Phase II	Correct deficiencies, protect against underseepage, and maintain the Sacramento Bypass and Yolo Bypass Levees to current standards for FEMA 100 yr and urban levee 200 year levels of flood protection. Physical improvements may include, but not be limited to, restoration and armoring of water-side levee slopes, increased levee height through crown raising or crown-top walls, slurry cutoff walls in the levee prism, seepage blankets on the levee land-side, levee setbacks, etc.
117	West Sacramento Area Flood Cont	West Sacramento South Cross Levee Repair	Correct deficiencies, protect against underseepage, and maintain the West Sacramento South Cross Levee to current standards for FEMA 100 yr and urban levee 200 year levels of flood protection. Physical improvements may include, but not be limited to, restoration and armoring of water-side levee slopes, increased levee height through crown raising or crown-top walls, slurry cutoff walls in the levee prism, seepage blankets on the levee land-side, levee setbacks, etc.

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118	Yolo County Flood Control and Wa	Conjunctive Water Use Program	This conjunctive water use project envisions using a variety of methods (recharge/recovery, off-stream storage and canal system modernization) to effectively store and conjunctively use groundwater in the District's service area. The new water that will be developed can be used to the benefit of agriculture, environmental and municipal interests. A significant amount of work has already been completed on this project including establishment of a groundwater monitoring program, development of a regional groundwater model, and preliminary investigations into associated water rights, engineering, economic, and environmental issues.
120	Yolo County	Yolo County Airport Drainage Plan	The Yolo County Airport, located just West of Davis, consists of 498 acres being used as a publicly owned general aviation airport. Prior to downstream drainage changes restricting the outlet at the southeastern corner of the property, on-site runoff caused only minor flooding. Now, however, areas on the east side of the property flood during certain storm events. Flooding in the low-lying areas occur fairly regularly. In order for the airport to eliminate flooding of its facilities and to expand, a 2005 Drainage Plan engineered by Wood Rogers needs to be implemented.
121	Yolo County	Analysis of BDCP's Yolo Bypass Conservation Measure and Other Measures	As a result of Biological Opinion requirements and science indicating benefits of flooding the Yolo Bypass for fish habitat, the November 2010 Bay Delta Conservation Plan (BDCP) Working Draft proposed a conservation measure that includes, among other things, modification of the Fremont Weir and possibly other structures to increase the frequency and duration of flooding in the Yolo Bypass. In response to this draft and earlier iterations of the conservation measure, Yolo County requested an analysis of the impacts of the conservation measure, including flood protection impacts. Given the importance of the Yolo Bypass in protecting the Sacramento area from flooding, the Sacramento Area Flood Control Agency (SAFCA) has joined Yolo County (the "partners") in seeking an analysis of the potential flood protection impacts of the conservation measure. In addition, the partners are interested in evaluating measures that would be compatible with the BDCP's fish habitat enhancements and would improve the flood conveyance function of the Bypass.
122	Yolo County, Natural Resources Di	Cache Creek Parkway Plan	The Cache Creek Parkway Plan is in the early stages of development. Once complete the Plan will result in a comprehensive planning document that will guide the restoration and ultimate uses of County owned lands within the Cache Creek Area Plan boundary. The Plan will leave the citizens of Yolo County with a legacy of open space parks and nature preserves along Cache Creek and will provide well-managed opportunities for public access, education, and recreation. The Parkway Plan will provide a detailed vision and integrated management plan for all of the properties (1,537 acres total), plus any others accepted or purchased for management under the Cache Creek Area Plan (gravel) program. The Plan will: 1. Establish guidelines and specifications for development, access, use, and management of each property, and the development of a recreational trail system in coordination with the Yolo County Parks Master Plan. 2. Provide a framework for the County in negotiations over land dedications associated with future Development Agreements and mining applications. 3. Provide guidance regarding additional lands to target for acquisition in order to provide connectivity and continuity throughout the parkway area. 4. Lay the foundation for a mechanism to provide long-term financing and maintenance of the parkway system through collaborative efforts among the Natural Resources Division, Parks Division, Cache Creek Conservancy, and other partners.
123	Yolo County	Clarksburg Flood Protection Feasibility Study	The project involves conducting a feasibility study of alternatives to provide a 100-year level of flood protection to the Clarksburg region, located largely in the primary zone of the Sacramento River Delta within the County of Yolo (a small portion of the region is located in the secondary zone). The study will also include analysis of alternatives for interim flood management solutions to protect areas suitable for the development of agricultural processing facilities. Yolo County will work with Reclamation District 999 and contract with outside technical experts to undertake this study.
124	Yolo County Parks	Lower Cache Creek Campground and Habitat Restoration	The project involves the construction of approximately 9 new camp sites and potentially 9 rural campsites at the Yolo County Lower Cache Creek Park site as well as restoration of significant riparian and upland environments. The project also proposes to install a park host space, a water well to support the parks host, park visitors and newly planted restoration.
125	Yolo County	Methylmercury Impacts Analyses for the Yolo Bypass	Full Name of Proposed Project: Methylmercury Impacts Analyses of the Proposed Yolo Bypass Fisheries Enhancement Project and Yolo Bypass Expansion Project Yolo County proposes to collect data and analyze changes in methylmercury production and bioaccumulation that could result from (1) a proposed Bay Delta Conservation Plan (BDCP) project to enhance fisheries habitat in the Yolo Bypass; and (2) a Central Valley Flood Protection Plan proposal to expand the Yolo Bypass to improve flood capacity. Both projects may increase the methylmercury levels in fish tissue and increase related health risks for humans and wildlife. Based on this work and the County's ongoing coordination with the Nonpoint Sources Workgroup, Yolo County will help identify and describe management practices that could minimize methylmercury production and loads from the proposed projects. This proposal builds on previous successful collaborative efforts by Yolo County in the last year to study the agricultural impacts of BDCP-related proposals to enhance fisheries habitat in the Yolo Bypass. Yolo County proposes to work closely with California Department of Water Resources staff responsible for Department's compliance with the 2011 Delta Methylmercury Total Maximum Daily Load (TMDL). With financial support from the State and Federal Contractors Water Agency, Yolo County has already demonstrated that it can objectively analyze proposed Yolo Bypass projects at a low cost and with effective stakeholder outreach. A Yolo County partnership with the state on methylmercury issues will benefit the state, County, and local stakeholders.
126	Yolo County Resource Conservatio	Implementation of the Cache Creek Watershed Invasive Weed Management Plan	The newly completed Cache Creek Watershed Invasive Weed Management Plan (CCW-IWMP), a living document, identifies specific invasive plants for either eradication, containment or monitoring and prioritizes weeds within those categories. Starting in the upper watershed and working downstream we will use weed mapping information to eradicate those which can be eradicated, contain the edges of those identified in that category, and monitor so as to continually update the plan and re-prioritize and implement vegetation management actions.
127	Yolo County Resource Conservatio	Agricultural Drain, Slough and Canal Riparian Habitat Enhancement	Control of invasive weeds, site preparation, installation of native trees, shrubs, grasses and/or forbs as appropriate to the site, and 2 years of vegetation management/ maintenance post-plant along natural and man-made waterways, with focus on Cottonwood, Union School, Willow and Chickahominy sloughs; and main irrigation supply canals in western Yolo County.
129	Putah Creek Council	Native Plant Nursery to Support Putah-Cache Ecotype Restoration	In cooperation with Lower Putah Creek Coordinating Committee, Putah Creek Council (PCC) will manage a native plant nursery to grow Putah Creek plants from wild-collected seeds and cuttings at a nursery at the LA Moran Reforestation Center, Davis. The plants grown in the nursery will be available to projects in the bio-region for riparian and upland restoration projects. Any given species of plant has immense genetic variation from one region to the next. Using plants which are grown from local genetic stock ensures the highest success rate of the plants, and best outcomes for water quality and wildlife habitat. This project would enable Putah Creek Council to expand the diversity of plants grown at the facility and made available to local restoration projects. Work at the nursery will rely on interns who will receive green jobs training, and community volunteers from local communities. Elements include: UPGRADING EDUCATION FACILITIES: Putah Creek Council currently runs a modest education program at the nursery facility. In the past year, 275 community members volunteered at the facility. With modest investment, we would be able to increase the opportunity for volunteers to learn about water management via educational signs throughout the facility. SEED and CUTTING COLLECTION: We will collect materials throughout the year to grow into container stock used on local restoration projects. The stock is currently limited to plants which are easy to grow, but additional funding would allow us to expand our diversity via collecting seeds from less-common plants. PUBLIC ENGAGEMENT: Most of the labor involved in raising our native plants is accomplished by volunteers. This project connects many of the other habitat-focused projects by allowing community members to engage in every aspect of watershed restoration.

Westside SAC IRWM
Projects for Yolo SWRP Consideration

Project No.	Lead Agency Organization	Project Title	Project Description Briefly describe the project in 300 words or less
130	Putah Creek Council	Pollution Prevention and Watershed Education Project	Putah Creek Council (PCC) will educate Winters students, residents, and visitors about storm water and urban runoff, watershed function, and wildlife habitat along Putah Creek via our "Pollution Prevention and Watershed Education" project. Elements include: ADOPT A FLAT: PCC will provide standards-based science curriculum to fourth-grade students on topics including native plants, water quality, and wildlife habitat. Students grow native grasses and sedges in class. FIELD TRIP--Habitat: PCC and with City of Winters staff will the underground path of storm water from the local school to the storm water outflows into Putah Creek. Students will follow this path to understand how trash and runoff make their way into the creek. Students will plant student-grown sedges and grasses at the outflows to filter contaminants from the urban runoff. FIELD TRIP—Trash pickup: Students will pick up trash around the stormwater outlet, and along the banks of Putah Creek in Winters. Students will tally the results of the trash collected via the International Coastal Conservancy's protocol. Students will put the trash into steel-mesh bins which will be placed on a flat-bed at a high-visibility intersection in Winters, with student-designed signage about urban runoff and water pollution. This trash exhibition will coincide with public notice about the project (see below) ART: Students will participate in a student art competition about how to prevent storm water pollution. Winning entries will be made into semi-permanent signs to be erected at four sites along the ADA-accessible Winters Putah Creek pathway. The signs will be changed annually via the class participation and a contest on a rotating topic each year. Topics may include: water conservation, invasive species, watershed function, and water quality. PUBLIC ENGAGEMENT: The public will be notified about student efforts via the City of Winters newsletter, published monthly, and distributed with water bills.
132	Yolo Basin Foundation	Lower Putah Creek Restoration from Toe Drain to Putah Creek Diversion Dam (Yolo Bypass Wildlife Area Element)	The project will enhance and restore 300-700 acres of tidal freshwater wetlands and create 5 miles of a new creek channel, entirely within the Yolo Bypass Wildlife Area. This will improve anadromous fish access to 25 miles of stream, Connectivity created between these habitats will enhance salmonid in-migration and spawning, as well as rearing and outmigration conditions for smolts. The project will enhance habitat within Lower Putah Creek to support the recovery of local fall-run Chinook salmon, steelhead, and Sacramento splittail populations. The restored landscape of tidal, fluvial, and riparian habitats will benefit a broad range of special-status plants and wildlife. The project will restore hydrologic/hydrodynamic and other physical processes that support the tidal, fluvial, and riparian habitats needed by native species and biotic communities; establish a more natural hydrograph within Lower Putah Creek: re-engineer the creek floodplain so that target special-status fish species will have increased accessibility to the habitats they need for foraging and reproduction at lower flows; and restore tidal action to habitats that were historically tidally inundated. The project will engineer a fish bypass channel that can be completely drained in the summer, after all outmigrating smolts have left the creek channel. This will minimize or prevent establishment of populations of non-native, predatory fish such as striped bass and largemouth bass in the channel, and thereby decrease predation on salmonid smolts and other special-status species.
135	Reclamation District 2035	Tule Canal Habitat Enhancement & Sediment Removal	The project consists of: 1. Securing an environmental easement that would protect valuable floodplain habitat and adjacent lands from other uses; 2. Construction of operational facilities for water control and fish passage; 3. Regrading portions of the floodplain habitat to increase the quality of seasonally inundation based on managed flows from the Sacramento River.
136	Reclamation District 2035	Levee Repairs/Maintenance- Segments 150, 173 and 297	Complete geological analysis, engineering design required to identify and correct levee deficiencies and hazard mitigation recommendations contained in the URS levee evaluation report (2010) completed at the direction of the Department of Water Resources and additional geologic investigation analysis (to be completed) recommendations.
139	Reclamation District 2035	Floodway Corridor Project	The project consists of three major phases/components: 1. Acquisition of Conservation/Flowage Easements - Approx. 7,000 acres. 2. New Sacramento River By Pass - A new bypass facility will be constructed to divert flows from the Sac River to the Yolo Bypass. During large storm evens flood flows would be diverted (Sac River) over a new weir to a new bypass channel that would deliver flows to the Yolo Bypass. 3. Diverting additional flood flows in to the Yolo Bypass would increase flow and stages in the bypass downstream from the new bypass. To mitigate for potential flow increases, a portion of Conaway Ranch (outside of the Bypass), would be used to convey and store (transitory storage of over 66K acre feet) of flood water during large storm events. The project will significantly improve the flood control performance of the State-Federal Flood Control System while preserving agricultural use, enhance flood protection corridors while preserving and providing an opportunity to enhance wildlife values and establish a bypass that would provide improved flood protection.
140	Reclamation District 2035	Cross Bypass Canal Modernization	The project consists of piping (or lining) the Cross Bypass Canal and the installation of flow control and measurement devices to improve the conveyance system and increase water use efficiency.
141	Reclamation District 2035	Conjunctive Use Study	The project consists of the study and analysis of the coordinated use of surface and groundwater that could benefit the agricultural, urban, and environmental interests within, nearby and downstream of Yolo County, especially the North Delta region. The project includes seven main elements: 1. Data Collection, 2. Data Analysis and Management, 3. Field Studies and Testing, 4. Development of Operational Alternatives, 5. Model Development, 6. Preparation of a comprehensive GWMP Update, 7. Implementation Management, Environmental Considerations and Outreach
143	RWMG with selected Lead Agency	Regional Capital Improvement Plan	Create Regional asset management plan to identify and prioritize key water management infrastructure.
144	Reclamation District 999	Elk Slough Groundwater Quality Improvement and Flood Protection Project	Elk Slough is the surface water recharge source for the sole-source shallow aquifer providing drinking water for residents of the Delta community of Clarksburg. The slough is currently closed to the fresh water of the Sacramento River and is maintained by tidal inflows from Sutter Slough. Elk Slough water quality is typically similar to that of the river; however, when salinity intrusion increases during droughts, the slough water quality declines. Proposed salinity barriers, Delta Cross Channel reoperations, and Freeport intake operations work in concert to significantly backwater Elk Slough and reduce freshening tidal inflows. An operable gate at the slough head would allow for a limited amount of Sacramento River water (less than 5 cfs) to maintain water quality and improve drinking water recharge. This would reverse salinity intrusion and potentially mitigate for other conveyance and salinity intrusion actions in the Delta. The operable gate would also provide for fish passage and protect approximately 19 miles of at-risk levees within Yolo County. Proposed activities enhance and maintain a riparian and flood protection corridor, establish long-term multi-species wildlife habitat conservation area, and restore natural fluvial and slough biological processes. Project phases include completion of field investigations assessing existing ecological and geotechnical conditions, a topographic survey, preliminary engineering and alternative designs; preparation and submission of a CEQA document, and associated permits; selection of final designs, development of construction documents, development of bid documentation; and project bidding and construction. The project intends to improve groundwater conditions to secure local drinking water supplies from drought conditions; improve riparian and aquatic habitat; reduce community conflict over proposed salinity and other water operations by maximizing recharge quality given hydrologic conditions. This is the first component of a larger project to establish flood gates, flood easements, and relocate or modify existing structures on Elk Slough.
146	City of Woodland	Well 29 ASR Project	The project involves the design and construction of a new municipal aquifer storage and recovery (ASR) well near the site of the existing Well #10 on City owned property. The new ASR well will facilitate groundwater recharge by injecting treated surface water into the gravel layer approximately 470 feet down from the surface when surplus Sacramento River water is available during winter. The ASR well water would be pumped from the ASR well to supplement surface water during drought conditions. ASR also has long-term water quality benefits because, over time, injected water replaces native groundwater impaired by nitrate and naturally occurring metallic species, including arsenic, hexavalent chromium, manganese, and selenium, with better-quality water. The intent is to inject water into the ASR well each winter and build a large reservoir of treated surface water beneath the well and utilize the water primarily during drought years. The project removes a high capacity groundwater extraction well from the regional aquifer and replaces it with a well that will promote groundwater recharge and sustainability while improving Woodland's water supply reliability during a drought. City recently completed construction and full scale ASR feasibility testing of Well 28. The feasibility testing was a success and indicates that ASR technology would be successful in Woodland. The new ASR well would include the ability to inject treated surface water at a rate of approximately 1,000 gpm and extract water at a rate of approximately 1,500 gpm. The new ASR well is considered a Categorical Exemption under CEQA as it is a replacement of an existing water supply facility. The existing well will be properly destroyed. The Well 28 design would be replicated for the new well to minimize design time and costs and provide identical ASR well facilities for Woodland.

Westside SAC IRWM
Projects for Yolo SWRP Consideration

Project No.	Lead Agency Organization	Project Title	Project Description Briefly describe the project in 300 words or less
151	Yolo County Flood Control and Wa	Regional Drought Preparedness through Increased Groundwater Recharge	The District proposes to divert winter flows from Cache Creek into the canal system to increase groundwater recharge. Groundwater recharge and recovery is central to good conjunctive management of surface and groundwater resources. Currently, by District policy, 160 miles of surface water canals remain unlined, providing summertime groundwater recharge services that benefit the aquifer and riparian habitat. The recharged groundwater is used by farmers, individual well owners and business, cities, and small communities. Normally, the majority of canal recharge occurs in the summertime, during the irrigation season. This project proposes to divert wintertime water into the canal system which would require the installation of automated canal gates to replace manual gates. This project will improve local water supply reliability during times of drought and improve conjunctive use management overall. The District has been building and planning improvements to its conjunctive use system for many decades. The regionally supported groundwater monitoring program is extensive. The ag/urban partnership between the cities of Davis, Woodland, and Winters and the Water District is strong. Indeed, the Cities depend on the recharge activities of the District to maintain their water supplies. The disadvantaged communities (DAC) in the western half of the District also depend exclusively on groundwater. The installation of automated gates to make winter recharge possible will increase groundwater storage and will benefit the community for years to come.
160	City of Davis	Parks and Greenbelts Irrigation and Landscape Upgrades	The goal of the project is to increase water use efficiency and reduce overall water use in City parks and greenbelts. This will involve converting less used turf areas along greenbelts and in parks to lower water use plants to reduce irrigation needs, the conversion of irrigation in non-turf areas to drip, and the replacement of sprinkler heads and irrigation controllers to increase efficiency. The project will also include converting wells that are currently used for potable water uses to irrigation (non-potable) wells that will supply local parks and greenbelts. The project will also provide some stormwater quality benefits with less water runoff in areas that have been converted to drip irrigation.
162	City of Davis	Drainage Channel Feasibility Study	Looking to study feasibility to enhance the five separate storm drain conveyance channels to improve evoptranspiration through design improvements. This feasibility study would provide specific ways to improve the design of the existing facilities to improve water quality for the discharges that occur from each channel. The facilities are located Citywide. The study may yield that only one channel is worthy of modification. In particular, the City would like to study the El Macero Drainage Channel in southeast Davis as it is believed to be the channel with that would benefit the most from design improvements. A map can be provided to aid in located each of these drainage channels. If project is developed an educational component can be added.
163	City of Davis	Retention Pond Feasibility Study	Looking to study feasibility for design enhancements for the seven separate storm drain retention ponds to improve evoptranspiration and water quality in the City's discharge. This feasibility study would provide specific ways to improve the design of the existing facilities to improve water quality for the discharges that occur from each facility. The facilities are located Citywide, but all of the ponds are located north of I 80 in the northern two thirds of the City. The study may yield that only one pond is worthy of modification. In particular, the City would like to study the Core Area Pond in central Davis as it believed to be the pond that receives the most pollutants from its drainage shed. A map can be provided to aid in located each of these ponds. If project is developed an educational component can be added.
164	City of Davis	Russel Boulevard Demonstration LID Project	The project is to be located in front of City Hall (already proposed and working its way through the City's Parks and Community Services Department) along Russell Boulevard. Russel Boulevard is one of the City's prominent east-west arterials. The project is to create a vegetated swale to treat stromwater runoff on the north side of the roadway. The surface area it will treat is 8,000 square feet. It is proposed to treat drainage prior to discharge to the City's stormdrain system consistent with the standards of Section E.12 of the State's Small MS4 Phase II General Permit (Permit). A map can be provided to aid in the location of this project.
168	Davis Joint Unified School District	Harper Junior High Water Conservation Improvements	Frances Harper Junior High School presents a unique opportunity for water conservation through education and the creation of outdoor classrooms. The school serves over 600 students in grades 7 to 9. Located on East Covell Boulevard in Davis, the property is a 45-acre parcel with about 23 acres in active use. Primary improvements for water conservation are proposed to occur at the front and interior of the site. Current landscape at the front of the school includes 2.3 acres of turf that is primarily for the purpose of aesthetics. There are also interior courtyards with underutilized turf panels that total a little over one-third of an acre. Planned improvements for these areas include replacing the turf with drought tolerant plants, pollinator gardens, benches, bio swales and decomposed granite paths. Interpretive panels would be installed to inform students and visitors of the benefits of the water conservation improvements and the relative ecosystems for each environment. Interior improvements would also include capturing roof water from downspouts and directing the water to bio swales where it would be filtered before entering the storm drain system or simply percolate into the soil. Interior courtyard landscapes would also be laid out to accommodate a setting for outdoor classrooms.

Projects within Yolo County Removed From Consideration

Project No.	Lead Agency Organization	Project Title	Project Description Briefly describe the project in 300 words or less
26	Solano County Water Agency	Improvements to Solano Project Facilities	The Solano Project was constructed by the US Bureau of Reclamation in the 1950s and is comprised of Monticello Dam, Putah Diversion Dam, Putah South Canal, and Terminal Reservoir. Today, the project provides irrigation and municipal water to over 400,000 people in Solano County. However, the Solano Project is 60 years old and is in need of upgrades, repairs, and modernization.
30	Solano County Water Agency	North Bay Aqueduct Alternate Intake Project	The California Department of Water Resources proposes to implement the North Bay Aqueduct (NBA) Alternate Intake Project (NBA AIP) to improve water quality and reliability of State Water Project deliveries to its NBA contractors, the Solano County Water Agency and the Napa County Flood Control and Water Conservation District. The NBA AIP includes the construction and operation of a new intake and pumping plant on the Sacramento River, conveyance pipeline, and inline storage to divert and convey water from the Sacramento River connecting to the existing NBA pipeline near the North Bay Regional Water Treatment Plant in Fairfield.
80	Tuleyome	Cache Creek Anadramous Fish Reintrodu	Prior to the construction of the Cache Creek Settling Basin anadromous fish were found in Cache Creek. Long time Yolo County resident Joe Farnham talked of his dad catching salmon with pitchforks to feed to the hogs. These salmon runs were most likely opportunistic fall run occurring when early storms provided connectivity from Cache Creek through the original wetlands of the delta and later the Yolo Bypass. There are also reports by a CA DFG warden of steelhead in Clear Lake. This four phase project will study the opportunity and constraints for the reintroduction to Cache Creek; design necessary channel improvements including fish passage at the Settling Basin; environmental work and permitting; and construction of the planned facilities necessary for fish reintroduction; and appropriate monitoring to assess results Some of this work was completed in the Natural Heritage Institute Review Draft Report Enhancing Natural Values in Cache Creek Within a Water Supply Augmentation Program submitted to the Yolo County Flood Control and Water Conservation District on April 1, 2003. Studies must look at physical constraints such as temperature, flow regimes and spawning opportunities, climate change impacts, institutional issues including safe harbor for the YCFCWCD, and stakeholder outreach. Based on the outcome of those studies fish passage designs will be completed follow by environmental and permitting work. Lastly, construction can be undertaken.
93	Rural Community Assistance Corporation	Rural Disadvantaged Community (DAC) I	RCAC will manage the Prop 84 grant funds to address inadequate water supply and water quality in rural disadvantaged communities (DACs) in the Westside Sacramento IRWM region, including tribal communities, with populations less than 10,000. DACs will be selected based on already recognized income data or completion of an income survey. RCAC will perform a needs assessment of disadvantaged communities using DWR and Westside Sacramento's DAC mapping tools. The assessment will include asking for information on ____________________________. RCAC will lead a representative group of stakeholders and agencies to solicit and select rural DACs for funding of critical infrastructure improvement projects. Rural DACs and affiliated regulatory agencies will be contacted for eligible projects with a focus on DACs in non-compliance with local, state, and federal agencies. Criteria for selection will be based on the following factors: 1) public health risks, 2) environmental justice, 3) multiple benefits, 4) affordability and sustainability, 5) incorporation of green technologies. Opportunities to merge related projects will be evaluated. Projects will be selected from both tribal and non-tribal rural DACs. Preference will be given to DAC projects that are ready to be constructed. In every case, RCAC will look for other available funding resources to leverage Prop 84 dollars. RCAC is a certified Community Development Financial Institution (CDFI) and will be responsible for disbursements for selected DAC projects. RCAC will provide DACs with outreach, program information, assisting with project scope and readiness, project documentation for funding, assistance with engineering and contractor selection, project oversight, and disbursement of individual DAC project payments. To extend Prop 84 dollars, RCAC will provide supplementary capacity development, training, and technical assistance to support project sustainability utilizing RCAC programs.
95	Reclamation District 2035	Sacramento River Joint Intake Project	The proposed joint intake and diversion is to be located at approximately River Mile (RM) 70.8 on the right bank of the Sacramento River near Woodland, California. The facility will be used jointly by RD 2035 and the Woodland Davis Clean Water Agency (WDCWA) to divert water from the Sacramento River. RD 2035 has pursued construction of a new diversion since approximately 1998 to comply with the Federal Endangered Species Act, which lists winter-run Chinook salmon as endangered. RD 2035 completed preliminary design drawings and a Basis of Design Report (BODR) (RD 2035 Fish Screen Project, September 2010) in 2010 for a new intake facility that would meet all current fish screening and floodway protection requirements. WDCWA, a joint powers authority of the Cities of Woodland and Davis, was created in 2009 to undertake and implement a project to divert water from the Sacramento River, transmit the water for treatment to a new water treatment facility, and deliver treated surface water to the Cities of Davis and Woodland and the University of California, Davis for use in their respective service areas. WDCWA and RD 2035 have entered into an agreement that would allow joint use of the new RD 2035 intake facility to supply water to the planned WDCWA water treatment facility. RD 2035 and WDCWA completed preliminary design drawings and a Basis of Design Report (BODR, Sacramento River Joint Intake Project, October 2011). This 2011 BODR provides the basis of the Project cost estimate, schedule and statement of work presented herein. The Project consists of a 400-cfs intake and integrally constructed pump station, new discharge pipeline and appurtenant structures, and demolition of the existing facilities. The intake will be a concrete structure, founded on steel piles, with ten stainless steel fish screen panels. Screens will be cleaned with an automated traveling brush screen cleaning system, and a submersible pump and piping system will be provided to manage sediment in the intake. The pump station building will house the RD2035 and Agency pumps, and associated electrical equipment and controls. Discharge pipelines and appurtenant structures will be located outside of the pump station building and the piping will cross under County Road 117. RD2035's pipe will discharge to a new outlet structure to the main canal. Once the new intake is constructed, the existing RD2035 intake will be demolished and the conduit through the levee excavated, demolished, and removed.
119	Yolo County Flood Control and Water Conservation District	Moore Siphon Reliability/Restoration Proj	The Moore Siphon conveys irrigation water from the north side of Cache Creek (Alder Canal) to the south side (Moore Canal). Through the Moore Siphon, YCFCWCD delivers water to approximately 15,000 acres of cropland (12% of its irrigation service area). This water also makes a significant recharge contribution to the City of Woodland's groundwater supply. Due to the age and exposure of the 72" corrugated metal pipe, as well as Cache Creek erosion issues at both ends of the siphon, the siphon well either need to be replaced or rehabilitated in the near future.
131	Yolo Basin Foundation	Pacific Flyway Center/Delta Gateway	The Pacific Flyway Center (Center) is a proposed educational facility and site intended to serve the general public, Central Valley area school districts, various public sector agencies and special environmentally focused events and activities. The ultimate facility and site is anticipated to include wetland habitats, trail linkages and a 12,000 square foot building, which will present educational programs based on regional ecosystems, the functions of the Yolo Bypass, and showcase an array of ERP and BDCP programs. The building would contain exhibition spaces, meeting rooms, offices, outside observation areas, multi-purpose educational facilities and parking. The Center, to be owned and operated by the CA Department of Fish and Game, will be a public engagement site situated at the hub of a larger public resource consisting of the Yolo Bypass Wildlife Area (Wildlife Area), the Yolo Bypass, the Sacramento/San Joaquin Delta (Delta) and the Pacific Flyway.
133	Yolo Basin Foundation	Yolo Bypass Wildlife Area Public Use Im	The Yolo Bypass Wildlife Area Land Management Plan (LMP) has an “authorized” public use element that outlines tasks associated with improving wildlife viewing, fish and hunting. This proposal would complete some of the tasks related to enhancement of public use infrastructure. To maintain and improve wildlife observation (LMP, 5-34) • Expand existing northern auto tour route to encompass portions of the Causeway Ranch and adjacent units. • Develop a new southern auto tour route on the Tule Ranch • Develop and install interpretive signage for wildlife viewing roads and trails • Develop viewing blinds, observation towers, and board walks where appropriate To maintain and improve angling (LMP, 5-35): • Develop maps and signs that indicate fishing access points and post regulations • Build access points for anglers with limited mobility along East Toe Drain • Identify and name six trails in the existing auto tour loop • Install signs that identify the name and mileage at the end of each trail. • Provide a map and interpretive information at each trailhead. To maintain and improve hunting (LMP, 5-35): • Construct new hunter check station, potentially at the Tule Ranch Headquarters. This new entry point would separate wildlife viewing areas from hunting areas in a north-south direction rather than the current east-west situation. Other access improvements could include: • Improve the entry signage to the Yolo Bypass Wildlife Area at I-80. • Improve the existing Parking Lot A kiosk. • Install additional directional signage throughout the entire auto tour loop and hunting areas.
134	RWMG with selected Lead Agency	Climate Change Adaptation Study	Regional study to advance understanding of the effects of climate change and consider potential modifications to the water management system.

Projects within Yolo County Removed From Consideration

Project No.	Lead Agency Organization	Project Title	Project Description Briefly describe the project in 300 words or less
137	Reclamation District 2035	Installation of Groundwater Wells	Engineer, design and install groundwater wells.
138	Reclamation District 2035	Groundwater Studies	Reclamation District 2035's Ground Studies Project will consist of the identification and analysis of issues, if any, surrounding the quality and availability of groundwater.
145	City of West Sacramento	Municipal Well at the George Kristoff Wa	Project includes environmental, design and construction of a new municipal well located at 400 N.Harbor Blvd in the City of West Sacramento. This well will augment City potable water supplies during drought conditions. This well in not intended to increase water production but allow upstream surface water diversions by as much as 4,500 acre feet annually.
149	City of Woodland	Woodland Industrial Recycled Water Proj	The City of Woodland currently has tertiary treated Title 22 effluent from the City's Water Pollution Control Facility (WPCF) providing a firm capacity of approximately 2,700 gpm for recycled water. The City of Woodland relies exclusively on groundwater for its water supply. When surface water is available, recycled water would improve reliability and reduce demands on both groundwater and surface water sources. Woodland has a large industrial area northwest of the Water Pollution Control Facility (WPCF). There are several large water users that would use the recycled water for cooling of various industrial processes. In addition, there are two City Parks along the recycled water pipeline alignment that would use the water for irrigation. Providing recycled water to these areas would reduce demands on the potable water distribution system and reduce the demand on the groundwater aquifer. The recycled water pipeline would be constructed in the City's existing right of way. The City has recently completed a Mitigated Negative Declaration for pipeline installation, repair, and rehabilitation throughout the City. The expected initial demand for recycled water would exceed 2,000 acre feet per year. The Capital Cost for the Project is approximately $5.2M. The recycled water project includes construction of approximately 20,000 feet of 12" diameter purple pipe and a pump station at the WPCF. As users increase, a storage tank will need to be added to balance demand with supply. Woodland is also evaluating extending the recycled water pipeline to serve adjacent agricultural fields as a future project.
158	Lake County Watershed Protection District	Quagga Boat Display	An integral part of the program is to educate the public on the harm invasive mussels can do to aquatic ecosystems and how to prevent their spread. Using State and locally developed educational materials, this has been effective. We have purchased visual aids showing pipes at various stages of infestation with quagga mussels, which are very effective in communicating the issue. Another tool envisioned several years ago was to have a boat infested with quagga mussels available for display. A boat was transported to Lake Mead and is now thoroughly infested with quagga mussels. With the requirements of various regulatory agencies, the cost of returning the quagga boat to Lake County has exceeded original expectations. Lake County has requested grant funding for returning the quagga boat from the State and the Federal governments, however, we have been unsuccessful. Lake County is requesting the Westside IRWM assist with funding for the return of the boat. We believe the quagga boat display will bring the shock factor to the northern California general public. The quagga boat shall be used on a regional basis to bring awareness about invasive mussels to the residents and visitors to the region by visual example. The boat will be available to the Westside IRWM members for display, and will be displayed at events such as boat shows, County fairs, the State Fair, major fishing tournaments, etc. Basic requirements for movement of the quagga boat include having permits from the appropriate agencies (California Department of Fish and Wildlife and Nevada Department of Wildlife have provided the permits), sealing the mussels to the boat so mussels do not fall off, and transporting the boat in a fully enclosed trailer. The boat will be removed from Lake Mead turned upside-down with a crane onto a trailer, and allowed to dry thoroughly. The boat will be fixed to the trailer permanently. The dried, dead mussels shall be sprayed with a lacquer of sufficient thickness that no pieces of dead mussel can detach from the boat's hull. The trailer will be pulled by winch , tongue first, into an aluminum, enclosed, car trailer. The car trailer shall be transported with the appropriate permitting documentation from Nevada to Lake County, California. We are also proposing purchasing a display tent and other items to keep with the boat for facilitating display.
159	City of Winters, CA	City of Winters Drinking Water Hexavaler	The City is under Notice of Violation with the SWRCB Division of Drinking Water to reduce Cr6 levels in four of its five wells (82% of the City's water supply) exceeding the new Cr6 Primary MCL. This is a new drinking water quality regulation approved by the State in July 2014 with enforcement beginning in August 2015 for urban water suppliers with sources in exceedance of the new Cr6 regulations. The City is requesting funds to design a cost-effective Cr6 compliance strategy for the community that meets the new Cr6 regulations within the State's compliance schedule.
161	City of Davis	Leak Detection Survey	Hire a consultant to use acoustical listening technology to survey water mains and laterals within the City of Davis water distribution area to detect and locate leaks. Prioritize leaks based on severity. Purchase leak detection equipment to install within distribution system to continuously monitor for potential leaks at key areas identified through the leak detection survey.

LINK TO SURVEY: https://goo.gl/forms/suwdr4zQZSlmOYau1

HANDOUT #6

Yolo SWRP – Potential Projects Survey

The results of this form will aid in the development of the project prioritization and scoring criteria.
Please complete this form by April 17, 2017.

* Required

1. **Contact Name** *

2. **Contact Email** *

3. **Project Proponent(s)/Partner(s)** *

4. **Project Name** *

5. **Project Location/Service Area** *

6. **Current Project Phase - Check all that apply** *

Check all that apply.

- [ ] Conceptual
- [ ] Planning
- [ ] Design
- [ ] Construction
- [ ] Other: ______________________

7. **Has this project been submitted to the Westside IRWM Plan?** *

Mark only one oval.

- ( ) Yes
- ( ) No

8. **Anticipated Benefits** *

Check all that apply.

- [ ] Water Quality (e.g. increased infiltration and/or treatment of runoff; nonpoint source pollution control; reestablish natural water drainage and treatment)
- [ ] Water Supply (e.g. water supply reliability; water conservation; conjunctive use)
- [ ] Flood Management (e.g. decreased flood risk by reducing runoff rate and/or volume; reduced sanitary sewer overflows)
- [ ] Environmental (e.g. environmental/habitat protection/improvement; wetland enhancement/recreation; riparian enhancement; instream flow improvement; increased urban greenspace; reduced energy use, GHG emissions, or provides a carbon sink; reestablish natural hydrograph; water temperature improvements)
- [ ] Community (e.g. enhanced and/or created recreational/public use areas; community involvement; employment opportunities)
- [ ] Other: ______________________

9. **Planned Objectives Met (From Guidelines Page 9) - Check all that apply**
Check all that apply.

- [ ] Creates and restores wetlands (Wat. Code, § 10561(g))
- [ ] Riverside [riparian] habitats (Wat. Code, § 10561(g))
- [ ] Instream flows (Wat. Code, § 10561(g))
- [ ] Increase in park and recreation lands (Wat. Code, § 10561(g))
- [ ] Urban green space (Wat. Code, § 10561(g))
- [ ] Augments recreation opportunities for communities (Wat. Code, § 10561(h))
- [ ] Increases tree canopy (Wat. Code, § 10561(h))
- [ ] Reduces heat island effect (Wat. Code, § 10561(h))
- [ ] Improves air quality (Wat. Code, § 10561(h)
- [ ] Maximizes water quality (Wat. Code, § 10562(b)(2))
- [ ] Maximizes water supply (Wat. Code, § 10562(b)(2))
- [ ] Maximizes flood management (Wat. Code, § 10562(b)(2))
- [ ] Maximizes environmental benefits (Wat. Code, § 10562(b)(2))
- [ ] Maximizes other community benefits (Wat. Code, § 10562(b)(2))

Kennedy/Jenks Consultants

Sign-In Sheet

Mark if in Attendance	Confirm Information (Name, Organization, email, phone)
	Amy Gabriel, Consero Solutions, amy@conserosolutions.com, 530-746-2083
called in	Bill Vanderwaal, RD108, wvandervaal@rd108.ord
X	Carol Scianna, City of Winters, carol.scianna@cityofwinters.org, 530-681-2881
	Chris Fong, City of Woodland, chris.fong@cityofwoodland.org, 530-661-5972
called in	Chris Wright, UC Davis, cvwright@ucdavis.edu
X	Dawn Calciano, City of Davis, dcalciano@cityofdavis.org
	Donita Hendrix, Dunnigan Water District, dunniganwater@att.net
	Donna Gentile, Yolo WRA, info@yolowra.org
	Elisa Sabatini, Yolo County, elisa.sabatini@yolocounty.org
X	Jennifer Lau Larsen, Kennedy/Jenks, jenniferlau@kennedyjenks.com, 916-858-2714
	John McKean, jmckean718@icloud.com
	Jordan Power, City of Woodland, jordan.power@cityofwoodland.org
Called in	Petrea Marchand Julian Ruzzler-Gaul, Consero Solutions, Julian@conserosolutions.com, 530-746-2083
X	Kristin Sicke, YCFCWCD, ksicke@ycfcwcd.org
X	Leo Refsland, Madison CSD, lrefmcsd.st@yahoo.com
	Richard Tsai, City of Davis, rtsai@cityofdavis.org
X	Ryan ~~Bennett~~ Burnett, City of West Sacramento, ryanb@cityofwestsacramento.org
X called in	Sachi Itagaki, Kennedy/Jenks, sachiitagaki@kennedyjenks.com, 650-852-2817
X	Susie Bresney, SEI, Susie.bresney@sei-us.org
	Tim O'Halloran, YCFCWCD, tohalloran@ycfcwcd.org
X	Vishal Mehta, SEI, vishal.mehta@sei-us.org
	Craig Locke craig.locke@cityofwoodland.org - City of Woodland
	PANOS KOKKAS Panos.Kokkas@yolocounty.org - Yolo County

Meeting Agenda

Yolo Storm Water Resources Plan

Working Group Meeting 3

Handouts and Meeting Materials Available on Yolo WRA Website:
http://www.yolowra.org/projects_swrp.html

Location: Yolo County Flood Control and Water Conservation District Boardroom, 34274 State Highway 16, Woodland 95695
Call-In Number: (855) 813-2486; Access Code: 2714#
Date/Time: 04 May 2017, 10:30 AM

1	Review Agenda and Safety Moment	5 minutes
2	Summary of Last Meeting (April 6, 2017)	5 minutes
3	SWRP Objectives - Revisited • SWRP Objectives (Handout #1) o Proposed Objectives • Draft Section 1: Introduction and SWRP Objectives (Handout #2)	15 minutes
4	Call for Projects Preparation • Westside Sac IRWM Project Form + SWRP Projects Addendum (Draft) (Handout #3) • Draft Project review and prioritization process (Handout #4) – at DAC/EDA meeting discuss match equation, case studies, have staff	15 minutes
	Quantitative Methods Pt 1 – Example Output • GIS analysis o https://casoilresource.lawr.ucdavis.edu/sagbi/ • WEAP update • Simple Method	10 minutes

4	Project Brainstorming and Discussion
	• Potential Projects Survey results summary
	    o Combine projects?
	    o Case studies?
		20 minutes

Yolo Storm Water Resources Plan
Working Group Meeting 3
04 May 2017

	Identification of DACs/EDAs for additional outreach
	• DAC/EDA mapping
	  o https://gis.water.ca.gov/app/dacs/
	  o https://gis.water.ca.gov/app/edas/
	• Participants
	  o Madison, Esparto, Knights Landing, others?
	  o Community groups?
		10 minutes

5	Other Discussion	5 minutes
6	Next Meeting – June 1, 2017, 10:30 am, Yolo County Flood Control and Water Conservation District Boardroom, 34274 State Highway 16, Woodland 95695 Topics: - Start of Call for Projects - Draft Section 2: Watershed Identification - Draft Section 3: Water Quality Compliance - Projects discussion, case studies	5 minutes
7	Handouts – Available on Yolo WRA IRWMP website: http://www.yolowra.org/projects_swrp.html 1. SWRP Objectives 2. Draft Section 1: Introduction and SWRP Objectives 3. Westside Sac IRWM Project Form + SWRP Projects Addendum (Draft) 4. Draft Project review and prioritization process	

Westside Sacramento IRWM Plan Objectives vs SWRP Guideline Objectives

Westside Sacramento IRWM Plan, June 2013.
Section 6: Goals and Objectives, 6.4 Plan Objectives

Storm Water Resources Plan Guidelines, December 2015
Multi-Benefit / Multiple Benefit Projects, Page 9

Storm water and dry weather runoff capture projects that provide more than one benefit or meets more than one objective.

	SWRP Guideline Objectives													
	1. Creates and restores wetlands (Wat. Code, § 10561(g))	2. Riverside [riparian] habitats (Wat. Code, § 10561(g))	3. Instream flows (Wat. Code, § 10561(g))	4. Increase in park and recreation lands (Wat. Code, § 10561(g))	5. Urban green space (Wat. Code, § 10561(g))	6. Augments recreation opportunities for communities (Wat. Code, § 10561(h))	7. Increases tree canopy (Wat. Code, § 10561(h))	8. Reduces heat island effect (Wat. Code, § 10561(h))	9. Improves air quality (Wat. Code, § 10561(h)	10. Maximizes water quality (Wat. Code, § 10562(b)(2))	11. Maximizes water supply (Wat. Code, § 10562(b)(2))	12. Maximizes flood management (Wat. Code, § 10562(b)(2))	13. Maximizes environmental benefits (Wat. Code, § 10562(b)(2))	14. Maximizes other community benefits (Wat. Code, § 10562(b)(2))
Westside Sacramento IRWM Plan Objectives														
Education and Awareness Focus														
1. Provide and promote use of educational curricula for K-12 students														x
2. Provide educational information to encourage stewardship by public														x
Habitat Focus														
3. Restore native vegetation/form/function along riparian/aquatic corridors	x	x												
4. Quantify the extent of suitable life-cycle habitat for Threatened/Endangered/Imperiled native fish			x										x	
5. Prioritize/plan/schedule improvements to suitable life-cycle habitat forto T/E/I native fish			x										x	
6. Increase availability of suitable life-cycle habitat for Threatened/Endangered/Imperiled native fish identified.			x										x	
Invasive Species Focus														
7. Prevent colonization by quagga mussels/zebra mussels and eliminate/prevent spread of New Zealand mud snails		x											x	
8. Establish invasive plant management plan		x											x	
9. Implement invasive plant management plan		x											x	
Infrastructure Focus														
10. Create asset management plan for key water management infrastructure										x	x	x		
Reasonable Use Focus														
11. Meet 20% by 2020 conservation targets			x								x			
12. Increase adoption of agricultural Best Management Practices		x	x							x	x			
Recreation Focus														
13. Maintain and increase water-related recreational opportunities				x	x	x								
Risk Management Focus														
14. Provide adequate flood protection												x		
15. Manage watershed activities to reduce large erosion events	x	x							x	x		x	x	
Understand Watershed Function Focus														
16. Monitor state/federal Delta programs														
17. Monitor conditions/improve understanding to support sustainable groundwater basins											x			
18. Maintain/enhance watershed and natural resource monitoring network and information sharing										x				
Water Quality Focus														
19. Address pollutant sources to meet runoff standards and Total Maximum Daily Load (TMDL) targets										x				
20. Minimize accidental wastewater spillage/discharges										x		x		x
21. Reduce public health risks by reducing contaminants in drinking water sources										x	x			x
22. Meet all drinking water and wastewater discharge standards											x			x
Water Supply Focus														
23. Provide 100% reliability of municipal and industrial water supplies										x	x			
24. Provide agricultural water supplies to support a robust agricultural industry										x	x			
Proposed Objective														
25. Convert paved and/or impervious areas and increase tree canopy and vegetation, reducing urban heat island effects.					x		x	x						
26. Optimize the rural storm water conveyance system to drain and retain storm water flows as necessary. Provide proper rural drainage and keep conveyance systems clear of debris to minimize county road flooding during storm events.												x		x
27. Enable proper rural retention and modify rural landscape to maximize groundwater recharge of excess storm water.											x	x		
Objective Totals	**2**	**6**	**5**	**1**	**2**	**1**	**1**	**1**	**1**	**9**	**9**	**6**	**7**	**6**

HANDOUT #1

Westside Sacramento IRWM Plan Objectives vs SWRP Benefit Categories

Westside Sacramento IRWM Plan, June 2013.
Section 6: Goals and Objectives, 6.4 Plan Objectives

Storm Water Resources Plan Guidelines, December 2015
Multi-Benefit / Multiple Benefit Projects, Page 9

Storm water and dry weather runoff capture projects that provide more than one benefit or meets more than one objective.

SWRP Guideline Benefit Categories

	Water Quality			Water Supply			Flood Management		Environmental								Community		
	Increase filtration and/or treatment of runoff	Nonpoint source pollution control	Reestablished natural water drainage and treatment	Water supply reliability	Water conservation	Conjunctive use	Decreased flood risk by reducing runoff rate and/or volume	Reduced sanitary sewer overflows	Environmental and habitat protection and improvement	Wetland enhancement/creation	Riparian enhancement	Instream flow improvement	Increased urban green space	Reduced energy use, greenhouse gas emissions, or provides a carbon sink	Reestablishment of the natural hydrograph	Water temperature improvements	Enhanced and/or created recreational and public use areas	Community involvement	Employment opportunities provided
Westside Sacramento IRWM Plan Objectives																			
Education and Awareness Focus																			
1. Provide and promote use of educational curricula for K-12 students																		x	
2. Provide educational information to encourage stewardship by public																		x	
Habitat Focus																			
3. Restore native vegetation/form/function along riparian/aquatic corridors			x						x	x	x	x			x				
4. Quantify the extent of suitable life-cycle habitat for Threatened/Endangered/Imperiled native fish									x	x	x	x				x			
5. Prioritize/plan/schedule improvements to suitable life-cycle habitat forto T/E/I native fish									x	x	x	x				x			
6. Increase availability of suitable life-cycle habitat for Threatened/Endangered/Imperiled native fish identified by Objective 5.									x	x	x	x				x			
Invasive Species Focus																			
7. Prevent colonization by quagga mussels/zebra mussels and eliminate/prevent spread of New Zealand mud snails									x		x								
8. Establish invasive plant management plan									x		x								
9. Implement invasive plant management plan									x		x								
Infrastructure Focus																			
10. Create asset management plan for key water management infrastructure				x															
Reasonable Use Focus																			
11. Meet 20% by 2020 conservation targets				x	x														
12. Increase adoption of agricultural Best Management Practices		x		x	x	x													
Recreation Focus																			
13. Maintain and increase water-related recreational opportunities																	x	x	
Risk Management Focus																			
14. Provide adequate flood protection							x	x											
15. Manage watershed activities to reduce large erosion events			x				x								x				
Understand Watershed Function Focus																			
16. Monitor state/federal Delta programs			x												x			x	
17. Monitor conditions/improve understanding to support sustainable groundwater basins	x			x		x												x	
18. Maintain/enhance watershed and natural resource monitoring network and information sharing	x			x		x			x	x	x	x				x		x	
Water Quality Focus																			
19. Address pollutant sources to meet runoff standards and Total Maximum Daily Load (TMDL) targets	x	x	x																
20. Minimize accidental wastewater spillage/discharges							x	x											
21. Reduce public health risks by reducing contaminants in drinking water sources	x	x	x	x			x	x											
22. Meet all drinking water and wastewater discharge standards	x	x	x	x			x	x											
Water Supply Focus																			
23. Provide 100% reliability of municipal and industrial water supplies				x															
24. Provide agricultural water supplies to support a robust agricultural industry				x															
Proposed Objective																			
25. Convert paved and/or impervious areas and increase tree canopy and vegetation, reducing urban heat island effects.													x	x			x		
26. Optimize the rural storm water conveyance system to drain and retain storm water flows as necessary. Provide proper rural drainage and keep conveyance systems clear of debris to minimize county road flooding during storm events.						x	x	x											
27. Enable proper rural retention and modify rural landscape to maximize groundwater recharge of excess storm water.						x	x												
Benefit Totals	12	11	12	16	9	12	14	12	8	8	8	8	8	8	9	8	9	13	7

Handout 2: See Section 1 for Final

HANDOUT #3

Project Information Form

SWRP Projects Addendum

The Yolo WRA is accepting suggestions for projects for inclusion in the Yolo Storm Water Resource Plan (SWRP). Projects submitted for consideration should contribute to the attainment of the IRWM Plan and SWRP Objectives. To have your project considered for inclusion, please complete this project information form in its entirety and submit the completed form by July 28, 2017 to Kristin Sicke (ksicke@ycfcwcd.org).

Please provide information in the tables below:

I. Land Availability

a. Is the project located on lands with Public ownership? ______________________

b. Have easements and/or all required land use agreements been obtained or are pending? ______________________

c. Describe how this project will result in immediate or downstream surface water quality benefit to Putah Creek ______________________

II. SWRP Objectives

Please mark (x) the SWRP Objectives that apply to the proposed project (choose all that apply).

_____ Convert paved and/or impervious areas and increase tree canopy and vegetation, reducing urban heat island effects.

_____ Optimize the rural storm water conveyance system to drain and retain storm water flows as necessary. Provide proper rural drainage and keep conveyance systems clear of debris to minimize county road flooding during storm events.

_____ Enable proper rural retention and modify rural landscape to maximize groundwater recharge of excess storm water.

III. SWRP Guideline Benefit Categories

Please mark (x) all the project benefit categories that apply and provide a brief explanation. Suggested benefit descriptions are included in the SWRP Guidelines Tables 3 and 4.

Main Benefit	x	Brief Explanation of Benefit	Quantification (e.g. acre---feet of water supplied, acres of habitat restored)
Water Quality – Increased filtration and/or treatment of runoff			
Water Supply – Water supply reliability			
Water Supply – Conjunctive use			

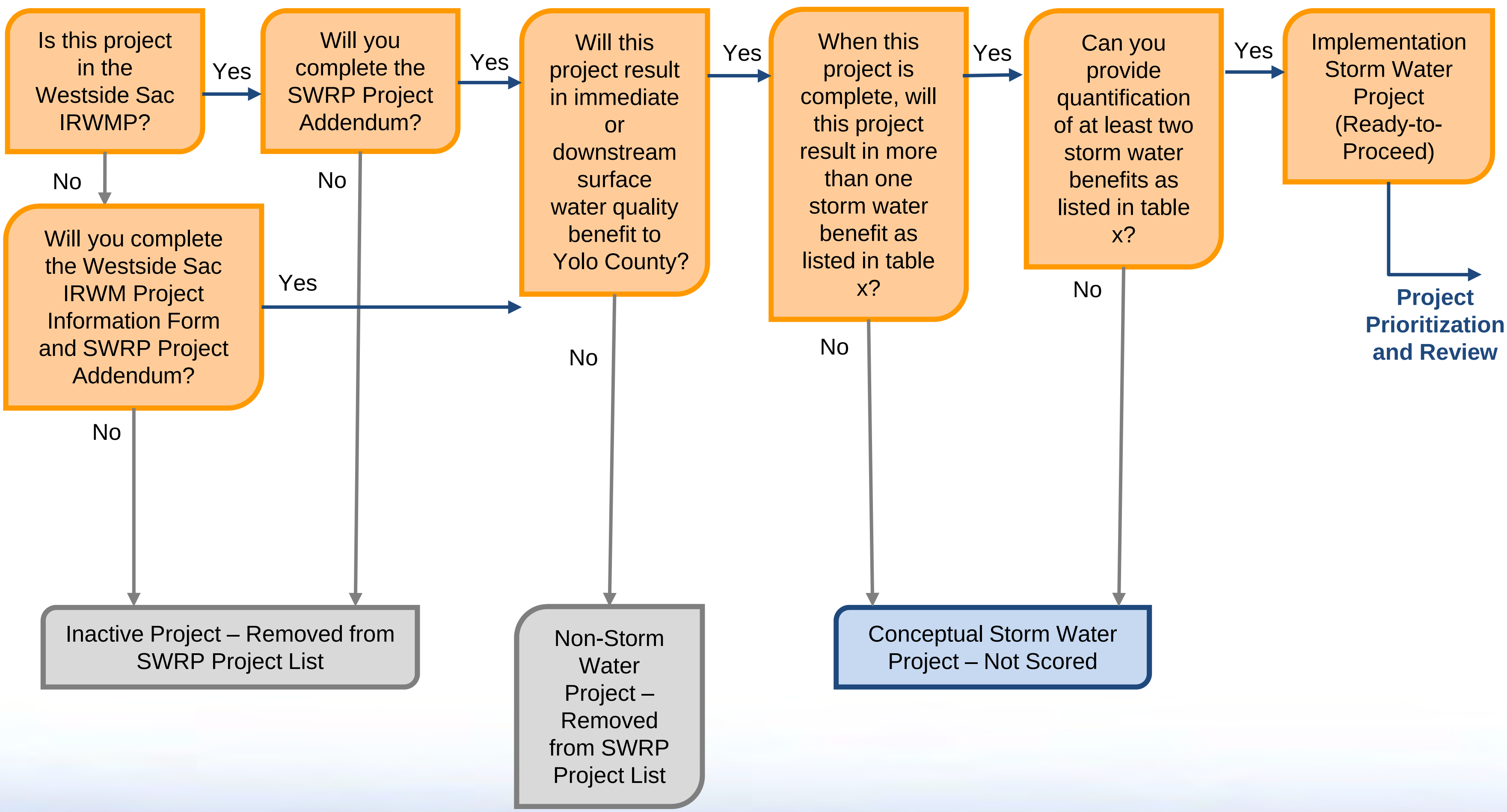
Main Benefit	x	Brief Explanation of Benefit	Quantification (e.g. acre---feet of water supplied, acres of habitat restored)
Flood Management – Decreased flood risk by reducing runoff rate and/or volume			
Environmental – Environmental and habitat protection and improvement			
Environmental – Increased urban green space			
Community – Employment opportunities provided			
Community – Public education			

Secondary Benefit	x	Brief Explanation of Benefit	Quantification (e.g. acre---feet of water supplied, acres of habitat restored)
Water Quality – Nonpoint source pollutant control			
Water Quality – Reestablished natural water drainage and treatment			
Water Supply – Water conservation			
Flood Management – Reduced sanitary sewer overflows			
Environmental – Reduced energy use, greenhouse gas emissions, or provides a carbon sink			
Environmental – Reestablishment of the natural hydrograph			
Environmental – Water temperature improvements			

Secondary Benefit	x	Brief Explanation of Benefit	Quantification (e.g. acre---feet of water supplied, acres of habitat restored)
Community – Community involvement			
Community – Enhance and/or create recreational and public use areas			

See Appendix H for project forms

Project Review



HANDOUT #3

Project Prioritization and Ranking

Scoring Category 1: Project Funding and Land Availability (80 points maximum)	
Permanent Funding to achieve benefit? (40 points)	Project located on lands with Public ownership or easements/land purchase agreements obtained? (40 points)

+

Scoring Category 2: SWRP Multiple Benefits Analysis (50 points maximum)	
No. of SWRP Main Benefits Met (4 points per benefit)	No. of SWRP Secondary Benefits Met (2 points per benefit

+

Scoring Category 3: SWRP Quantitative Benefit Metrics Analysis (120 points maximum)			
One or more benefit metric identified (30 points)	One or more benefit metric quantified (30 points)	One benefit metric quantified with significant storm water impact (30 points)	Multiple benefit metrics quantified with significant storm water impact (30 points)

=

SWRP Project Score (250 points maximum)

Sign-In Sheet

Mark if in Attendance	Name, Organization, Email, Phone
phone	Amy Gabriel, Consero Solutions, amy@conserosolutions.com, 530-746-2083
No longer participating	Bill Vanderwaal, RD108, wvandervaal@rd108.ord
phone	Carol Scianna, City of Winters, carol.scianna@cityofwinters.org, 530-681-2881
✓	Chris Fong, City of Woodland, chris.fong@cityofwoodland.org, 530-661-5972
	Chris Wright, UC Davis, cvwright@ucdavis.edu
	Craig Locke, City of Woodland, craig.locke@cityofwoodland.org
DC	Dawn Calciano, City of Davis, dcalciano@cityofdavis.org
	Donita Hendrix, Dunnigan Water District, dunniganwater@att.net
	Donna Gentile, Yolo WRA, info@yolowra.org
Casey Liebler filling in	Elisa Sabatini, Yolo County, elisa.sabatini@yolocounty.org casey.liebler@yolocounty.org
	Jennifer Lau Larsen, Kennedy/Jenks, jenniferlau@kennedyjenks.com, 916-858-2714
	John McKean, jmckean718@icloud.com
	Jordan Power, City of Woodland, jordan.power@cityofwoodland.org
	Julian Ruzzler-Gaul, Consero Solutions, Julian@conserosolutions.com, 530-746-2083
KJS	Kristin Sicke, YCFCWCD, ksicke@ycfcwcd.org
LR	Leo Refsland, Madison CSD, lrefmcsd.st@yahoo.com
	Panos Kokkas, Yolo County, panos.kokkas@yolocounty.org
	Petrea Marchand, Consero Solutions, petrea@conserosolutions.com, 530-746-2083
	Richard Tsai, City of Davis, rtsai@cityofdavis.org
RB	Ryan Burnett, City of West Sacramento, ryanb@cityofwestsacramento.org
SI	Sachi Itagaki, Kennedy/Jenks, sachiitagaki@kennedyjenks.com, 650-852-2817
SRB	Susie Bresney, SEI, Susie.bresney@sei-us.org
	Tim O'Halloran, YCFCWCD, tohalloran@ycfcwcd.org
VMehta	Vishal Mehta, SEI, vishal.mehta@sei-us.org

Meeting Agenda

Yolo Storm Water Resources Plan

Working Group Meeting 4

Handouts and Meeting Materials Available on Yolo WRA Website:
http://www.yolowra.org/projects_swrp.html

Location:	Yolo County Flood Control and Water Conservation District Boardroom, 34274 State Highway 16, Woodland 95695
Call-In Number:	(855) 813-2486; Access Code: 2714#
Date/Time:	01 June 2017, 8:30 AM

1	Review Agenda and Safety Moment	5 minutes
2	Summary of Last Meeting (May 4, 2017)	5 minutes
3	Continued from 5/4/17 Quantitative Methods Pt 1 – Example Output • Simple Method - http://www.stormwatercenter.net/monitoring%20and%20assessment/simple%20meth/simple.htm#limitations	10 minutes
4	Continued from 5/4/17 -Identification of DACs/EDAs for additional outreach • DAC/EDA mapping o https://gis.water.ca.gov/app/dacs/ o https://gis.water.ca.gov/app/edas/ • Participants o Madison, Esparto, Knights Landing, others? o Community groups?	15 minutes
5	Start of Call for Projects – due July 28, 2017 • Current project list • Call for projects form • Project Discussion	20 minutes
6	SWRP Sections - Comments on Draft Section 1: Introduction and SWRP Objectives - Draft Section 2: Watershed Identification - Draft Section 3: Water Quality Compliance	15 minutes
7	Other Discussion	5 minutes

Yolo Storm Water Resources Plan
Working Group Meeting 4
01 June 2017

8	Next Meeting – July 6, 2017, 10:30 am, Yolo County Flood Control and Water Conservation District Boardroom, 34274 State Highway 16, Woodland 95695 Potential Topics: - Projects discussion/support, case studies - DAC Outreach Meetings	5 minutes
9	Handouts – Available on Yolo WRA IRWMP website: http://www.yolowra.org/projects_swrp.html 1. Westside Sac IRWM Project Form + SWRP Projects Addendum (Draft) 2. Project List 3. Draft SWRP Sections 2 and 3 4. Draft Project review and prioritization process	

Handout 1

Yolo County SWRP Current Project List
Implementation Projects

Lead Agency Organization	Name of Primary Contact	Email	Project Title
Lower Putah Creek Coord. Committee	Rich Marovich	rmarovich@scwa2.com	505-East Channel Restoration
Lower Putah Creek Coord. Committee	Rich Marovich	rmarovich@scwa2.com	Apricot Draw Bank Stabilization
Lower Putah Creek Coord. Committee	Rich Marovich	rmarovich@scwa2.com	Putah Creek Interdam Reach Invasive Weed Control
Lower Putah Creek Coord. Committee	Rich Marovich	rmarovich@scwa2.com	Thompson Canyon Bank Stabilization Design and Permits
Lower Putah Creek Coord. Committee	Rich Marovich	rmarovich@scwa2.com	Warren Weed Control
Cache Creek Conservancy	Lynnel Pollock	lpollock@cachecreekconservancy.org	Implementation of the Cache Creek Resources Management Plan
City of Davis	Michael Lindquist	mlindquist@cityofdavis.org	Wastewater Treatment Plant Secondary and Tertiary Improvements
Yolo County Flood Control and Water Conservation District	Tim O'Halloran	tohalloran@ycfcwcd.org	Winters Main Canal Modernization Project: Integrated Precision Water Mgmt.
Yolo County Flood Control and Water Conservation District	Max Stevenson	mstevenson@ycfcwcd.org	Abandoned Well Incentive Program
Yolo County Service Area #6	Regina Espinoza	Regina.Espinoza@yolocounty.org	County Service Area (CSA) #6 Levee Repair Project
Knights Landing Ridge Drainage District	Lewis Bair	lbair@rd108.org	Mid Valley, Knights Landing Repair Project
Woodland-Davis Clean Water Agency	Lynanne Mehlhaff, WDCW	LMEHLHAFF@WDCWA.com	Davis-Woodland Water Supply Project
West Sacramento Area Flood Control Agency	Michael Bessette, P.E.	michaelb@cityofwestsacramento.org	Sacramento River Levee Repair
West Sacramento Area Flood Control Agency	Michael Bessette, P.E.	michaelb@cityofwestsacramento.org	Sacramento River Recreational Trail
West Sacramento Area Flood Control Agency	Michael Bessette, P.E.	michaelb@cityofwestsacramento.org	Sacramento Bypass-Yolo Bypass Levee Repair Phase II
Yolo County Flood Control and Water Conservation District	Tim O'Halloran	tohalloran@ycfcwcd.org	Conjunctive Water Use Program
Yolo County Resource Conservation District	Jeanette Wrysinski	wrysinski@yolorcd.org	Implementation of the Cache Creek Watershed Invasive Weed Management Plan
Yolo County Resource Conservation District	Jeanette Wrysinski	wrysinski@yolorcd.org	Agricultural Drain, Slough and Canal Riparian Habitat Enhancement
Putah Creek Council	Libby Earthman	libby@putahcreekcouncil.org	Native Plant Nursery to Support Putah-Cache Ecotype Restoration
City of Woodland	Tim Busch	tim.busch@cityofwoodland.org	Well 29 ASR Project
Yolo County Flood Control and Water Conservation District	Tim O'Halloran	tohalloran@ycfcwcd.org	Regional Drought Preparedness through Increased Groundwater Recharge
City of Davis	Dawn Calciano	dcalciano@cityofdavis.org	Parks and Greenbelts Irrigation and Landscape Upgrades
City of Davis	Martin Jones	mjones@cityofdavis.org	Russel Boulevard Demonstration LID Project
Davis Joint Unified School District	George Parker	gparker@djusd.net	Harper Junior High Water Conservation Improvements
City of Winters	Carol Scianna	carol.scianna@cityofwinters.org	North Area Stormwater/ Flood Control /Groundwater Recharge/Habitat Development Project
City of Winters	Carol Scianna	carol.scianna@cityofwinters.org	Winters Outflow Bio Swales Project
UC Davis	Lisa Moretti	lmoretti@ucdavis.edu	Arboretum Waterway Wetland Restoration and Enhancement
City of Woodland	Chris Fong	chris.fong@cityofwoodland.org	North Regional Pond and Pump Station
City of Woodland	Chris Fong	chris.fong@cityofwoodland.org	North Canal Pump Station
Madison Community Services District	Leo Refsland	lrefmcsd.st@yahoo.com	Camp Well

Handout 1

Yolo County SWRP Current Project List
Conceptual/Planning Projects

Lead Agency Organization	Name of Primary Contact	Email	Project Title
West Sacramento Area Flood Control Agency	Michael Bessette, P.E.	michaelb@cityofwestsacramento.org	Bees Lakes Preserve
Lower Putah Creek Coord. Committee	Rich Marovich	rmarovich@scwa2.com	Dry Creek Wildlife Migration Corridor Feasibility Study
Lower Putah Creek Coord. Committee	Rich Marovich	rmarovich@scwa2.com	Duncan-Giovannoni Channel Restoration Feasibility Study
Lower Putah Creek Coord. Committee	Rich Marovich	rmarovich@scwa2.com	Glide Ranch Channel Restoration Feasibility Study
Lower Putah Creek Coord. Committee	Rich Marovich	rmarovich@scwa2.com	Lower McNamara Pool Channel Reconfiguration Feasibility Study
Lower Putah Creek Coord. Committee	Rich Marovich	rmarovich@scwa2.com	MacQuiddy Channel Reconfiguration Feasibility Study
Lower Putah Creek Coord. Committee	Rich Marovich	rmarovich@scwa2.com	Mace to Road 106A Channel Restoration Feasibility Study
Lower Putah Creek Coord. Committee	Rich Marovich	rmarovich@scwa2.com	Nishikawa Channel Restoration Feasibility Study
Lower Putah Creek Coord. Committee	Rich Marovich	rmarovich@scwa2.com	Old Davis Road to Mace Channel Restoration Feasibility Study
Lower Putah Creek Coord. Committee	Rich Marovich	rmarovich@scwa2.com	Olmo-Hammond-UCD Channel Restoration Feasibility Study
Lower Putah Creek Coord. Committee	Rich Marovich	rmarovich@scwa2.com	Restoria Channel Restoration Feasibility Study
Lower Putah Creek Coord. Committee	Rich Marovich	rmarovich@scwa2.com	Road 106A to Yolo Bypass Channel Restoration Feasibility Study
Lower Putah Creek Coord. Committee	Rich Marovich	rmarovich@scwa2.com	Russell Ranch Channel Restoration Feasibility Study
Lower Putah Creek Coord. Committee	Rich Marovich	rmarovich@scwa2.com	Stevenson Bridge Channel Restoration Feasibility Study
Lower Putah Creek Coord. Committee	Rich Marovich	rmarovich@scwa2.com	Upper McNamara Pool Channel Reconfiguration Feasibility Study
Solano County Water Agency	Alexander A. Rabidoux	arabidoux@scwa2.com	Research on Hydrodynamics and WQ Interactions in the Delta.
Solano County Water Agency	Alexander A. Rabidoux	arabidoux@scwa2.com	Risk Assessment of Delta Water Supplies
Solano County Water Agency	Alexander A. Rabidoux	arabidoux@scwa2.com	Source water protection for Delta water sources
Solano County Water Agency	Alexander A. Rabidoux	arabidoux@scwa2.com	Source water protection for Putah Creek watershed
RWMG with selected Lead Agency			Regional Invasive Plants, Aquatic and Terrestrial Weeds Management Plan
Solano County Water Agency	Alexander A. Rabidoux	arabidoux@scwa2.com	Wetland Restoration Research and Impacts to Source Water Quality.
City of Woodland / floodSAFE Yolo Pilot Program	Mark Cocke	Mark.Cocke@cityofwoodland.org	Lower Cache Creek Flood Risk Reduction Project
RWMG with selected Lead Agency			Regional Invasive Mussels Management Plan
Tuleyome, Inc.	Bob Schneider	bschneider@tuleyome.org	Comprehensive Mercury Assessment and Implementation for the Westside Region
West Sacramento Area Flood Cont	Dave Shpak	daves@cityofwestsacramento.org	Lower Sacramento and Delta North Regional Flood Management Plan
Lake County Water Resources Dep	Gary Hansen	Gary.Hansen@lakecountyca.gov	Increase Cache and Putah Creek Watershed Education and Outreach
Lake County Water Resources Dep	Gary Hansen	Gary.Hansen@lakecountyca.gov	Form Task Force/Subcommittee to strategize and implement Watershed Education and Outreach
West Sacramento Area Flood Control Agency	Michael Bessette, P.E.	michaelb@cityofwestsacramento.org	Deep Water Ship Channel East Levee Repair
West Sacramento Area Flood Control Agency	Michael Bessette, P.E.	michaelb@cityofwestsacramento.org	Deep Water Ship Canal Navigation Levee Repair
West Sacramento Area Flood Control Agency	Michael Bessette, P.E.	michaelb@cityofwestsacramento.org	Port of West Sacramento North and South Levee Repair
West Sacramento Area Flood Control Agency	Michael Bessette, P.E.	michaelb@cityofwestsacramento.org	West Sacramento South Cross Levee Repair
Yolo County	Wes Ervin	wes.ervin@yolocounty.org	Yolo County Airport Drainage Plan

Handout 1

Yolo County SWRP Current Project List
Conceptual/Planning Projects

Lead Agency Organization	Name of Primary Contact	Email	Project Title
Yolo County	Cindy Tuttle	cindy.tuttle@yolocounty.org	Analysis of BDCP's Yolo Bypass Conservation Measure and Other Measures
Yolo County, Natural Resources Division	Cindy Tuttle	cindy.tuttle@yolocounty.org	Cache Creek Parkway Plan
Yolo County	Cindy Tuttle	cindy.tuttle@yolocounty.org	Clarksburg Flood Protection Feasibility Study
Yolo County Parks	Jen Santos	jennifer.santos@yolocounty.org	Lower Cache Creek Campground and Habitat Restoration
Yolo County	Cindy Tuttle	cindy.tuttle@yolocounty.org	Methylmercury Impacts Analyses for the Yolo Bypass
Putah Creek Council	Libby Earthman	libby@putahcreekcouncil.org	Pollution Prevention and Watershed Education Project
Yolo Basin Foundation	Robin Kulakow 530-756-72	robin@yolobasin.org; abrice@yolobasin.org	Lower Putah Creek Restoration from Toe Drain to Putah Creek Diversion Dam (Yolo Bypass Wildlife Area Element)
Reclamation District 2035	Regina Cherovsky	regina@conawayranch.com	Tule Canal Habitat Enhancement & Sediment Removal
Reclamation District 2035	Regina Cherovsky	Regina@conawayranch.com	Levee Repairs/Maintenance- Segments 150, 173 and 297
Reclamation District 2035	Regina Cherovsky	regina@conawayranch.com	Floodway Corridor Project
Reclamation District 2035	Regina Cherovsky	regina@conawayranch.com	Cross Bypass Canal Modernization
Reclamation District 2035	Regina Cherovsky	regina@conawayranch.com	Conjunctive Use Study
RWMG with selected Lead Agency			Regional Capital Improvement Plan
Reclamation District 999	Bob Weber	recdist999@sprintmail.com	Elk Slough Groundwater Quality Improvement and Flood Protection Project
City of Davis	Rhys Rowland	rrowland@cityofdavis.org	Drainage Channel Feasibility Study
City of Davis	Rhys Rowland	rrowland@cityofdavis.org	Retention Pond Feasibility Study
City of Davis - Public Works and Parks Department	Dawn Calciano	dcalciano@cityofdavis.org	Bike Tunnel Landscaping Redesign for Stormwater Quality Improvement
City of Davis	Dawn Calciano	dcalciano@cityofdavis.org	Hardscape conversion to pervious pavement
City of Davis	Dawn Calciano	dcalciano@cityofdavis.org	Rocky Swale to Bioswale Conversion
City of Davis	Dawn Calciano	dcalciano@cityofdavis.org	Covell Drainage Channel Redesign
City of Davis	Dawn Calciano	dcalciano@cityofdavis.org	Feasibility Study for Stormwater Trash Control Measures
UC Davis	Lisa Moretti	lmoretti@ucdavis.edu	Agricultural Field Tailwater/Stormwater Basins and Wildlife Corridors
City of Woodland	Chris Fong	chris.fong@cityofwoodland.org	North Urban Area Storm Drain Facilities Master Plan Update
City of Woodland / State of California	Chris Fong	chris.fong@cityofwoodland.org	Outfall Channel Culvert Replacement Through to Yolo Bypass @ West Levee
City of Woodland	Chris Fong	chris.fong@cityofwoodland.org	West Regional Pond Expansion
City of Woodland	Chris Fong	chris.fong@cityofwoodland.org	South Regional Detention Pond
City of Woodland	Chris Fong	chris.fong@cityofwoodland.org	MS4 Trash Amendment Compliance
City of Woodland	Chris Fong	chris.fong@cityofwoodland.org	Storm Water System Improvements, Maintenance, and Repairs
Madison Community Services District	Leo Refsland	lrefmcsd.st@yahoo.com	Willow Slough/ Madison Storm Drain Relief basin
Madison Community Services District	Leo Refsland	lrefmcsd.st@yahoo.com	Storm water maintenance area
Madison Community Services District	Leo Refsland	lrefmcsd.st@yahoo.com	Madison Rock Wall

Handout 2: See Section 2 and Section 3 for Final
Handout 3: See Draft Project review and prioritization process from TC Meeting 3

SWRP #4 June 1, 2017 Sign-in Sheet

Kristin Sicke, YCFCWCD
Paulina Benner, City of W. Sac.
Ryan Bennett W. Sacramento
Dawn Calciano City of Davis
Vishal Mehta, SEI-Davis
CASEY LIEBLER, YOLO COUNTY
Jennifer Lee, K/J Consultants
Sachi Itagaki, K/J Consultants
Craig Locke City of Woodland
Chris Fong City of Woodland

Phone

Julian Cansero
Rich Marovich. Putah Creek Coord. Comm.

Meeting Agenda

Yolo Storm Water Resources Plan

Working Group Meeting 5

Handouts and Meeting Materials Available on Yolo WRA Website:
http://www.yolowra.org/projects_swrp.html

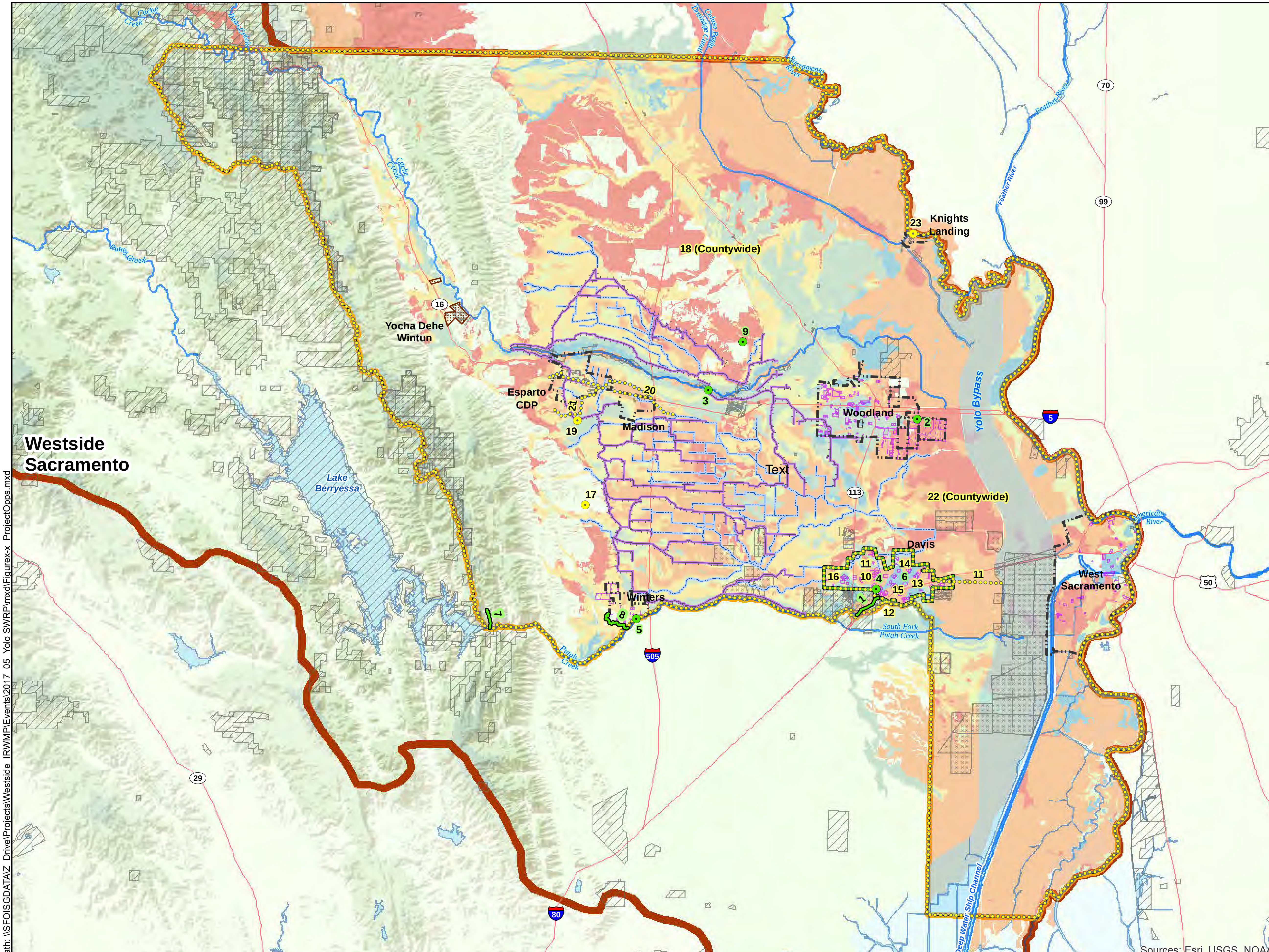
Location: Yolo County Flood Control and Water Conservation District Boardroom, 34274 State Highway 16, Woodland 95695
Call-In Number: (855) 813-2486; Access Code: 2714# :
Webcast: http://conf.kennedyjenks.com/conference/2714

Date/Time: 07 September 2017, 10:30 AM

1	Review Agenda and Safety Moment	5 minutes
2	Summary of Last Meetings (June 1, 2017- TC, June 29, 2017 DAC and July 10 and 12, 2017 Project Meetings)	10 minutes
3	Overview of Project Received (see draft Project Map) Discuss opportunities for collaboration/integration	15 minutes
4	Review Draft Quantification of Project Benefits (see Project Pdfs) Review and comment by project proponents by Fri 9/22/17 Update on SEI Modeling Approach	20 minutes
5	Draft Matrix Evaluation of Projects (see draft Matrix) Review and comment by project proponents by Fri 9/22/17	20 minutes
6	SWRP Sections - Draft Section 4: Organization, Coordination, Collaboration - Draft Section 7: Education, Outreach, Public Participation	15 minutes
7	Other Discussion	5 minutes
8	Next Meeting – October 5, 2017, 10:30 am, Yolo County Flood Control and Water Conservation District Boardroom, 34274 State Highway 16, Woodland 95695 Potential Topics: - Revised Project Evaluation and Additional Quantification - Implementation Strategies	5 minutes

Yolo Storm Water Resources Plan
Working Group Meeting 5
07 September 2017

9	Handouts – Available on Yolo WRA IRWMP website: http://www.yolowra.org/projects_swrp.html 1. Project Map 2. Draft Project Quantification 3. Draft Matrix Evaluation 4. Draft SWRP Sections 4 and 7	



Sloughs
Canals
City Public Properties
County Zoning - Public
Public Agency Jurisdiction
Yolo SWRP Boundary
Westside Region

Projects

Conceptual/Planning
Implementation
Implementation
Conceptual/Planning

SAGBI - Modified

Excellent
Good
Moderately Good
Moderately Poor
Poor
Very Poor

The Soil Agricultural Groundwater Banking Index (SAGBI) is a suitability index for ground-water recharge on agricultural land. The SAGBI is based on five major factors that are critical to successful agricultural groundwater banking: deep percolation, root zone resi -dence time, topography, chemical limitations, and soil surface condition.

Modified overlay is theoretical; it shows SAGBI suitability groups when assuming that all soils with restrictive layers have been modified by deep tillage.

Source:
https://casoilresource.lawr.ucdavis.edu/sagbi/
SABGI overlay provided by
Toby O'Geen (atogeen@ucdavis.edu),
Professor & Soil Resource Specialist in Cooperative Extension, Dept. of Land, Air and Water Resources, UC Davis.

0 3 6 9
Miles

Kennedy/Jenks Consultants

Storm Water Resource Plan For Yolo County

SWRP Project Locations

K/J 1770002.00
September 2017

Figure x-x

Path: \\SFOISGDATA\Z_Drive\Projects\Westside_IRWMP\Events\2017_05_Yolo SWRP\mxd\Figurex-x_ProjectOpps.mxd

Yolo Storm Water Resources Plan
Working Group Meeting 5
07 September 2017

Submitted Projects

Project No.	Project Name	Lead Agency Organization
1	Arboretum Waterway Wetland Restoration and Enhancement	University of California, Davis
2	North Regional Pond and Pump Station	City of Woodland
3	Moore Siphon Reliability/Restoration Project (Moore Siphon Stormwater Improvements)	YCFCWCD
4	Russel Boulevard Demonstration LID Project (Russel Boulevard Stormwater Treatment Project)	City of Davis
5	Winters Bioswales Project and Habitat Enhancement	Solano County Water Agency
6	Davis Greenbelts Landscape Conversions (Davis Greenbelts Stormwater Improvements)	City of Davis
7	Thompson Canyon Stormwater Management	Solano County Water Agency
8	Dry Creek Bank Stabilization and Wastewater Re-use	Solano County Water Agency
9	West Adams Canal Renovation and China Slough Rehabilitation Project	YCFCWCD
10	Bike Tunnel Landscaping Redesign for Stormwater Quality Improvement	City of Davis
11	Drainage Channel Feasibility Study	City of Davis
12	Feasibility Study for Stormwater Trash Control Measures	City of Davis
13	Site Survey for Hardscape Conversion to Pervious Pavement	City of Davis
14	Retention Pond Feasibility Study	City of Davis
15	Site Survey for Converting Rocky Swales to Bioswales	City of Davis
16	West Area Pond Redesign (West Area Pond Runoff Redesign)	City of Davis
17	Winters North Area Stormwater Pond	YCFCWCD
18	Yolo County Drains and Sloughs -- Governance and Maintenance Study	YCFCWCD
19	Forbes Ranch Regulating Pond	YCFCWCD
20	Raise Highway 16 Out of Flood plain	YCFCWCD/Yolo County
21	Upstream Flow Management to Prevent Madison Flooding and to Facilitate GW Recharge	YCFCWCD/Madison CSD
22	Flood Monitoring Network Project	YCFCWCD
23	Knights Landing Underground Drainage Study	Yolo County
24	Knights Landing Drainage Project	Yolo County

Project Information			Scoring Category 1: Project Funding and Land Availability				Scoring Category 2: SWRP Multiple Benefits Analysis																				
							Water Quality			Water Supply			Flood Management		Environmental					Community							
Project Number	Project Applicant	Project Title	Permanent Funding to achieve benefit? Scoring: (40 points)	Project located on lands with Public ownership? Scoring: (40 points)	Category 1 Score (80 max)	Match Provided	Increased filtration and/or treatment of runoff	Nonpoint source pollutant control	Reestablished natural water drainage and treatment	Water supply reliability	Conjuctive use	Water conservation	Decreased flood risk by reducing runoff rate and/or volume	Reduced sanitary sewer overflows	Environmental and habitat protection and improvement	Reduced energy use, greenhouse gas emissions, or provides a carbon sink	Reestablishment of the natural hydrograph	Increased urban green space	Water temperature improvements	Employment opportunities provided	Public education	Community involvement	Enhance and/or create recreational and public use areas	No. of SWRP Main Benefits Met (8 max) Scoring: (4 points for each benefit)	No. of SWRP Secondary Benefits Met (9 max) Scoring: (2 point for each benefit)	Total No. of Intangible Objectives-based Benefits (19 max)	Category 2 Score (50 max)
1	University of California, Davis	Arboretum Waterway Wetland Restoration and Enhancement	Y	Y	80	Y	X	X	X	X			X		X	X	X			X	X	X	X	6	6	12	36
2	City of Woodland	North Regional Pond and Pump Station	Y	Y	80	Y	X	X		X			X		X			X					X	5	2	7	24
3	Yolo County Flood Control and Water Conservation District	Moore Siphon Reliability/Restoration Project (Moore Siphon Stormwater Improvements)	Y	Y	80	N				X	X	X	X											3	1	4	14
4	City of Davis	Russel Boulevard Demonstration LID Project (Russel Boulevard Stormwater Treatment Project)	N	Y	40	Y	X		X			X	X		X			X		X	X	X	X	6	4	10	32
5	Solano County Water Agency	Winters Bioswales Project and Habitat Enhancement	Y	Y	80	Y	X	X	X						X				X		X		X	3	4	7	20
6	City of Davis	Davis Greenbelts Landscape Conversions (Davis Greenbelts Stormwater Improvements)	Y	Y	80	N	X		X			X			X						X		X	3	3	6	18
7	Solano County Water Agency	Thompson Canyon Stormwater Management	Y	N	40	N	X	X	X			X			X								X	2	4	6	16
8	Solano County Water Agency	Dry Creek Bank Stabilization and Wastewater Re-use	Y	N	40	N						X			X	X		X			X	X		3	3	6	18
9	Yolo County Flood Control and Water Conservation District	West Adams Canal Renovation and China Slough Rehabilitation Project	Y	N	40	N				X	X		X		X									4	0	4	16
24	Yolo County	Knights Landing Storm Drain	N	Y	40	Y	X	X					X	X										2	2	4	12

Project Information			Scoring Category 3: SWRP Quantitative Benefit Metrics Analysis			Project Scoring and Prioritization
Project Number	Project Applicant	Project Title	Beneft Metrics Analysis Type	Quantitative Benefit Metrics Value	Summary of SWRP Relative Benefits Scoring: ○ = 0 ◔ = 30 ◑ = 60 ◕ = 90 ● = 120	SWRP Project Score (250 max) Scoring: (Sum of Categories 1, 2, and 3)
1	University of California, Davis	Arboretum Waterway Wetland Restoration and Enhancement	Treatment of stormwater runoff, recycled water for irrigation, establish wetland habitat, employment opportunintes	935 acres of treated stormwater, 2,000 gpm of recycled water irrigation,	120	236
2	City of Woodland	North Regional Pond and Pump Station	treatment of the stormwater prior to discharge to the City's outfall channel, possible transmission of stored water from NR pond to adjacent farmland, 75 acre pond vs 75 acre barren land, treating stormwater before discharge to the City's outfall channel, additonal birding habitat	up to 120 cfs treated, eliably 500-ac ft of water during non-rainy season, 75 acre pond vs 75 acre barren land	120	224
3	Yolo County Flood Control and Water Conservation District	Moore Siphon Reliability/Restoration Project (Moore Siphon Stormwater Improvements)	Allows for irrigation season flows to continue to 12% of District's agricultural users, Allows farmers to use surface water in lieu of relying on groundwater, Reduces runoff rate to upstream and downstream surrounding properties by properly conveying flows and reducing leaking, Rehabilitating the Moore Siphon will prevent current leakage.	Approximately 1 TAF/y, 15,000 acres of cropland stays in production 200 AF/day of water supply for agriculture May-October (36 TAF/y),	120	214
4	City of Davis	Russel Boulevard Demonstration LID Project (Russel Boulevard Stormwater Treatment Project)	Increased habitat, increased infiltration, volunteer opportunities, increased green space, reestablish natural drainage,	2080 cuft infiltration, 6,225 sqft habitat, 7 trees, 500-1000 volunteer hrs/yr,	120	192
5	Solano County Water Agency	Winters Bioswales Project and Habitat Enhancement	Treatment of stormwater runoff, habitat improvement, community involvement (volunteering),	5 acres of habitat restored, 3 community tours and 1 classroom component.	90	190
6	City of Davis	Davis Greenbelts Landscape Conversions (Davis Greenbelts Stormwater Improvements)	Prevent runoff, enhance habitat, recharge aquifers, LID signage, turf removal, enhanced green space	Public education: 385 persons/ac/ yr, Water Conservation: 1.2 Mgal/yr/ac, Habitat/Enhanced Rec Space: 1 ac/site	90	188
7	Solano County Water Agency	Thompson Canyon Stormwater Management	reduced sediment loading, infiltration strips capture more surface water and reduce runoff, infiltration strips capture more surface water and reduce runoff, Enhance fishing at 5 Putah Creek fishing accesses visited by 100,000 people per year	1 river mile of restored creek channel and access road, 10,000 square feet of native vegetation established	120	176
8	Solano County Water Agency	Dry Creek Bank Stabilization and Wastewater Re-use	Provide cover for migrating wildlife, Provide a shady corridor in what is now a dry gully, Enhance public policy from non-conforming setbacks to effective bank stabilization, re-use treated wastewater to irrigate riparian plantings, riparian vegetation is a carbon sink, Inform Dry Creek landowners of a cost effective bank stabilization method	1-2 acres of new riparian vegetation, Number of enrolled landowners, reduce sediment loading along two miles of eroding banks stabilized by vegetation	90	148
9	Yolo County Flood Control and Water Conservation District	West Adams Canal Renovation and China Slough Rehabilitation Project	Increases water supply availability and reliability to Yolo-Zamora area; and reduces dependence on groundwater, Preserves groundwater supplies by providing available surface water supplies, Reduced peak discharge from storm events to region,	10,000 acre-feet increased surface water; 10,000 AF decreased groundwater use, Need to study peak storm flows in this region	90	146
24	Yolo County	Knights Landing Storm Drain	Captures and conveys flood water to the town's existing conveyance system. Localized flooding as much as 2 feet during an event. Yolo County Drainage Standard requires all detention facilities to minimize impacts of stormwater runoff on water quality by incorporating BMPs.			

Handout 4: See Section 4 and Section 7 for Final

Table 5-1: Yolo SWRP Objectives Matrix

Project Number	Lead Agency Organization	Project Title	Water Quality	Increase filtration and/or treatment of runoff	Nonpoint source pollution control	Reestablished natural water drainage and treatment	Water Supply	Water supply reliability	Water conservation	Conjunctive use	Flood Management	Decreased flood risk by reducing runoff rate and/or volume	Reduced sanitary sewer overflows	Environmental	Environmental and habitat protection and improvement	Wetland enhancement/creation	Riparian enhancement	Instream flow improvement	Increased urban green space	Reduced energy use, greenhouse gas emissions, or provides a carbon sink	Reestablishment of the natural hydrograph	Water temperature improvements	Community	Enhanced and/or created recreational and public use areas	Community involvement	Employment opportunities provided	Public education
1	University of California, Davis	Agricultural Stormwater Improvements		x	x	x		x	x			x									x			x	x	x	x
2	University of California, Davis	Arboretum Waterway Wetland Restoration and Enhancement		x	x	x		x	x			x			x					x	x			x	x	x	x
3	City of Davis	Bike Tunnel Landscaping Redesign for Stormwater Quality Improvement		x					x			x			x												x
4	City of Davis	Davis Greenbelts Landscape Conversions		x		x			x	x					x									x			x
5	City of Davis	Drainage Channel Feasibility Study		x	x	x						x															
6	Solano County Water Agency	Dry Creek Bank Stabilization and Wastewater Re-use							x						x				x	x					x		x
7	City of Davis	Feasibility Study for Stormwater Trash Control Measures		x								x			x												
8	YCFC&WCD	Flood Monitoring Network Project						x				x															
9	YCFC&WCD	Forbes Ranch Regulating Pond		x		x		x		x		x			x												x
10	Yolo County	Knights Landing Storm Drain Project		x	x							x	x														
11	Yolo County/	Knights Landing Underground Drainage Study		x	x							x	x														
12	YCFC&WCD/Madison CSD	Madison Drainage Study		x	x							x	x														
13	YCFC&WCD	Moore Siphon Reliability/ Restoration Project						x	x	x		x															
14	City of Woodland	North Regional Pond and Pump Station		x	x			x				x			x				x					x			
15	Yolo County	Raise Highway 16 Out of Flood Plain						x	x	x		x								x				x			
16	City of Davis	Retention Pond Feasibility Study		x	x	x						x															
17	City of Davis	Russell Boulevard Demonstration LID Project		x		x			x			x			x				x					x	x	x	x
18	City of Davis	Site Survey for Converting Rocky Swales to Bioswales		x					x			x			x												x
19	City of Davis	Site Survey for Hardscape Conversion to Pervious Pavement		x								x			x						x						x
20	Solano County Water Agency	Thompson Canyon Stormwater Management		x	x	x		x	x						x									x			
21	YCFC&WCD/Madison CSD	Upstream Flow Management to Prevent Madison Flooding and to Facilitate GW Recharge		x						x		x								x				x			
22	YCFC&WCD	West Adams Canal Renovation and China Slough Rehabilitation Project						x		x		x								x							
23	City of Davis	West Area Pond Redesign		x	x			x				x			x												
24	Solano County Water Agency	Winters Bioswales Project and Habitat Enhancement		x	x	x									x							x		x			x
25	YCFC&WCD	Winters North Area Stormwater Pond		x		x		x		x		x			x												x
26	YCFC&WCD	Yolo County Drains and Sloughs – Governance and Maintenance Study						x		x		x															
		Total		20	11	10		12	10	8		22	3		14	0	0	0	3	5	3	1		9	4	3	11

Table 5-2: Yolo SWRP Benefits Matrix

Project Number	Lead Agency Organization	Project Title	Education and Awareness Focus	1. Provide and promote use of educational curricula for K-12 students	2. Provide educational information to encourage stewardship by public	Habitat Focus	3. Restore native vegetation/form/function along riparian/aquatic corridors	4. Quantify the extent of suitable life-cycle habitat for Threatened/Endangered/Imperiled native fish	5. Prioritize/plan/schedule improvements to suitable life-cycle habitat for T/E/I native fish	6. Increase availability of suitable life-cycle habitat for Threatened/Endangered/Imperiled native fish identified by Objective 5.	Invasive Species Focus	7. Prevent colonization by quagga mussels/zebra mussels and eliminate/prevent spread of New Zealand mud snails	8. Establish invasive plant management plan	9. Implement invasive plant management plan	Infrastructure Focus	10. Create asset management plan for key water management infrastructure	Reasonable Use Focus	11. Meet 20% by 2020 conservation targets	12. Increase adoption of agricultural Best Management Practices	Recreation Focus	13. Maintain and increase water-related recreational opportunities
1	University of California, Davis	Agricultural Stormwater Improvements																			
2	University of California, Davis	Arboretum Waterway Wetland Restoration and Enhancement					x														
3	City of Davis	Bike Tunnel Landscaping Redesign for Stormwater Quality Improvement			x																
4	City of Davis	Davis Greenbelts Landscape Conversions			x											x		x			x
5	City of Davis	Drainage Channel Feasibility Study								x											
6	Solano County Water Agency	Dry Creek Bank Stabilization and Wastewater Re-use					x														
7	City of Davis	Feasibility Study for Stormwater Trash Control Measures					x			x											
8	YCFC&WCD	Flood Monitoring Network Project																			
9	YCFC&WCD	Forbes Ranch Regulating Pond			x																
10	Yolo County	Knights Landing Storm Drain Project																			
11	Yolo County/	Knights Landing Underground Drainage Study																			
12	YCFC&WCD with Madison CSD	Madison Drainage Study																			
13	YCFC&WCD	Moore Siphon Reliability/ Restoration Project								x		x		x		x			x		
14	City of Woodland	North Regional Pond and Pump Station														x					x
15	Yolo County	Raise Highway 16 Out of Flood Plain																			
16	City of Davis	Retention Pond Feasibility Study								x											
17	City of Davis	Russell Boulevard Demonstration LID Project								x											
18	City of Davis	Site Survey for Converting Rocky Swales to Bioswales			x																
19	City of Davis	Site Survey for Hardscape Conversion to Pervious Pavement			x																
20	Solano County Water Agency	Thompson Canyon Stormwater Management					x														
21	YCFC&WCD with Madison CSD	Upstream Flow Management to Prevent Madison Flooding and to Facilitate GW Recharge																			
22	YCFC&WCD	West Adams Canal Renovation and China Slough Rehabilitation Project																			
23	City of Davis	West Area Pond Redesign					x			x											
24	Solano County Water Agency	Winters Bioswales Project and Habitat Enhancement		x			x														
25	YCFC&WCD	Winters North Area Stormwater Pond			x																
26	YCFC&WCD	Yolo County Drains and Sloughs -- Governance and Maintenance Study														x					
		Total		1	6		6	0	0	6		1	0	1		4		1	1		2

Project Number	Lead Agency Organization	Project Title	Risk Management Focus	14. Provide adequate flood protection	15. Manage watershed activities to reduce large erosion events	Understand Watershed Function Focus	16. Monitor state/federal Delta programs	17. Monitor conditions/improve understanding to support sustainable groundwater basins	18. Maintain/enhance watershed and natural resource monitoring network and information sharing	Water Quality Focus	19. Address pollutant sources to meet runoff standards and Total Maximum Daily Load (TMDL) targets	20. Minimize accidental wastewater spillage/discharges	21. Reduce public health risks by reducing contaminants in drinking water sources	22. Meet all drinking water and wastewater discharge standards	Water Supply Focus	23. Provide 100% reliability of municipal and industrial water supplies	24. Provide agricultural water supplies to support a robust agricultural industry	Storm Water Focus	25. Convert paved and/or impervious areas and increase tree canopy and vegetation, reducing urban heat island effects.	26. Optimize the rural storm water conveyance system to drain and retain storm water flows as necessary. Provide proper rural drainage and keep conveyance systems clear of debris to minimize county road flooding during storm events.	27. Enable proper rural retention and modify rural landscape to maximize groundwater recharge of excess storm water.
1	University of California, Davis	Agricultural Stormwater Improvements									x						x			x	x
2	University of California, Davis	Arboretum Waterway Wetland Restoration and Enhancement		x																	
3	City of Davis	Bike Tunnel Landscaping Redesign for Stormwater Quality Improvement		x				x			x										
4	City of Davis	Davis Greenbelts Landscape Conversions														x			x		
5	City of Davis	Drainage Channel Feasibility Study		x				x			x										
6	Solano County Water Agency	Dry Creek Bank Stabilization and Wastewater Re-use			x											x	x		x	x	
7	City of Davis	Feasibility Study for Stormwater Trash Control Measures		x				x			x										
8	YCFC&WCD	Flood Monitoring Network Project							x								x			x	
9	YCFC&WCD	Forbes Ranch Regulating Pond		x	x			x	x								x			x	x
10	Yolo County	Knights Landing Storm Drain Project		x							x	x		x						x	
11	Yolo County/	Knights Landing Underground Drainage Study		x							x			x						x	
12	YCFC&WCD with Madison CSD	Madison Drainage Study		x							x			x						x	
13	YCFC&WCD	Moore Siphon Reliability/ Restoration Project																		x	
14	City of Woodland	North Regional Pond and Pump Station		x	x						x						x			x	
15	Yolo County	Raise Highway 16 Out of Flood Plain		x												x	x			x	
16	City of Davis	Retention Pond Feasibility Study		x				x			x										
17	City of Davis	Russell Boulevard Demonstration LID Project		x				x			x								x		
18	City of Davis	Site Survey for Converting Rocky Swales to Bioswales		x				x			x										
19	City of Davis	Site Survey for Hardscape Conversion to Pervious Pavement		x				x			x								x		
20	Solano County Water Agency	Thompson Canyon Stormwater Management																			
21	YCFC&WCD with Madison CSD	Upstream Flow Management to Prevent Madison Flooding and to Facilitate GW Recharge		x	x				x							x	x			x	x
22	YCFC&WCD	West Adams Canal Renovation and China Slough Rehabilitation Project		x	x			x	x								x			x	x
23	City of Davis	West Area Pond Redesign		x				x			x									x	x
24	Solano County Water Agency	Winters Bioswales Project and Habitat Enhancement																			x
25	YCFC&WCD	Winters North Area Stormwater Pond		x	x			x	x								x				x
26	YCFC&WCD	Yolo County Drains and Sloughs – Governance and Maintenance Study		x	x			x	x											x	
		Total		19	7		0	12	6		13	1	0	3		4	9		4	14	7

Yolo SWRP Working Group Meeting 5
9/7/2017

Kennedy/Jenks Consultants

Sign-In Sheet

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Meeting Agenda

Yolo Storm Water Resources Plan

Working Group Meeting 6

Handouts and Meeting Materials Available on Yolo WRA Website:
http://www.yolowra.org/projects_swrp.html

Location: Yolo County Flood Control and Water Conservation District Boardroom, 34274 State Highway 16, Woodland 95695
Call-In Number: (855) 813-2486; Access Code: 2714#:
Webcast: http://conf.kennedyjenks.com/conference/2714

Date/Time: 05 October 2017, 10:30 AM

1	Review Agenda and Safety Moment	5 minutes
2	Summary of Last Meeting (September 7, 2017)	10 minutes
3	Overview of Projects Received - Draft Section 5: Identification and Prioritization of Projects - Figure 5-1: Project Locations - Tables 5-1 through 5-3: Benefits, Objectives, and Project Scoring	25 minutes
4	Discussion of Plan Implementation Strategy - Submittal to IRWMP – Projects/Plans - Implementation/administration by WRA w/support by IRWMP resources (grants) - Decision support tools - Additional Checklist requirements: o Procedures to track status of each project; o Timelines for all active or planned projects;	15 minutes
5	Other Discussion	
6	Next Meeting – November 2, 2017, 10:30 am, Yolo County Flood Control and Water Conservation District Boardroom, 34274 State Highway 16, Woodland 95695 Potential Topics: - Draft Section 6: Implementation Strategy and Schedule - Quantitative Analysis o Rational Method o SEI modeling (WEAP, HEC-HMS) o Geographic Opportunities – SAGBI (See Figure 5-1)	5 minutes
7	Handouts – Available on Yolo WRA IRWMP website: http://www.yolowra.org/projects_swrp.html 1. Draft SWRP Section 5 with Figure 5-1 and Tables 5-1 through 5-3	

Handout 1: See Section 5 for Final

Sign-In Sheet

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	Donna Gentile, Yolo WRA, info@yolowra.org
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(continued on second page)

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Meeting Agenda

Yolo Storm Water Resources Plan

Working Group Meeting 7

Handouts and Meeting Materials Available on Yolo WRA Website:
http://www.yolowra.org/projects_swrp.html

Location: Yolo County Flood Control and Water Conservation District Boardroom, 34274 State Highway 16, Woodland 95695
Call-In Number: (855) 813-2486; Access Code: 2714#:
Webcast: http://conf.kennedyjenks.com/conference/2714

Date/Time: 02 November 2017, 10:30 AM

1	Review Agenda and Safety Moment	5 minutes
2	Summary of Last Meeting (October 5, 2017)	10 minutes
3	Discussion of Plan Implementation Strategy - Overview: Yolo WRA, GSA, Westside IRWM, Stakeholders Project Proponents - SWRP Implementation Grant Round (expected Fall 2018) - Other upcoming funding and preparation for grants (Kristin/KJ)	15 minutes
4	Quantitative Analysis - SEI modeling (HEC-HMS)	15 minutes
5	Recent Updates to Plan Sections - Section 2: Add summary of storm water interests/responsibilities by stakeholder (See Handout 2) - Section 2/4: Add EDA/DAC discussion (See Handout 3)	10 minutes
6	Other Discussion	5 minutes

7	Next Meeting – December 7, 2017, 10:30 am, Yolo County Flood Control and Water Conservation District Boardroom, 34274 State Highway 16, Woodland 95695
	Potential Topics:
	- Draft Section 6: Implementation Strategy and Schedule
	- Quantitative Analysis
	  o SEI modeling (WEAP, HEC-HMS)
	  o Geographic Opportunities – SAGBI (See Figure 5-1)
	- SWRP Grant Application Requirements
	  o Requirements
	  o Performance Monitoring Plan
	  o Grant Reporting
		5 minutes

7	Handouts – Available on Yolo WRA IRWMP website: http://www.yolowra.org/projects_swrp.html 1. Summary of storm water interests/responsibilities by agency 2. Draft EDA/DAC Figure	

Yolo SWRP
Additional Text for Section 4:

Storm Water Interests/Responsibilities

- Storm Water Collection/Storm Drain Systems/Storm Water Treatment
- Water Resources Management
- Water Supplier
- Flood Control/Runoff Management
- Water Quality Control
- Pollution/Sediment Control/Prevention and Associated Standards Control
- Storm Water Reuse
- Ecosystem and Watershed Restoration and Protection
- Storm Water Permits, Compliance and Enforcement
- Public Education and Outreach

Yolo SWRP Stakeholders

Table Error! No text of specified style in document.**-1:*Yolo SWRP Stakeholders***

Stakeholder	Type/Classification	Interests/Responsibilities Related to Storm Water
WRA of Yolo County	Non-profit organization	Includes Interests/Responsibilities of all Member Agencies
City of Davis**	Municipal water agency	Water Quality Control, Storm Drain Systems, Water Resources Management, Storm Water Reuse, Pollution/Sediment Control, Ecosystem and Watershed Restoration and Protection, Public Education and Outreach
City of West Sacramento**	Municipal water agency	Pollution Prevention, Storm Drain Systems, Ecosystem and Watershed Restoration and Protection
City of Winters**	Municipal water agency	Storm Water Management, Public Education and Outreach
City of Woodland**	Municipal water agency	Storm Drain Systems, Water Quality Control, Pollution/Sediment Control, Flood Control
Reclamation District 108**	Reclamation district	Water Supplier, Flood Control, Ecosystem and Watershed Restoration and Protection
Reclamation District 2035**	Reclamation district	Flood Control (Levee Maintenance; Drainage), Water Supplier (Irrigation Services)
Yoha Dehe Wintun Nation	Tribe	Storm Water Reuse, Water Quality Control, Ecosystem and Watershed Restoration and Protection
Dunnigan Water District**	Irrigation district	Water Supplier
UC Davis**	Educational organization	Storm Drain Systems, Storm Water Reuse, Pollution Control, Water Quality Control, Runoff Management, Ecosystem and Watershed Restoration and Protection
Yolo County**	Government agency	Storm Water Management, Water Quality Control, Pollution/Sediment Control, Standards Control, Flood Control, Storm Water Collection/Storm Drain Systems, Ecosystem and Watershed Restoration and Protection
Yolo County Flood Control and Water Conservation District**	Government agency	Flood Control, Ecosystem and Watershed Restoration and Protection
Madison CSD	Community Service District	Water Supplier
Esparto CSD	Community Service District	Water Supplier
Knights Landing CSD	Community Service District	Water Supplier, Storm Drainage Control
Lower Putah Creek Coordinating Committee*	Non-governmental organization	Pollution and Sediment Control/Prevention, Ecosystem and Watershed Restoration and Protection

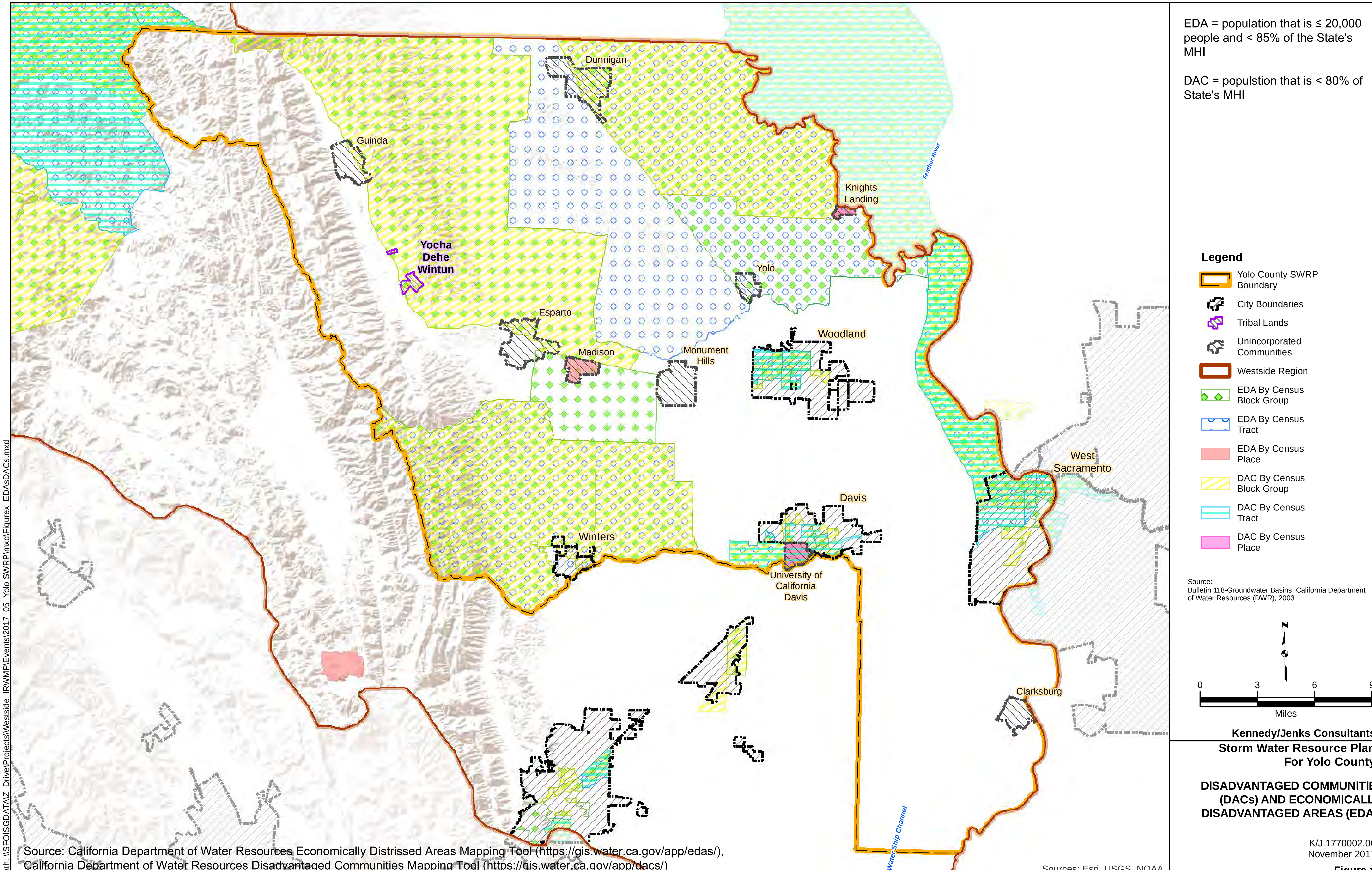
** Represent member agencies of the WRA of Yolo County

Yolo SWRP
Additional Text for Section 4:

State and Federal Agencies

Table Error! No text of specified style in document.**-2:*State and Federal Agencies***

Stakeholder	Interests/Responsibilities Related to Storm Water
Department of Water Resources (DWR)	All Listed Below
Regional Water Quality Control Board	Storm Water Permits, Compliance and Enforcement, Public Education and Outreach, Runoff Management
UC Davis	See Table Above



EDA = population that is ≤ 20,000 people and < 85% of the State's MHI
DAC = populstion that is < 80% of State's MHI
Dunnigan
Guinda
Knights Landing
Feather River
Yocha Dehe Wintun
Yolo
Esparto
Woodland
Madison
Monument Hills
West Sacramento
Davis
Winters
University of California Davis
Clarksburg
Ship Channel
Legend
Yolo County SWRP Boundary
City Boundaries
Tribal Lands
Unincorporated Communities
Westside Region
EDA By Census Block Group
EDA By Census Tract
EDA By Census Place
DAC By Census Block Group
DAC By Census Tract
DAC By Census Place
Source:
Bulletin 118-Groundwater Basins, California Department of Water Resources (DWR), 2003
0
3
6
9
Miles
Kennedy/Jenks Consultants
Storm Water Resource Plan
For Yolo County
DISADVANTAGED COMMUNITIES (DACs) AND ECONOMICALLY DISADVANTAGED AREAS (EDAs)
K/J 1770002.00
November 2017
Figure x
Source: California Department of Water Resources Economically Distrissed Areas Mapping Tool (https://gis.water.ca.gov/app/edas/),
California Department of Water Resources Disadvantaged Communities Mapping Tool (https://gis.water.ca.gov/app/dacs/)
Sources: Esri, USGS, NOAA
Path: \\SFOISGDATA\Z_Drive\Projects\Westside_IRWMP\Events\2017_05_Yolo_SWRP\mxd\Figurex_EDAsDACs.mxd

Meeting Agenda

Yolo Storm Water Resources Plan

Working Group Meeting 8

Handouts and Meeting Materials Available on Yolo WRA Website:
http://www.yolowra.org/projects_swrp.html

Location: Yolo County Flood Control and Water Conservation District Boardroom, 34274 State Highway 16, Woodland 95695
Call-In Number: (855) 813-2486; Access Code: 2714#:
Webcast: http://conf.kennedyjenks.com/conference/2714

Date/Time: 07 December 2017, 10:30 AM

1	Review Agenda and Safety Moment	5 minutes
2	Summary of Last Meeting (November 2, 2017)	5 minutes
3	Draft Section 6: Implementation Strategy and Schedule (Handout 1)	10 minutes
4	Quantitative Analysis - SEI modeling (WEAP)	10 minutes
5	SWRP Implementation Grant Application Requirements - Requirements - Performance Monitoring Plan - Grant Reporting	15 minutes
6	Recent Updates to Plan Sections - Section 5: Summary of Quantitative Analysis of Implementation Projects (Handout 2)	10 minutes
7	Other Discussion	5 minutes
8	Next Meeting – January 4, 2017, 10:30 am, Yolo County Flood Control and Water Conservation District Boardroom, 34274 State Highway 16, Woodland 95695 Potential Topics: - SWRP Appendices - Final Draft SWRP and Draft Self-Certification Checklist	5 minutes
9	Handouts – Available on Yolo WRA IRWMP website: http://www.yolowra.org/projects_swrp.html 1. Draft Section 6: Implementation Strategy and Schedule 2. Update to Section 5: Summary of Quantitative Analysis of Implementation Projects	

Handout 1: See Section 6 for Final

5.4 Summary of Project Prioritization and Selection

Table 5-3 presents the current prioritization of projects. In total, 9 projects were prioritized and ranked yielding total scores from 146 points to 238 points based on the scoring system developed in Section 5.2. The scores developed in this SWRP are for the purposes of prioritizing and ranking projects as required by the SWRP Guidelines. The purpose is to identify and develop projects with clear storm water and dry weather runoff goals that also provide multiple public water quality and supply benefits, and have been identified, prioritized, and selected based on a metrics-driven analysis. The relative prioritization of projects in this plan does not restrict any project from applying to or attaining State grant money funded by any bond measure approved by voters after January 2014, which includes Proposition 1 funding for implementation.

To prevent storm water and dry weather runoff pollution and increase effective storm water and dry weather runoff management, implementation of any project submitted to the Yolo SWRP will comply with the design criteria and/or best management practices specified by Yolo County and/or specific local jurisdictions and programs. This is described in further detail in Section 6 Implementation Strategy and Schedule.

5.4.1 Quantification of Storm Water Management

Benefit quantification is an important measure of SWRP effectiveness. Quantification of storm water management actions show the balance between storm water as a resource and storm water as a hazard. The more that the potential storm water volume can be quantified, the more it can be put to use as a resource. Tools and methods to quantify project benefits are introduced in Section 6.

The following Subsections present the benefits anticipated as a result of the implementation of the prioritized projects in Table 5-3.

5.4.1.1 Water Quality Benefits

As presented in Section 1.4.2.1, successful implementation of the SWRP should result in the following Water Quality benefits:

- Increased filtrations and/or treatment of runoff
- Greater non-point source pollution control
- Reestablishment of natural water drainage and treatment

The following projects will result in water quality benefits:

- **Project 2: Arboretum Waterway Wetland Restoration and Enhancement**
  - Benefit: 935 acres of wetland treatment of runoff
  - Analysis: Recycled water is discharged to the Arboretum in compliance with UC Davis' Wastewater Treatment Plant (WWTP) National Pollution Discharge Elimination System (NPDES_ Permit, Order R5-2014-0152, NPDES No. CA0077895.

    Wetland area will provide natural treatment of stormwater and recycled water, resulting in reduction in nitrate levels and suspended sediment and increase in dissolved oxygen.
- **6. Dry Creek Bank Stabilization and Wastewater Re-use**
  - Benefit: 2 miles of sediment control
  - Analysis: The City of Winters WWTP is adjacent to Dry Creek at the northeastern corner of the City. The WWTP is regulated under Waste Discharge Requirements (WDRs) R5-2002-0136, which prescribes requirements for the discharge of treated domestic wastewater to approximately 170 acres of city owned spray fields vegetated with native grasses. Alteration of the WWTP's existing NPDES permit could provide treated wastewater for bioengineering projects to enhance both stability of the banks and wildlife habitat along two miles of creek channel.
- **Project 14: North Regional Pond and Pump Station**
  - Benefit: 120 cfs treatment prior to discharge
  - Analysis: This project will add the North Regional Pond hydraulically into the City's storm drainage network for the purposes of capturing, treating

Commented [JL2]: b. For water quality project analysis (section VI.C.2.a): Plan includes an analysis of how each project and program complies with or is consistent with an applicable NPDES permit. 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)

Commented [JL1]: For all analyses: 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.

and reusing the storm water for agricultural purposes. Treatment of the storm water is in the form of settling prior to discharge via the pump station (120 cfs capacity) to the City's outfall channel. The projects will help the City meet its NPDES Permit (NPDES NO. CAS000004) by giving more control over the storm flows exiting to the City's outfall channel.

5.4.1.2 Water Supply Benefits

As presented in Section 1.4.2.2, successful implementation of the SWRP should result in the following Water Supply benefits:

- Increased water supply reliability
- Increased conjunctive use of groundwater and surface water (storm water)
- Water conservation

The following projects will maximize and/or augment water supply:

- **Project 2: Arboretum Waterway Wetland Restoration and Enhancement**
  - Benefit: Up to 2,000 gallons per minute (gpm) of reclaimed water ensures that the Arboretum's ecosystem will be sustained even in drought years
  - Analysis: UC Davis' WWTP NPDES Permit allows the WWTP to discharge up to 2,000 gpm to the Arboretum discharge point.
- **Project 4: Davis Greenbelts Landscape Conversions**
  - Benefit: About 1,200,000 gallons per year conserved per acre of turf conversion.
  - Analysis: Estimated water savings were calculated based on the Estimated Total Water Use formula as provided in the Model Water Efficient Landscape Ordinance in Division 2, Title 23, California Code of Regulations:
    - EWU (hydrozone) = [(ETo)(PF)(HA)(.62)]/(IE)

      Where,

      EWU (hydrozone) = Estimated Water Use (gallons per year)

      Eto = Reference Evapotranspiration (inches per year) = 56.72 (according to California Irrigation Management Information System Station 6 Davis)

      PF = plant factor = 0.8 for high water use turf and 0.2 for low water use shrub

      HA = hydrozone area (square feet [SF])

      (.62) = conversion factor (inches to gallons)

      IE = irrigation efficiency = 0.75 for rotator sprinkler and 0.81 for drip bubbler

      Therefore,

      $EWU_{(turf,\ rotator)}$ = [(56.72)(0.8)(43,560 SF/acre)(0.62)]/(0.75) = 1,600,000 gallons per year per acre

      $EWU_{(shrub,\ drip)}$ = [(56.72)(0.2)(43,560 SF/acre)(0.62)]/(0.81) = 400,000 gallons per year per acre of turf conversion

      Savings = 1,200,000 gallons per year per acre of turf conversion
- **Project 13: Moore Siphon Reliability/Restoration Project**
  - Benefit 1: 1,000 AF/year of savings through reduction of leaks
  - Analysis 1: Field measurements by the United States Geological Survey (USGS) from 2011-2013 for Alder Canal (USGS 384125121540601), upstream of the siphon, and Moore Canal (USGS 384111121541301), downstream of the siphon, show a loss of flow of about 6-percent of average upstream flow (71 ft^3/s). Assuming flow in the canal May through October for irrigation (2,000 AFY) and that leaks due to the siphon structure accounts for half the loss of flow, rehabilitation of Moore Siphon would result in a savings of 1,000 AFY.
  - Benefit 2: 200 AF/day of water supply reliability for agriculture
  - Analysis 2: The rehabilitated siphon will have a design capacity of 200 AF/day. Rehabilitation of Moore Siphon will reduce the risk of supply interruption due to failure of the siphon.

Commented [JL3]: For storm water capture and use project analysis (section VI.C.2.b): 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 and flood management project analysis (section VI.C.2.c): Plan includes an analysis of how each project and program will maximize and/or augment water supply.

- **Project 14: North Regional Pond and Pump Station**
  - Benefit: 500 AFY of agricultural storage
  - Analysis: Estimated annual storage is calculated using the Rational Method, which is described in the Yolo City/County Drainage Manual (floodSAFEYolo, 2010):

    Q = CiA where

    Q = rate of runoff, acre-inches per hour

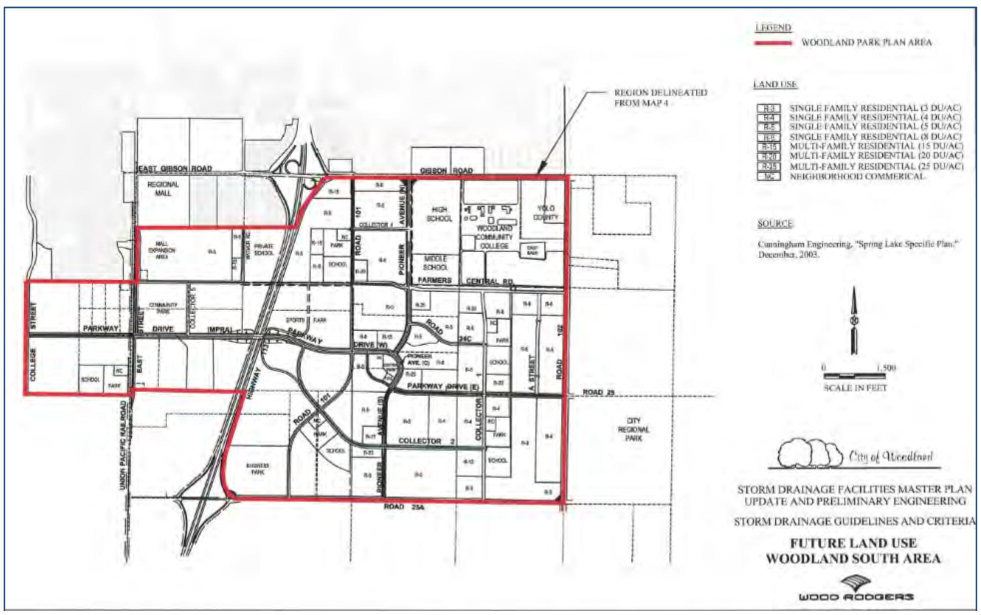
    C = runoff coefficient, which is the ratio of peak runoff to average rainfall intensity = 0.59, assuming a 100-year, 10-day design storm

    i = average rainfall intensity = 0.045 inches per hour (in/hr), assuming a 100-year, 10-day design storm (from National Weather Service Precipitation Frequency Data Server[1])

    A = drainage area = 1,748 acres (based on Spring Lake Specific Plan future land use Woodland South area)

    Therefore,

    Q = 0.59 x 0.045 in/hr x 1,748 acres x 1 ft/12 inches x 24 hr / day x 10 days / year = 928 AFY



Project 14: North Regional Pond and Pump Station

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1 https://hdsc.nws.noaa.gov/hdsc/pfds/pfds_map_cont.html?bkmrk=ca

Project 22: West Adams Canal Renovation and China Slough Rehabilitation Project

- Benefit: 10,000 AF of increased surface water supply
- Analysis: Enlargement and improvement of the YCFC&WCD;s West Adams, East Adams, and Acacia Canal systems will be modernized to convey 10,000 AF of surface water per year. China Slough will be cleaned and installed with check structures to convey 10,000 AF of surface water.

5.4.1.3 Flood Management Benefits

As presented in Section 1.4.2.3, successful implementation of the SWRP should result in the following Flood Management benefits:

- Decreased flood risk by reducing runoff rate and/or volume
- Reduced sanitary sewer overflows

The following projects will decrease risk of flood and sanitary sewer overflow:

- **Project 2: Arboretum Waterway Wetland Restoration and Enhancement**
  - Benefit: 1,800,000 cubic feet of runoff capture capacity
  - Analysis: The UC Arboretum has a 1,800,000 cubic feet of runoff capture capacity that will be maintained by this project.
- **Project 17: Russel Boulevard Demonstration LID Project**
  - Benefit: 0.05 AF of infiltration for a 24-hour storm event
  - Analysis: By using engineered soil in the project, the anticipated infiltration rate will reach approximately 1.0 inches of water per hour. Project soils will be engineered consistent with recommended CASQA standards for vegetated swales, rain gardens, pervious paving, and stormwater planters. Using this infiltration rate, it is estimated the project will capture and treat the full amount of the design storm or the 85th percentile 24-hour storm event, which is 2,080 cu. ft. of water (0.05 AF).

5.4.1.4 Environmental Benefits

As presented in Section 1.4.2.4, successful implementation of the SWRP should result in the following Environmental benefits:

- Environmental and habitat protection and improvement
- Reduced energy use, reduced greenhouse gas emissions, and/or additional locations for carbon sinks
- Reestablishment of natural hydrographs
- Water temperature improvements

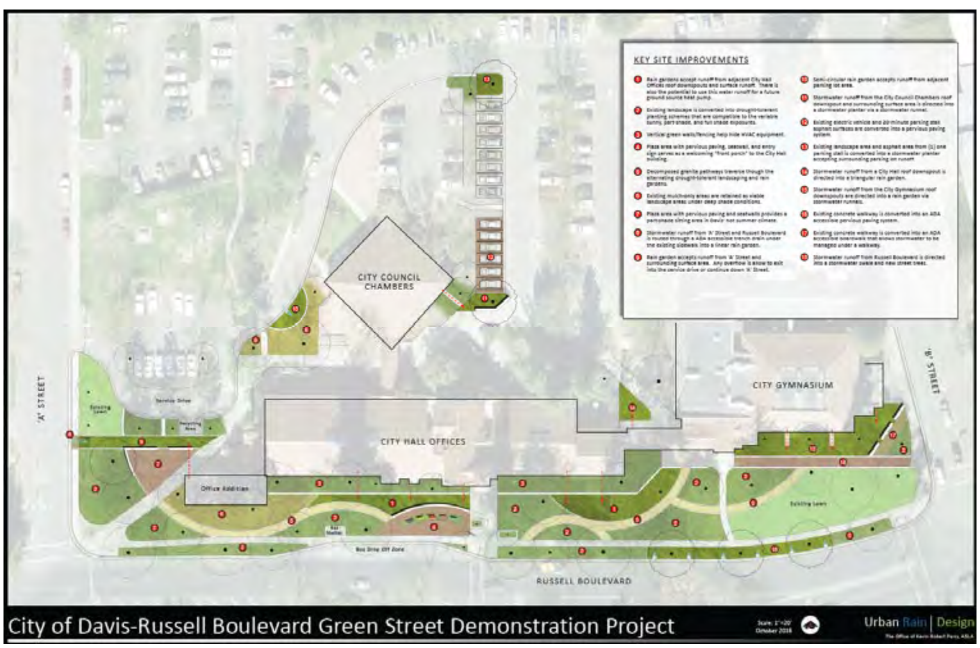
The following projects will result in environmental benefits:

- **4. Davis Greenbelts Landscape Conversions**
  - Benefit: 1 acre of enhanced habitat per project site
  - Analysis: Turf will be removed and replaced with drought tolerant native plants and a network of oak woodland and pollinator plants.
- **6. Dry Creek Bank Stabilization and Wastewater Re-use**
  - Benefit: 2 acres of new riparian vegetation
  - Analysis: The project area will cover 2 acres on Dry Creek at the confluence with the Lower Putah Creek. Bioengineering with willows and other native vegetation can stabilize eroding banks and provide cover for migrating wildlife. Native vegetation is limited by summer water. The location of the Winters WWTP is ideal for a gravity flow system to irrigate willows and other native vegetation using bioengineering methods.

Commented [JL5]: For environmental and community benefit analysis (section VI.C.2.d): Plan includes a narrative of how each project and program will benefit the environment and/or community, with some type of quantitative measurement.

Commented [JL4]: For water supply and flood management project analysis (section VI.C.2.c): Plan includes an analysis of how each project and program will maximize and/or augment water supply.

- **Project 17: Russel Boulevard Demonstration LID Project**
  - Benefit 1: 6,150 square feet of enhanced habitat (including 7 trees planted)
  - Analysis 1: About 6,150 square feet of rain gardens and bioswales made up of native vegetation will be installed.
- **20. Thompson Canyon Stormwater Management**
  - Benefit: 1 river mile/10,000 square feet of restored trout spawning habitat for increased fish population
  - Analysis: The lower mile of the canyon has a legacy dirt road that contributed to catastrophic hillslope failure. The road has thirty stream crossings without properly sized culverts or rock fords and is not properly outsloped for drainage. This project would repair the stream crossings, properly outslope the road and apply gravel surface. It would also install rock vanes for grade control in the channel and plant 10,000 square feet of native vegetation.
- **24. Winters Bioswales Project and Habitat Enhancement**
  - Benefit: 5 acres of habitat restoration
  - Analysis: The culverts in Winters flow directly into Putah Creek with no treatment. This project will improve water quality and habitat improvement by removing sediments and other toxic materials from water before it enters the creek and will use the water to grow native species for habitat improvement adjacent to the creek. Five acres of habitat will be established, and a monitoring plan has been developed to ensure that plantings are thriving. The bioswales will capture water that is now flowing directly into Putah Creek. This water will be re-routed to be used by trees that shade Putah Creek and lower water temperature in the creek.



Project 17: Russel Boulevard Demonstration LID Project

5.4.1.6 Community Benefits

As presented in Section 1.4.2.5, successful implementation of the SWRP should result in the following Community benefits:

- Increased employment opportunities
- Increased public education
- Increased community involvement

The following projects will result in community benefits:

- **4. Davis Greenbelts Landscape Conversions**
  - Benefit: 1 acre of recreation area per project site
  - Analysis: Some typical turd areas along the green belt have been designated by the City of Davis as underutilized for recreation and recognize the potential of the project for water conservation, demonstration gardens, and interpretive education. Decomposed granite paths and interpretive signs will be installed and will inform the public of the benefits of the project.
- **17. Russel Boulevard Demonstration LID Project**
  - Benefit 1: 1,000 volunteer hours and 3 class tours per year
  - Analysis 1: Seven partnerships with community groups for this project have been identified including the Yolo County Master Gardeners, Sierra Club, UC Davis Arboretum, Yolo Resource Conservation District, California Conservation Corp and others. The area is intended to serve as an outdoor classroom for UC Davis, the Davis Joint Unified School District and the community at large. Volunteer opportunities will be used to maintain the project site.
  - Benefit 2: 34,370 square feet of additional public use area
  - Analysis 2: The project will include increased natural habitat in the downtown core that is available to the community which will include an outdoor classroom, public art, seating area, walking tour of stormwater and water conservation demonstration areas.

24. Winters Bioswales Project and Habitat Enhancement

- Benefit: 3 community tours and 1 class visit per year
- Analysis: Bioswale plantings will be performed by volunteers who will be educated about why they are important and how they function.

Commented [JL6]: For environmental and community benefit analysis (section VI.C.2.d): Plan includes a narrative of how each project and program will benefit the environment and/or community, with some type of quantitative measurement.

Meeting Agenda

Yolo Storm Water Resources Plan

Working Group Meeting 9

Handouts and Meeting Materials Available on Yolo WRA Website:
http://www.yolowra.org/projects_swrp.html

Location: Yolo County Flood Control and Water Conservation District Boardroom, 34274 State Highway 16, Woodland 95695
Call-In Number: (855) 813-2486; Access Code: 2714#:
Webcast: http://conf.kennedyjenks.com/conference/2714

Date/Time: 01 February 2018, 10:30 AM

1	Review Agenda and Safety Moment	5 minutes
2	Summary of Last Meeting (December 7, 2017)	5 minutes
3	SEI – Supporting the Yolo SWRP (Report) • Chapter 1. Introduction (Handout 1)	15 minutes
4	Final SWRP for Yolo County • Next Steps: o Westside-Sacramento RWMG Acceptance o Grant Funding Opportunities (Handout 2) ▪ Stormwater Grant Program – Round 2 Tentative for Late 2018 ▪ IRWMP Implementation Grant - Draft PSP expected Feb/March with applications possibly due in Sept/Oct 2018	15 minutes
5	Other Discussion	5 minutes
6	Next Meeting – TBD	5 minutes
7	Handouts – Available on Yolo WRA IRWMP website: http://www.yolowra.org/projects_swrp.html 1. Chapter 1. Introduction of Supporting the Yolo Storm Water Resource Plan, SEI, 2018. 2. Upcoming Grant Funding Opportunities	

Handout 1: See Appendix I for Final

Handout 2: Upcoming Grant Funding Opportunities as of 2/1/2018

Program	Agency	Description	Deadline	Eligible Applications	Funding	Website 1
319(h) Non-point Source Grant Program	Cal Office of Emergency Services	This program is intended to fund projects that reduce nonpoint source pollution consistent with TMDLs that address impaired water. Project must address NPS Program Preferences in the Grant Guidelines. Maximum grant project period is 3 years. Ineligible projects include those required by or implementing a NPDES permit.	2/8/2018	Public agencies, local agencies, non-profits, Indian tribes	$4.5 million total, with $75k - $125k per planning project, $250k - $750k per implementation project. 25% match requirement, unless waiver approved.	http://www.waterboards.ca.gov/water_issues/programs/nps/319grants.shtml
Stormwater Grant Program (SWGP)	SWRCB	Grants will be available through this program for multi-benefit stormwater management projects. Planning grants available for development of Storm Water Resource Plans. Implementation grants for green infrastructure, rainwater and stormwater capture, and stormwater treatment facilities, with the intent to reduce and prevent stormwater contamination of rivers, lakes, and streams. To be eligible implementation projects must be included in an IRWMP and Stormwater Resource Plan.	Round 2 tentative for late 2018.	Public agencies, non-profits, public utilities, Federally recognized Indian tribes, State tribes listed on Native American Heritage Commissions Tribal Consultation list, and mutual water companies.	A total of $200 million from Proposition 1. 50% cost share requirement, which can be waived or reduced for DACs. Minimum planning grant will be $50,000; maximum will be $500,000. Minimum implementation grant will be $250,000; maximum will be $10,000,000.	http://www.waterboards.ca.gov/water_issues/programs/grants_loans/swgp/prop1/ http://www.waterboards.ca.gov/water_issues/programs/grants_loans/proposition1.shtml
Watershed Restoration Grant Program	CDFW	Funding for more reliable water supplies, the restoration of important species and habitat, and more resilient, sustainably managed water resources systems. Projects must be regional in nature and located outside of the Delta. Funding shall only be used for projects that will provide fisheries or ecosystem benefits or improvements that are greater than required applicable environmental mitigation measures or compliance obligations.	Anticipated in Summer 2018	Public agencies, nonprofit organizations, public utilities, tribes, and mutual water companies.	Approximately $31 million available for grants in FY 2017/2018	https://www.wildlife.ca.gov/conservation/watersheds/restoration-grants
Prop 1 Integrated Regional Water Management Grant Program	DWR	The IRWM Grant Program is designed to encourage integrated regional strategies for management of water resources by providing funding for projects and programs that support integrated water management. Specific program remaining to be funded: the Implementation Grant Program (418 million). The maximum grant amount for developing a new IRWM plan is $1 million and for updating an existing plan is $250,000 per IRWM Region, respectively. The grant request cannot be less than $50,000.) Will require applicable IRWM plans meet 2016 Guidelines.	Draft PSP expected Feb/March with applications possibly due in Sept/Oct 2018	Public agencies, non-profit organization, public utilities, federally recognized Indian tribes, State Indian tribes, Mutual Water Companies	Proposition 1 (Water Code §79744) authorized $510 million for projects that are included in and implemented in an adopted IRWM plan that is consistent with Water Code §10530, et seq., and respond to climate change and contribute to regional water security. 50% cost share requirement. Funds are allocated to the 12 hydrologic region-based Funding Areas (see website).	http://www.water.ca.gov/irwm/grants/prop1index.cfm http://www.water.ca.gov/irwm/grants/docs/p1Guidelines/2016Prop1IRWM_GuidelinesPublicReviewDraft.pdf
California Riparian Habitat Conservation Program	CA WCB	This program aims at protecting, preserving, restoring, and enhancing riparian habitat throughout California. Examples of eligible projects include: (1) Bank stabilization and revegetation (2) Restoration of riparian vegetation on flood (3) prone land (4) Installation of fencing along the riparian corridor to control and/or manage livestock or wildlife. (5) Removal of nonnative invasive plant species and restoration of native riparian vegetation. Funds may only be used for projects that will provide benefits or improvements that are greater than required applicable environmental mitigation measures or compliance obligations.	Continuous	Local agencies, nonprofit organizations, state departments and federal agencies.	There is no minimum or maximum grant request. Historically, grants under these programs have ranged from approximately $75,000 to nearly $500,000.	https://www.wcb.ca.gov/Programs/Riparian.aspx
USDA Water and Waste Disposal Loan and Grant Program	USDA	Provides funding for clean and reliable drinking water systems, sanitary sewage disposal, sanitary solid waste disposal, and storm water drainage to households and businesses in eligible rural areas.	Continuous	Most State and local governmental entities, Private non-profits and Federally-recognized Tribes. Communities < 10,000 people.	Depends on State of California allocations and National Office reserves. Average project size is $3-5 million. Loan terms range from 1.875-3.125% for 40 years.	http://www.rd.usda.gov/programs-services/water-waste-disposal-loan-grant-program
Small Community Flood Risk Reduction	DWR	The Small Communities Flood Risk Reduction Program (Small Communities Program) is a cost-share grant program that provides local assistance to communities with fewer than 10,000 residents that are protected by the State Plan of Flood Control (SPFC). The Small Communities Program was created as a result of the 2012 Central Valley Flood Protection Plan (CVFPP), and is intended to help small communities achieve 100-year flood protection. Initially, funding is being provided to study the feasibility of flood risk reduction projects.	Potential future solicitation.	Communities with <10,000 residents or counties with land use authority for small communities within areas protected by SPFC facilities. See Small Communities Program guidelines and the PSP.	For small communities, the State will fund all reasonable and eligible costs needed to complete a feasibility study, up to a maximum of $500,000 per applicant. Costs over $500,000 shall be cost shared at 50 percent between the applicant and DWR.	http://www.water.ca.gov/floodmgmt/funding/small-communities.cfm
WaterSMART – Water and Energy Efficiency Grants	USBR	Grants are provided for projects that produce quantifiable and sustained water savings, increase use of renewable energy and improve energy efficiency in water management, benefit endangered species, create water markets, or carry out activities to address climate-related impacts on water or prevent any water-related crisis or conflict. Funds are also made available for water management improvements that complement ongoing efforts to address water supply sustainability.	Being developed	States, Indian Tribes, irrigation districts, water districts, or other organizations with water or power delivery authority in the Western United States or United States Territories as identified in the Reclamation Act of June 17,1902, as amended.	Based on FY 17 FOA: Funding Group I: Up to $300,000 for smaller projects of up to 2 years. Funding Group II: Up to $1 million for larger, phased projects of up to 3 years, with a maximum request of $500,000 per year. Cost share at least 50 percent. Applicants may submit multiple project proposals, but funding per year is limited to $500,000.	http://www.usbr.gov/WaterSMART/weeg/index.html

Yolo SWRP Feb. 1, 2018 Meeting Sign-in Sheet

please add email if new.

Harish Bagha - SWRCB (on the phone)
Chris Fong - City of Woodland (on the phone)
Rhys Rowland - City of Davis (on the phone)
Casey Liebler - Yolo County (on the phone)
Chantelle Garvin - K/J (on the phone)
Sachi Itagaki - K/J (on the phone)

Kristin Sicke, YCFCWCD
Heather Brown, City of Davis (hbrown@cityofdavis.org)
Dawn Calciano, City of Davis
Carol Scianna City of Winters
Juliana Tadano, City of West Sacramento
Dave Pratt public
Donna Gentile, Water Resources Assoc. of YC
Susie Bresney, SEI
Vishal Mehta, SEI
Jennifer Lau Larsen, K/J

Appendix M

Madison Drainages Map Jurisdiction Summary

26 November 2018

Technical Memorandum

To:	Kristin Sicke, Yolo County Flood Control & Water Conservation District
From:	Sachi Itagaki, P.E., QSD; Sifang Shan Kennedy/Jenks Consultants
Reviewed By:	Jennifer Lau, P.E., Kennedy/Jenks Consultants
Subject:	Yolo County Stormwater Resources Plan – Madison Drainages Map Jurisdiction Summary K/J 1770002.00

Introduction

The purpose of this Technical Memorandum (TM) is to document flooding in Madison as well as the maintenance jurisdiction of the drainage infrastructure in and around the community of Madison in Yolo County, California. There are several communities in central Yolo County that are in the 100-year and 500-year floodplain, including the unincorporated community of Madison along State Highway 16, as shown on Figure 1. A 100-year flood has the probability of occurring in one percent of storms. These communities in central Yolo County experience flooding much more frequently than a 100-year event with a depth of flooding sufficient to limit access on State Highway 16 and local streets of Madison occurring two times out of every three years. Most long-term damage is from floods smaller than the 10-year flood[1] especially when precipitation falls for a period of multiple days.

Overview of Flooding

Storm flows originate in the upper watershed and foothills west of Madison and are conveyed via the Lamb Valley Slough, South Fork Willow Slough, and Cottonwood Slough, which, along with the Madison Drain and local ditches and drainage systems, flow to the east. The Madison Drain is intended to both convey upstream flows from a 2.2 square mile drainage area through Madison and to convey local flows away from Madison. The upper watershed and foothills contain highly erodible soils, which settle in the drainage systems of the valley floor which have flatter slopes than the upper watershed. These additional sediments decrease the size and capacity of culverts and channels so that they convey less flow than those in the upper watershed and foothills. Contributing to the flows from the upper watershed is the runoff from the agricultural fields surrounding Madison. As a result, local drainage facilities such as the Madison Drain, County Road crossings, and highway crossings are unable to convey the total flows through and away from Madison due to clogging from vegetation, sediment deposits that reduce channel capacity, and/or undersized culverts and other drainage infrastructure. The reduced conveyance capacity and flatter slopes of the valley floor results in flooding around Madison.

[1] Yolo County Resource Conservation District, *Willow Slough Watershed Integrated Resources Management Plan*. Jones & Stokes Associates, Inc. May 3, 1996.

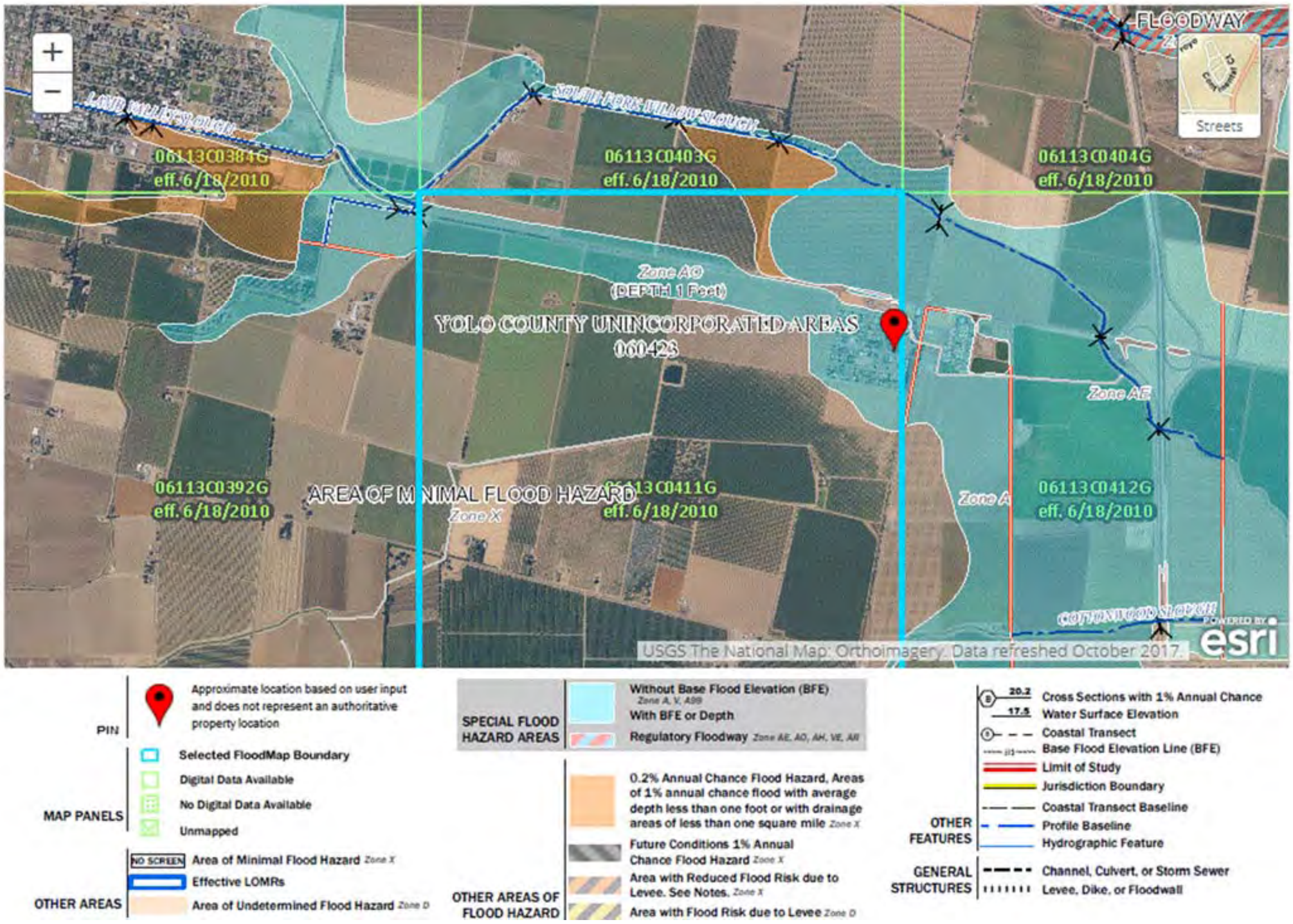


Figure 1 FIRM Map of Madison Area[2]

Figure 2 depicts the modeled water depths around Madison of a 100-year flood[3] that results from water backing up (i.e. backwater effect) when downstream infrastructure is overwhelmed. In Figure 2**Error! Reference source not found.**, the deepest out-of-channel water depths (characterized by the darker blue color) occur primarily at the areas where the sloughs and canals intersect Interstate 505, State

[2] Water Resources Association of Yolo County, *Storm Runoff Modeling for Foothills West-Southwest of Esparto.* The Stockholm Environment Institute, 2018.

[3] California Department of Transportation, *Floodplain Impacts Report,* Appendix J. Yolo 16 Safety Improvement Project. Wood Rodgers, Inc., April 2017

Highway 16, and a portion of Madison adjacent to the Madison Drain, which is undersized[4] to drain the area in and around Madison.

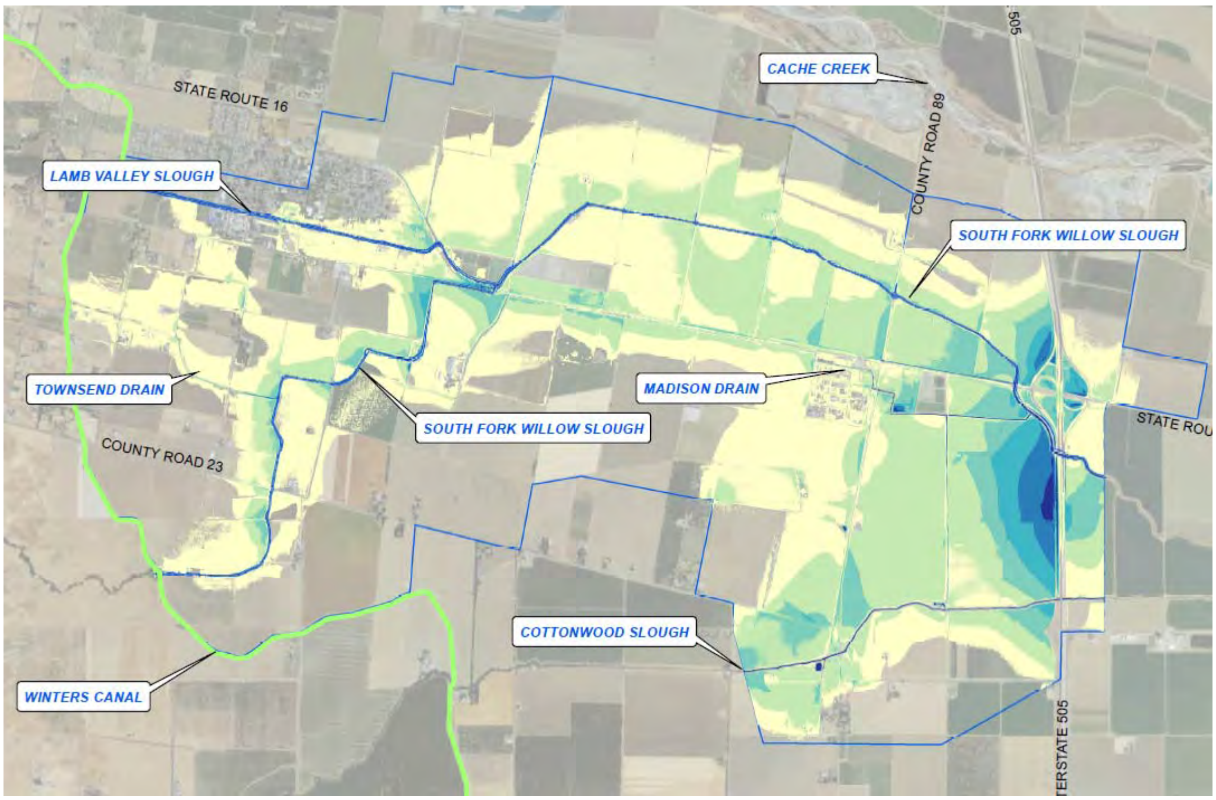


Figure 2 100-Year Flood Model – Water Depth[5]

Flooding within Madison causes both nuisance and property damages. Figure 3 illustrates the specific ways that the community of Madison floods. Nuisance flooding often occurs on Archer Street, Quincy Street, Hurlbut Street and Railroad Street within the community, as well as on County Road 89 and State Highway 16 outside the community, cutting off access in and out of Madison. Flooding occurs on Railroad Street and Archer Street due to blockages of Madison Drain along the communiity's driveways and lack of maintenance of the culverts at County Road 89. When Madison Drain overflows, sandbagging is needed to prevent infiltration of properties from flood waters.

[4] Yolo County Flood Control and Water Conservation District, *Town of Madison Flood Hazard Mitigation Study*. Borcalli and Associates, March 1999.

[5] California Department of Transportation, Floodplain Impacts Report, Appendix J. Yolo 16 Safety Improvement Project. Wood Rodgers, Inc., April 2017

There were two property damage flooding incidents in 2017 in the span of last ten years. Both incidents happened on the east side of Madison (east side of County Road 89). Flooding on the east side is primarily due to Cottonwood Slough runoff overflow at Quincy Street and Hurlbut Street, as the water from Cottonwood Slough heads north towards Willow Slough after crossing County Road 89.

Figure 3 Flooding Within Madison

It is these more frequent flood events that are within the power of local jurisdictions to manage through drainage infrastructure maintenance. The Water Resources Association of Yolo County (WRA) is a nonprofit, mutual-benefit corporation created to provide a regional forum to coordinate and facilitate solutions to water management issues in Yolo County. [6,7] In 2009, the WRA first established the Yolo County City/County Drainage Manual (Manual) to provide guidelines for achieving consistency in criteria and methodology for hydrologic and hydraulic analyses associated with storm runoff between rural and urban areas in Yolo County.

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[6] FloodSAFE Yolo Pilot Program, Yolo County City/County Drainage Manual. Wood Rogers, 2010.
[7] Water Resources Association of Yolo County, “About Us.” http://www.yolowra.org/about.html

The Manual recognizes that in rural areas, the flooding should be addressed by non-structural solutions, and the Manual provides the following guidelines for addressing rural flooding:

- Evaluate the hydrology and hydraulics of the system/features of interest.
- Determine the existing conveyance capacity of the system and select a nominal design event for purposes of hydraulic continuity.
- Delineate the floodplain associated with “overbank” flows from the system or feature.
- Develop a management plan for the system that accommodates hydraulic conveyance, floodplain management, public safety, and gives full consideration to ecosystem benefits, recreation, and ongoing maintenance.
- Integrate elements, where appropriate into the County’s Local Hazard Mitigation Plan and Emergency Preparedness Plan.

Agency Jurisdictional Responsibilities

Several agencies work in concert to administer the roads, lands, public utilities and natural resources within the community of Madison in unincorporated Yolo County. The following section describes the formation background, jurisdictional responsibilities and powers of each agency in regard to storm water management and flood control.

- **California Department of Transportation (Caltrans):**

  Caltrans is part of the cabinet-level California State Transportation Agency. Caltrans manages more than 50,000 miles of California’s highway and freeway lanes. As a state entity, Caltrans is responsible for maintaining or causing to be maintained, any project constructed with federal-aid funds and all bridges carrying federal-aid routes.[8] The Local Agency-State Master Agreement distributes maintenance responsibility for maintaining local federal-aid projects between Caltrans and local agencies. Currently, Caltrans is responsible for the maintenance of culverts crossing interstate highway I-505 and State Highway 16 as shown on Figure 4.

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[8] Caltrans. *Local Assistance Procedures Manual*

Memorandum

Kristin Sicke, Yolo County Flood Control & Water Conservation District
26 November 2018
1770002.00
Page 6

Figure 4 Summary of Jurisdictional Responsibilities

- **Yolo County (County)**

  Yolo County maintains over 750 miles of public roads and 147 bridges, as well as drainage ditches and culverts. The County Public Works provides engineering, inspection, maintenance, permitting and administrative services for these facilities[9]. The County is responsible for maintaining the parts of sloughs and accessory structures that cross County roads. Currently, the County maintains the culverts and bridges near the intersections of County Road 89 and Hurlbut Street, State Highway 16 and County Road 90, and at the ramp to County Road 89 from Railroad Street. The locations of these structures are shown on Figure 4. The County also maintains the streets within the public right of way in the community of Madison.

- **Madison-Esparto Regional County Service Area (MERCSA)**

  MERCSA was formed in 2005 by the consolidation of the Madison County Service Area (Madison CSA) and Esparto County Service Area (Esparto CSA) were consolidated to provide more efficient financial and organizational management. MERCSA is governed by the Yolo County Board of Supervisors, and its responsibilities include storm drainage, erosion control, park and recreation, and erosion control services in the communities of Madison and Esparto. Since formation of MERCSA, the Yolo County Flood Control & Water Conservation District has taken over those responsibilities outside of the Esparto CSA area[10].

- **Yolo County Flood Control & Water Conservation District (District)**

  The District was created in 1951 as an independent Special District with the primary purpose of seeking new water sources and managing them efficiently.[11] The District's current boundary covers 195,000 acres of Yolo County. The District is responsible for the acquisition, control, conservation, diversion, storage and disposal of storm, flood and other surface waters, prescribing the boundaries, organization, operation, management, financing and powers and duties of the District.[12]

  The District is currently responsible for maintaining drainage around Madison which is within the Madison CSA portion of MERCSA, which includes Winters Canal and parts of the Townsend Drain, the Madison Drain, Lamb Valley Slough, Cottonwood Slough and Willow Slough as shown on Figure 4. The purpose of maintenance activities is to keep the drains/canals and sloughs clear of debris and vegetation. The District does not maintain driveway culverts and local drainage within the community of Madison.

[9] County of Yolo, "Public Works Division." https://www.yolocounty.org/community-services/planning-public-works/public-works-division
[10] Yolo Local Agency Formation Commission, *Municipal Service Review and Sphere of Influence Study for the Western Yolo Special Districts*.
[11] http://www.ycfcwcd.org/district.html
[12] Yolo County Flood Control & Water Conservation District Act http://www.ycfcwcd.org/documents/DistrictActSept07withTableofContents.pdf

- **Madison Community Service District (Madison CSD):**

  Madison CSD was formed in 1966 by the Yolo County Local Agency Formation Commission (LAFCO) to provide water, wastewater and park & recreation services to the unincorporated community of Madison as documented in Appendix A. The formation documents note that Madison is within Storm Drainage District #1 which appears to have been formed in 1953 as the Madison Storm Drainage Maintenance District which was converted to the Madison CSA in 2001 in order to provide for future bonding. In 2015, LAFCO acknowledged the overlapping boundaries within and adjacent to the Madison CSD for storm drainage infrastructure maintenance which resulted in the District assuming responsibility of canals and sloughs around Madison in the Madison CSA. Additionally, Madison CSD provides wastewater treatment and domestic water supply services to the Madison Migrant Center within the Madison CSD sphere of influence.[13]

  Currently, Madison CSD is not responsible for maintaining runoff management or local street drainage facilities such as driveway culverts, within the community, however, Madison CSD's facilities and activities are impacted by the flooding. It is not clear whether local street drainage facilities such as roadside ditches and driveway culverts are within a public right of way or within private property in Madison.

Preliminary Conclusion and Recommendations

In order to minimize the flooding from more frequent storms, maintenance and rehabilitation of the drainage system upstream, in and downstream of the community of Madison should occur at multiple levels to maintain conveyance capacity throughout the system. This will require coordination between Caltrans, Yolo County, the District, and potentially Madison CSD to ensure that lack of coordination does not simply move the problem downstream. In addition, while regular maintenance will not completely eliminate flooding, but it will reduce the frequency and duration of nuisance flooding and road closures. Furthermore, it should be noted that maintenance will restore downstream drainage capacity, but does not address the flooding caused by undersized/limited conveyance systems and/or the flooding associated with very large storms.

Therefore, the following initial activities are recommended to start addressing the more frequent flooding issues in and around Madison:

- Confirm ownership of roadside ditches and driveway culverts within Madison. While Madison CSD may not be responsible of maintenance, the CSD could be an important communication point for the community, especially if it is found that the responsibility for these facilities is with individual property owners.

- Create a Coordinated Drainage Maintenance Plan that describes specific activities by each agency by location, frequency of maintenance, permitting and other relevant information. This Maintenance Plan should be reviewed every 3 to 5 years. Suggested activities include annual inspection in October prior to the rainy season and maintenance, as needed:

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[13] Yolo Local Agency Formation Commission. *2015 Municipal Service Review and Sphere of Influence Study for the Western Yolo Special Districts*

- by the District of the Willow Slough upstream of Madison and Madison Drain downstream of County Road 89;
- by the County in coordination with the District of the County Road 89 bridge at Madison Drain;
- by the District of Winters Canal for optimal runoff diversion;
- by Caltrans of the culverts at the intersection of Willow Slough and I-505;
- by the District of Lamb Valley Slough and Cottonwood Slough culverts and road crossings upstream of Madison; and
- Regular (e.g. biannual) coordination meetings to promote communication and cooperation among the agencies.

- Continue to develop plans to manage flows upstream of Madison for larger events
- Research and apply for grant funding for:
  - Performing inspections and cleanouts of roadside ditches and culvert drainages under private driveways in Madison once ownership is established; and
  - Developing coordinated maintenance agreements, as needed, between agencies.

Appendix A: Madison Formation Documentations

No. 7

Marcus Karlstad
Frank Gardner-Attorney
Co. Planning Dept.
Public Works
Executive Officer ✓
5 Commission members.

LOCAL AGENCY FORMATION COMMISSION
Yolo County, California

Date: February 7, 1966

File:
SERVICE DISTRICTS-Madison

APPROVED THE FORMATION OF THE MADISON SERVICE DISTRICT, ESTABLISHED THE BOUNDARIES FOR SAID DISTRICT TO BE THE BOUNDARIES AS STATED IN A REVISED DISCRIPTION FILED WITH THE CLERK ON JANUARY 27, 1966, AND MADE A PART OF THE ORIGINAL APPLICATION FOR FORMATION IN PROCEEDING NO. 560 AND REQUESTED THE COUNTY SURVEYOR TO PREPARE THE OFFICIAL MAP OF SAID FORMATION TO REFLECT SAID REVISED BOUNDARY TO BE FILED WITH THE CLERK. SAID MATTER WAS CONSIDERED AT A PUBLIC HEARING HELD ON FEBRUARY 7, 1966, SHORTLY AFTER 8:45 A.M. NO PROTESTS WERE FILED WITH THE CLERK.

Upon motion of Mayor Giovannetti, seconded by Markham, and duly carried, the above motion was approved by the following vote:

Ayes: Faye, Giovannetti, Conner, Markham, Stephens.

Noes: None.

Absent: None.

County of Yolo
Woodland, California

January 28, 1966

Erwin W. Meier
County Executive

Memorandum

To: Local Agency Formation Commission

From: Executive Officer

Subject: Formation of Madison Service District (LAFC Proceeding #560)

Gentlemen:

Under the provisions of Section 54794 of the Government Code the following report and recommendation is submitted to your Commission on the above proposed district formation.

General Information:

The applicants propose to form the Madison Service District under the provisions of the Community Services District Law (Title 6, Division 2 of the Government Code). As set forth in the application the district is to be formed for the purposes of providing sewer, water, and recreational services to residents of the district. The proposed district would be approximately 60 acres in size and include all the town site of Madison plus a small extension to the east.

Background:

The community of Madison is badly in need of a sewer disposal system due to the fact that sewage effluent cannot be absorbed through the use of cesspools or septic tanks due to the nature of the land in the area. The County Health Department has prohibited the construction of any new strucutres in this area until the sewage disposal problem has been solved.

In the summer of 1965 the community unsuccessfully attempted to market a $109,000 bond issue under the 1911 Improvement Act for the construction of a sewer system. This sale was unsuccessful due to the limited assessed wealth of the area of approximately $85,000. The 1965 Congress passed H.R. 10232 whereby sewer as well as water systems are eligible for grants and financing through loans insured by the Farmers' Home Administration for rural communities up to

5,500 IN POPULATION. IT IS UNDER THIS LEGISLATION THAT THE RESIDENTS OF MADISON PLAN TO PROCEED IN ORDER TO FINANCE A SEWER SYSTEM AND POSSIBLY A NEW WATER DISTRIBUTION SYSTEM AS WELL. THE MADISON SERVICE DISTRICT, ONCE FORMED, WILL BE THE ENTITY TO DEAL WITH THE FEDERAL GOVERNMENT IN ADMINISTERING THE APPLICATION UNDER H.R. 10232 AS WELL AS OPERATING AND MAINTAINING THE SEWER AND WATER SYSTEMS.

THE THIRD PURPOSE OF THE DISTRICT, THAT OF RECREATION, HAS BEEN INCLUDED FOR FUTURE USE BY THE AREA SHOULD THE RESIDENTS DESIRE TO TAX THEMSELVES TO PROVIDE RECREATIONAL SERVICES IN EXCESS OF THOSE PROVIDED THROUGH THE COUNTY. INCLUSION OF THIS PURPOSE AT THIS TIME ELIMINATES THE NECESSITY TO HOLD ANOTHER ELECTION AT A FUTURE DATE IN ORDER TO HAVE THIS PURPOSE ADDED TO THE DISTRICT'S POWERS.

BOUNDARY AND OTHER MATTERS:

THE PROPOSED REVISED BOUNDARY AS FILED WITH THE CLERK ON JANUARY 27, 1966 HAS BEEN REVIEWED BY THE COUNTY ASSESSOR AND SURVEYOR AND BOTH OF THESE OFFICERS HAVE INDICATED THAT IT IS ACCEPTABLE.

THE AREA PROPOSED TO BE FORMED INTO THE MADISON SERVICE DISTRICT LIES WITHIN THE FOLLOWING SPECIAL DISTRICTS, NONE OF WHICH WILL BE AFFECTED OR ALTERED BY THE NEW DISTRICT:

1. YOLO COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT
2. SACRAMENTO-YOLO MOSQUITO ABATEMENT DISTRICT
3. MADISON FIRE PROTECTION DISTRICT
4. COTTONWOOD CEMETERY DISTRICT
5. STORM DRAIN MAINTENANCE DISTRICT #1

RECOMMENDATION:

IN VIEW OF THE ABOVE DISCUSSION THE FOLLOWING RECOMMENDATION IS MADE TO YOUR COMMISSION:

1. THAT THE FORMATION OF THE MADISON SERVICE DISTRICT BE APPROVED.

2. THAT THE BOUNDARY FOR SAID DISTRICT BE SET AS THE REVISED BOUNDARY, FILED ON JANUARY 27, 1966 AND MADE PART OF THE ORIGINAL APPLICATION AND SUBMITTED TO YOUR COMMISSION.

3. THAT THE COUNTY SURVEYOR BE REQUESTED TO PREPARE THE OFFICIAL MAP OF THIS FORMATION REFLECTING SAID REVISED BOUNDARY, TO BE FILED WITH THE CLERK.

Erwin W. Meier

ERWIN W. MEIER
EXECUTIVE OFFICER

FILED
JAN 20 1966
LAURENCE P. HENIGAN, Clerk
By PETE E. LUCAS
Deputy

L.A.F.C. PROCEEDING NO. 560

COUNTY OF YOLO
LOCAL AGENCY FORMATION COMMISSION
APPLICATION

TO: YOLO COUNTY LOCAL AGENCY FORMATION COMMISSION

RE: APPLICATION UNDER THE KNOX NISBET ACT OF 1965 (CHAPTER 6.6, PART I, DIVISION 2, TITLE 5, CALIFORNIA GOVERNMENT CODE)

PART I: GENERAL INFORMATION:

THE UNDERSIGNED, FOR AND ON BEHALF OF THE PROPONENTS, HEREBY SUBMITS THE FOLLOWING APPLICATION FOR CONSIDERATION BY YOUR COMMISSION:

(CHECK ONE)

☐ ANNEXATION TO CITY OF ______ (NAME OF CITY)

☐ EXCLUSION FROM CITY OF ______ (NAME OF CITY)

☒ FORMATION OF SPECIAL DISTRICT MADISON SERVICE DISTRICT (PROPOSED NAME)

☐ INCORPORATION OF NEW CITY ______ (PROPOSED NAME)

A MAP AND LEGAL DESCRIPTION OF THE SPECIFIC BOUNDARIES OF THE TERRITORY INVOLVED ARE ATTACHED HERETO AND MADE PART HEREOF.

FOLLOWING ARE THE NAMES OF PERSONS, NOT TO EXCEED THREE IN NUMBER, WHO ARE TO BE FURNISHED WITH COPIES OF THE EXECUTIVE OFFICER'S REPORT AND WHO ARE TO BE GIVEN MAILED NOTICE OF HEARING.

NAME	MARCUS KARLSTAD	DORIS SCHWARZ	ELMER BEARTRAM
STREET	P.O. BOX 87		
CITY	MADISON, CALIF.	MADISON, CALIF.	MADISON, CALIF.
PHONE	662-2308	662-3367	

PART II. APPLICATION QUESTIONNAIRE: (ANSWER EACH QUESTION COMPLETELY. USE ADDITIONAL PAGES AS REQUIRED.)

A. GENERAL:

1. DESIGNATION OF PROPOSAL

To establish Community Service District, Madison, Calif.

2. STATUTORY PROVISIONS GOVERNING PROCEEDINGS COMMUNITY SERVICES DISTRICT LAW, TITLE 6, DIV. 2 CALIFORNIA GOVERNMENT CODE
~~Required by Yolo County and Farmers Home Administration.~~

B. PHYSICAL FEATURES

1. LAND AREA: SQUARE MILES Town of Madison plus extention on East ; ACRES 60 .

2. STATE GENERAL DESCRIPTION OF TOPOGRAPHY:

Flat land and low.

3. DESCRIBE "NATURAL" BOUNDARIES: (RIVERS, MOUNTAINS, FREEWAYS, ETC.)

Highway 16 on North Dunnigan Cutoff road on East

4. DESCRIBE DRAINAGE BASINS, RIVERS, FLOOD CONTROL CHANNELS, ETC.; AND AVAILABILITY OF AN ADEQUATE WATER SUPPLY AND HOW OBTAINED.

Madison Slough generally drains the town, this in turn, drains into Willow Slough. An abundance of water is found at about 25 feet.

5. DESCRIBE MAJOR HIGHWAY ACCESS TO THE AREA:

State route 16, Interstate 505 and Winters road. It is a natuzl hub.

C. POPULATION AND RELATED MATTERS

1. POPULATION IN SUBJECT AREA: About 200. Expect to double when sewage disposal is available.
2. POPULATION DENSITY (I.E. PER SQUARE MILE, PER ACRE): about 175 on 40 acres.
3. NUMBER OF REGISTERED VOTERS: Cottonwood township has over 250 voters. No exact breakdown for Madison.
4. NUMBER OF DWELLING UNITS: About 50
5. PROXIMITY TO OTHER POPULATED AREAS: Woodland, 11 miles; Winters, 11 miles
6. LIKELIHOOD OF SIGNIFICANT INCREASE IN POPULATION IN NEXT TEN YEARS: Will double if project is completed.
7. LIKELIHOOD OF SIGNIFICANT INCREASE IN ADJACENT AREAS IN NEXT TEN YEARS: Esparto, next town West, is now growing fast. Recentely added a sewage system.
   A. IN UNINCORPORATED AREAS: Will double if water and sewers; otherwise fade.
   B. IN INCORPORATED AREAS: None included.

D. ECONOMIC FACTORS Good farming area. Need workers for farms. Workers need place to live. We have it.

1. ZONING AND RELATED MATTERS:
   A. DESCRIBE THE EXISTING LAND USE AND EXISTING ZONING IN THE AREA WHICH IS THE SUBJECT OF THIS PROPOSAL: Town lots and dwellings.
   B. DESCRIBE PROPOSED NEW ZONING OR CHANGES IN ZONING, IF ANY: No changes except right to resume building.

2. ASSESSED VALUE IN AREA: Figures for the town of Madison are not immediately available from the assessors office .
   A. LAND:
   B. IMPROVEMENTS:

E. *GOVERNMENTAL SERVICE IN AREA: (DESCRIBE IN SUCH DETAIL AS IS APPROPRIATE TO THE AREA THE EXISTING GOVERNMENTAL SERVICES AND CONTROLS IN THE AREA INCLUDING FOR EXAMPLE, POLICE PROTECTION, FIRE PROTECTION, HEALTH SERVICES, GARBAGE AND TRASH COLLECTION, LIBRARIES, PARKS AND PLAYGROUNDS, SEWERS, STREETS, STREET LIGHTING, ETC.*
Madison has resident constable and deputy sheriff in area, has fire station and resident full time fire chief with volunteer fire department. Private garage collection. Branch office Mosquito Abatement. Town water system. Postoffice.

F. *NEED FOR ADDITIONAL GOVERNMENTAL SERVICES OR CONTROLS:*

1. *DESCRIBE THOSE GOVERNMENTAL SERVICES OR CONTROLS WHICH SHOULD BE PROVIDED WHICH ARE NOW NOT PROVIDED OR WHICH SHOULD BE PROVIDED IN INCREASED AMOUNT IN THE AREA.*
Desperate need for sewers. Expansion and improvement in water service.

2. *ESTIMATE PROBABLE FUTURE NEED FOR NEW OR INCREASED GOVERNMENTAL SERVICES OR CONTROLS IN THE AREA.*
Sewers and expansion of water facilities and maintenance of these services.

3. *DESCRIBE HOW YOUR PROPOSAL MEETS THE NEED WHICH YOU HAVE DESCRIBED IN PARAGRAPH F, 1 AND 2 ABOVE.*
We have applied to Farmers Home Administration for grant and loan.
We must have District organized before we can receive aid and loan.

4. *WHAT ALTERNATIVE COURSES OF ACTION EXIST FOR MEETING THE NEED DESCRIBED ABOVE? DESCRIBE AND EVALUATE:*
There appears to be no other course, under law. The Board of Supervisors engineered and approved our sewer plans but could not sell the bonds.

G. *WHAT REVENUE WILL YOUR PROPOSAL REQUIRE FOR THE ACCOMPLISHMENT OF ITS GOALS AND WHAT ARE THE PROSPECTIVE SOURCES OF SUCH REVENUE:*
With a grant fromm the Federal Government, recommended by Congressman Leggett, and a loan from the Farmers Home Administration plus revenue from the users, will be adequate to maintain and pay off loan.

H. *ESTIMATE TO THE BEST OF YOUR ABILITY THE EFFECT OF THE PROPOSAL ON:*

1. *COST OF GOVERNMENTAL SERVICES AND CONTROLS:*
Cost of governmental services and controls will be justified by serving several hundred people as well as reopening growth of our community which is now stopped by order of the Health Department.

2. *ADEQUACY OF GOVERNMENTAL SERVICES AND CONTROLS:*
Other Districts in our area are well managed and financially stable.

3. *MUTUAL SOCIAL AND ECONOMIC INTERESTS:*
Mutual social and economic conditions will be bettered manifold. Permits to build have been denied to dozens who want to build here. This is a severe social block as well as an economic one.

4. *LOCAL GOVERNMENTAL STRUCTURE OF THE COUNTY:*
As a strictly rural community we are under the Board of Supervisors which has a policy against the Board serving as administrators of Districts such as we must have.

not correct action

ANY OTHER COMMENT WHICH YOU WISH TO MAKE:

Because of the structure of our soil septic tanks or systems will not work. For years residents have battled, nearly unanimously, for a sewage disposal system.. When the last Congress passed H.R. 10332, dealing with rural water and sanitation facilities, another lone hope for sewers came into being. This application is in line with Yolo County requirements to qualify for loan and grant.

THIS DISTRICT IS TO BE FORMED FOR THE FOLLOWING PURPOSES AS SET FORTH IN SECTION 61600 OF THE GOVERNMENT CODE:

1. TO SUPPLY THE INHABITANTS OF THE DISTRICT WITH WATER FOR DOMESTIC USE, IRRIGATION, SANITATION, INDUSTRIAL USE, FIRE PROTECTION AND RECREATION.

2. THE COLLECTION, TREATMENT OR DISPOSAL OF SEWAGE WASTE AND STORM WATERS OF THE DISTRICT AND ITS INHABITANTS.

3. PUBLIC RECREATION BY MEANS OF PARKS, INCLUDED BUT NOT LIMITED TO AQUATIC PARKS AND RECREATIONAL HARBORS, PLAYGROUNDS, GOLF COURSES, SWIMMING POOLS OR RECREATIONAL BUILDINGS.

I. ADDITIONAL PAGES OF EXPLANATION FOR ANY OF THE ABOVE ITEMS MAY BE SUBMITTED AS MAY BE DEEMED NECESSARY BY THE PROPONENTS.

SUBMITTED BY

NAME [signature]

ADDRESS Box 87

Madison, Calif

TELEPHONE 662-2304 or 662-6804

FILED

JAN 27 1966

LAURENCE P. HENIGAN, Clerk

By Peter E. Lucas Deputy

MADISON SERVICE DISTRICT

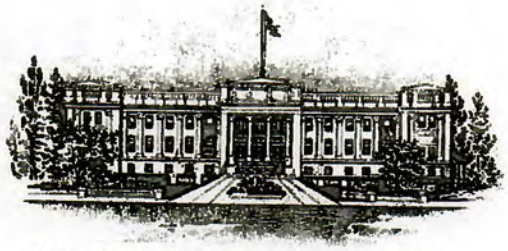
Revised 1-27-66

EXHIBIT A

Said real property hereinbefore referred to is located wholly in the County of Yolo, State of California, and is bounded and described as follows:

Beginning at the Southwest Corner of the Gordon Grant, also known as Rancho Guesisosi, County of Yolo, State of California, and extending thence along the South line of said Grant South 79°33' East 374.70 feet; thence South 10°15' West 50.00 feet to the South line of California State Highway 50; thence along the Westerly line of that property distributed to Frederick Eastham, et. al. by decree, dated March 4, 1929, in Book 4, Official Records, page 317, South 27°44'40" West 293.57 feet to a property corner in the South line of Block 1, Town of Madison, as depicted on the Official Plat thereof, filed in Book V of Deeds, page 417, Yolo County Records; thence along said South line of Block 1, North 79°33' West 141.00 feet to the Easterly line of that property conveyed to Walter Foster, and wife, by deed dated March 8, 1927, recorded in Book 114 of Deeds, page 4, Yolo County Records; thence along said property line South 37°46'50" West 59.36 feet to the Southeast corner thereof; thence along the South line of said property, North 79°33' West 78.00 feet to the East line of County Road; thence North 10°15' East 10.20 feet to the Easterly prolongation of the South line of Rudolph Street; thence along said line North 79°45' West 150.00 feet to the East of Railroad Street; thence along the East line of Railroad Street, South 10°15' West 1312.00 feet to the South line of Hurlbut Street; thence along said line of Hurlbut Street, North 79°45' West 1500.00 feet to the West line of Tutt Street; thence along the West line of Tutt Street, and the Northerly extension thereof, North 10°15' East 1690.60 feet to the North line of said State Highway 50; thence along said Highway line South 79°33' East 1610.00 feet to the point of beginning and including 6.81 acres of land.

EXHIBIT A



MARION F. BAKER, COUNTY ASSESSOR

COUNTY OF YOLO

Woodland, California

January 25, 1966

Mr. Erwin W. Meier, Officer
Local Agency Formation Commission

RE: L.A.F.C. Application #560

The proposed boundaries of L.A.F.C. Application No. 560 has been received and the following suggestion is made to avoid splitting a small parcel.

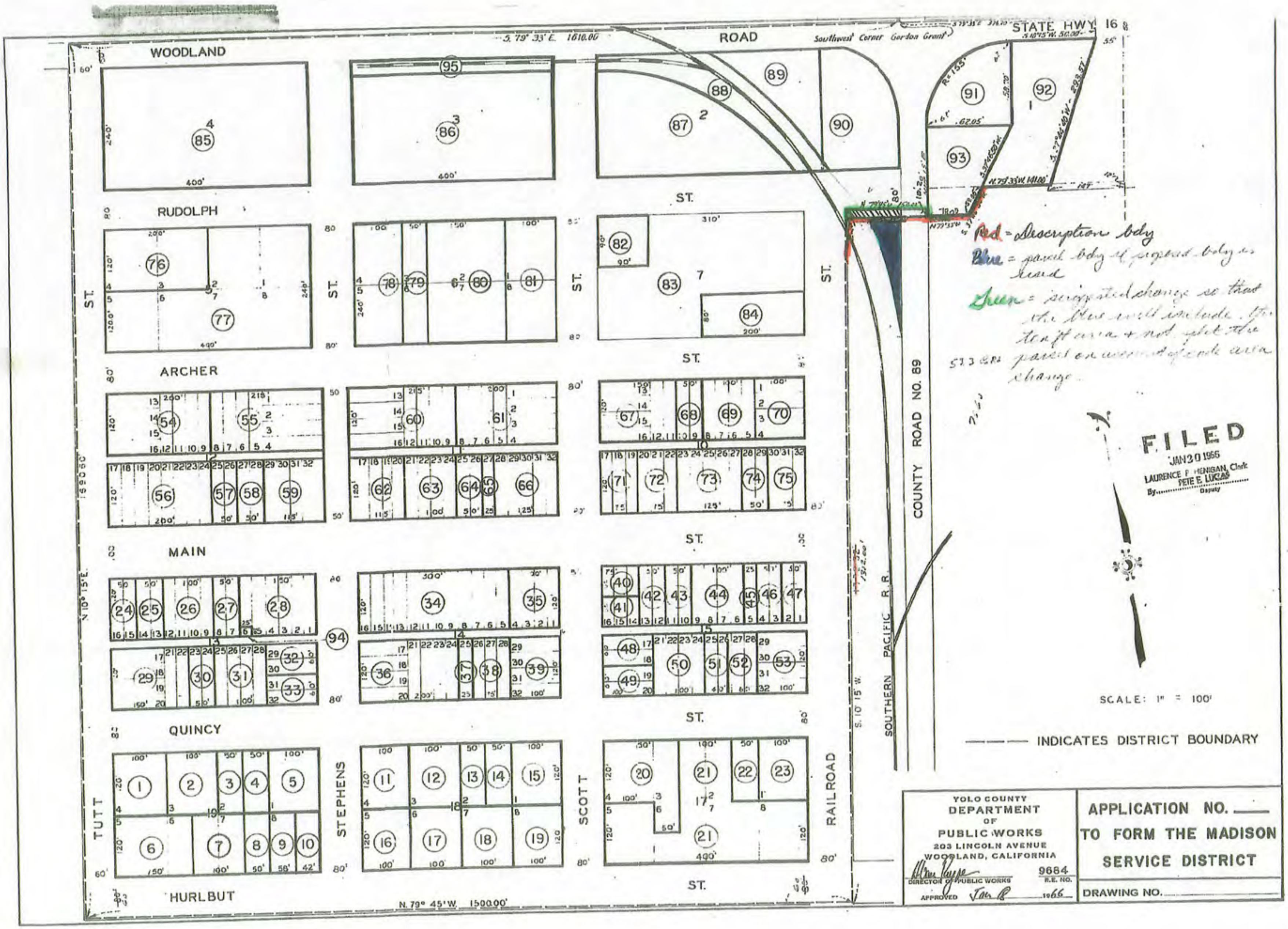
The small parcel is shown on the attached map in blue and cross hatched in blue. In this area the service district boundary is shown by a red line. This red line divides this parcel between the blue and the cross-hatch and will mean the parcel will have to be split into two parcels because there will be two different code areas. This split should not be necessary.

This office is therefore recommending that the new district boundary be changed as shown in green.

Marion F. Baker

Marion F. Baker, Assessor

Description revised to accomodate this recommendation.


WOODLAND
ROAD
STATE HWY 16
Southwest Corner Gordon Grant
RUDOLPH
ARCHER
MAIN
QUINCY
HURLBUT
ST.
TUTT
STEPHENS
SCOTT
RAILROAD
COUNTY ROAD NO. 89
SOUTHERN PACIFIC R.R.
S. 79° 33' E. 1610.00
N. 79° 45' W. 1500.00'
N. 10° 15' E.
S. 10° 15' W.
Red = Description bdy
Blue = parcel bdy of proposed bdy as hand
Green = suggested change so that the line will include the traffic area + not split the parcel in accordance with change
FILED
JAN 20 1966
LAURENCE F. HENIGAN, Clerk
PETE E. LUCAS
Deputy
SCALE: 1" = 100'
INDICATES DISTRICT BOUNDARY
YOLO COUNTY
DEPARTMENT
OF
PUBLIC WORKS
203 LINCOLN AVENUE
WOODLAND, CALIFORNIA
DIRECTOR OF PUBLIC WORKS
9684
R.E. NO.
APPROVED
1966
APPLICATION NO.
TO FORM THE MADISON
SERVICE DISTRICT
DRAWING NO.

January 20, 1966

MEMORANDUM

To: County Assessor

From: Erwin W. Meier, LAFC Executive Officer

You are requested to review the proposed boundaries as set forth in the attached proposal (LAFC No. 560), with respect to lines of assessment and ownership, and other factors such as overlapping or conflicting boundaries with other public agencies which you feel should be considered.

In those cases where the proposed boundaries cut across existing lines of assessment or ownership it is requested that you identify these areas by parcel number and indicate them on the attached map so they may be more easily reviewed.

In order that this information may be reviewed prior to preparation of my report to the Local Agency Formation Commissin, you are requested to submit this information to me no later than January 26, 1966.

ERWIN W. MEIER, Executive Officer

By
CONRAD C. FLANDERS, Budget Analyst

Appendix N

Madison-Related Project Proposal Outlines

27 November 2018

Technical Memorandum

To: Kristin Sicke, Yolo County Flood Control & Water Conservation District

From: Vishal Mehta, SEI and Sachi Itagaki, P.E., QSD, Kennedy/Jenks Consultants

Reviewed By: Jennifer Lau, P.E., Kennedy/Jenks Consultants

Subject: Yolo County Stormwater Resources Plan – Madison-Related Project Proposal Outlines

K/J 1770002.00

Introduction

The Yolo Storm Water Resources Plan (YSWRP) included several projects that could benefit different entities and parts of the county in the future. Part of the YSRWP rallied around the challenge of frequently occurring impacts from flooding in western Yolo county, which lies in the floodplain. Of the towns impacted by flooding, Madison suffers impacts almost on an annual basis, from storm events with a frequency of 2 to 5 yr return periods. As a result, some of the YSWRP projects focused on improving conditions in and around Madison.

These projects covered possible solutions at three scales, all of which have been stated as contributing to flooding in and around Madison.

- Projects at the local scale concern drainage through Madison itself, in particular the Madison drain and associated culverts, and aspects (technical, financial and governance) concerning their maintenance.
- Surrounding Madison, are projects that concern aspects of on-field management of rain and runoff.
- At the larger scale, are projects that concern storm runoff and conveyance in upstream sloughs and canals.

Given the interwoven nature of water movement across these scales in western Yolo County, the intent of this document is (i) to synthesize some of these individual projects into a smaller number of comprehensive projects, and (ii) to provide more details regarding scope, activities and budgets. The synthesized projects fall in to two categories which are detailed below:

A. Storm runoff management in upstream watersheds of western Yolo County
B. On-farm/on-field management of rainfall and stormwater runoff

A. Storm runoff management in upstream watersheds of western Yolo County

Problem Statement

Although modeling studies and field reconnaissance indicate that western sloughs contribute to flood impacts further downstream, their quantification has been hampered by the lack of any measured flows

Objective

The objectives of this synthesized project are:

- To establish the feasibility and utility of constructing flow control measures in three sloughs, namely Lamb Valley Slough
- To understand the flow characteristics and contributions from these sloughs to downstream points
- To evaluate the feasibility of runoff control structures in the sloughs

Relationship to Yolo SWRP Projects

This project brings together the following SWRP projects, as they are tightly related:

8. Flood Monitoring Network Project
28. Western Sloughs Citizen Science Program
21. Upstream Flow Management to Prevent Madison Flooding and to facilitate GW Recharge

To a large degree, the individual projects above form the key activities of this proposed comprehensive project. The Problem Statement above provides the rationale for each.

Scope of Activities

Activity A.1 Establishing a flow monitoring network in western Yolo sloughs and canals

In order to quantify and understand the flow regime in the selected upstream sloughs, a combination of traditional flow gaging, and a citizen science component, are proposed.

Task A.1.1. Rainfall and flow measurements

- Staff gauges will be installed, and cross-sections surveyed in five locations in the slough reaches that interact with YCFCWCD's canal system.
- Precipitation gaging at nine locations to improve understanding of rainfall variability throughout the watersheds

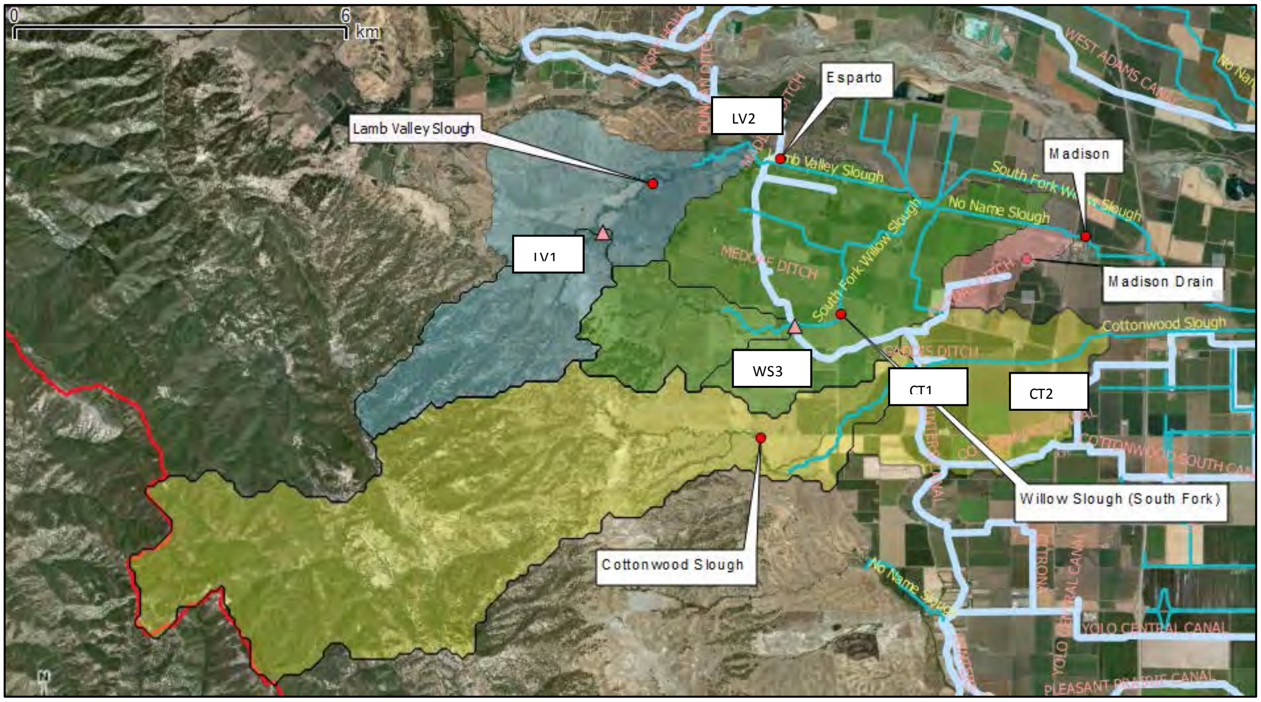
Table A.1 below identify the flow and rain measurement locations and Figure A. 1 below identifies the flow measurement locations which are extracted from the recommendations in the Yolo SWRP (SEI 2018)[1].

Table A. 1 Locations of proposed gages

Type	Description	Latitude	Longitude	Notes
Flow	Lamb Valley Slough, upstream at Rd 23 bridge	38.682785	122.069251	Access by road. LV1 in Figure A.1
Flow	Lamb Valley Slough, at culvert Rd 85B	38.696418	-122.038182	Access by road. LV2 in Figure A.1
Flow	South Fork Willow Slough and Winters Canal	38.667606	-122.029369	Off-road. WS3 in Figure A.1
Flow	Cottonwood Slough and Winters Canal	38.659988	-122.004253	Access by road. CT1 in Figure A.1
Flow	Cottonwood Slough at Rd 89	38.661362	-121.971626	Access by road.
Flow	Chickahominy Slough before it reaches Yolo County Airport	38.563729	-121.863087	
Rain	Capay dam	38.713345	-122.084863	
Rain	WIN 0727 (Ramos Check)	38.666279	-122.006006	
Rain	WIN 1119 (Fredericks Flume)	38.619167	-121.999526	
Rain	WIN 1601 (Chapman Reservoir)	38.560147	-121.984227	
Rain	YCFC&WCD HQ	38.669294	-121.872368	
Rain	YOC 0781 CR 27 Central Location	38.619620	-121.869106	
Rain	CR 31 South of Yolo County Airport	38.562395	-121.851082	
Rain	CR 30 and CR 105	38.575145	-121.676331	
Rain	CR 27 east of HWY 113	38.620089	-121.765079	

[1] The referenced report (Appendix I) is available at: http://www.yolowra.org/projects_swrp.html

Figure A.1 Location map of sloughs and proposed flow gaging sites



Task A.1.2. Citizen Science network

This task complements the traditional hydrologic monitoring task in A.1.1, by involving the community in data collection and knowledge creation among the local communities that live in the floodplain.

Community members and students will be involved via outreach activities in reporting information in various forms, such as through binary observations (flow/no flow), pictures, and flow measurements (e.g. recording flow depths on staff gauges).

Activity A.2. Feasibility study on appropriate runoff control structures

This activity involves establishing the utility and feasibility of implementing an appropriate runoff control structure (e.g check dam, detention basin, diversion etc) in specific reaches of Lamb Valley, South Fork Willow, and Cottonwood Sloughs. Note that Task A.1.1 is a necessary pre-condition or component to the feasibility study, since knowledge of flows is needed in order to design any structure and to validate any hydrology and hydraulics model.

Task A.2.1. Geomorphologic survey

A geomorphologic survey is a first step to evaluating the feasibility of implementing a runoff control structure in a slough because if a waterway is already impacted by downcutting and channel degradation, introduction of a runoff control structure needs to be considered carefully and thoughtfully to not exacerbate existing conditions. In addition, introduction of an appropriate runoff control structure could in fact improve existing channel conditions as well as provide ecologic and environmental benefit. A high-level scope for a Geomorphologic survey is expected to include:

1. Review background info
2. Field visit –include both Lamb Valley and Willow Sloughs (estimated at up to 3 days)
    a. Evaluate geomorphologic characteristics of sloughs that could inform
        i. feasibility and
        ii. whether some type of structure could be beneficial/detrimental to the slough
    b. if deemed feasible, identify potential sites for runoff control structures; this could also inform the topographic survey focus locations
    c. Evaluate environmental/ecologic enhancement possibilities including improvements to soil conditions adjacent to sloughs for increased infiltration
3. Documentation of findings

Task A.2.2. Topographic survey

Topographic survey would supplement available LIDAR digital terrain modeling topography to refine the existing hydraulic model of the sloughs. If it is determined that runoff control structures appear feasible and/or beneficial, then topographic survey of the potential sites would also be performed. Up to 2 days of survey is included.

Activity A.3. Synthesis and final reporting

This activity involves synthesizing the outputs and findings from each component and making final conclusions and recommendations on (i) the contributions of upstream sloughs to flows causing flooding downstream in the Madison vicinity, and (ii) the feasibility and utility of flow control structures at selected reaches in the 3 sloughs.

Preliminary Cost Estimate

Task	**Cost**	**Notes/Cost basis**
A.1.1 Rain and flow gages	$350,000 - $400,000	Based on cost as listed in project form and could vary based on location and complexity of installation
A.1.2. Citizen Science network	$20,000-$30,000	Assuming 20-30 days of labor at $1,000 per day for program development and oversight
A.2.1 Topographic survey	$5,000- $10,000	Based on up to 3 field days with 2 person crew plus follow-up processing
A.2.2 Geomorphological survey	$20,000 - $40,000	Based on estimate from geomorphological consultant
Synthesis and final reporting	$15,000-$20,000	Assuming 15-20 days of labor at $1,000 per day
Estimated Total	$410,000-$500,000	

B. On-farm/on-field management of rainfall and stormwater runoff

Problem Statement

Runoff from farm fields around Madison is one of the contributors to flooding in and around Madison. Therefore, on-farm rainfall-runoff management options, like (i) capturing rainfall on the land through building of low berms, active flooding or winter irrigation of farm fields, (ii) and creating a large stromwater pond on available farm land, are options being considered.

Objective

The objectives of this proposed project are:

- To establish the feasibility of on-farm runoff prevention and/or winter irrigation/flooding of farm fields,
- To establish the feasibility of using a 466 acre plot north-east of Madison to create an appropriate 400-acre detention (dry) or retention (wet) pond.

Relationship to Yolo SWRP Projects

This project brings together the following SWRP project, "27. Madison Farmer Field SW Capture and GW Recharge", and a project that is not yet included (the 400 acre stormwater detention pond) in the SWRP.

Scope of Activities

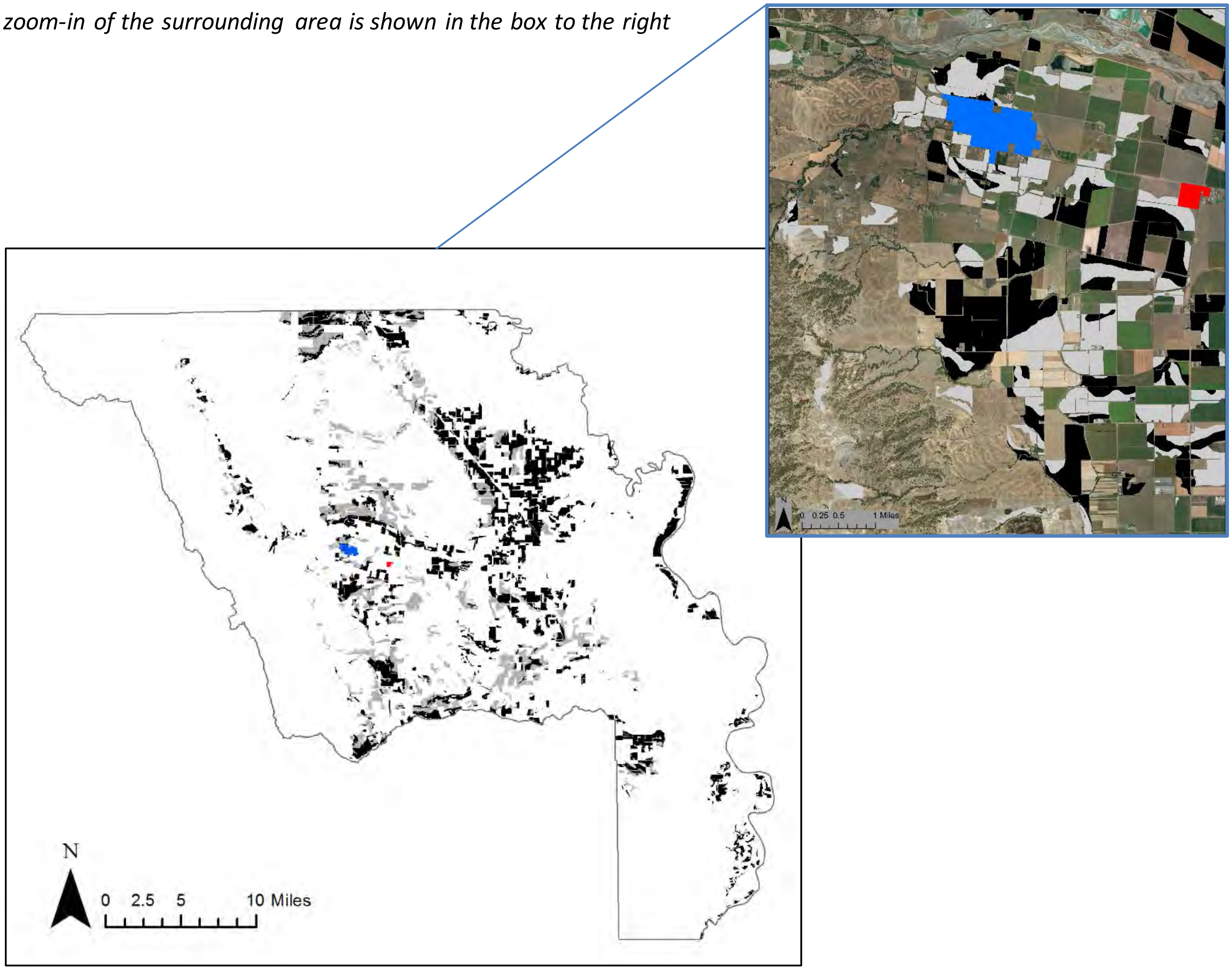
Activity B.1 On-farm stormwater management via rainfall capture and/or winter irrigation

Task B.1.1 Refining of candidate sites

This task will build on existing GIS-based selection of potential sites (SEI 2018)[1] as shown on Figure B.1, which is based on the SAGBI index and specific crops (SEI 2018)[1] and will be supplemented with other GIS information, such as, groundwater depths. Additional site criteria will emerge from an advisory committee (see B.1.1.b below), and be used to further select a refined pool of candidate sites.

Figure B.1 Potential fields for on-farm rainfall capture (Source: SEI 2018, Figure 2.4)

Areas included in a conservative scenario are shown in black. Additional areas added in a less conservative are shown in gray. Madison and Esparto are shown in red and blue, respectively and a zoom-in of the surrounding area is shown in the box to the right



Task B.1.2 Advisory committee

An advisory committee will be constituted to help inform Activity B.1. The advisory committee will be made up a small and diverse group of people with experience across technical, governance and land management domains. The advisory group will help provide a quick reality check at the early stages of the project, as well as help connect with key individuals in the county/study area who could help facilitate positive action.

Task B.1.3 Landowner outreach

Since this activity involves recruiting landowners/growers, outreach and interaction with this community will be a crucial task. Project team will be facilitated by YCFC connections in the area, as well as by the advisory committee.

Task B.1.4 Technical feasibility

This task involves preliminary engineering such as review of available topographic data of the agricultural lands as well as geophysical survey described below to establish the feasibility of capturing rainwater and/or active winter stormwater application (winter irrigation or shallow flooding) on the selected fields. The result will be a report analyzing the benefits and risks of implementation.

Geophysical Survey

Near the final stages of identifying potential fields for recharge, the top three candidates will have a geophysical survey performed to assess the infiltration potential based on lithology from 20 to 30 feet below ground surface (bgs).

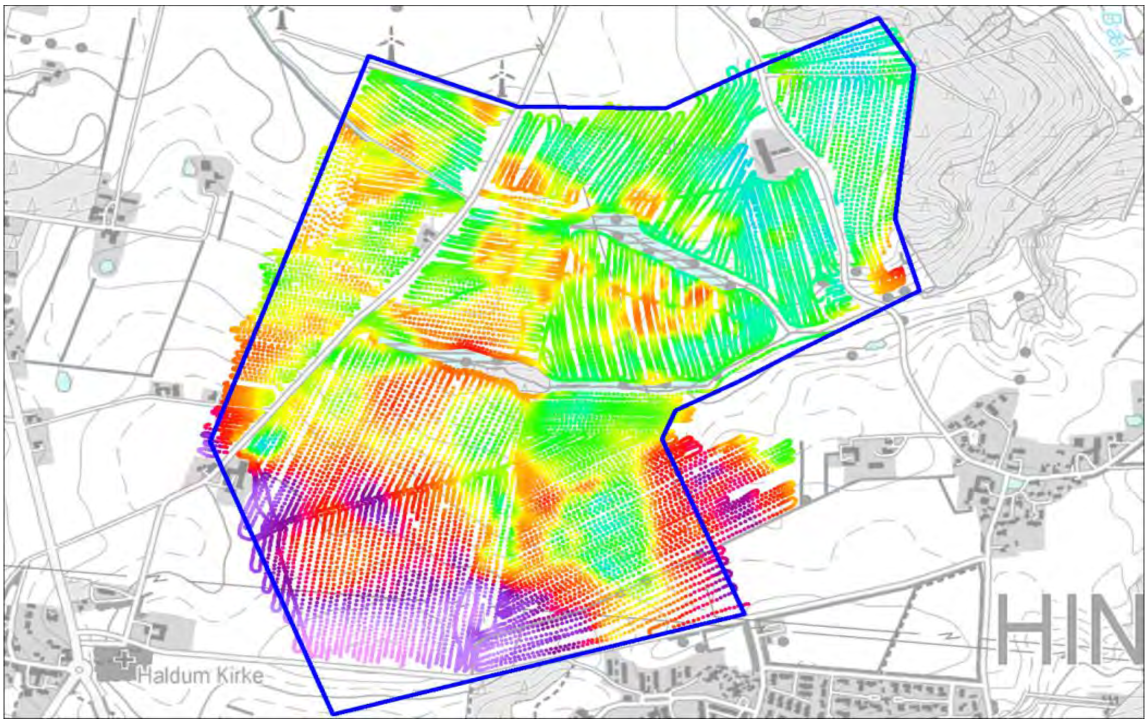
The geophysical method that we propose is the DUALEM system, which is considered state of art for Ground Conductivity Meter (GCM) instruments. It consists of a 13-foot-long sensor and two small batteries, GPS receiver and light weight Toughbook computer used for navigation and data storage, cables. Collected data are synchronized with GPS time provided by GPS system. The GPS (Trimble SPS850 or equivalent) will be used for the survey. Figure B.2, shows the ATV pulling the DUALEM system.

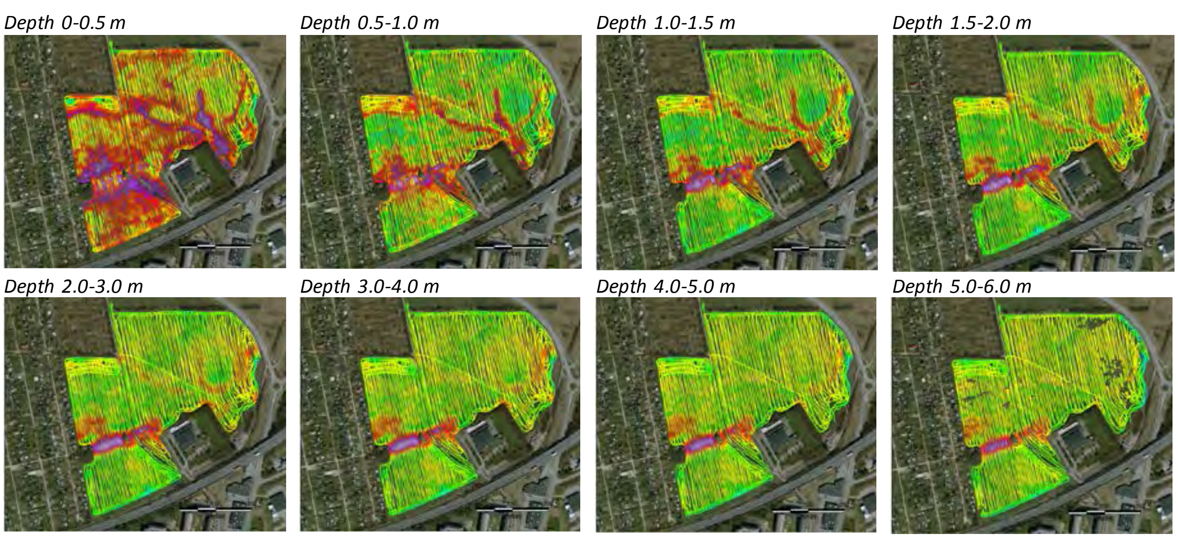
The data gathered from the DUALEM surveys can be presented as a surface on maps and shown in different horizonal slices representing the resistivity with depth as shown on Figure B.3. The large map on Figure B.3 shows an area over which DUALEM data were gathered. The purple and red colors indicate higher resistivity, coarser sediments, and the lighter green and yellow indicates clays and silts. The variation in resistivity with depth is important to understand. The higher resistivity, the coarser the sediments which is indicative of higher infiltration rates are likely. Since excavating material for infiltration basins is expensive, the DUALEM data will show the best preferential pathways based on resistivity and depth of about 30 feet bgs. It can also show if portions of the parcel consist of finer sediments at surface and at depth, which would reduce the benefit of recharge. Knowing this information is valuable for selecting and purchasing parcels for recharge. The geophysics data may show that only a portion of the parcel is viable for recharge which can be used to purchase less property and/or to build recharge basins that are appropriately sized.

Figure B.2 - DUALEM421s sensor pulled behind ATV

Ramboll introduced the DUALEM system in early 2013. For the last 5 years Ramboll has executed more than 100 projects, where DUALEM has been included for mapping the sub-surface. Projects vary from pre-geotechnical investigations, mapping of subsurface conditions related to infiltration of rainwater, mapping of contaminated sites, macro archaeological investigations and UXO's. Clients have included contractors, municipalities, and national authorities.

Figure B.3 Presentation of Results include several horizontal slices representing the variations in resistivity with depth. Higher resistivity represents coarser material (sand and gravel) and lower resistivity represents finer material (silt and clay).





The DUALEM survey is based on 'line-miles' traveled and depending on the surveyed terrain, about 15 to 50 miles can be surveyed in a day. The parcels are typically surveyed on a dense grid with about 30-foot spacing between lines to gather high resolution data for infiltration potential and to map small geomorphological features. During this task, we propose to use a spacing of 150-feet to gather data from the three parcels as a preliminary assessment. If one of the parcels appears to have a higher potential for recharge, we can then resurvey the parcel by filling in the space between the original 150-foot interval at 30-foot spacing.

A critical element when interpreting geophysical data is having lithologic information at the site for calibration. If a drillers log is available near the site then that may be sufficient for the calibration, however, if data aren't available, we propose to use a small drill rig to gather the data. A GeoProbe drill rig would be utilized to collect multiple soil samples to a depth of 30 feet at the site to confirm the geophysical interpretation. This calibration would only need to be performed on the site that has been determined to have the highest potential to be a valuable site for recharge. The GeoProbe drilling method is quick, has a small footprint, and small environmental impact. The boreholes are about 2-inches in diameter and water is not required for drilling which leads to a small amount of wastes for disposal.

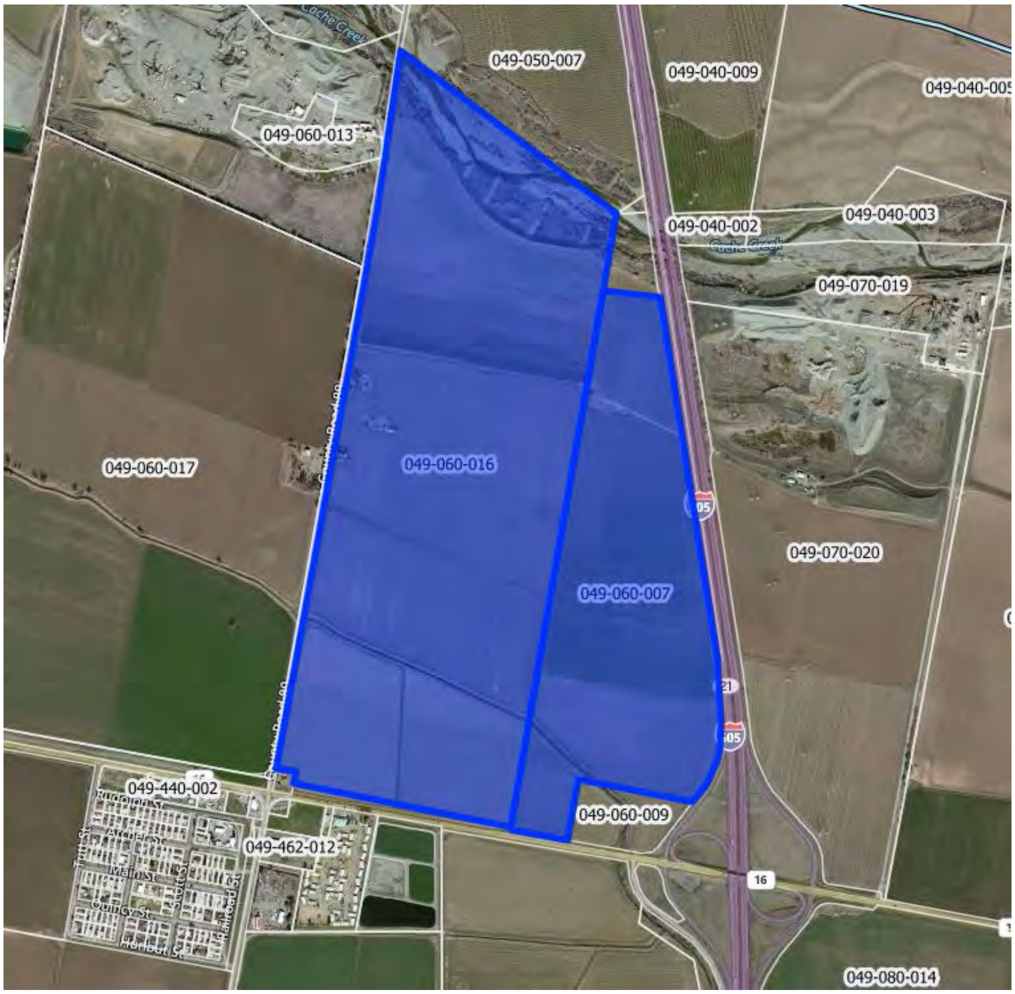
After the site has been characterized by the use of geophysics and confirmation sampling has been performed by the GeoProbe method, we will select locations on the site to perform infiltration testing. The selection of sites for the infiltration testing will be determined by comparing the lithology and geophysics data and the pre-design outline of the proposed basin location. The tests will be conducted using a double ring infiltrometer using the ASTM D 3385-09, constant-head method for directly measuring the soil infiltration rate at the site. At least one test, but up to three will be performed on the site, depending on the size of the selected site.

Activity B.2 Stormwater pond

This activity focuses on evaluating a 466 acre property that is north of Madison, which was suggested by the Madison Community Service District's water manager as a possible site for further investigation. The outcome of this activity will be to assess the feasibility of this site for a 400 acre stormwater detention pond. An approximate impact of a 4 foot impoundment is 1,600 acre-feet in flooding impact mitigation in the vicinity.

Ideally, the stormwater detention pond would also serve as a groundwater recharge basin to maximize groundwater resources in the area by appropriately storing excess storm flows. The feasibility analysis of a stormwater detention pond would investigate 1) property acquisition details and ownership arrangements; 2) infrastructure needed for routing flows (inlet structure) into the pond, properly storing flows overtime, and releasing flows (outlet structure) from the pond into Cache Creek (if needed); 3) any necessary permitting; 4) relevant outreach activities; and 5) a preliminary cost analysis

Figure B.4 Location of the candidate land parcel (highlighted in blue)



Task B.2.1 Technical feasibility

The main question that this task will answer is whether this parcel is suitable from a technical standpoint: i.e. from the point of view of infiltration, groundwater depths, lithology, etc.

The method for evaluating the selected parcel is the same DUALEM method as described in *Task B.1.4. Technical Feasibility.* Instead of evaluating three parcels, only one selected parcel will be evaluated and a dense grid spacing of 30-feet will be utilized. After the geophysical survey has been completed a GeoProbe rig will be utilized for one day to calibrate the geophysical data with the lithology. A geophysical report will be completed showing the varying lithology with depth throughout the assessed parcel.

After the site has been characterized by the use of geophysics and confirmation sampling has been performed by the GeoProbe method, we will select locations on the site to perform infiltration testing. The selection of sites for the infiltration testing will be determined by comparing the lithology and geophysics data and the pre-design outline of the proposed basin location. The tests will be conducted using a double ring infiltrometer using the ASTM D 3385-09, constant-head method for directly measuring the soil infiltration rate at the site. At least one test, but up to three will be performed on the site, depending on the size of the selected site.

Additionally, this task will decide if a detention or retention structure is most appropriate. Corresponding planning-level cost estimates for the infrastructure choice will be included in the final report for this task.

Task B.2.2 Stakeholder outreach and permitting

This task will focus on the non-technical aspects of seeing this to implementation phase. These include permitting (e.g. State Board) and other governance aspects, and interactions with neighboring landowners and farmers.

Preliminary Cost Estimate

Task	Cost($)	Notes	Cost basis
B.1.1 Refining of candidate sites	$15,000-$20,000	Includes GIS work and follow-up from B.1.2 below	Assuming 15-20 days of labor at $1000 per person-day
B.1.2 Advisory committee	$10,000	Includes time for setting up of committee, and 3 half-day meetings with same.	Assuming 10 days of labor at $1000 per person-day
B.1.3 Landowner outreach	$15,000	Assumes YCFC guidance.	Assuming 10 days of labor at $1000 per person-day
B.1.4 Technical feasibility: a) Geophysical survey	$42,000-$45,000	Includes Mob/demob, field work, processing, inversion and a data report and GeoProbe	Assuming 5 days of fieldwork @$7K/day plus $7K for GeoProbe Sub.
b) Infiltration tests	$11,000-$15,000	Includes double-ring infiltrometer instrument rental, field work and technical report	Assuming up to 3 days of field work
B.2.1a Technical feasibility: Geophysical	$28,000-$35,000	Mob/demob, field work, processing, inversion and a data report and GeoProbe	Assuming up to 4 days of fieldwork @$7K/day plus $7K for GeoProbe Sub.

B.2.1b Technical feasibility: Infiltration tests	$11,000-$15,000	Includes double-ring infiltrometer instrument rental, field work and technical report	Assuming up to 3 days of field work
B.2.1c Technical feasibility: Design considerations	$20,000-$23,000	Inlet and outlet, design and infrastructure considerations	Assuming 20-23 days of work for $1000 a day
B.2.2 Stakeholder outreach and permitting	$10,000	Assumes YCFC lead and consultant supporting role	Assuming up to 10 days of labor at $1000 per person-day of consultant time
B.2.3 Preliminary Cost Analysis	$7,000-10,000	Planning-level costs with +30% - 50% accuracy	Assuming up to 10 days of labor at $1000 per person-day
Total Cost	$169,000--$198,000		

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