4 Assessment of Water Management Strategies

A wide range of water management strategies has been considered for the Sacramento Valley IRWMP. These strategies, which are based on the 20 water management strategies identified by the Department, are presented in response to the objectives identified in Chapter 2 of this IRWMP. In turn, the strategies outlined below also account for "resource management strategies" used in the California Water Plan. As defined in the California Water Plan, a strategy is "a project, program, or policy that helps California's local agencies and governments manage their water and related resources."

Water leaders in the region have formulated the region's objectives and priorities through extensive discussions, negotiations, and agreements over more than a decade. Local governments and water purveyors have and continue to work closely with state and federal agencies, local water interests, and others to formulate projects and identify necessary future efforts to meet these objectives. The result of this work has been the development of projects recommended for implementation that are listed and summarized in Appendix A. These projects represent the current collection that is considered technically, economically, and environmentally feasible while ensuring each project is consistent with and supports the IRWMP objectives and priorities identified and agreed on for the region. As the participants in the IRWMP process continue to work together and gain additional participants, the package of projects and proposed actions will continue to grow in response to local and regional needs in accordance with the IRWMP objectives.

4.1 Water Management Strategies

The following summarizes the valley's current and future state with respect to 20 different water strategies, including those strategies that are currently considered to not be directly applicable to the region. The California Water Plan Update 2005 also identifies 25 resource management strategies, many of which are directly applicable. It is the intent and desire of the participants in this IRWMP that the ongoing planning process identified in this IRWMP continue to drive and develop regionwide policy. These policies, recommendations, and priorities are intended to inform the Department, and other water resource agencies such as Reclamation, of regional needs to support these agencies' planning (including Bulletin 160 updates), prioritization, and funding recommendations and support.

Some water management strategies, such as "groundwater management" and "conjunctive use" have been combined into one discussion because of their similarity with respect to this IRWMP. Others, such as "water supply reliability" are included in this IRWMP as an objective rather than a "strategy" because many of the strategies discussed below support improving water supply reliability. Lastly, some strategies, such as "water conservation" are incorporated into strategies relevant to existing efforts in the region. In this case, the term

"system improvement" is used to reinforce potential water district/company facility or operational improvements that could be implemented to improve overall water management flexibility.

In support of these strategies, a number of water management planning efforts are currently proposed or underway across the region that are designed to advance and enhance the management of the region's surface water and groundwater resources. These plans, investigations, or projects generally span numerous water management strategies and, in many cases, represent an initial stage of exploration and coordination. Appendix A lists such efforts proposed to date. Table 4-1 (at the end of this section) identifies which IRWMP objectives are met and which water management strategies are addressed for each effort/project.

4.1.1 Groundwater Management and Conjunctive Management Strategies

A central part of the IRWMP is to preserve the region's groundwater resources for the long-term viability of the region's economic prosperity and environmental well-being. Local public agencies have adopted groundwater management plans under the AB3030 process (Water Code Section 10750 et seq.) and other specific authorities. Additionally, counties across the region have adopted groundwater ordinances designed to protect the health and welfare of the citizens within these areas. As a result of legislation in 2002 (SB1938), these local public agencies are now undertaking more comprehensive efforts to manage groundwater, including the development of BMOs and more extensive monitoring. Many of the region's local entities have plans in place that are consistent with SB1938, and others are working toward compliance.

For the past 5 years, these various agencies, water districts, and local interests have been developing integrated regional water monitoring and management to evaluate and better understand the groundwater resources in the region and to promote active groundwater management. This integrated management, by coordinating the local public agencies' efforts to protect and manage the groundwater resources in the region, will provide stability that will be critical to meet the water supply needs for farms, cities, fish, and waterfowl.

Conjunctive water management and monitoring is an increasingly key water management strategy to assist in improving water supply reliability across the region. As discussed in Section 6, Land and Water Use/Development Trends, groundwater use is anticipated to continue to increase across the valley associated with urban development and conversion to orchard crops. Each of the following program areas is critical to better understanding the groundwater resources in the Sacramento Valley. Together, these various actions will help foster improved knowledge and significantly enhance the ability of all of the water managers to cooperatively manage the shared resources in a manner that is economically and environmentally sustainable. Most importantly, this approach is intended to avoid conflicts among Sacramento Valley groundwater pumpers and to ensure local guidance in (1) the further development of local groundwater management as well as (2) the appropriate local mechanisms to avoid adverse impacts to groundwater resources. Additionally, coordination

of local activities to address regional and statewide issues will remain vital. All actions and investigations will continue to need to be coordinated with local, state, and federal agencies to share information and ensure compliance with all applicable ordinances, BMOs, and laws.

4.1.1.1 Groundwater Monitoring

This IRWMP intends to build on the existing monitoring network in the valley to gain a better understanding of the groundwater resources. Groundwater monitoring is an integral part of this program for the region to ensure the proper management and protection of the resource. A list of proposed or ongoing groundwater management and monitoring programs is provided in Appendices A and B to this IRWMP. These programs and projects include groundwater monitoring well pilot programs and the installation of recommended monitoring wells.

Balanced development and operation of a conjunctive water management project requires well-designed and well-managed monitoring and data management. Objectives of monitoring and assessment include the following:

- Promote development and operation of facilities to avoid impacts.
- Enable adjustments in operation to avoid or mitigate impacts (adaptive management).
- Assess and evaluate performance of the conjunctive water management project.
- Encourage cooperation among valley entities by providing a common data pool for analysis and decisionmaking.
- Monitor and assess data collection, storage, and analysis capabilities. Data will originate both from monitoring facilities developed as part of the Sacramento Valley IRWMP implementation and from coordinating with ongoing Department and county efforts across the region.

The groundwater management and monitoring program under the Sacramento Valley IRWMP is a continued ambitious effort to improve local and regional water supply reliability in accordance with the objectives identified in Section 2, Sacramento Valley IRWMP Objectives. The proposed IRWMP Performance and Monitoring Plan is included as Appendix B.

4.1.1.2 Groundwater Recharge

The Sacramento Valley IRWMP recognizes that groundwater recharge is an important issue that merits additional investigation across the valley. Phase 1 recharge activities involve identifying natural recharge areas, identifying the most promising new recharge areas, and developing specific programs to protect existing recharge areas. Phase 2 of the recharge program will focus on measures to protect and enhance recharge capacity of the basin, including construction of recharge facilities. Among the investigations being proposed is the

joint Tehama and Butte County monitoring and recharge effort that will include assessment of potential recharge areas and characteristics, including with respect to the Lower Tuscan Formation. Groundwater recharge activities are being conducted in conjunction with activities being undertaken across the region and are discussed further in Section 6, Land and Water Use/Development Trends.

4.1.1.3 Groundwater Modeling

Hydrologic experts have developed numerous models in the Sacramento Valley. These models can assist in a better understanding of existing groundwater resource conditions and how these resources would be expected to respond to a variety of situations. The Department, working with the local interests, is undertaking a review of these models and others in the Sacramento Valley to determine how these models can best be used in the future to help decisionmakers make informed decisions to ensure the wise use and sustainability of this resource. This review summary will help inform future efforts toward the development and appropriate use of models throughout the region.

4.1.1.4 Groundwater Production

Thousands of production wells use groundwater throughout the Northern Sacramento Valley, including more than 335 wells in the Lower Tuscan.

As demands for Northern California water increase, additional production wells will be used to meet Northern California water demands and to help strategically protect the water rights and supplies in the region for all uses. With limited data in certain parts of the region, the groundwater use will be an important tool to better understand the aquifer characteristics. Numerous wells are currently or in the future will be used to ensure water supply reliability in Northern California and to explore the conjunctive management as part of broader water management objectives within the Sacramento Valley. This includes strategically placed production and monitoring wells to conduct aquifer performance tests.

4.1.1.5 Regional Coordination

To help advance these coordinated efforts for groundwater, a Coordinating Group has been meeting to better understand and manage the groundwater resources for the benefit of Northern California. The Coordinating Group is a forum convened by local governments, local water purveyors, groundwater users, conservation organizations, state and federal agencies, and other interested parties that overlie the groundwater resources in the Northern Sacramento Valley to coordinate their respective efforts to better understand and manage this important resource for the benefit of Northern California. Specific objectives of the Coordinating Group include the following:

- Inventory and maintain a working knowledge base on groundwater resources and identify critical information gaps.

- Formulate and conduct data gathering and investigations to build a credible body of knowledge about the groundwater resources.
- Prepare and distribute factual information to ensure that the public has an opportunity to become better informed about this important groundwater resource.
- Identify policy issues that need to be considered by or recommended to the respective entities in the region.

Additionally, the Coordinating Group will help facilitate and clarify the respective roles of the Department, special districts, and counties. This discussion may form the basis for an MOU or similar arrangement that will articulate the respective roles necessary for a cogent and coordinated integrated plan for groundwater management in Northern California.

4.1.2 System Improvement/Water Conservation Strategies

For this IRWMP, the system improvement strategy refers to potential projects or operational changes that will improve water management at the district or farm level, and actions that can be taken related to urban use. System improvement projects include canal lining, installation of facilities to reduce operational spills, or changes in management that can result in decreased river diversions or additional reuse of water.

The system improvement/water conservation strategies are designed to provide multiple benefits and serve multiple objectives. They provide for agricultural water recycling, water conservation, drainwater management, system automation, and associated water quality improvements. These types of projects help meet local and regional water supply needs, improve water quality, and enhance water system flexibility. Common elements among these strategies follow:

- They are locally formulated.
- They provide local/districtwide water supply reliability.
- They improve water system operation at the district level.
- They generally provide water quality benefits.
- They enhance district water system flexibility and system operations.

Numerous water use efficiency projects have been implemented recently, with additional projects seeking funding either underway or awaiting final approvals to proceed. A list of proposed projects formulated under system improvement strategies is provided in Appendix A.

In October 2002, NCWA, working with various agencies throughout Northern California, developed a regional agricultural water use efficiency program to encourage water use efficiency in the region and to help implement cost-effective local and regional programs to use water more efficiently. The regional program was based on meeting Quantifiable Objectives and/or Targeted Benefits established by CALFED and the Department. The

IRWMP provides an opportunity to further this regional water use efficiency program by a more detailed review of the potential opportunities and limitations for water use efficiency in the Sacramento Valley and then providing a framework for additional system improvements or other water use efficiency measures.

4.1.2.1 Urban Water Management

The Urban Water Management Planning Act of 1983 requires that every urban water supplier (public or private) who provides water for municipal purposes either directly or indirectly to more than 3,000 customers or supplies more than 3,000 ac-ft of water annually must prepare and submit to the Department an urban water management plan. The plan is to be updated at least every 5 years. Urban water management plans include the area served, quantity and sources of water, groundwater management plans, and future supply and demand projections. The Department reviews all submitted urban water management plans. All cities across the region have prepared these plans, and many urban purveyors have also completed and are implementing water master plans that guide their provision of water services.

4.1.2.2 Agricultural Drainwater Recycling and Management

Drainwater management, in the form of controlling releases of drainwater from fields, reusing drainwater for onfield irrigation, and monitoring inflows to and outflows from drains, is a common practice in much of the Sacramento Valley. On a subbasin or larger scale, the management actions of the farmers within the individual districts can result in major cumulative influences on regional hydrology. These influences could include changes in river diversions (reduced or increased diversions as drainwater supplies change relative to irrigation demand); changes in flow rates in many natural sloughs, streams, and drains; the creation of habitat along the watercourses; and water quality and temperature effects at points of discharge to receiving waters. In addition to these influences on regional hydrology and habitat, drainwater management provides critical, regional-scale benefits by increasing the overall subbasin efficiency through repeated use of field tailwater runoff.

All of these impacts and benefits result from the largely independent actions of many irrigators who respond daily to changes in their local water supply and demand conditions. With some level of regional coordination, drainwater management could be expanded in conjunction with actions to address the water quality of return flows and other regulatory issues. The most logical and effective geographic unit for regional drainwater management appears to be the hydrologic subbasin. The following are the key objectives and related benefits of a regional drainwater management program:

- Improved measurement of drainage flows.
- Improved water quality sampling and real-time monitoring.
- Coordinated management of drainwater flow rates.
- Increased water management flexibility and potential for benefits.

4.1.3 Flood Management, Stormwater Capture, and Management Strategies

Major flood and/or stormwater management activities are currently underway to improve flood protection in many critical areas across the region. Given recent disasters in other portions of the country, significant flood-related damage over the last decade throughout the region, and concerns related to climate change and the potential for greater flood risk, flood management is a priority issue for much of California. Managing flooding is vital for protecting private property and public facilities, and is often an element of surface water storage projects. An array of flood management actions/projects are being planned under the flood management strategies for the region. These include activities authorized by the Sacramento River Flood Control Project and the Sacramento River Bank Protection Project; various efforts conducted by YCWA and Sutter County on the Yuba and Feather Rivers; the YCFCWCD; the Colusa Basin Drainage District (CBDD); and the numerous local projects undertaken by reclamation districts and other local entities such as Hamilton City. A large component of the Yuba County IRWMP now underway is the evaluation of flood management strategies for the Yuba and Feather Rivers. A list of flood management efforts for the region is provided in Appendix A.

4.1.4 Water Quality Protection and Improvement/Non-point Source Control

Significant efforts are underway in the region to identify and address water quality issues. Agricultural water conservation, tailwater recovery, and reuse projects reduce return flows to streams and rivers and improve surface water quality. Additionally, groundwater monitoring and assessment strategies planned for the region include ensuring groundwater levels and quality are protected while agricultural tailwater recovery and water recycling, and water conservation strategies are implemented. The California Rice Commission and the Coalition are implementing a watershed approach to improve water quality in the region and to help implement the Water Board's Irrigated Lands Program. The coalitions continue to implement a monitoring and reporting program to improve water quality and address non-point source pollution control from irrigated lands and managed wetlands. The coalitions and the subwatersheds will also implement management practices to improve water quality in areas where water quality standards are exceeded. A summary of the Coalition's monitoring plan is included in the Performance and Monitoring Plan included as Appendix B to this IRWMP and can be viewed on the Internet (www.svwqc.org). The coalitions will also coordinate with municipal entities in the region regarding their stormwater and effluent programs.

4.1.5 Conservation Strategies for the Sacramento Valley

Conservation and enhancement of aquatic and terrestrial species and their habitats is a continued priority for the region. The overall proposed conservation strategy for the Sacramento Valley is presented in Section 5, Conservation Strategies, of this IRWMP. The following summarizes key subcomponents of the proposed strategy in the context of the three water management strategies related to species/habitat conservation. Ecosystem enhancement strategies are embedded in most strategies developed for the region as fully described in

Section 5, Conservation Strategies. These strategies include further advancing fisheries improvement programs and waterfowl and wildlife improvement programs, and developing ricelands habitat.

4.1.5.1 Environmental and Habitat Protection and Improvement

Environmental enhancement and habitat protection are fully integrated with most of the other water management strategies and projects for the region. As described in Section 5, Conservation Strategies, it is proposed that existing efforts and partnerships be continued and enhanced toward supporting additional ecosystem improvement and enhancement. Projects included as part of this IRWMP range from those that are anticipated to assist in improving water quality through re-managed flows to those that will help improve water quality through reduced river diversions. Those projects that are proposed to reduce diversions will also aid in meeting temperatures objectives for fish, as well as provide additional flexibility in meeting water quality objectives.

Installation of state-of-the-art fish screens at diversion points is a continuing priority along the Sacramento River and its tributaries to protect the fishery resources of the region while allowing water diversions for agricultural and urban uses. Numerous fish screens have been installed in the region, and additional fish screens are being planned and designed. A list of ongoing or recently completed major fish screen projects is provided in Appendix A to this IRWMP.

4.1.5.2 Wetlands Enhancement and Creation

The management and creation of wetlands is integrated with other water management strategies and is a component of various projects in the region. For example, levee setback projects and retention basins under flood control strategies are designed to create wetlands and habitat along the floodways. Providing conveyance capacity for wildlife refuges in the region ensures reliable water supplies for enhancement, creation, and preservation of the wetlands in the region. Section 5, Conservation Strategies, provides more detailed information about future wetlands enhancement actions.

4.1.6 Surface Storage

New surface water storage in the Sacramento Valley has been one of the most exhaustively considered regional water supply and management alternatives, primarily because of the significant potential benefits that new storage could offer. The CALFED Integrated Storage Investigation Program evaluated a wide range of surface water and groundwater storage locations throughout Central and Northern California, including in-Delta, south-of-Delta, and north-of-Delta locations. The two Integrated Storage Investigation projects that are most relevant to integrated planning in the Sacramento Valley are the Shasta Dam enlargement and the potential Sites Reservoir project.

When these two projects are considered as part of an integrated Sacramento River Basin water supply and management program, the following key questions need to be answered:

- Which projects are most likely to move forward, and what are the critical factors in determining their implementation?
- What is the framework, in terms of participating parties and institutional agreements, under which the projects will be financed, built, and operated?
- What will be the direct and secondary benefits and impacts on Sacramento River Basin water users?
- What are the costs of these benefits, and how do the unit benefit costs compare with other actions or alternatives?
- How do these projects tie in with or influence the effectiveness of other regional options under consideration?

These two surface storage projects represent major undertakings that will require additional detailed evaluation efforts, including regional water system (CVP and SWP) operations studies, site investigations, cost/benefit studies, environmental studies, and determination of an institutional framework to allow for implementation of these important and necessary projects.

In addition to the Integrated Storage Investigation projects, a local surface water storage project is being developed in Yuba County. The Garden Bar Water and Power Project is located on the Bear River immediately upstream of Camp Far West Reservoir about 8.5 miles east of Wheatland in Yuba County. The Garden Bar Reservoir will have a usable storage capacity of approximately 250,000 ac-ft and a surface area of 2,000 acres at elevation 612 feet above mean sea level (msl). The Garden Bar Project will increase existing water supply deliveries by approximately 50,000 ac-ft. The project will also satisfy the peak power demands of area and reserve capacity requirements with an installed power generation capacity of 210 megawatts. In addition, the project could also provide instream flow benefits below Camp Far West Reservoir, residual flood control benefits resulting from increased storage capacity, and potential groundwater recharge.

4.1.7 Water Recycling

As agricultural, urban, and environmental water demands increase and constraints on developing new water sources tighten, water recycling is increasingly becoming a viable source of new water for the region. Water reclamation and beneficial reuse is a relatively mature practice in Southern California and much of the arid west. Recycled water as a water management strategy offers a new, relatively “drought-proof” source of supply that improves both the total water supply and the overall reliability of the supply.

The benefits of water recycling have been evaluated extensively by the Department's Recycled Water Task Force. The task force report, *Water Recycling 2030: Recommendations of California's Recycled Water Task Force* (2003b) identified the potential for 1.5 million ac-ft per year (af/yr) of recycled water statewide. Limited recycling of domestic wastewater is currently practiced in the Sacramento Valley, but the potential exists for the development of up to 80,000 af/yr of recycled water from domestic wastewater effluent by the year 2020.

Water recycling strategies are generally implemented at the local level but can have regional and statewide benefit by reducing surface water diversions and making that water available for other urban, agricultural, and environmental uses. These actions in turn can have a direct benefit to overall Bay-Delta water quality. Water recycling allows a local agency to avoid or reduce the costs of developing, treating, storing, and distributing additional potable supplies. Recycling can also reduce pollutant loads in receiving waters, aid in meeting TMDL requirements, and reduce treatment costs and concerns for downstream water purveyors.

4.1.8 Land Use Planning

Land use planning is an important tool to influence land development to promote economic health while ensuring adequate and reliable water supplies. Section 6, Land and Water Use/Development Trends, summarizes current and future land and water use projections and primary planning issues at the county level. This section was developed in close coordination with each of the eight counties within the region and summarizes current and future land and water use trends, where known. Key issues and knowledge of a given county's resources varies greatly depending on evaluations done to date and funding available to conduct such investigations. More detailed information about these strategies and specific projects developed to address land use issues can also be found in the subregional county IRWMPs either currently being developed or recently completed.

4.1.9 Recreation and Public Access Strategies

Most major recreation facilities in the region are operated and managed by state and federal agencies, and are not under the jurisdiction of the participants in this planning process. Local agencies in the region, however, are working to improve recreational facilities and to provide better public access where possible. An example of this is YCWA's New Bullards Bar facility. Significant improvements to this facility were recently made by YCWA, with the potential for additional recreation and public access improvements addressed in the Yuba County IRWMP. Potential management changes that potentially impact recreational opportunities along the Sacramento River, its tributaries, or water storage facilities that provide substantial recreational opportunities (e.g., Shasta Reservoir) will need to be tracked and evaluated.

4.1.10 Watershed Planning

Numerous local watershed efforts have and continue to be implemented in concert with various state and federal agencies. Local planning efforts have tended to be associated with key Sacramento River tributaries, including efforts along Mill, Clear, Stony, Deer, Cottonwood, Butte, Battle, and other creeks throughout the region. These grassroots efforts will continue depending on leadership, availability of funding, and continued membership commitment. Additionally, entities such as the CBDD have developed integrated watershed management plans to evaluate a range of management actions and structural/nonstructural measures to improve watershed health, assist in flood control, and enhance the environment.

4.1.11 Water and Wastewater Treatment

Cities, towns, and small to large municipalities continue to make improvements to existing wastewater and water treatment plants in response to continued urban growth and/or aging infrastructure. Depending on the size and funding capability of a given municipality, facility improvements and/or expansions can be difficult to fund. Project proponents will continue to seek assistance from sources including the State Revolving Fund to obtain grants or loans in maintaining and improving facilities. Continued maintenance of existing facilities in response to growth will continue to be an important factor in ensuring regional water quality in the Sacramento River and its tributaries.

4.1.12 Water Transfers

Improved management of water supplies for use within the Sacramento Valley is necessary to ensure that water can be put to reasonable and beneficial use to the maximum degree practicable within the area of origin, while at the same time protecting water rights, the environment, and the citizens that reside within the watersheds of origin. Water transfers can provide improved reliability, local and regional operational flexibility, and environmental benefits depending on the timing and quantity of the transfer. Most water transfers in the Sacramento Valley are intra-basin water transfers or neighbor-to-neighbor transfers. These transfers help the region meet its needs, particularly during drought periods. For example, the transfer of water is common in dry years among many of the Sacramento River Settlement Contractors through the Sacramento River Water Contractors' Association Project Water Pool, which was formed and has been active since 1974.

Additionally, increased environmental awareness and the enactment of various statutes such as the Central Valley Project Improvement Act (CVPIA) have increased the transfer of water for environmental purposes. An important part of the conservation strategy identified in Chapter 5 is an environmental water program that includes water acquisitions to help meet environmental needs within the region.

Water transfers to assist in meeting the water needs in other parts of the state have occurred, and will continue in response to need and ensuring regional needs are met. Water right holders within the region may pursue changes in its water rights as part of a strategic decision

to protect water rights, help provide flood protection to citizens and property within the region, and help contain costs for local landowners and businesses.

4.1.13 Inapplicable Water Management Strategies

Because of its setting, some forms of water management that are appropriate in other areas of California are not applicable in the Sacramento Valley at this time. Current water rights and availability in the Sacramento Valley do not necessitate the need for imported water other than through relatively local water transfers within the region. Desalination is also not a relevant water management strategy given the valley's location and relative costs.

4.2 Integration of Water Management Strategies

The Sacramento Valley IRWMP presents a mix of water management strategies to address regional and statewide water issues. This approach emphasizes integration among projects presented under the IRWMP, integration in attainment of statewide and regional benefits, and integration of water management and land use planning. As presented above, a wide range of water management strategies and projects, from water supply reliability and quality improvements to ecosystem restoration and fishery protection, have been developed and evaluated for the Sacramento Valley IRWMP. These projects and strategies are designed to meet the objectives of improving regional economic health, water supply reliability and quality, ecosystem enhancement, and flood management across the region as identified in Section 2, Sacramento Valley IRWMP Objectives, of this IRWMP. In meeting these objectives, proposed projects and actions include continued investigations, coordination, and monitoring, all of which will be integrated to the extent appropriate for each project.

Integration within and across water management strategies will continue to be key to meeting the IRWMP objectives, as well as ensuring local support and project performance as the following examples illustrate:

- Integrated management of the region's surface water and groundwater resources could significantly improve water supply reliability for the region and California. Conjunctive management strategies that enhance water supply, together with use of surface water, recharge of groundwater basins, and monitoring and assessment of the resources, will assist in improving the region's water supply reliability while protecting the region's groundwater resources.

- Integration of groundwater monitoring and assessment strategies with conjunctive management strategies is key to ensuring stakeholder support and wise management of the resource.

- Integration of local water supply reliability strategies with water quality and water use efficiency strategies can improve water supply reliability while improving water quality. However, care must to be taken to ensure that those that rely on drainwater from upstream sources are not adversely affected.

- Conjunctive water management and system improvement projects can be implemented to integrate water supply reliability with water quality and ecosystem restoration improvement strategies by providing additional water supplies for local use while also providing water for instream flows, ecosystem enhancements, and refuge water supplies.

- Integration of flood management and environmental and habitat improvement strategies such as the levee setback and flood retention basins can integrate flood management with the development of wetlands and wildlife habitat areas in the region.

4.3 Meeting Statewide Priorities

Strategies developed for the Sacramento Valley IRWMP are designed to meet local and regional needs while also assisting in meeting statewide priorities stated in this IRWMP. As stated previously, the objectives identified in Section 2, Sacramento Valley IRWMP Objectives, of this IRWMP include seeking opportunities to meet statewide needs and priorities assuming local and regional needs can be met. Among the programs and associated projects included in this IRWMP that help meet statewide needs is the implementation of the SVWMA. Implementation of these projects will help improve water supply reliability, increase in-river flows, and improve CVP and SWP flexibility to support making more water available to the Delta in late spring through early fall. Additionally, the SVWMA calls for the development of a Long-Term Workplan to evaluate regionally beneficial projects that could potentially result in water being made available to the Delta, including use by export interests, assuming local and regional needs can be met first. Appendix A identifies how each of the proposed programs/projects meets regional and statewide objectives while addressing the water management strategies.

An important initial planning process originally conducted to identify projects that could improve water management across the valley culminated with the completion of the *Sacramento Valley Water Management Agreement Short-Term Workplan*, released in October 2001. This process included local and regional interests as well as federal and state agencies and statewide water interests. The workplan identified numerous projects, programs, and necessary investigations or planning processes across the valley, many of which had been discussed or formulated through other ongoing local efforts throughout the region. These following types of projects, in turn, became the basis of this IRWMP:

- Water management (facilities or programs to use and monitor surface water and groundwater)

- System improvement (canal lining, tailwater recovery, or improved operations)

- Surface water/groundwater planning (monitoring, areawide inventory, or assessment)

- Institutional (regulatory hurdles including transfer of water within the region)

Regional long-term priorities include actions that might take more than 5 years to implement. These programs are more regional in nature and include the following:

- Advancing the regionalization vision described earlier
- Expanding short-term programs throughout the region
- Securing new surface storage (including Sites Reservoir and the enlargement of Shasta Dam)
- Conducting regional monitoring and measurement

In general, implementing regional options will need to meet the needs of regional water users, while providing environmental benefits such as improved temperature and flow conditions for aquatic species, protection of riparian or wetlands habitats, or improving surface water quality. Assuming these needs can be met, projects and programs that simultaneously make water available to meet statewide needs must be encouraged given local and regional support. Implementation on a regional or subbasin level will entail continued coordination with all relevant stakeholders, including the formation of regional coalitions, either through existing forums or through project-specific agreements.

TABLE 4-1
Sacramento Valley IRWMP Objectives and Strategies/Projects

Project Title	Project Sponsor	Counties	Objectives					Related Water Management Strategies
			Improve the Economic Health of the Region	Improve Regional Water Supply for Local Water Users, the Region, and California	Improve Flood Protection and Floodplain Management	Improve and Enhance Water Quality	Enhance the Ecosystem	
Integrated Regional Planning								
Redding Basin Water Resources Management Plan	Shasta County Water Agency	Shasta	X	X		X	X	Groundwater Management and Conjunctive Use, Groundwater Management and Assessment, System Improvement/Water Conservation, Water Transfers, Water Quality Protection and Improvement/NPS Control, Land Use Planning
Butte County IRWP, Model Calibration and Water Use Forecast	Butte County	Butte	X	X		X	X	Groundwater Management and Conjunctive Use, Groundwater Management and Assessment
YCWA IRWMP	YCWA	Yuba	X	X	X	X	X	Groundwater Management and Conjunctive Use, Groundwater Management and Assessment, System Improvement/Water Conservation, Flood Management, Water Quality Protection and Improvement/NPS Control, Land Use Planning
YCFCWCD IRWMP	YCFCWCD	Yolo	X	X	X	X	X	Groundwater Management and Conjunctive Use, Groundwater Management and Assessment, System Improvement/Water Conservation, Flood Management, Water Quality Protection and Improvement/NPS Control, Land Use Planning
Groundwater Management								
Groundwater Modeling Program	Butte County	Butte	X	X				Groundwater Management and Conjunctive Use, Groundwater Management and Assessment
Colusa County Groundwater Management Plan	Colusa County and water purveyors	Colusa	X	X				Groundwater Management and Conjunctive Use, Groundwater Management and Assessment, Groundwater Recharge, Water Quality Protection and Improvement/NPS Control
Project Planning								
Tehama-Colusa Canal Authority Canal Extension	TCCA	Tehama, Colusa, and Yolo	X	X		X	X	Groundwater Management and Conjunctive Use, System Improvement/Water Conservation, Water Transfers, Water Quality Protection and Improvement/NPS Control
Sacramento Valley Water Management Agreement Long-Term Workplan	NCWA/SVWMA Signatories	All	X	X	X	X	X	Groundwater Management and Conjunctive Use, Groundwater Management and Assessment, System Improvement/Water Conservation, Ecosystem Enhancement, Water Quality Protection and Improvement/NPS Control, Surface Storage
Stony Creek Conveyance Options/Constant-head Orifice Operations	TCCA	Tehama and Glenn	X	X			X	System Improvement/Water Conservation
Butte County Integrated Water Resources Program	Butte County	Butte	X	X	X	X	X	Groundwater Management and Conjunctive Use, Groundwater Management and Assessment, System Improvement/Water Conservation, Water Transfers, Water Quality Protection and Improvement/NPS Control, Land Use Planning
Ricelands Habitat/Winter Flooding Program	Multi-district/landowner	Multi-county	X	X			X	Ecosystem Enhancement
Stony Creek/OUWUA Investigation	OUWUA	Glenn	X	X				Groundwater Management and Conjunctive Use, Groundwater Management and Assessment, System Improvement/Water Conservation, Ecosystem Enhancement, Surface Storage
Groundwater Monitoring and Assessment Projects								
Lower Tuscan Monitoring, Recharge, and Data Management Element	Butte County	Butte and Tehama	X	X				Groundwater Management and Conjunctive Use, Groundwater Management and Assessment, Groundwater Recharge, Water Quality Protection and Improvement/NPS Control
ACID Water Management Program, Phases 1c and 1d	ACID	Shasta	X	X				Groundwater Management and Conjunctive Use, Groundwater Management and Assessment, Groundwater Recharge, Water Quality Protection and Improvement/NPS Control
Glenn County Groundwater Monitoring Program	Glenn County	Glenn	X	X				Groundwater Management and Conjunctive Use, Groundwater Management and Assessment, Groundwater Recharge, Water Quality Protection and Improvement/NPS Control

TABLE 4-1
Sacramento Valley IRWMP Objectives and Strategies/Projects

			Objectives					
Project Title	**Project Sponsor**	**Counties**	**Improve the Economic Health of the Region**	**Improve Regional Water Supply for Local Water Users, the Region, and California**	**Improve Flood Protection and Floodplain Management**	**Improve and Enhance Water Quality**	**Enhance the Ecosystem**	**Related Water Management Strategies**
Butte County Groundwater Monitoring Program	Butte County	Butte	X	X				Groundwater Management and Conjunctive Use, Groundwater Management and Assessment, Groundwater Recharge, Water Quality Protection and Improvement/NPS Control
Implementation of the Groundwater Subcommittee Groundwater Monitoring Well Pilot Program	Various districts	All	X	X				Groundwater Management and Conjunctive Use, Groundwater Management and Assessment, Groundwater Recharge, Water Quality Protection and Improvement/NPS Control
Colusa Groundwater Monitoring Program	Colusa County	Colusa	X	X				Groundwater Management and Conjunctive Use, Groundwater Management and Assessment, Groundwater Recharge, Water Quality Protection and Improvement/NPS Control
Installation of Groundwater Monitoring Wells Recommended by SVWMP Groundwater Subcommittee (Phase I)	Department and local entities	All	X	X				Groundwater Management and Conjunctive Use, Groundwater Management and Assessment, Groundwater Recharge, Water Quality Protection and Improvement/NPS Control
Joint Sutter Basin Groundwater Management Program	Sutter Mutual Water Company and RD 1500	Sutter	X	X				Groundwater Management and Conjunctive Use, Groundwater Management and Assessment, Groundwater Recharge, Water Quality Protection and Improvement/NPS Control
Basin Management Objective Information Center	Butte County	Butte	X	X				Groundwater Management and Conjunctive Use, Groundwater Management and Assessment, Groundwater Recharge, Water Quality Protection and Improvement/NPS Control
Cooperative Program for Groundwater Studies between the County of Glenn and the Colusa Basin Drainage District	Glenn County	Glenn and Colusa	X	X				Groundwater Management and Conjunctive Use, Groundwater Management and Assessment, Groundwater Recharge, Water Quality Protection and Improvement/NPS Control
Stony Creek Fan Partnership Conjunctive Management Program	Orland Artois, Orland Unit, and GCID	Glenn	X	X				Groundwater Management and Conjunctive Use, Groundwater Management and Assessment, Groundwater Recharge, Water Quality Protection and Improvement/NPS Control
Tehama County Groundwater Monitoring	Tehama County	Tehama	X	X				Groundwater Management and Conjunctive Use, Groundwater Management and Assessment, Groundwater Recharge, Water Quality Protection and Improvement/NPS Control
Groundwater Production Projects								
Lower Tuscan Water Supply Reliability Project	Butte County	Butte	X	X			X	Groundwater Management and Conjunctive Use, Groundwater Management and Assessment, Groundwater Recharge, Ecosystem Enhancement, Water Quality Protection and Improvement/NPS Control
Princeton-Codora-Glenn Irrigation District Water Management Project	Princeton-Codora-Glenn Irrigation District	Glenn	X	X			X	Groundwater Management and Conjunctive Use, Groundwater Management and Assessment, Groundwater Recharge, Ecosystem Enhancement, Water Quality Protection and Improvement/NPS Control
Provident Irrigation District Water Management Program	Provident Irrigation District	Glenn	X	X			X	Groundwater Management and Conjunctive Use, Groundwater Management and Assessment, Groundwater Recharge, Ecosystem Enhancement, Water Quality Protection and Improvement/NPS Control
GCID Water Management Program	GCID	Glenn	X	X			X	Groundwater Management and Conjunctive Use, Groundwater Management and Assessment, Groundwater Recharge, Ecosystem Enhancement, Water Quality Protection and Improvement/NPS Control
ACID Water Management Program Phase 2	ACID	Shasta	X	X			X	Groundwater Management and Conjunctive Use, Groundwater Management and Assessment, Groundwater Recharge, Ecosystem Enhancement, Water Quality Protection and Improvement/NPS Control
Collins/Bullards Bar Groundwater Substitution	Browns Valley Irrigation District	Yuba	X	X			X	Groundwater Management and Conjunctive Use, Groundwater Management and Assessment, Groundwater Recharge, Ecosystem Enhancement, Water Quality Protection and Improvement/NPS Control
Browns Valley Irrigation District Water Management Project	Browns Valley Irrigation District	Yuba	X	X			X	Groundwater Management and Conjunctive Use, Groundwater Management and Assessment, Groundwater Recharge, Ecosystem Enhancement, Water Quality Protection and Improvement/NPS Control

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Sacramento Valley IRWMP Objectives and Strategies/Projects

Project Title	Project Sponsor	Counties	Objectives					Related Water Management Strategies
			Improve the Economic Health of the Region	Improve Regional Water Supply for Local Water Users, the Region, and California	Improve Flood Protection and Floodplain Management	Improve and Enhance Water Quality	Enhance the Ecosystem	
Maxwell Irrigation District Water Management Project	Maxwell Irrigation District	Colusa	X	X			X	Groundwater Management and Conjunctive Use, Groundwater Management and Assessment, Groundwater Recharge, Ecosystem Enhancement, Water Quality Protection and Improvement/NPS Control
RD 108 Water Management Project	RD 108	Colusa, Yolo	X	X			X	Groundwater Management and Conjunctive Use, Groundwater Management and Assessment, Groundwater Recharge, Ecosystem Enhancement, Water Quality Protection and Improvement/NPS Control
South Sutter Water District Conjunctive Water Management Program	South Sutter Water District	Sutter	X	X			X	Groundwater Management and Conjunctive Use, Groundwater Management and Assessment, Groundwater Recharge, Ecosystem Enhancement, Water Quality Protection and Improvement/NPS Control
Natomas Water Management Project, Phase 1	Natomas Central Mutual Water Company	Sutter, Sacramento	X	X			X	Groundwater Management and Conjunctive Use, Groundwater Management and Assessment, Groundwater Recharge, Ecosystem Enhancement, Water Quality Protection and Improvement/NPS Control
River Garden Farms Water Management Project	River Garden Farms	Yolo	X	X			X	Groundwater Management and Conjunctive Use, Groundwater Management and Assessment, Groundwater Recharge, Ecosystem Enhancement, Water Quality Protection and Improvement/NPS Control
Garden Highway Mutual Water Company Water Management Program	Garden Highway Mutual Water Company	Sutter	X	X			X	Groundwater Management and Conjunctive Use, Groundwater Management and Assessment, Groundwater Recharge, Ecosystem Enhancement, Water Quality Protection and Improvement/NPS Control
RD 1004 Water Management Project	RD 1004	Colusa	X	X			X	Groundwater Management and Conjunctive Use, Groundwater Management and Assessment, Groundwater Recharge, Ecosystem Enhancement, Water Quality Protection and Improvement/NPS Control
Meridian Farms Water Management Project	Meridian Farms	Sutter	X	X			X	Groundwater Management and Conjunctive Use, Groundwater Management and Assessment, Groundwater Recharge, Ecosystem Enhancement, Water Quality Protection and Improvement/NPS Control
Pelger Mutual Water Company Water Management Project	Pelger Mutual Water Company	Sutter	X	X			X	Groundwater Management and Conjunctive Use, Groundwater Management and Assessment, Groundwater Recharge, Ecosystem Enhancement, Water Quality Protection and Improvement/NPS Control
Pleasant Grove-Verona Mutual Water Company Water Management Project	Pleasant Grove-Verona Mutual Water Company	Sutter	X	X			X	Groundwater Management and Conjunctive Use, Groundwater Management and Assessment, Groundwater Recharge, Ecosystem Enhancement, Water Quality Protection and Improvement/NPS Control
Feather Water District Water Management Project	Feather Water District	Sutter	X	X			X	Groundwater Management and Conjunctive Use, Groundwater Management and Assessment, Groundwater Recharge, Ecosystem Enhancement, Water Quality Protection and Improvement/NPS Control
Plumas Mutual Water Company Water Management Project	Plumas Mutual Water Company	Sutter	X	X			X	Groundwater Management and Conjunctive Use, Groundwater Management and Assessment, Groundwater Recharge, Ecosystem Enhancement, Water Quality Protection and Improvement/NPS Control
Sutter Extension Water District Water Management Project	Sutter Extension Water District	Sutter	X	X			X	Groundwater Management and Conjunctive Use, Groundwater Management and Assessment, Groundwater Recharge, Ecosystem Enhancement, Water Quality Protection and Improvement/NPS Control
Water Management Project	Lewis Ranch	Colusa	X	X			X	Groundwater Management and Conjunctive Use, Groundwater Management and Assessment, Groundwater Recharge, Ecosystem Enhancement, Water Quality Protection and Improvement/NPS Control
Groundwater Recharge Projects								
Butte Water District Conjunctive Water Management Program	Butte Water District	Butte	X	X			X	Groundwater Management and Conjunctive Use, Groundwater Management and Assessment, Groundwater Recharge, Ecosystem Enhancement, Water Quality Protection and Improvement/NPS Control
Yuba County Second Point of Diversion	YCWA	Yuba	X	X		X	X	Groundwater Management and Conjunctive Use, Groundwater Management and Assessment, Groundwater Recharge, Ecosystem Enhancement, Water Quality Protection and Improvement/NPS Control
Wheatland Canal In-lieu Recharge Project	YCWA	Yuba	X	X		X	X	Groundwater Management and Conjunctive Use, Groundwater Management and Assessment, Groundwater Recharge, Ecosystem Enhancement, Water Quality Protection and Improvement/NPS Control

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Project Title	Project Sponsor	Counties	Objectives					Related Water Management Strategies
			Improve the Economic Health of the Region	Improve Regional Water Supply for Local Water Users, the Region, and California	Improve Flood Protection and Floodplain Management	Improve and Enhance Water Quality	Enhance the Ecosystem	
Sacramento Valley Water Quality Coalition (Water Quality Projects)								
Butte-Sutter-Yuba		Six locations				X	X	Ecosystem Enhancement, Water Quality Protection and Improvement/ NPS Control
Colusa Basin		Six locations				X	X	Ecosystem Enhancement, Water Quality Protection and Improvement/ NPS Control
El Dorado		Two locations				X	X	Ecosystem Enhancement, Water Quality Protection and Improvement/ NPS Control
Lake-Napa		Three locations				X	X	Ecosystem Enhancement, Water Quality Protection and Improvement/ NPS Control
Pit River		Three locations				X	X	Ecosystem Enhancement, Water Quality Protection and Improvement/ NPS Control
Placer-Nevada-South Sutter/ North Sacramento		One location				X	X	Ecosystem Enhancement, Water Quality Protection and Improvement/ NPS Control
Sacramento-Amador		Two locations				X	X	Ecosystem Enhancement, Water Quality Protection and Improvement/ NPS Control
Shasta-Tehama		Two locations				X	X	Ecosystem Enhancement, Water Quality Protection and Improvement/ NPS Control
Solano-Yolo		Four locations				X	X	Ecosystem Enhancement, Water Quality Protection and Improvement/ NPS Control
Upper Feather River		Three locations				X	X	Ecosystem Enhancement, Water Quality Protection and Improvement/ NPS Control
Agricultural Tailwater Recovery								
Maxwell Irrigation District Integrated System Improvement Project	Maxwell Irrigation District	Colusa		X		X		System Improvement/Water Conservation, Water Quality Protection and Improvement/NPS Control, Ecosystem Enhancement
Butte Water District Main Canal Automation Project	Butte Water District	Butte	X	X		X	X	System Improvement/Water Conservation, Water Quality Protection and Improvement/NPS Control, Ecosystem Enhancement
Colusa Basin Drain Study	NCWA	Colusa County and Lower Sacramento River	X	X				Groundwater Management and Conjunctive Use, Groundwater Management and Assessment, Groundwater Recharge, Water Quality Protection and Improvement/NPS Control
Wastewater Treatment and Reuse								
Various projects listed in Table A-4	Multiple agencies	Sutter and Yuba	X	X		X	X	Ecosystem Enhancement, Water Quality Protection and Improvement/ NPS Control
Agricultural Water Conservation								
Browns Valley Irrigation District Dry Creek Pump Station	Browns Valley Irrigation District	Yuba	X	X		X	X	System Improvement/Water Conservation, Water Quality Protection and Improvement/NPS Control, Ecosystem Enhancement
Paradise Ridge Water Supply Reliability Project	Butte County	Butte	X	X		X	X	System Improvement/Water Conservation, Water Quality Protection and Improvement/NPS Control, Ecosystem Enhancement
RD 1004 Canal Lining Project	RD 1004	Colusa	X	X		X	X	System Improvement/Water Conservation, Water Quality Protection and Improvement/NPS Control, Ecosystem Enhancement
Lewis Ranch Canal Replacement Project	Lewis Ranch	Colusa	X	X		X	X	System Improvement/Water Conservation, Water Quality Protection and Improvement/NPS Control, Ecosystem Enhancement
Sutter Mutual Water Company Irrigation Recycling Project	Sutter Mutual Water Company and RD 1500	Sutter	X	X		X	X	System Improvement/Water Conservation, Water Quality Protection and Improvement/NPS Control, Ecosystem Enhancement
Sutter Mutual Water Company Canal Lining	Sutter Mutual Water Company	Sutter	X	X		X	X	System Improvement/Water Conservation, Water Quality Protection and Improvement/NPS Control, Ecosystem Enhancement
ACID Churn Creek Bottom Improvements, Phase 1b	ACID	Shasta	X	X		X	X	System Improvement/Water Conservation, Water Quality Protection and Improvement/NPS Control, Ecosystem Enhancement

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Project Title	Project Sponsor	Counties	Objectives					Related Water Management Strategies
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Deer Creek Irrigation District Long-term System Improvements Feasibility Investigation	Deer Creek Irrigation District	Tehama	X	X			X	System Improvement/Water Conservation, Water Quality Protection and Improvement/NPS Control, Ecosystem Enhancement
Deer Creek Irrigation District Near-term System Improvements Project	Deer Creek Irrigation District	Tehama	X	X			X	System Improvement/Water Conservation, Water Quality Protection and Improvement/NPS Control, Ecosystem Enhancement
Heritage Center Water-Wise Irrigation Demonstration Site Project	Placer County Water Agency	Placer	X	X			X	System Improvement/Water Conservation, Water Quality Protection and Improvement/NPS Control, Ecosystem Enhancement
South Feather Water and Power Canal Seepage Reduction Program	South Feather Water and Power	Butte	X	X		X		System Improvement/Water Conservation, Water Quality Protection and Improvement/NPS Control
Automation and Measurement Projects								
ACID Main Canal Modernization Project	ACID	Shasta	X	X		X	X	System Improvement/Water Conservation, Water Quality Protection and Improvement/NPS Control, Ecosystem Enhancement
GCID Flow Measurement Devices in Main Canal, Lateral System, and Drain Outflow Points/Automation Program	GCID	Glenn and Colusa	X	X		X	X	System Improvement/Water Conservation, Water Quality Protection and Improvement/NPS Control, Ecosystem Enhancement
Sacramento River Basinwide Water Management Plan Cooperative Water Measurement Study	Sacramento River Settlement Contractors/ Reclamation	Regional	X	X				System Improvement/Water Conservation, Water Quality Protection and Improvement/NPS Control
Sacramento River Basinwide Water Management Plan Subbasin-level Water Management Study	Sacramento River Settlement Contractors	Regional	X	X			X	System Improvement/Water Conservation, Water Quality Protection and Improvement/NPS Control, Ecosystem Enhancement
Proposal for Utilizing GIS-Based Pesticide Permitting Application to Facilitate Advancing Water Management	Glenn County	Glenn	X	X		X		System Improvement/Water Conservation, Water Quality Protection and Improvement/NPS Control
Regional Water Measurement Program for the Feather River Service Area	BWGWD		X	X		X	X	System Improvement/Water Conservation, Water Quality Protection and Improvement/NPS Control, Ecosystem Enhancement
Replacement and Automation of Elevation Control Structure 875	Western Canal Water District	Butte	X	X		X		System Improvement/Water Conservation, Water Quality Protection and Improvement/NPS Control
Yuba City Water Meter Retrofit Project	Yuba City	Sutter	X					System Improvement/Water Conservation
Tehama-Colusa Canal Automation Upgrade	TCCA	Tehama	X	X		X	X	System Improvement/Water Conservation, Water Quality Protection and Improvement/NPS Control, Ecosystem Enhancement
Yolo/Colusa Flow Lab.	YCFCWCD	Yolo	X	X		X		System Improvement/Water Conservation, Water Quality Protection and Improvement/NPS Control
Maxwell Irrigation District Integrated System Improvement Project	Maxwell Irrigation District	Colusa		X		X		System Improvement/Water Conservation, Water Quality Protection and Improvement/NPS Control, Ecosystem Enhancement
Main Canal Automation	Butte and Sutter Extension Water Districts	Feather	X	X		X	X	System Improvement/Water Conservation, Water Quality Protection and Improvement/NPS Control, Ecosystem Enhancement
Water Recycling								
Regional Reclaimed Water Facilities Feasibility Study	Yuba City/Marysville/Linda County Water District	Yuba	X	X		X	X	Water Recycling, Water or Wastewater Treatment, Ecosystem Enhancement
Reclaimed Water Facility Upgrade, Marysville	City of Marysville	Sutter	X	X		X	X	Water Recycling, Water or Wastewater Treatment, Ecosystem Enhancement

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Reclaimed Water Facility Upgrade, Linda County Water District	Linda County Water District	Yuba	X	X		X	X	Water Recycling, Water or Wastewater Treatment, Ecosystem Enhancement
Reclaimed Water Facility Upgrade, Yuba City	Yuba City	Yuba	X	X		X	X	Water Recycling, Water or Wastewater Treatment, Ecosystem Enhancement
Reclaimed Water Distribution System, Marysville	City of Marysville	Sutter	X	X		X	X	Water Recycling, Water or Wastewater Treatment, Ecosystem Enhancement
Reclaimed Water Distribution System, Linda County Water District	Linda County Water District	Yuba	X	X		X	X	Water Recycling, Water or Wastewater Treatment, Ecosystem Enhancement
Reclaimed Water Distribution System, Yuba City	Yuba City	Yuba	X	X		X	X	Water Recycling, Water or Wastewater Treatment, Ecosystem Enhancement
Yuba City Water Conservation Program	Yuba City	Sutter	X	X		X		System Improvement/Water Conservation, Water Quality Protection and Improvement/NPS Control, Ecosystem Enhancement
Agricultural Reclaimed Water Distribution System, Yuba City	Yuba City	Sutter	X	X		X	X	Water Recycling, Water or Wastewater Treatment, Ecosystem Enhancement
Joint Reclaimed Water Conveyance Project, Yuba City and Linda County Water District	Yuba City/Linda County Water District	Sutter	X	X		X	X	Water Recycling, Water or Wastewater Treatment, Ecosystem Enhancement
Ecosystem Restoration (Fish Screen and Fish Passage Projects)								
Red Bluff Diversion Dam	TCCA	Tehama					X	Ecosystem Enhancement
Meridian Farms Fish Screen	Meridian Farms Water Company	Sutter					X	Ecosystem Enhancement
Natomas Fish Screen	Natomas Central Mutual Water Company	Sutter/Sacramento					X	Ecosystem Enhancement
Pleasant Grove-Verona Fish Screen	Pleasant Grove-Verona Mutual Water Company	Sutter					X	Ecosystem Enhancement
Fish Screen	RD 2035	Yolo					X	Ecosystem Enhancement
Fish Screen	Bella Vista Water District	Shasta					X	Ecosystem Enhancement
Fish Screen	Small Diversion Fish Screen Program	Multiple					X	Ecosystem Enhancement
Yuba South Canal Fish Screen	YCWA	Yuba					X	Ecosystem Enhancement
Feather Water District Fish Screen	Feather Water District	Sutter					X	Ecosystem Enhancement
Yuba City Water Supply Phase 1 Fish Screen Project	Yuba City	Sutter					X	Ecosystem Enhancement
Fish Screen	South Sutter Water District	Sutter					X	Ecosystem Enhancement
Fish Screen	White Mallard	Colusa					X	Ecosystem Enhancement
Wildlife Habitat Improvement								
Implementation of the Lower Yuba Accord	YCWA	Yuba						
Yuba River Habitat and Restoration Conservation Project	Yuba County Resource Conservation District	Yuba						
Flood Management Projects								
Bear-Feather Levee Setback	Three Rivers Levee Improvement Authority	Yuba	X	X	X			Flood Management
Yuba-Bear Levee Improvement	Three Rivers Levee Improvement Authority	Yuba	X	X	X			Flood Management

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Forecast-Coordinated Operations	YCWA	Yuba	X	X	X			Flood Management, Surface Storage
Colgate Powerhouse Tailwater Depression	YCWA	Yuba	X	X	X			Flood Management, Surface Storage
Yuba City Flood Control Projects	Yuba City	Sutter	X	X	X			Flood Management
New Bullards Bar Reservoir Outlet Capacity Increase	YCWA	Yuba	X	X	X			Flood Management, Surface Storage
Wheatland Flood Protection Improvement	City of Wheatland	Yuba	X	X	X			Flood Management
Stormwater Management Projects								
Yuba City Stormwater Quality Improvement Project	Yuba City	Sutter				X	X	Flood Management, Ecosystem Enhancement, Water Quality Improvement
Design of Recharge/Detention Basins	Colusa Basin Drainage District	Glenn	X	X	X		X	Flood Management, Ecosystem Enhancement
Surface Water Supply Reliability Projects								
Shasta Reservoir Enlargement Study		Shasta	X	X	X			Water Supply Reliability, Flood Protection
Sites Reservoir Study		Colusa	X	X	X			Water Supply Reliability, Flood Protection
Magalia Dam	Paradise Irrigation District	Butte	X	X	X			Water Supply Reliability, Flood Protection
Garden Bar Water and Power Project	South Sutter Water District	Nevada, Placer, Yuba, and Sutter	X	X	X			Water Supply Reliability, Flood Protection
Surface Water Delivery Systems								
Wheatland Canal In-lieu Recharge Project	YCWA	Yuba	X	X		X	X	Groundwater Management and Conjunctive Use, Groundwater Management and Assessment, Groundwater Recharge, Ecosystem Enhancement, Water Quality Protection and Improvement/NPS Control
Yuba County Second Point of Diversion	YCWA	Yuba	X	X		X	X	Groundwater Management and Conjunctive Use, Groundwater Management and Assessment, Groundwater Recharge, Ecosystem Enhancement, Water Quality Protection and Improvement/NPS Control

Notes:
OUWUA = Orland Unit Water User's Association
NPS = non-point source